

H12761

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

**DESCRIPTIVE REPORT**

Type of Survey: Basic Hydrographic Survey

Registry Number: H12761

**LOCALITY**

State(s): Texas

General Locality: Port Mansfield, TX

Sub-locality: Approaches to Port Mansfield

**2015**

CHIEF OF PARTY  
David Neff, ACSM C.H.

LIBRARY & ARCHIVES

Date:

**HYDROGRAPHIC TITLE SHEET**

**H12761**

**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): **Texas**

General Locality: **Port Mansfield, TX**

Sub-Locality: **Approaches to Port Mansfield**

Scale: **40000**

Dates of Survey: **06/04/2015 to 08/10/2015**

Instructions Dated: **06/22/2015**

Project Number: **OPR-K370-KR-15**

Field Unit: **eTrac Inc.**

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

Soundings by: **Multibeam Echo Sounder**

Imagery by: **Side Scan Sonar**

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. H12761 will cover approximately 27 square nautical miles of survey area in the Approaches to Port Mansfield 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 14N, NAD 83

*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/>.*

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## Descriptive Report to Accompany Survey H12761

Project: OPR-K370-KR-15

Locality: Port Mansfield, TX

Sublocality: Approaches to Port Mansfield

Scale: 1:40000

June 2015 - August 2015

**eTrac Inc.**

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

### A. Area Surveyed

eTrac Inc. conducted hydrographic survey operations in the vicinity of Port Mansfield, TX. H12761 covers approximately 27 square nautical miles of survey area, including the safety fairway approaching Port Mansfield and part of the entrance channel to Port Mansfield, TX. H12761 is generally rectangular in geometry, and is approximately 8 nautical miles wide (E-W) by 3 nautical miles long (N-S).

Survey was conducted within these limits between June 5, 2015 (DN156) and August 11, 2015 (DN223).

#### A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
26° 35' 54.93" N 97° 17' 20.8" W	26° 33' 18.07" N 97° 6' 57.58" W

*Table 1: Survey Limits*

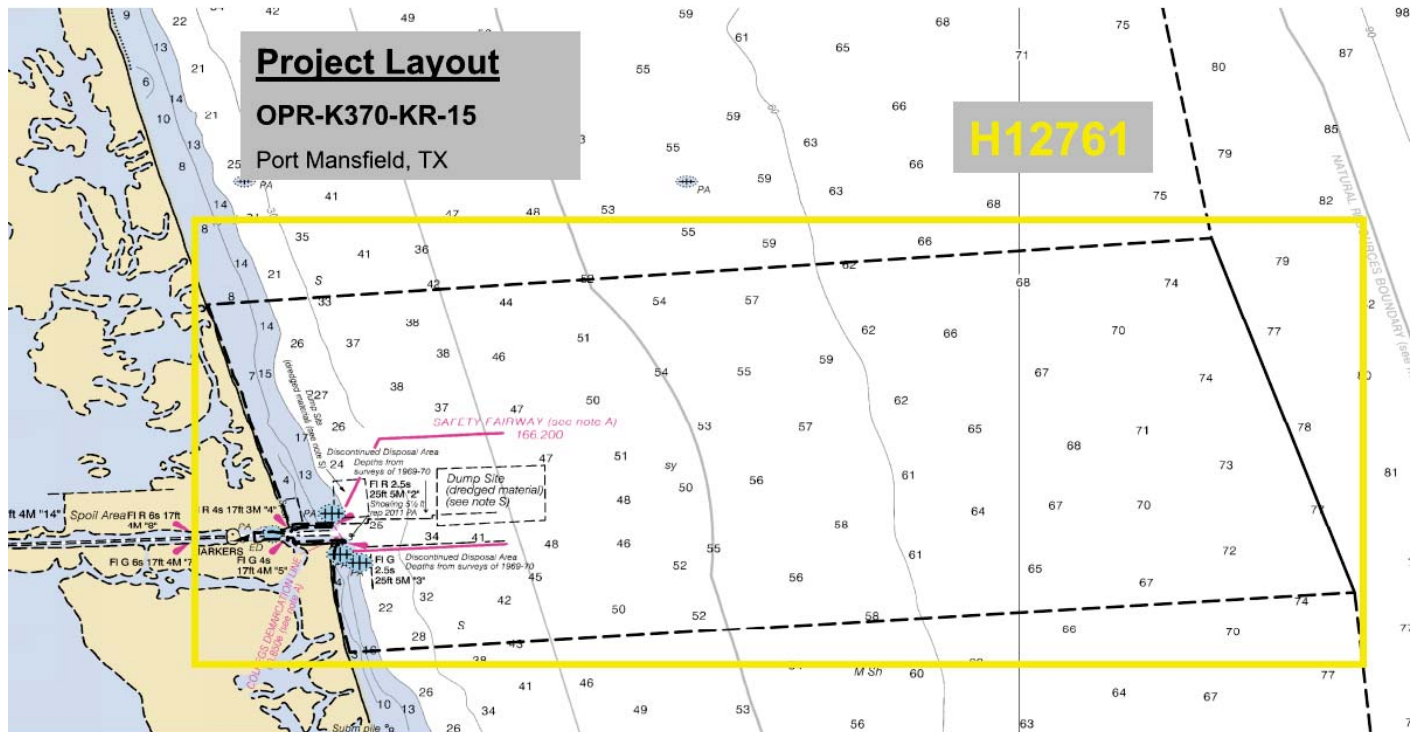


Figure 1: Survey Limits (Black dashed line)

All data were acquired in accordance with the requirements in the Project Instructions and specifications set forth in the Hydrographic Survey Specifications and Deliverables 2015 Edition (HSSD 2015).

## A.2 Survey Purpose

The purpose of this survey is to update existing NOS nautical charts. H12761 covers approximately 27 square nautical miles of survey area in Port Mansfield, TX as designated in NOAA Hydrographic Survey Priorities, 2012 edition.

## A.3 Survey Quality

The entire survey is adequate to supersede previous data.



Survey H12761 is accurate to IHO Order 1a as required per the HSSD 2015.

## A.4 Survey Coverage

Survey Coverage was in accordance with the requirements in the Project Instructions and HSSD 2015. H12761 was surveyed to 100% SSS with concurrent set line spacing MBES with backscatter standards set forth in the HSSD 2015. The survey area inside the Port Mansfield Channel and around the entrance jetties was surveyed to complete MBES with backscatter standards set forth in HSSD 2015 where possible. Figure 3 details the area covered inshore of the NALL and inside the entrance channel. Multiple holidays are present, however coverage in this area was deemed acceptable through correspondence with the COTR. Reference Email Correspondence in Appendix II of this report.

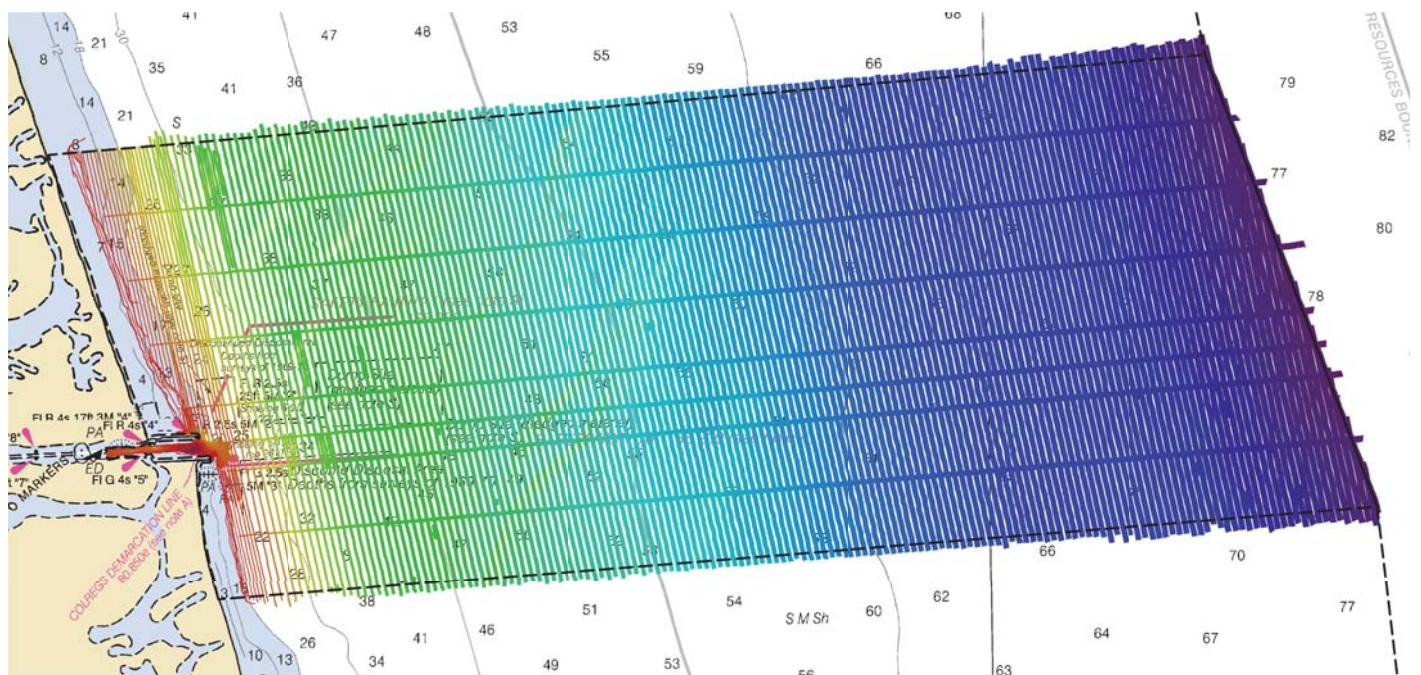


Figure 2: Survey Coverage



Figure 3: Entrance Channel Survey Coverage

## A.5 Survey Statistics

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

	<b>HULL ID</b>	<i>JAB</i>	<i>Benthos</i>	<i>Taku</i>	<i>Total</i>
<b>LNM</b>	<b>SBES Mainscheme</b>	0	0	0	0
	<b>MBES Mainscheme</b>	8	7	7	22
	<b>Lidar Mainscheme</b>	0	0	0	0
	<b>SSS Mainscheme</b>	0	0	0	0
	<b>SBES/SSS Mainscheme</b>	0	0	0	0
	<b>MBES/SSS Mainscheme</b>	616	0	0	616
	<b>SBES/MBES Crosslines</b>	48	8	0	56
	<b>Lidar Crosslines</b>	0	0	0	0
<b>Number of Bottom Samples</b>					5
<b>Number of AWOIS Items Investigated</b>					0
<b>Number Maritime Boundary Points Investigated</b>					0
<b>Number of DPs</b>					0
<b>Number of Items Investigated by Dive Ops</b>					0
<b>Total SNM</b>					27

*Table 2: Hydrographic Survey Statistics*

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

<b>Survey Dates</b>	<b>Day of the Year</b>
06/05/2015	156
06/06/2015	157
06/07/2015	158
06/08/2015	159
06/09/2015	160
06/10/2015	161
06/11/2015	162
06/12/2015	163
06/19/2015	170
06/20/2015	171
06/22/2015	173
06/26/2015	177
06/27/2015	178
06/28/2015	179
06/29/2015	180
07/02/2015	183
07/03/2015	184
07/04/2015	185
07/10/2015	191
07/11/2015	192
07/12/2015	193
07/13/2015	194
07/28/2015	209
08/02/2015	214
08/03/2015	215
08/07/2015	219
08/08/2015	220
08/09/2015	221
08/11/2015	223

*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:

<b>Hull ID</b>	<b><i>M/V Jab</i></b>	<b><i>R/V Benthos</i></b>	<b><i>R/V Taku</i></b>
<b>LOA</b>	13 meters	10 meters	10 meters
<b>Draft</b>	0.75 meters	0.6 meters	0.6 meters

*Table 4: Vessels Used*

The M/V Jab is a 13 meter aluminum catamaran equipped with a multibeam moonpool and an A-frame for towed body operations.

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 an A-Frame for towed body operations.

The R/V Taku is a 10 meter aluminum catamaran equipped with an Universal Sonar Mount (USM) over-the-side (starboard) multibeam mount, as well as an A-Frame for towed body operations.

## B.1.2 Equipment

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

<b>Manufacturer</b>	<b>Model</b>	<b>Type</b>
R2Sonic	2024	MBES
Applanix	POSMV 320 V5	Positioning and Attitude System
AML	Base.X	Sound Speed System
AML	Minos.X	Sound Speed System
Trimble	SPS461	Positioning System
Trimble	DSM232	Positioning System
Edgetech	4200	SSS

*Table 5: Major Systems Used*

Note: The major systems listed above were used on each vessel. The AML Minos.X, AML Base.X, Trimble DSM232 and Edgetech 4200 Sidescan Sonar were utilized on the M/V Jab. R/V Benthos utilized an AML Base.X and Trimble SPS461. R/V Taku utilized an AML Base.X and Trimble DSM232.

## B.2 Quality Control

### B.2.1 Crosslines

Crosslines acquired for this survey totaled 9% of mainscheme acquisition.

A comparison of crossline mileage to mainscheme mileage yields a crossline percentage of 8.85%, and is noted to be above the required 8%.

A beam-by-beam statistical analysis was performed using the Line QC reporting tool in Caris HIPS and SIPS 9.0. A 1 meter CUBE weighted BASE surface was created incorporating only the mainscheme lines and excluded crosslines. Note: this surface was created for QC only and is not submitted as a surface deliverable. 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: the statistical analysis excluded the outer 5 beams (beams 1-5 and beams 252-256), as these beams were excluded from both mainscheme and crossline data across the entire project.

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 Special Order and Order 1a compliance per beam.

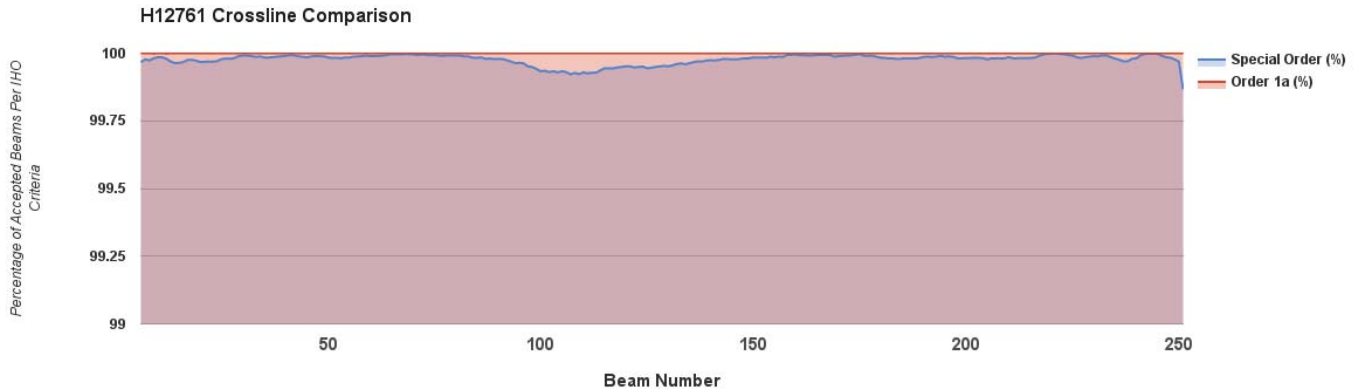


Figure 4: H12761 Crossline Comparison

### B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

Measured	Zoning
0.22 meters	0 meters

Table 6: Survey Specific Tide TPU Values

Hull ID	Measured - CTD	Measured - MVP	Surface
M/V Jab	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 7: Survey Specific Sound Speed TPU Values

Note: Tide TPU value given as 2 sigma.

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

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

Custom Layer = (Deep - 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 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 9.0. 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.

### B.2.3 Junctions

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H12762	1:40000	2015	eTrac Inc.	E

*Table 8: Junctioning Surveys*

### H12762

H12761 junctions with H12762 to the east. The junction comparison was performed using approximately 250m of overlapping data between H12761 and H12762. Depths were compared in Caris HIPS and SIPS 9.0 by creating a 2 meter difference surface between the junctioning datasets. Note: the 2 meter difference surface was created for comparison efforts only and is not submitted as a surface deliverable. The comparison showed excellent agreement between H12761 and H12762. Depth differences generally were within 30cm or less, with a majority of depth differences being less than 10 cm. Junction comparison statistics are included in Separate II.



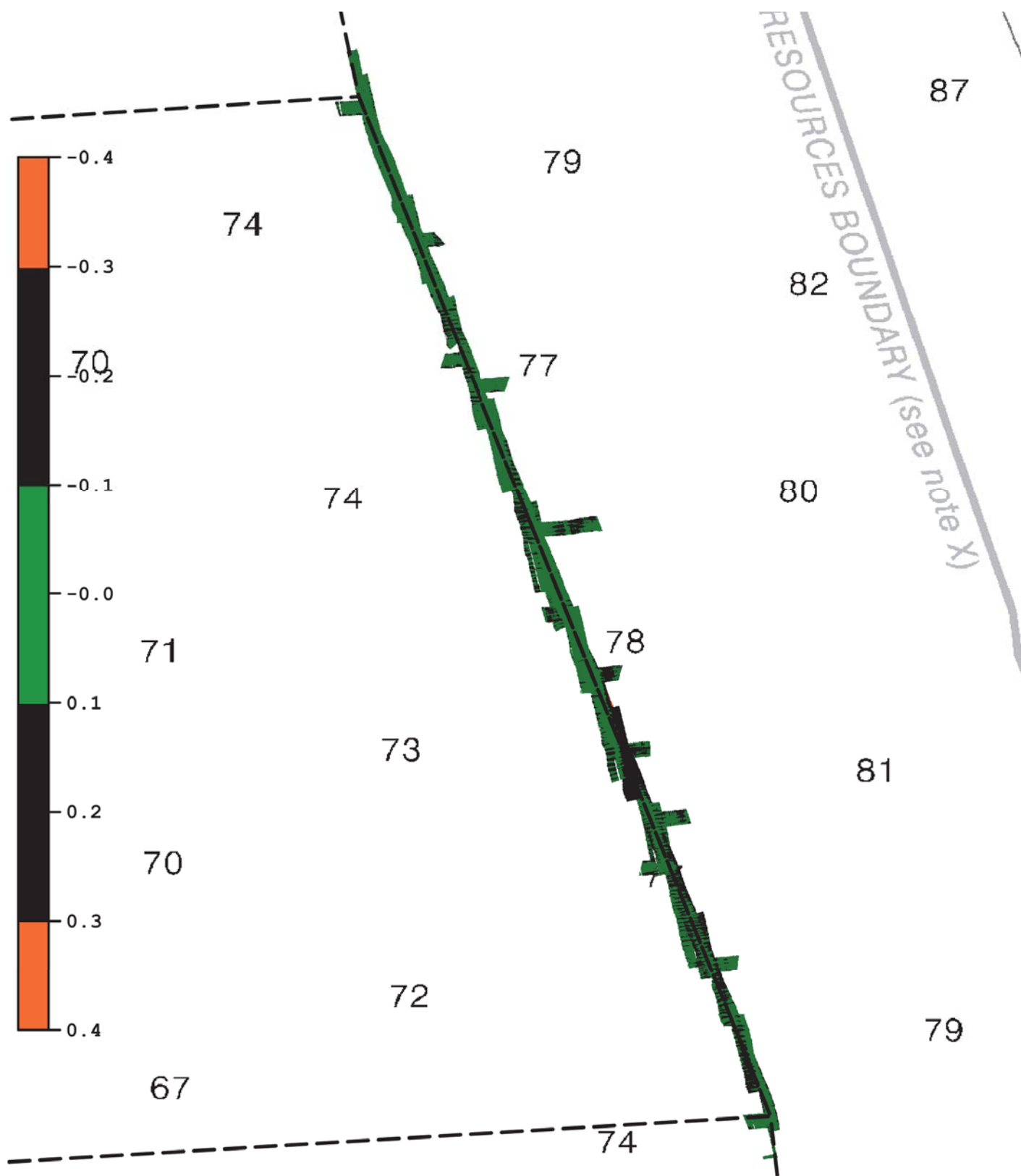


Figure 5: Juction Comparison (H12761 to H12762)

#### **B.2.4 Sonar QC Checks**

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

#### **B.2.5 Equipment Effectiveness**

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

#### **B.2.6 Factors Affecting Soundings**

There were no other factors that affected corrections to soundings.

#### **B.2.7 Sound Speed Methods**

Sound Speed Cast Frequency: 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.

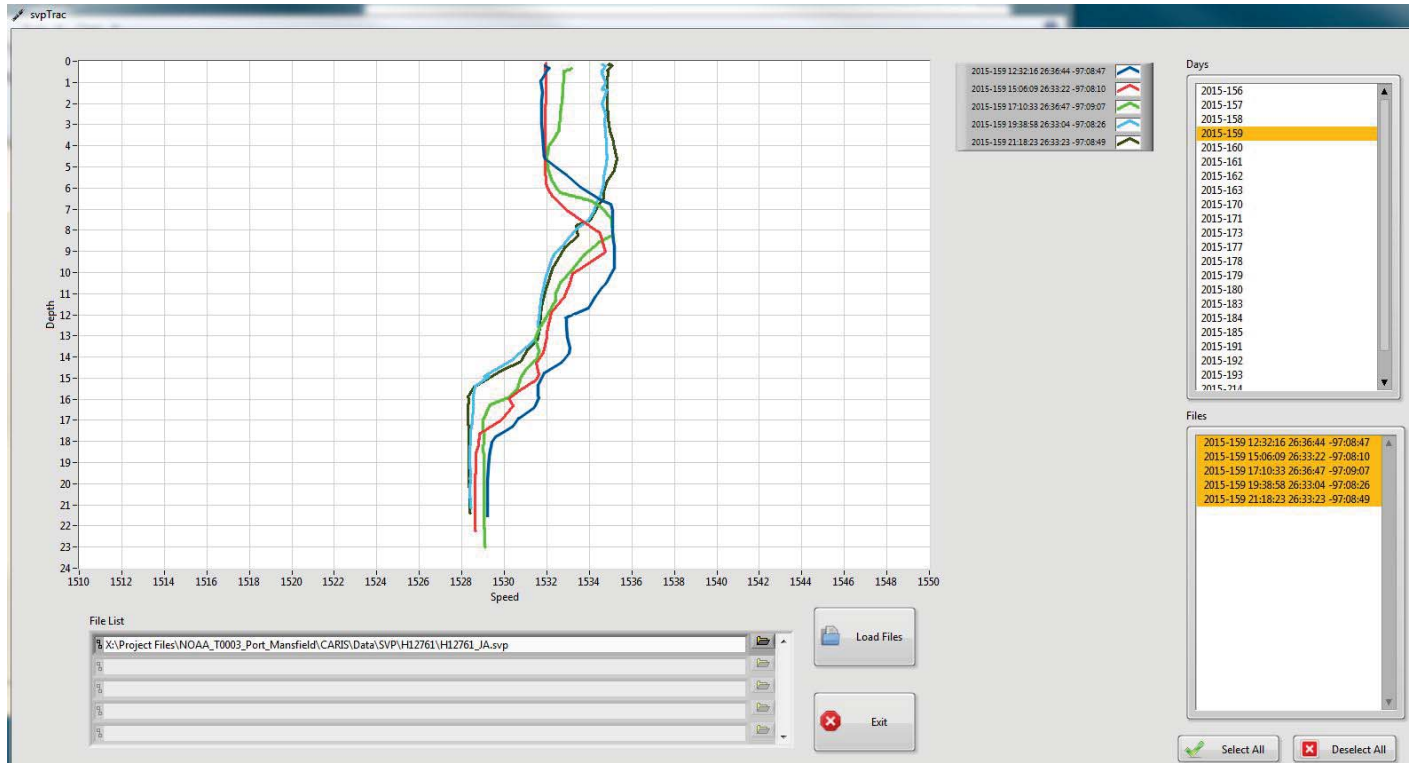


Figure 6: Example of Daily SVP Data Plot (DN159)

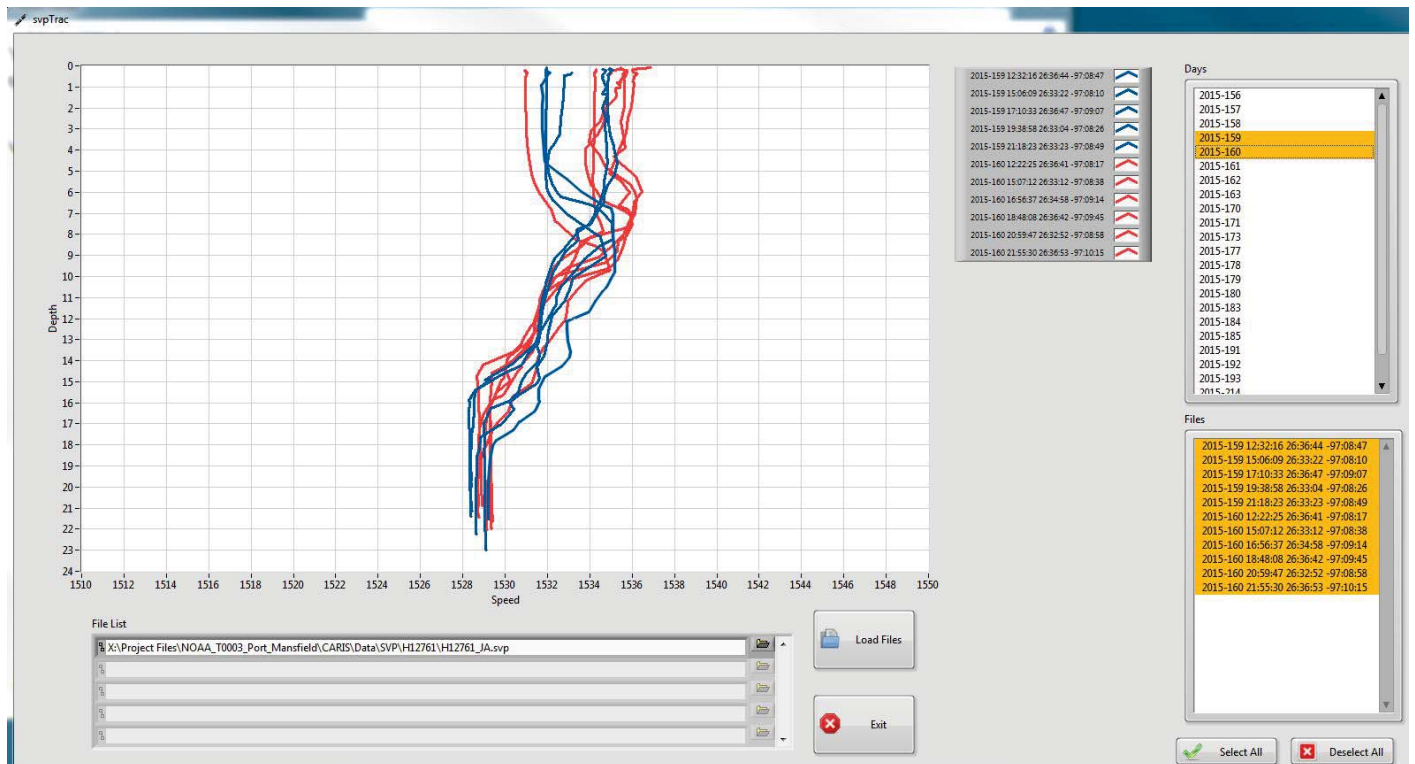


Figure 7: Example of Day to Day SVP Comparison (DN159 and DN160)

## B.2.8 Coverage Equipment and Methods

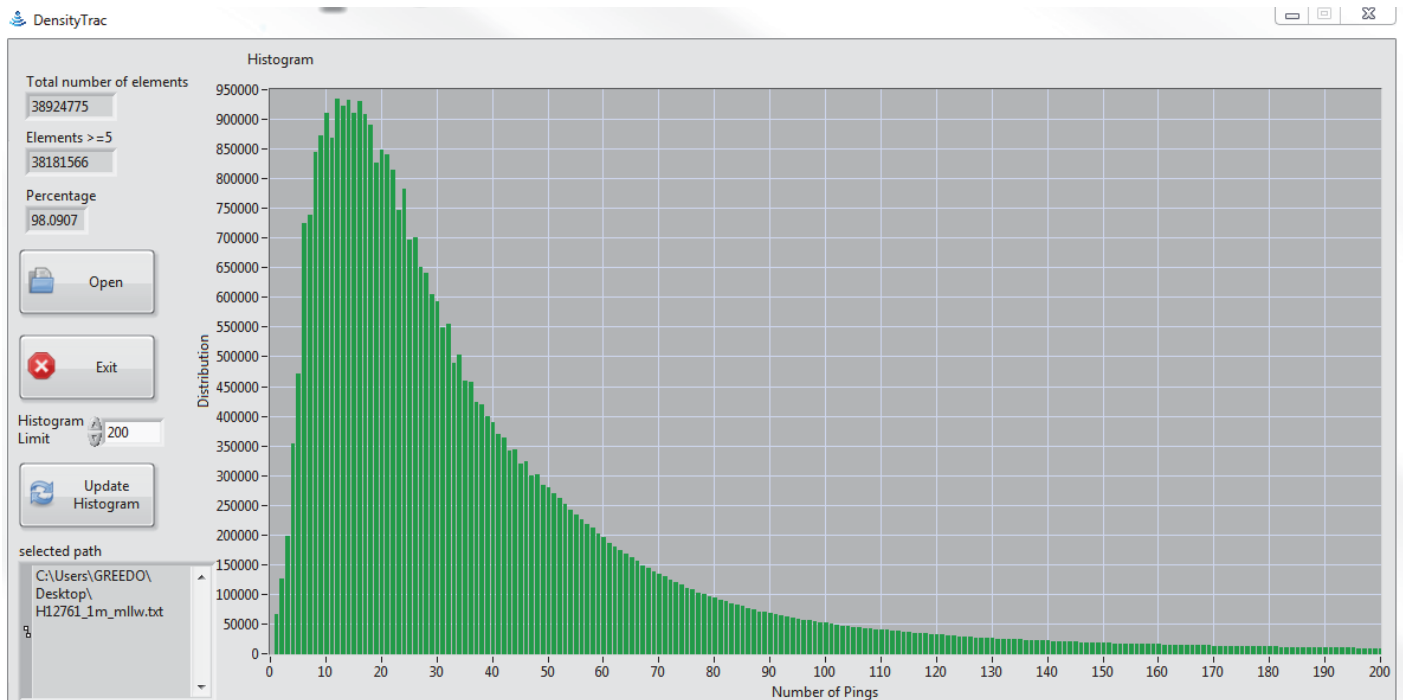
All equipment and survey methods were used as detailed in the DAPR.

## B.2.9 Data Density Evaluation

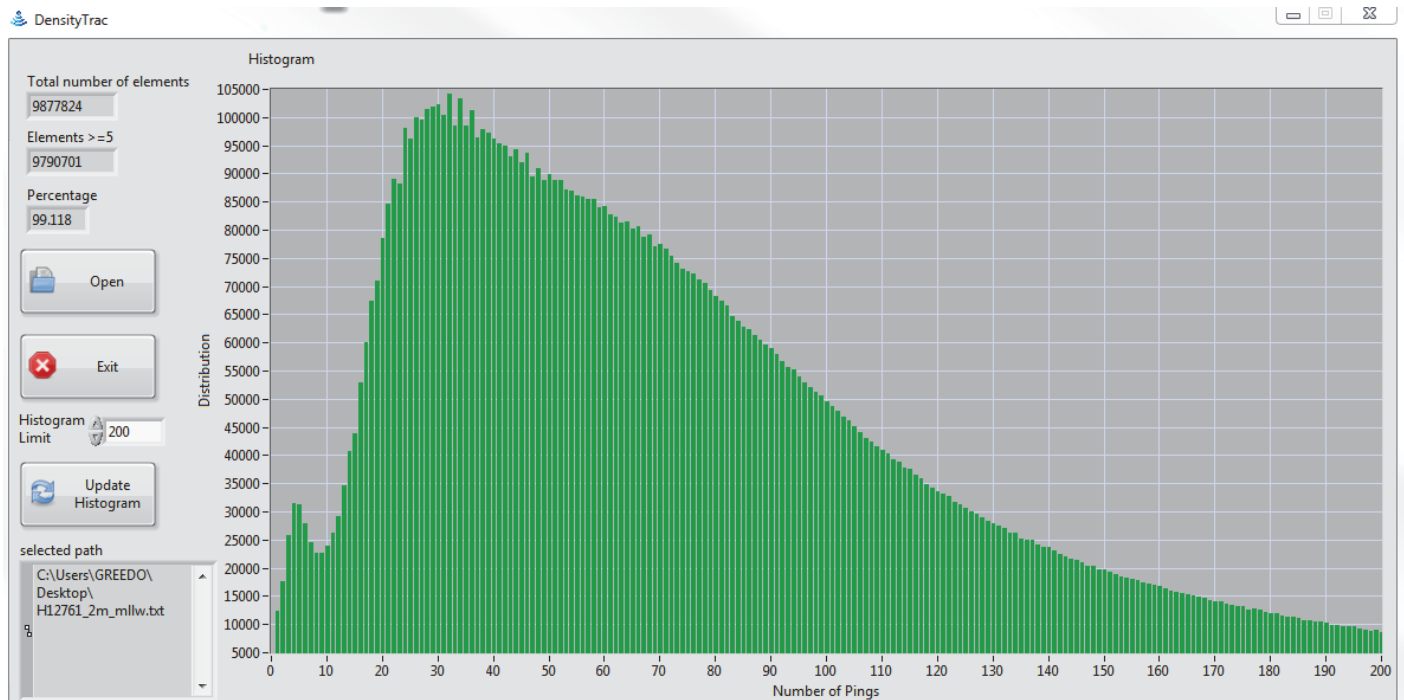
In order to determine if the density of the data met the specified 5 soundings per node, data density was evaluated using the DensityTrac program, developed in-house by eTrac Inc. Each BASE surface's nodes were exported to an ASCII CSV file where the fields were (Easting, Northing, Denisty) for each node. The CSV file was then loaded into the DensityTrac program and density statistics were computed. For H12761 the following percentages represent the results of the density testing:

Concurrent MBES/SSS ( 1m CUBE weighted BASE Surface ) = 98.09% of nodes are composed from at least 5 soundings.

Concurrent MBES/SSS ( 2m CUBE weighted BASE Surface ) = 99.12% of nodes are composed from at least 5 soundings.



*Figure 8: H12761 1m MBES/SSS Density Distribution Statistics*



*Figure 9: H12761 2m MBES/SSS 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 9.0 to ensure collection criteria had been met. Shown below is an example of the unprocessed backscatter mosaic from H12761 DN163.

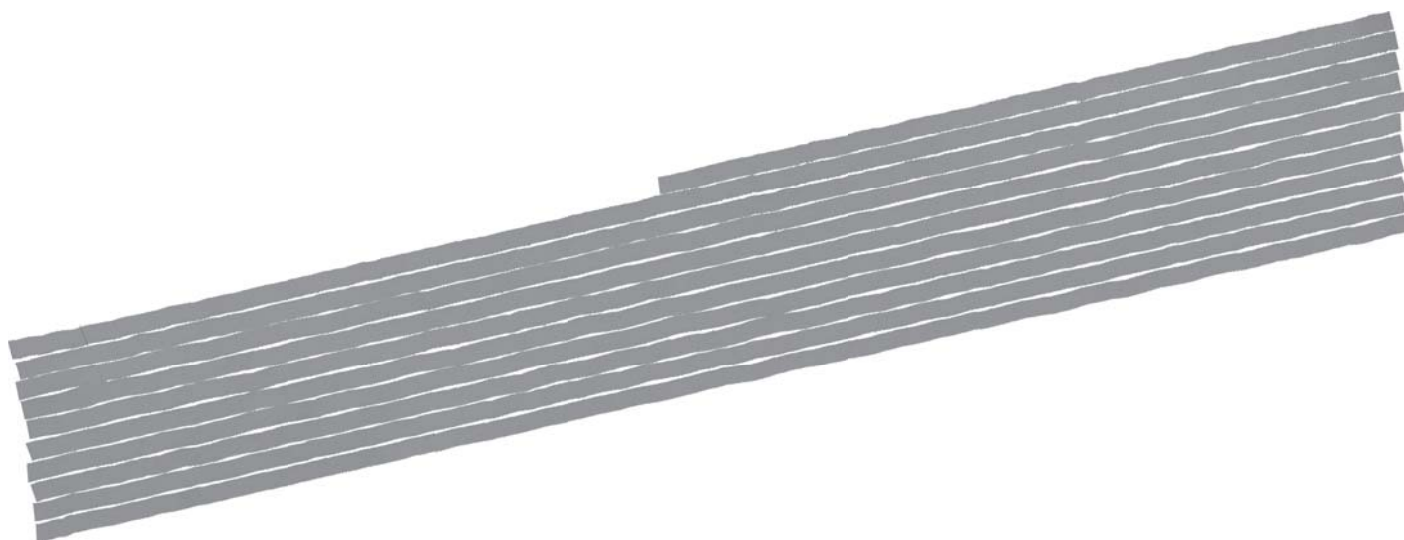


Figure 10: Raw Backscatter From M/V Jab (DN163)

## 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\_2

### 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
H12761_MB_1m_MLLW	CUBE	1 meters	1.42 meters - 20 meters	NOAA_1m	Complete MBES
H12761_MB_2m_MLLW	CUBE	2 meters	18 meters - 24.42 meters	NOAA_2m	Complete MBES
H12761_MB_1m_Parent	CUBE	1 meters	1.42 meters - 24.42 meters	NOAA_1m	Complete MBES
H12761_MB_2m_Parent	CUBE	2 meters	1.43 meters - 24.42 meters	NOAA_2m	Complete MBES
H12761_SSS_1m_100Percent_Mosaic	SSS Mosaic	1 meters	0 meters - 0 meters	N/A	100% SSS

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H12761_SSS_1m_200Percnt_Mosaic	SSS Mosaic	1 meters	0 meters - 0 meters	N/A	200% SSS

Table 9: Submitted Surfaces

In areas shoaler than 20 meters, a 1 meter surface is provided meeting 100% SSS with concurrent set line spacing MBES with backscatter specifications.

In areas deeper than 18 meters, a 2 meter surface is provided meeting 100% SSS with concurrent set line spacing MBES with backscatter specifications.

Parent surfaces of the 1 meter and 2 meter surfaces are provided, both covering the entire survey area of H12761.

A sidescan sonar mosaic is provided for the 100% SSS survey performed.

A sidescan sonar mosaic is provided for the 200% SSS survey performed. Note: The 200% SSS survey includes 2 areas, each covering a 100 meter radius circle for the purpose of feature disproval.

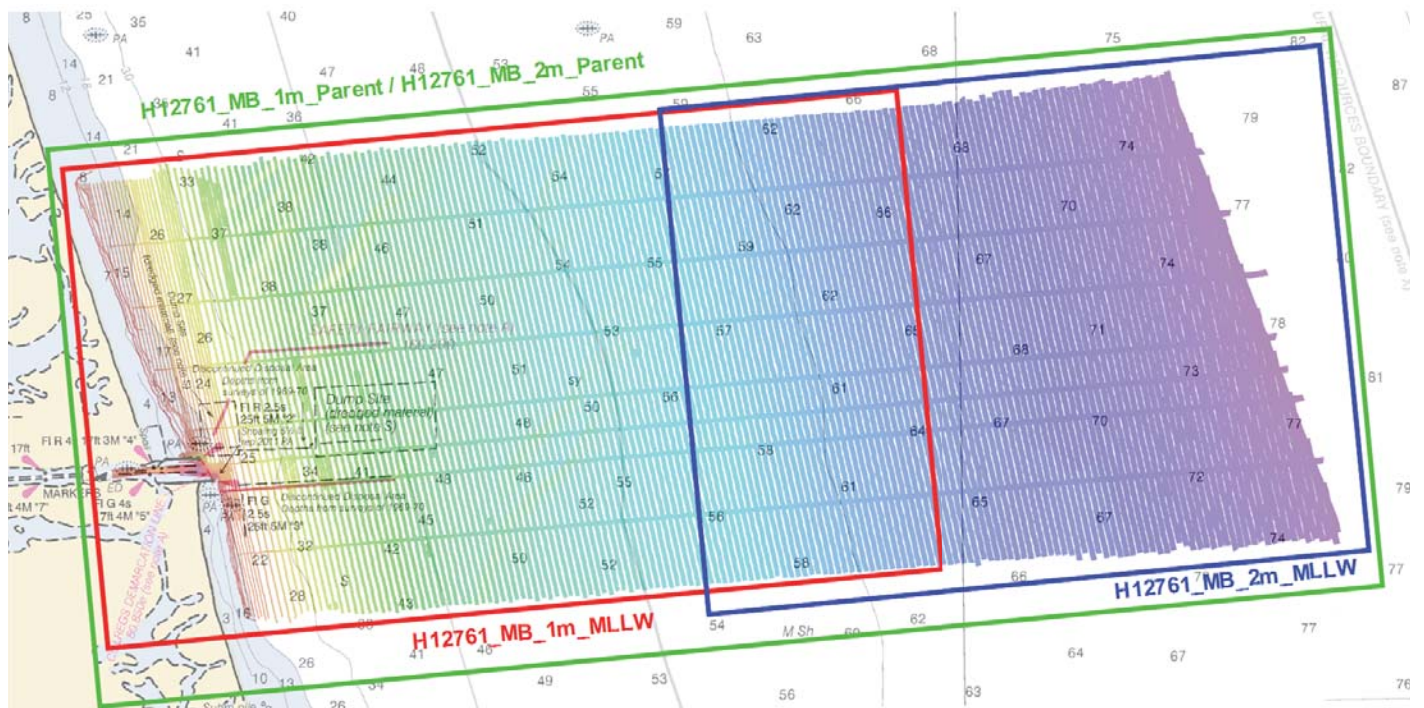


Figure 11: H12761 Delivered BASE Surface Coverage Graphic

## 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:

Discrete Zoning

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

Station Name	Station ID
Corpus Christi TX	877-5870

*Table 10: NWLON Tide Stations*

File Name	Status
8775870.tid	Verified Observed

*Table 11: Water Level Files (.tid)*

File Name	Status
K370KR2015CORP.zdf	Final

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

### C.2 Horizontal Control

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

The projection used for this project is UTM Zone 14N.



DGPS correctors were monitored realtime during data collection for dropouts. No dropouts were witnessed during data collection. In addition to the realtime monitoring of DGPS corrections, position data were analyzed in the office during post-processing. The attitude editor within Caris HIPS and SIPS 9.0 was utilized to identify any position data that may be insufficient for final delivery.

The following DGPS Stations were used for horizontal control:

DGPS Stations
Aransas Pass, 304kHz, ID: 816

*Table 13: USCG DGPS Stations*

## D. Results and Recommendations

### D.1 Chart Comparison

A chart comparison was conducted for H12761 using Caris HIPS and SIPS 9.0. Contours, as well as soundings, were compared against the largest scale RNC 11306 and ENC US5TX14M to accomplish the chart comparison. RNC 11306 and ENC US5TX14M do not cover the eastern region of H12761 and therefore RNC 11304 and ENC US4TX15M were included to complete the chart comparison. The methods and results of the comparison are detailed below.

#### Contour Comparison Method:

Using the 2 meter CUBE weighted BASE surface, the 12 foot, 18 foot, 30 foot, and 60 foot contours were generated and displayed against the charted contours. Additionally, the 2 meter CUBE weighted BASE surface was viewed by a custom color band range based on the contour intervals (12ft, 18ft, 30ft, 60ft, 90ft, 120ft, 180ft). The results of the comparison are described below.

#### Sounding Comparison Method:

Using the same 2 meter CUBE weighted BASE surface used for the contour comparison, spot soundings were generated in Caris HIPS and SIPS 9.0 for H12761. 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
11306	1:40000	22	09/2012	08/31/2015	09/11/2015
11304	1:80000	14	03/2012	08/31/2015	09/11/2015

*Table 14: Largest Scale Raster Charts*

#### 11306

##### Contour Comparison Results:

The 12 foot contour has receded shoreward, on average, approximately 20 meters from the charted contour.

The 18 foot contour has receded shoreward, on average, approximately 100 meters from the charted contour.

The 30 foot contour has receded shoreward, on average, approximately 250 meters from the charted contour.

##### Sounding Comparison Results:

With 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 (0.3m) of each other. Occasionally soundings differ by 2 to 3 feet, however generally depth differences appear to be minimal. Depth differences are not biased in any particular direction to support a systematic error.

#### 11304

##### Contour Comparison Results:

The results of the 12 foot, 18 foot, and 30 foot contour comparison with RNC 11304 match those of the RNC 11306 contour comparison.

The 60 foot contour has receded shoreward, on average, approximately 650 meters from the charted contour.

##### Sounding Comparison Results:

Results of the sounding comparison with RNC 11304 match those of the RNC 11306 sounding comparison.

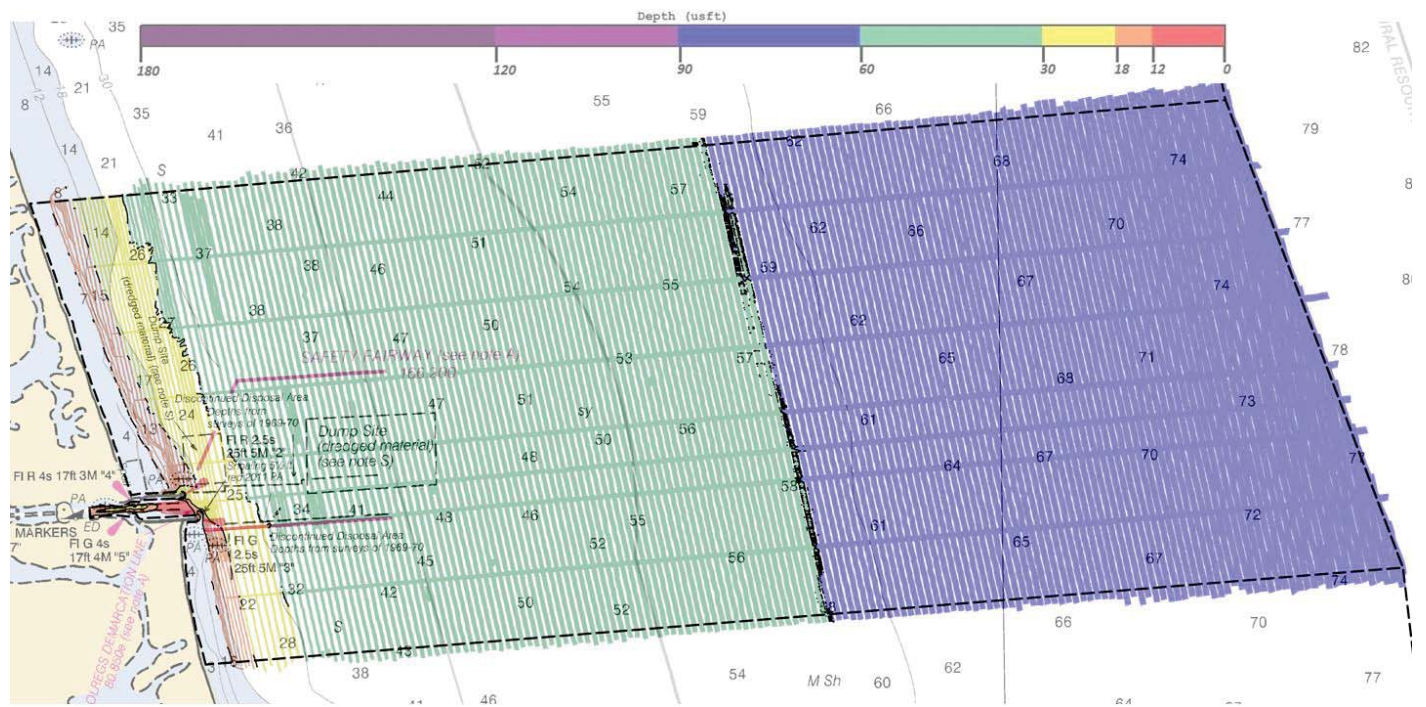


Figure 12: H12761 Contour Comparison (Overview)



Figure 13: H12761 Contour Comparison (12ft, 18ft, and 30ft Contour)

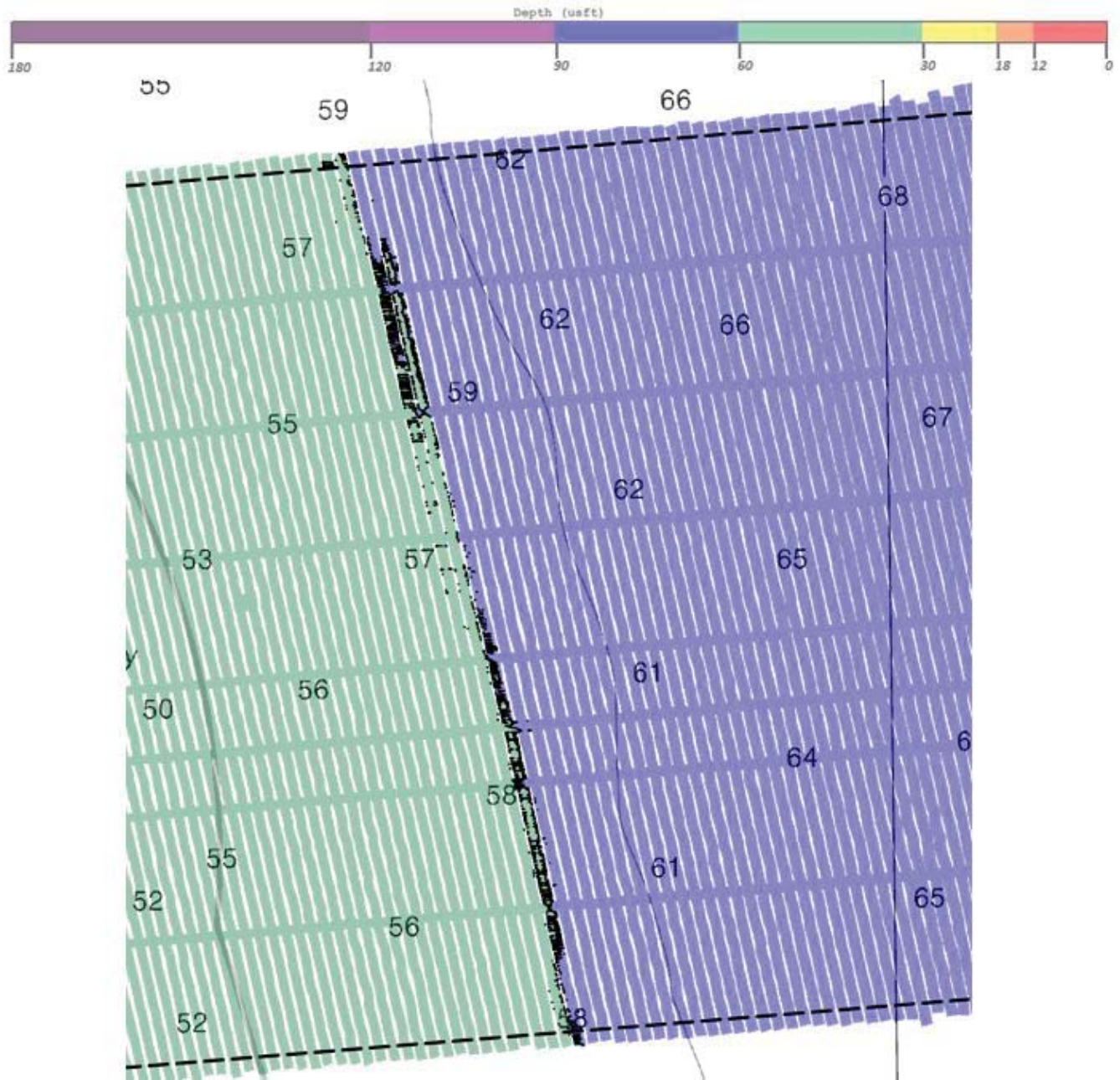


Figure 14: H12761 Contour Comparison (60ft Contour)

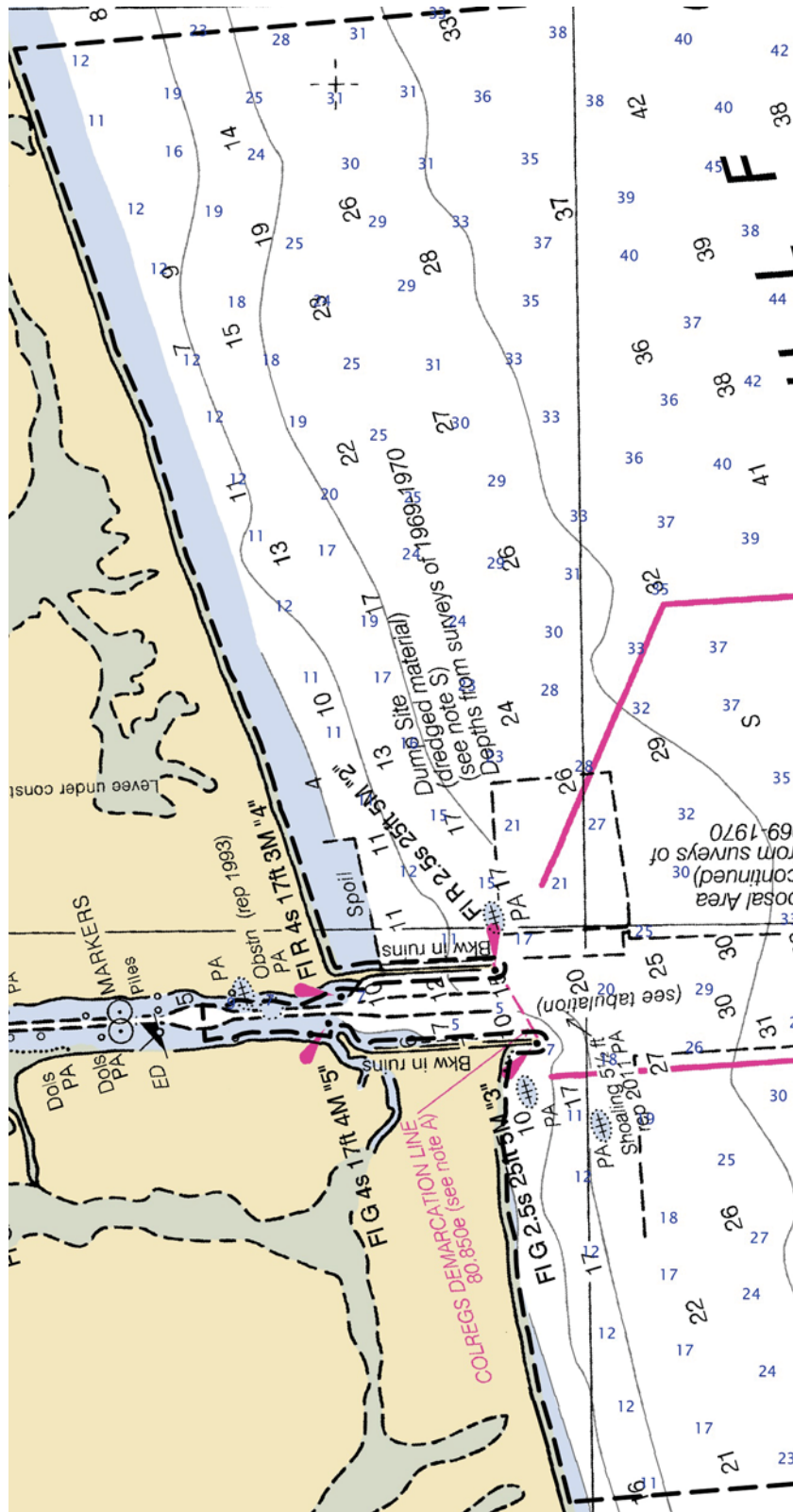


Figure 15: Sounding Comparison (RNC 11306)

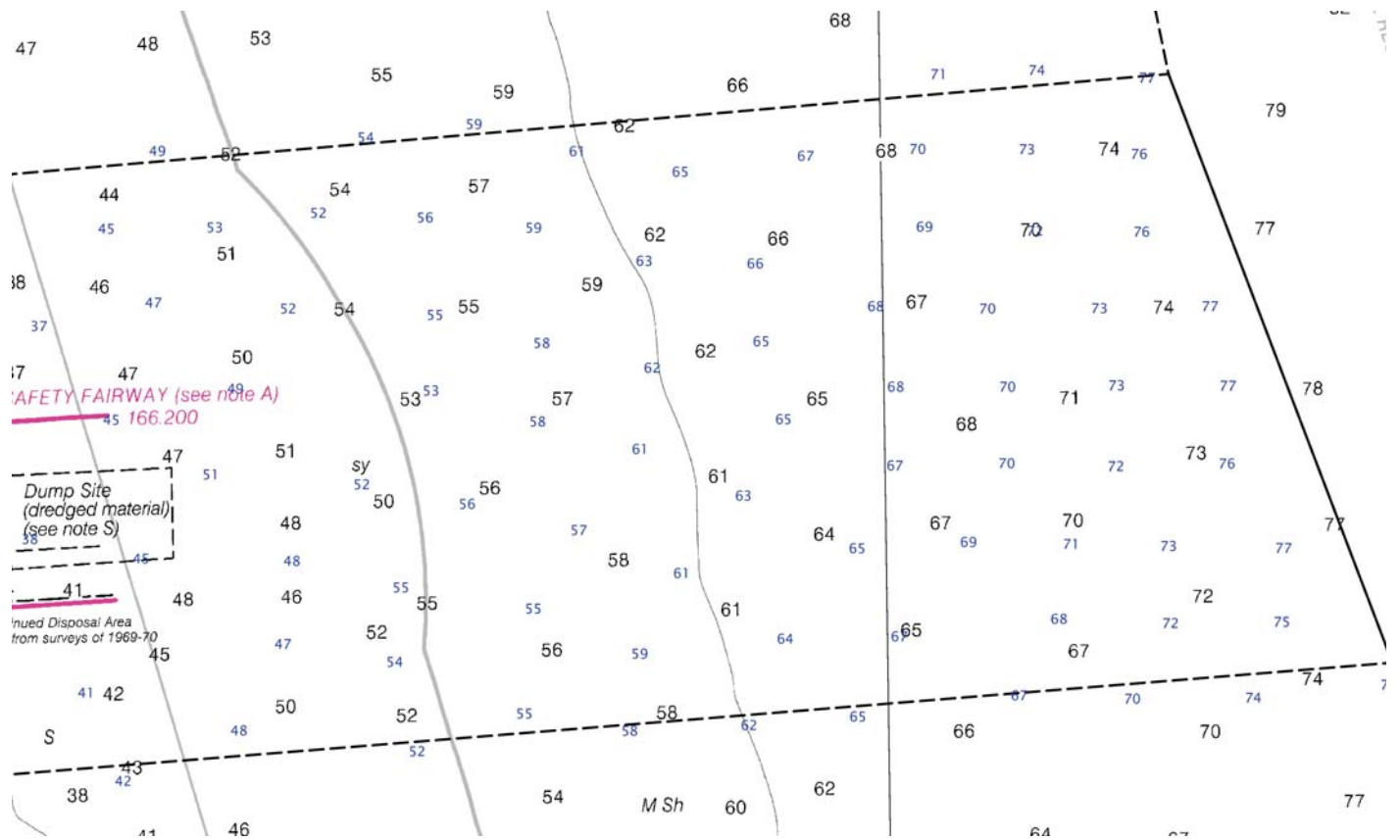


Figure 16: Sounding Comparison (RNC 11304)

**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?
US5TX14M	1:40000	2	12/15/2013	06/09/2015	NO
US4TX15M	1:80000	10	02/06/2014	06/09/2015	NO

Table 15: Largest Scale ENC's

US5TX14M

The results of the chart comparison with ENC US5TX14M match those of the chart comparison with RNC 11306.

US4TX15M

The results of the chart comparison with ENC US4TX15M match those of the chart comparison with RNC 11304.

### **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 5 charted features assigned to H12761. 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 H12761\_XXX). Of the (5) assigned features the following determinations and recommendations were made:

DELETE: (4) assigned features were not found. A DELETE action is recommended.

NOT ADDRESSED: (1) assigned feature was inshore of NALL. Not safe to address.

### **D.1.6 Uncharted Features**

One new feature was found in H12761 and is included in the Final Feature File (FFF). The feature was given a unique identifier in the "userid" field of the .000 S-57 file (format H12761\_XXX).

### **D.1.7 Dangers to Navigation**

There were no DTONs found in H12761.

### **D.1.8 Shoal and Hazardous Features**

Bathymetric splits were acquired between set line spacing to adequately define shoals. Figure 17 displays a shoal where bathymetric splits were run.

There are dynamic shoals around both the northern and southern jetty of the the Port Mansfield Channel. The shoal areas changed dramatically throughout the survey. Figure 18 and 19 detail the area of the dynamic shoal around the northern jetty . Figure 20 and 21 detail the area of the dynamic shoal around the southern



jetty. Multiple depth changes are visible in the surface, however coverage in this area was deemed acceptable through correspondence with the Contracting Officer's Technical Representative (COTR). Reference Email Correspondence in Appendix II of this report.

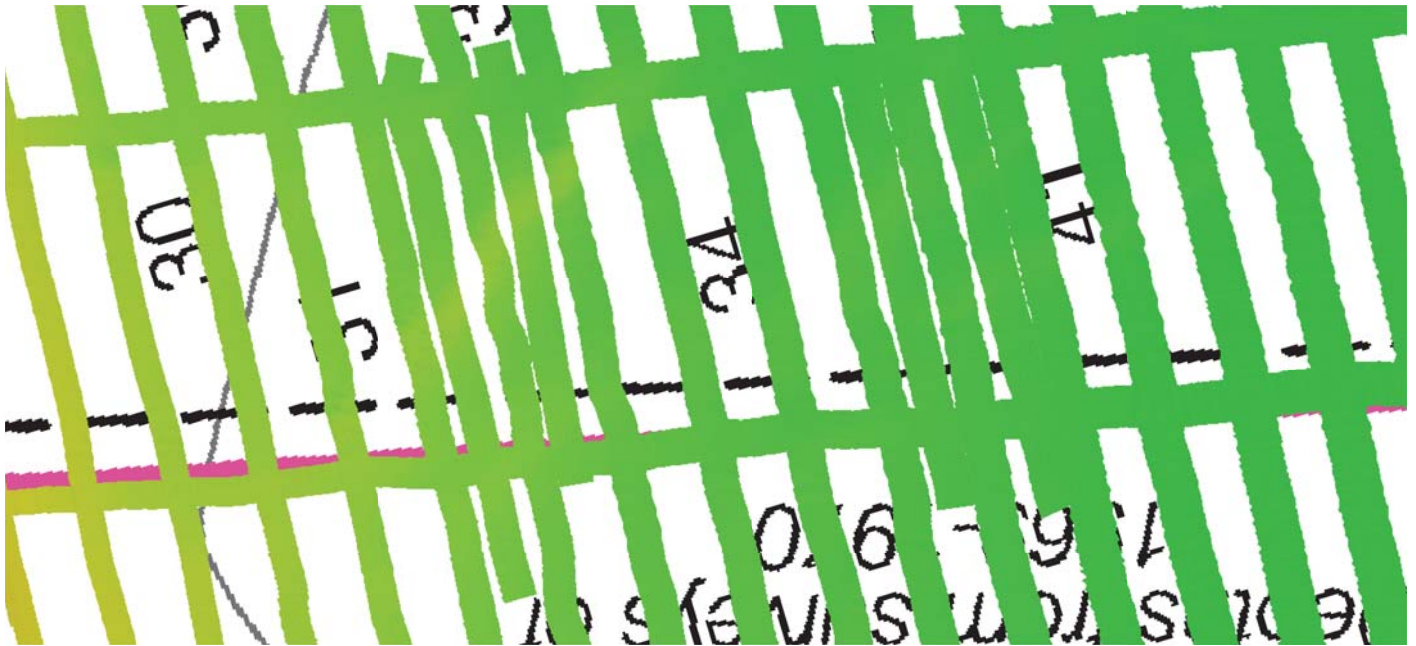


Figure 17: Bathymetric Splits Acquired to Define Shoal

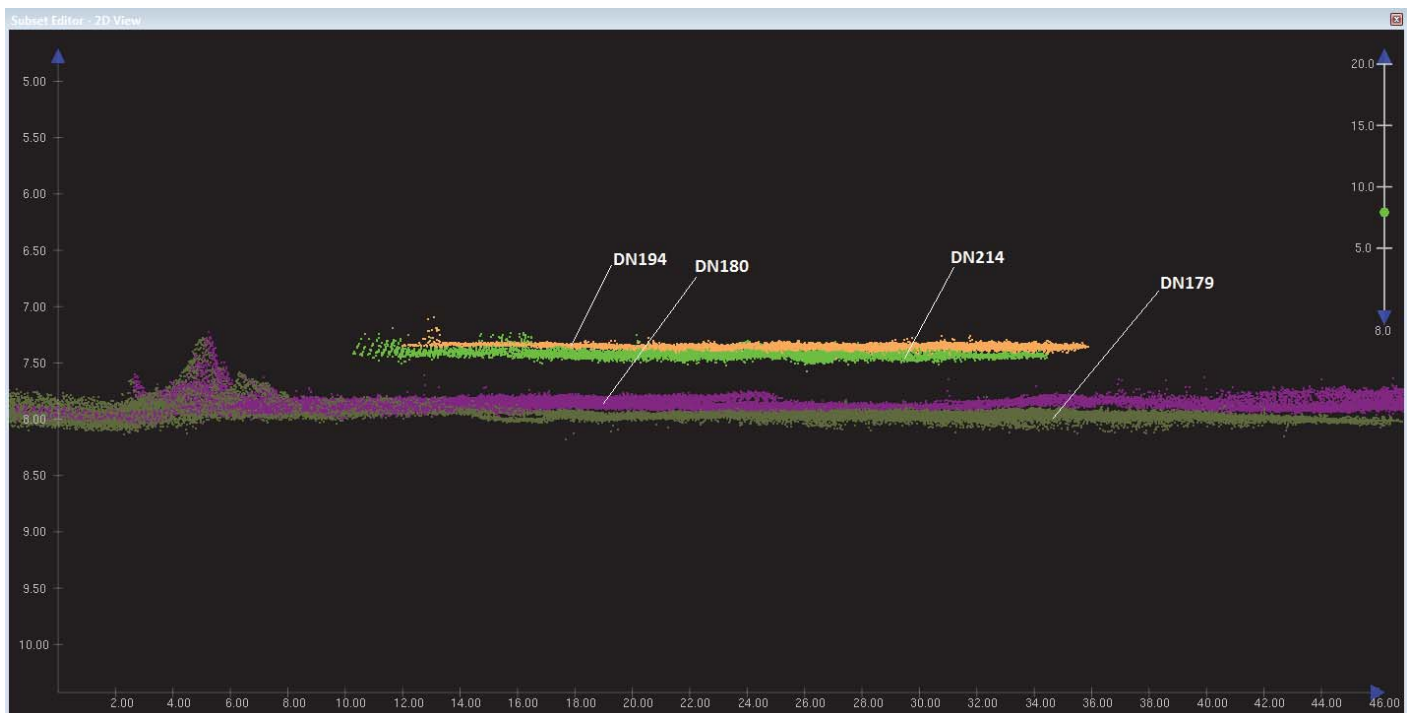


Figure 18: Cross Section of Dynamic Shoal Area (Northern Jetty)

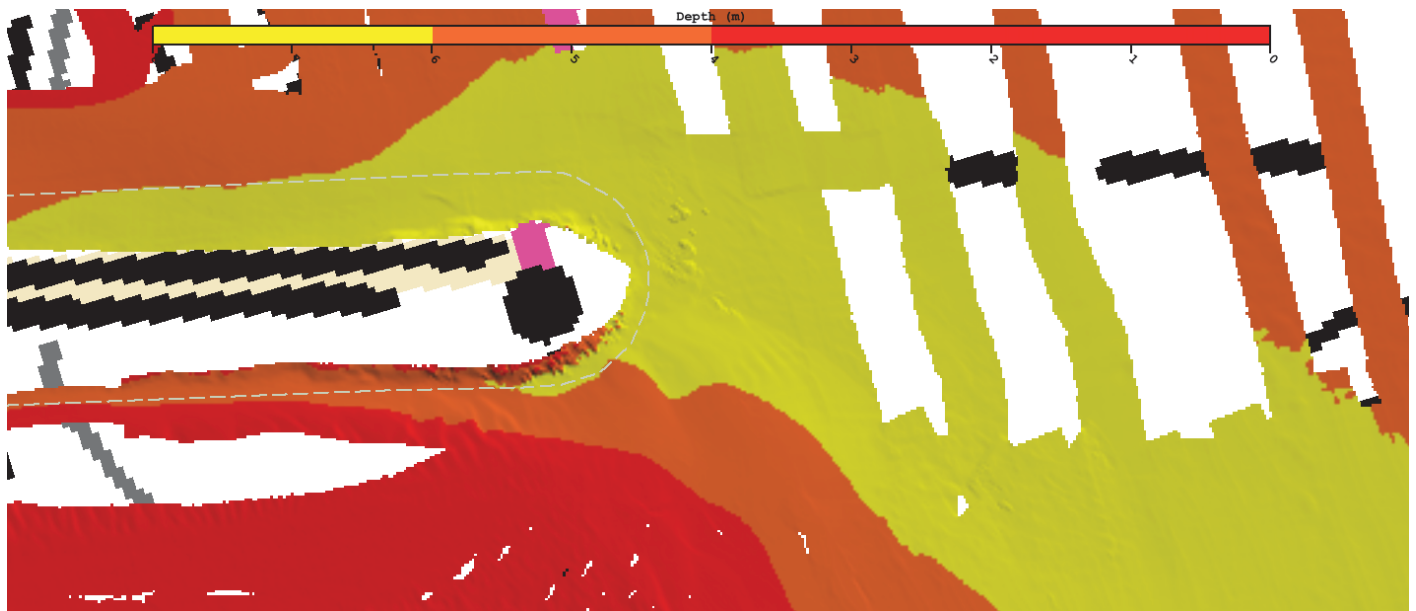


Figure 19: Plan View of Dynamic Shoal (Northern Jetty)

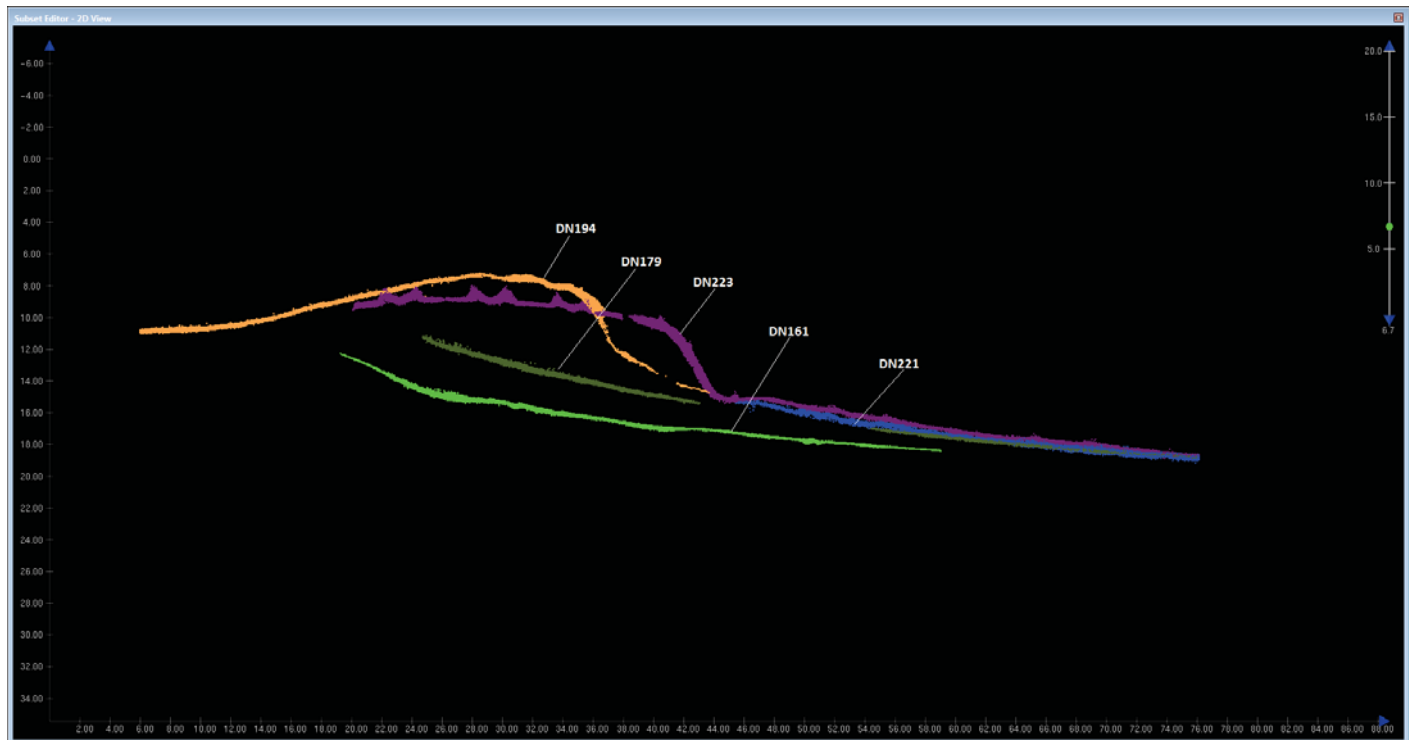
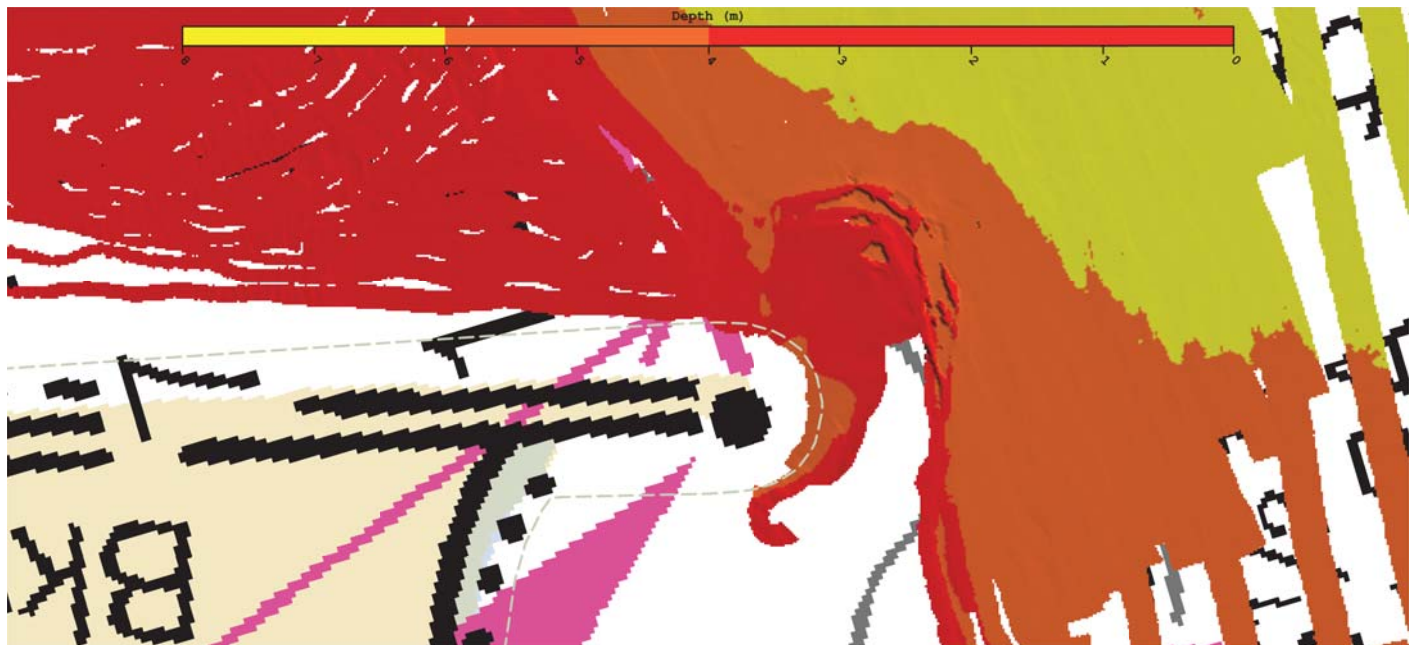


Figure 20: Cross Section of Dynamic Shoal Area (Southern Jetty)



*Figure 21: Plan View of Dynamic Shoal (Southern Jetty)*

#### **D.1.9 Channels**

A safety fairway runs east-west through H12761. The surveyed depths within the safety fairway are in general agreement with the charted depths as detailed in the chart comparison section of this report.

#### **D.1.10 Bottom Samples**

5 bottom samples were obtained in accordance with sections 7.1 and 8.2 of the HSSD 2015 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.

H12761\_A001: fine brown sand with soft grey mud

H12761\_A002: fine brown sand with soft grey mud and broken shells

H12761\_A003: fine brown sand with soft grey mud and broken shells

H12761\_A004: fine brown sand with sticky grey mud and broken shells

H12761\_A005: fine brown sand with sticky grey mud and broken shells

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 H12761\_AXXX).

## **D.2 Additional Results**

### **D.2.1 Shoreline**

A limited shoreline verification was performed using the composite source file (CSF) provided with the project instructions. All assigned shoreline features were investigated except for 1 that was inshore of the NALL and unsafe to address. One new shoreline feature was found in H12761. All assigned and new shoreline features are encoded in the Final Feature File (FFF) and have been given a unique identifier in the "userid" field of the .000 S-57 file (format H12761\_XXX).

### **D.2.2 Prior Surveys**

No prior survey comparisons exist for this survey.

### **D.2.3 Aids to Navigation**

No Aids to navigation (ATONs) exist for this survey.

### **D.2.4 Overhead Features**

No overhead features exist for this survey.

### **D.2.5 Submarine Features**

No submarine features exist for this survey.

### **D.2.6 Ferry Routes and Terminals**

No ferry routes or terminals exist for this survey.

### **D.2.7 Platforms**

No platforms exist for this survey.

### **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.	11/30/2015	 

APPENDIX I  
TIDES AND WATER LEVELS



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

**OPR-K370-KR-15 Port Mansfield, TX**  
Abstract: times of Hydrography  
H12761

<b>Survey Date</b>	<b>Day of Year</b>	<b>Start Time</b>	<b>End Time</b>
6/5/2015	156	16:45	23:57
6/6/2015	157	12:36	21:30
6/7/2015	158	12:59	21:45
6/8/2015	159	12:35	21:00
6/9/2015	160	12:23	21:41
6/10/2015	161	12:07	21:42
6/11/2015	162	12:33	20:54
6/12/2015	163	12:52	20:52
6/19/2015	170	12:21	21:11
6/20/2015	171	12:39	18:00
6/22/2015	173	12:27	21:44
6/26/2015	177	12:24	21:50
6/27/2015	178	12:10	21:07
6/28/2015	179	11:59	22:06
6/29/2015	180	11:56	21:46
7/2/2015	183	12:36	16:56
7/3/2015	184	12:21	13:04
7/4/2015	185	15:27	16:54
7/10/2015	191	12:01	20:56
7/11/2015	192	12:07	21:53
7/12/2015	193	12:02	17:21
7/13/2015	194	11:59	14:08
7/28/2015	209	11:03	13:03
8/2/2015	214	12:29	18:08
8/3/2015	215	11:38	11:54
8/7/2015	219	20:24	22:37
8/8/2015	220	12:22	12:22
8/9/2015	221	12:12	12:23
8/11/2015	223	11:43	14:19





Isadora Kratchman &lt;izzy@etracinc.com&gt;

---

**Fwd: OPR-K370-KR-15**

---

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

Fri, Sep 4, 2015 at 11:39 PM

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

From: **Hua Yang - NOAA Affiliate** <hua.yang@noaa.gov>  
Date: Thu, Aug 13, 2015 at 10:08 AM  
Subject: Re: OPR-K370-KR-15  
To: David Neff <david@etracinc.com>  
Cc: David Wolcott - NOAA Federal <david.wolcott@noaa.gov>, Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov>, Megan Greenaway - NOAA Federal <megan.greenaway@noaa.gov>, "\_NOS. CO-OPS. HPT" <nos.coops.hpt@noaa.gov>, "\_NOS CO-OPS OET Team" <nos.coops.oetteam@noaa.gov>

Hi David,

The station has been marked as "Completed" and will be deleted from the Hydro Hot List in a week.

Thanks!

-Hua

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: 301-713-2890 x210  
Email: [Hua.Yang@noaa.gov](mailto:Hua.Yang@noaa.gov)  
Web: <http://tidesandcurrents.noaa.gov/>

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

On Thu, Aug 13, 2015 at 12:16 PM, David Neff &lt;david@etracinc.com&gt; wrote:

Hello David,

Our project in Port Mansfield was completed yesterday. The Corpus Christi gauge can be removed from the hotlist at this time.

Thank you  
Dave Neff

On Fri, Jul 10, 2015 at 11:38 AM, David Wolcott - NOAA Federal <[david.wolcott@noaa.gov](mailto:david.wolcott@noaa.gov)> wrote:  
Greetings David,

Corpus Christi was added to the Hot List in support of your survey. Just let us know when you have completed acquisition and we will pull it down.

Thanks,  
David

On Thu, Jul 9, 2015 at 3:45 PM, David Neff <[david@etracinc.com](mailto:david@etracinc.com)> wrote:  
eTrac Inc. has been officially awarded OPR-K370-KR-15 and is requesting that the station, Coprus Christi, TX (8775870) be added to the Hydro Hot List as soon as possible.

eTrac Inc. is currently conducting survey operations and intends to complete operations by September 1, 2015. I will inform you as the timeline progresses as to when the station can be removed from the HHL.

Regards,  
David Neff

On Mon, Jun 1, 2015 at 3:05 PM, Katrina Wyllie - NOAA Federal <[katrina.wyllie@noaa.gov](mailto:katrina.wyllie@noaa.gov)> wrote:  
CO-OPS,

FYI, this task order is in negotiations and has not been awarded.

Thank you,  
Katrina Wyllie

On Mon, Jun 1, 2015 at 5:20 PM, David Neff <[david@etracinc.com](mailto:david@etracinc.com)> wrote:

Thank you,

I noticed I had mistyped the end date. We plan on ending survey operations approximately 8/15/15.

Regards,  
David

On Jun 1, 2015 3:40 PM, "Hua Yang - NOAA Affiliate" <[hua.yang@noaa.gov](mailto:hua.yang@noaa.gov)> wrote:  
Hi David,

The station, Coprus Christi, TX (8775870), was just added to the Hydro Hot List for the project.

Thank you for your timely notice.

Best regards,

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: 301-713-2890 x210  
Email: [Hua.Yang@noaa.gov](mailto:Hua.Yang@noaa.gov)  
Web: <http://tidesandcurrents.noaa.gov/>

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

On Mon, Jun 1, 2015 at 3:14 PM, David Neff <[david@etracinc.com](mailto:david@etracinc.com)> wrote:  
eTrac Inc. will be commencing survey operations on OPR-K370-KR-15 in the vicinity of Port Mansfield, TX. Survey operations are scheduled as follows:

Survey Operations Begin: 06/04/15  
Survey Operations End: 06/15/15

Should the survey end date change, I will notify the same email addresses with the updated schedule. Please add Coprus Christi, TX (8775870)

--

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Mobile: (415)-517-0020  
[www.etracinc.com](http://www.etracinc.com)

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

--

David Wolcott  
Oceanographic Division  
Center for Operational Oceanographic Products and Services  
National Ocean Service  
National Oceanic and Atmospheric Administration

1305 East-West Highway, 7133  
Silver Spring, MD 20910  
Office: [301-713-2890x153](tel:301-713-2890x153)  
Fax: [301-713-4437](tel:301-713-4437)

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## APPENDIX II

# SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCE

## Castle Parker - NOAA Federal

---

**From:** Megan Greenaway - NOAA Federal  
**Sent:** Friday, July 17, 2015 8:52 AM  
**To:** David Neff  
**Cc:** Corey Allen - NOAA Federal; Katrina Wyllie - NOAA Federal; Michael Gonsalves - NOAA Federal; Castle Parker - NOAA Federal; Matthew Jaskoski  
**Subject:** Re: H12765 Designated Soundings

Dave,

I consulted with AHB and OPS and here is the guidance:

- Waters shoaler than 40 meters should have a 2 meter resolution surface (depth 18-40 = 2m). The examples you listed below were < 40 meters and therefore should be gridded at a 2 meter resolution.

Depth Range (m)	Resolution (m)
0-20	1
18-40	2
36-80	4
72-160	8
144-320	16

From 2015 HSSD page 92

- Waters deeper than 40 meters with numerous "pockets" and "ridges":
  - try creating a 2 meter (or even 1 meter - you will need to test) surface to see if the soundings are honored more accurately. If so, create a 2 meter and a 4 meter surface in those areas. Then, combine the surfaces. During the combine surface process the product will be a 4 meter surface (the coarser resolution) which will honor the 2 meter least depths.
  - For this particular situation HSD OPS will waive the density requirement for the 2 meter surface (depths greater than 40 meters where the pockets exist). However, the density requirement may be met after you combine the surfaces. You will have to test.
  - In addition to delivering the combined surface, please deliver the 2 meter and 4 meter surface.
- Include this email in the Project Correspondence folder so that the processing branch can see the changes when they are conducting their review.

Megan

On Wed, Jul 15, 2015 at 12:25 PM, David Neff <[david@etracinc.com](mailto:david@etracinc.com)> wrote:

Hi Megan, thanks for the response and see mine inline. Seems like it may just be best to keep them all designated?

On Tue, Jul 14, 2015 at 9:30 AM, Megan Greenaway - NOAA Federal <[megan.greenaway@noaa.gov](mailto:megan.greenaway@noaa.gov)> wrote:

Dave,

I agree that survey H12765 has a lot of designated soundings so far. You are correct in reaching out to COR in this situation.

I also agree that the designated sounding examples you have below, would not become features based on the 5% rule. And, they do not appear to be navigationally significant based on the water depth of ~35 meters.

Here are a couple thoughts:

- The first image shows "designated soundings" for holes? Not for "peaks"? If so I will discuss with others but we may be able to relax the requirement for the "holes".

We have generalized these anomalies as "the holes" in the office. They are holes with distinct peaks on each side. All the designated soundings are on peaks next to what we have been calling "holes".

- The first example should not be designated because the difference between the gridded surface and the reliable shoaler sounding is less than the maximum allowable TVU at that depth. See "Feature Detection and Designated Soundings" section of 2015 HSSD page 89. Were you aware of this requirement/guidance? Will this reduce the # of designated soundings?

That is correct and it was a bad example. I am aware of the requirement/guidance through a detailed thread with Katrina during Panama City data processing. This will not reduce the vast number of soundings that are being designated. We work off of a designation threshold worksheet that spells out when a sounding should be designated. See screenshot below. The example posted in the email was a mistake.

The screenshot shows a Google Docs spreadsheet titled "Designate Threshold". The spreadsheet contains a table with columns for "Depth", "m", "ft", and "Designate if surface is off by". The data is organized into two main sections, each with a "Depth" column and a "Designate if surface is off by" column. The "Designate if surface is off by" column is further divided into "m" and "ft" sub-columns. The data rows show depth values from 1 to 31 meters, with corresponding "m" and "ft" values and "Designate if surface is off by" values. The spreadsheet is viewed in a browser window, and the URL is visible at the top: <https://docs.google.com/spreadsheets/d/1TA-8kSPu8K880nsT5yXddp2ahCzNMp44NzBTQzQed8#gid=2127147218>.

Depth	m	ft	Designate if surface is off by	
	m	ft	m	ft
1	3.28	0.25	0.82	
2	4.56	0.25	0.82	
3	5.84	0.25	0.82	
4	7.12	0.25	0.82	
5	8.40	0.25	0.83	
6	9.68	0.25	0.83	
7	10.96	0.25	0.83	
8	12.24	0.25	0.84	
9	13.52	0.25	0.84	
10	14.80	0.25	0.85	
11	16.08	0.25	0.85	
12	17.36	0.25	0.86	
13	18.64	0.26	0.87	
14	19.92	0.27	0.87	
15	21.20	0.27	0.88	
16	22.48	0.27	0.89	
17	23.76	0.27	0.90	
18	25.04	0.28	0.91	
19	26.32	0.28	0.91	
20	27.60	0.28	0.92	
21	28.88	0.57	1.87	
22	30.16	0.58	1.89	
23	31.44	0.58	1.91	
24	32.72	0.59	1.93	
25	34.00	0.60	1.96	
26	35.28	0.60	1.98	
27	36.56	0.61	2.00	
28	37.84	0.62	2.03	
29	39.12	0.63	2.06	
30	40.40	0.63	2.08	
31	41.68	0.64	2.11	

- What is the horizontal distance between each "peak"? If less than 2mm at the scale of the survey then only the shoalest depth shall be designated. (also from page 89). What is the horizontal distance of the "Plan View of Surface"?

2mm at our survey scale of 40,000 is 80m. The designated soundings are farther apart than 80 meters. We are only selecting the shoaler of the two peaks that each hole creates.

- 
- What is your grid resolution? I am assuming your grid is 2m? What happens if you grid your data at 1m? Can you still meet the HSSD requirements or do you have holidays? The 1m grid may honor more of the shoal depths so that you would not need to designate so many soundings.

CUBE Surface is mostly 4m. A small corner of sheet 5 is at 2m resolution. Our density will not meet sep at 2m for the entire sheet.

Megan

On Mon, Jul 13, 2015 at 6:06 PM, David Neff <[david@etracinc.com](mailto:david@etracinc.com)> wrote:

Hi Megan,

In conversations with Katrina while compiling the deliverables for Panama City, she mentioned if we ever get to a point where we are designating an extreme amount of soundings to make sure to speak up. I think we have that exact situation in H12765.

We started coming across these features in H12765 (the farthest offshore sheet) and have been designating them and moving on until we could get some direction. The best way I can describe them would be it looks like a hole that a dog would dig on a beach with 2 distinct piles of sediment on each side, one always larger than the other. Here are some screen captures.

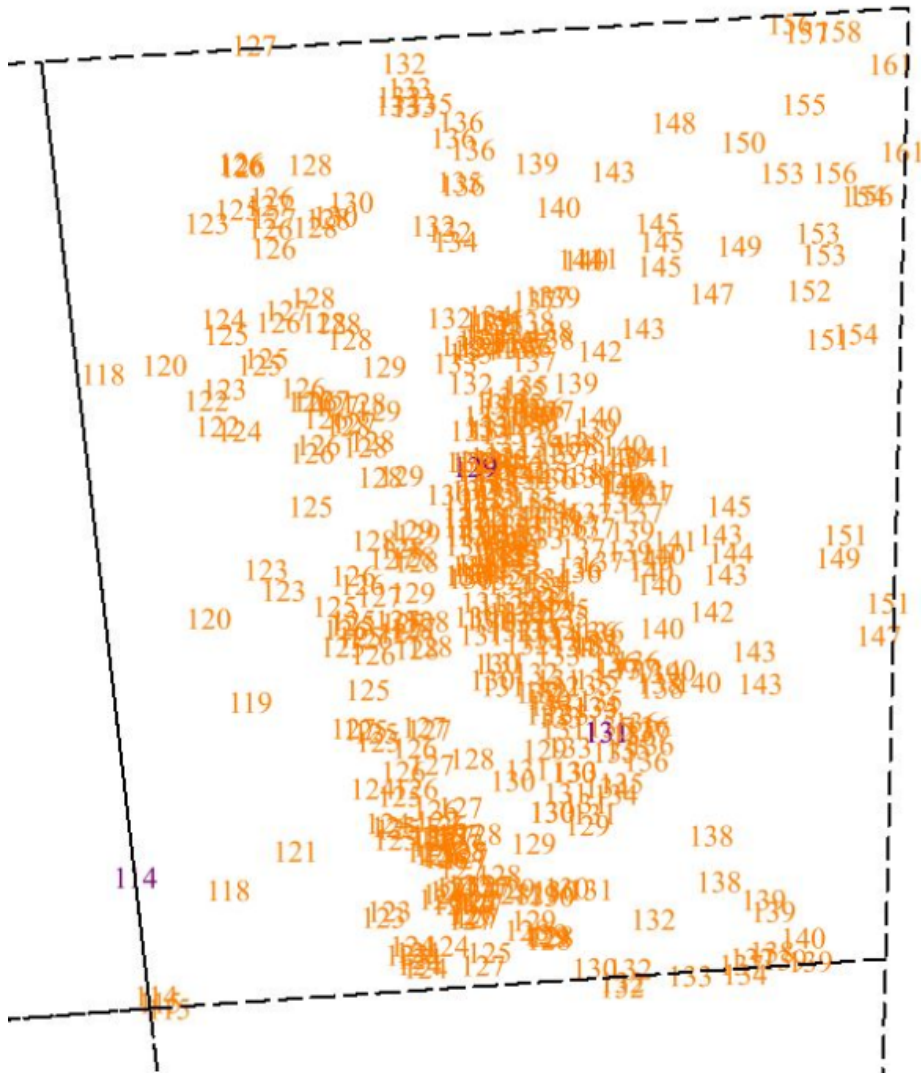
I believe most of these designated soundings would not become features based on the 5% rule, but they would remain designated per spec. I believe that whatever they are, they are not navigationally significant especially considering their water depth. Shall we continue to designate them, or would you suggest a different direction?

Here are a few of the guesses from our team (for fun).

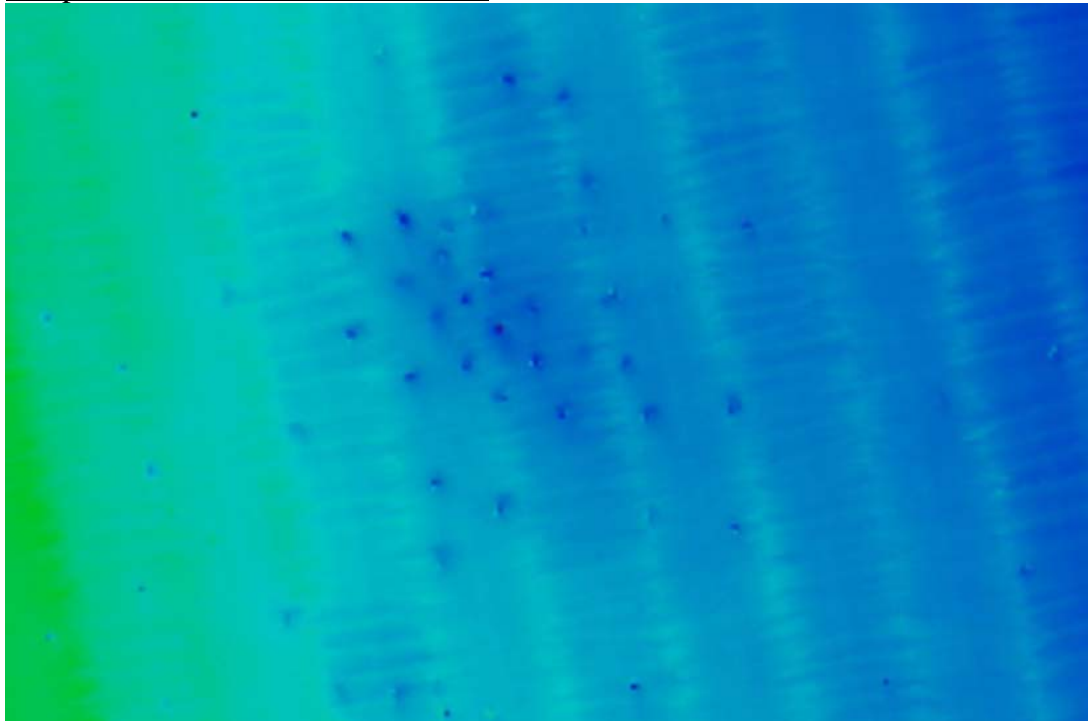
- Some sea creature building a home
- Gas bubbles seeping up
- Ordinance used for Oil and Gas seismic exploration.

We have not opened up H12763 (directly south of H12765) yet, but will be doing so in the next few days. We anticipate more of these and will keep you updated.

Number of these Holes Designated based on designation criteria

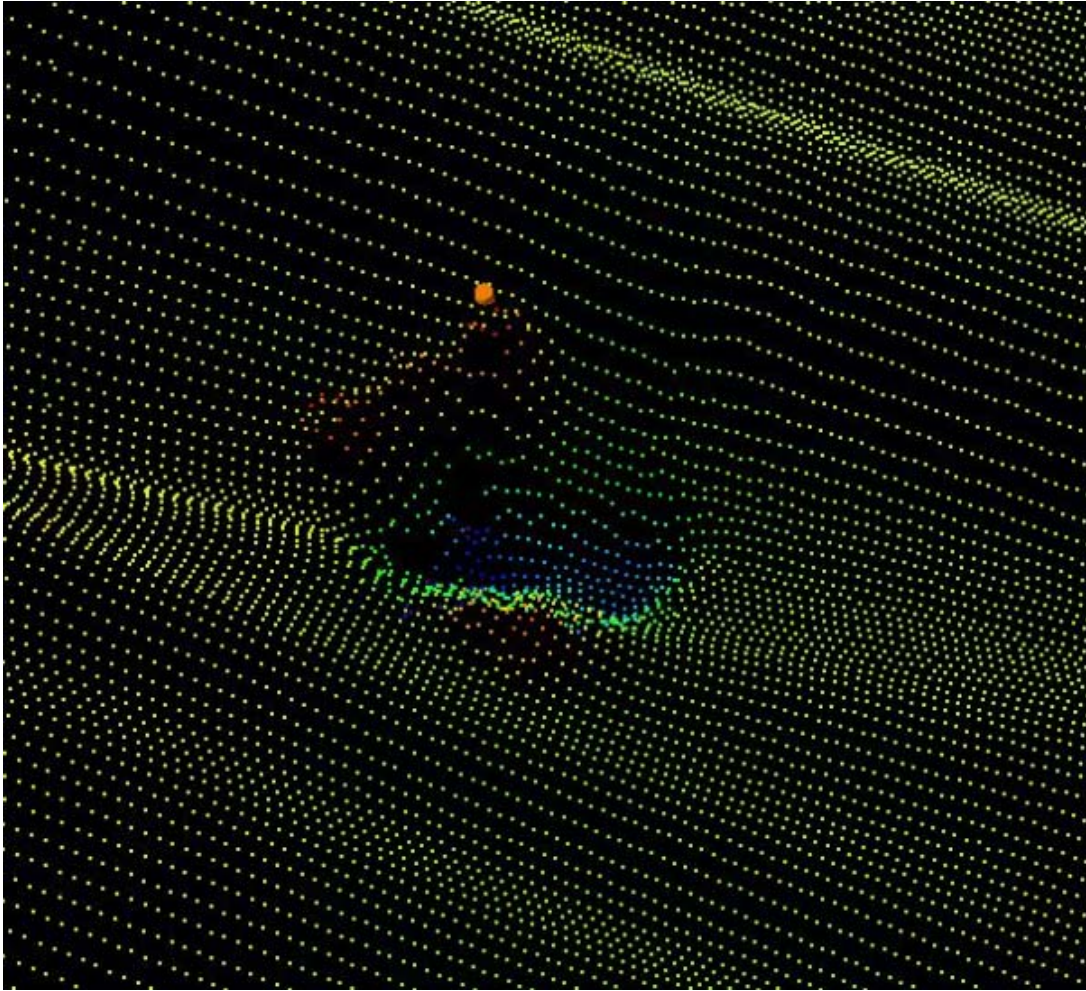


Sample Section Plan View of Surface

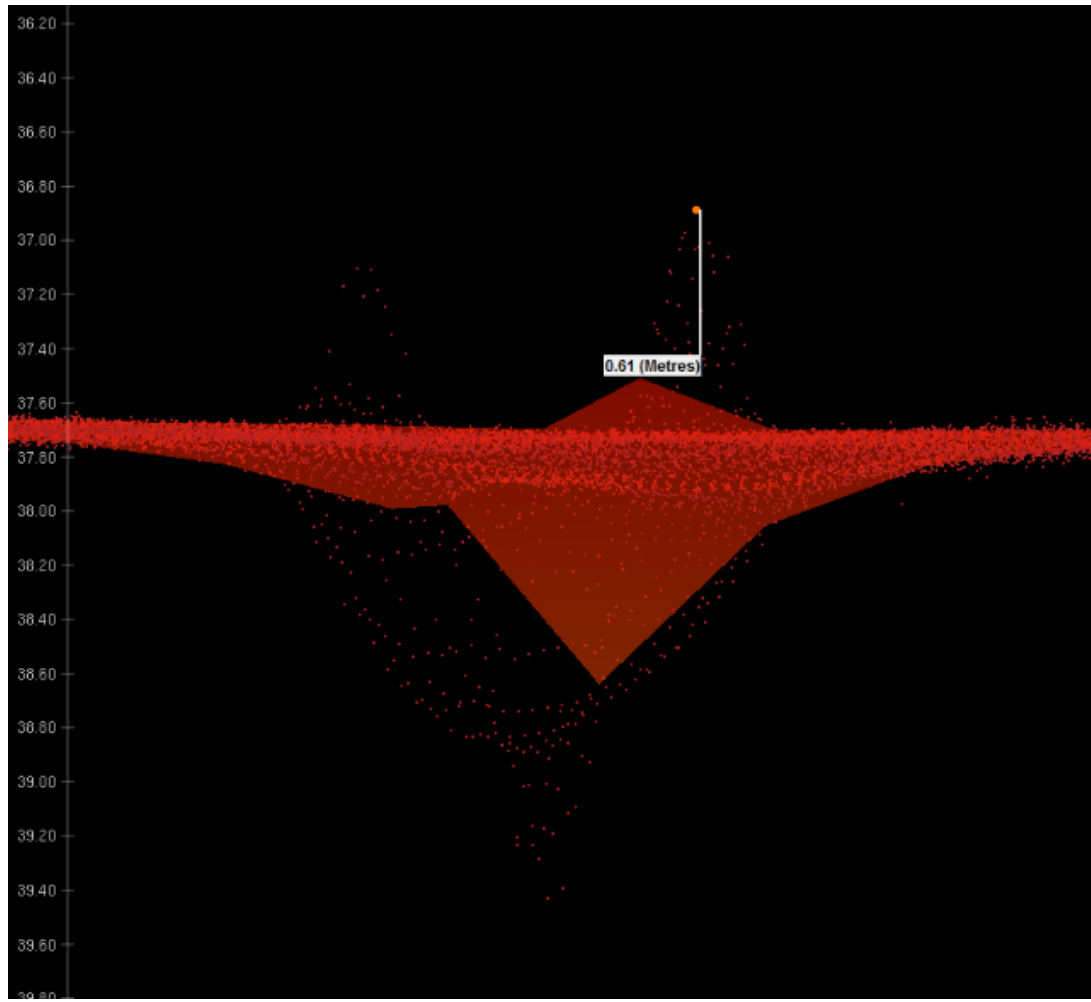


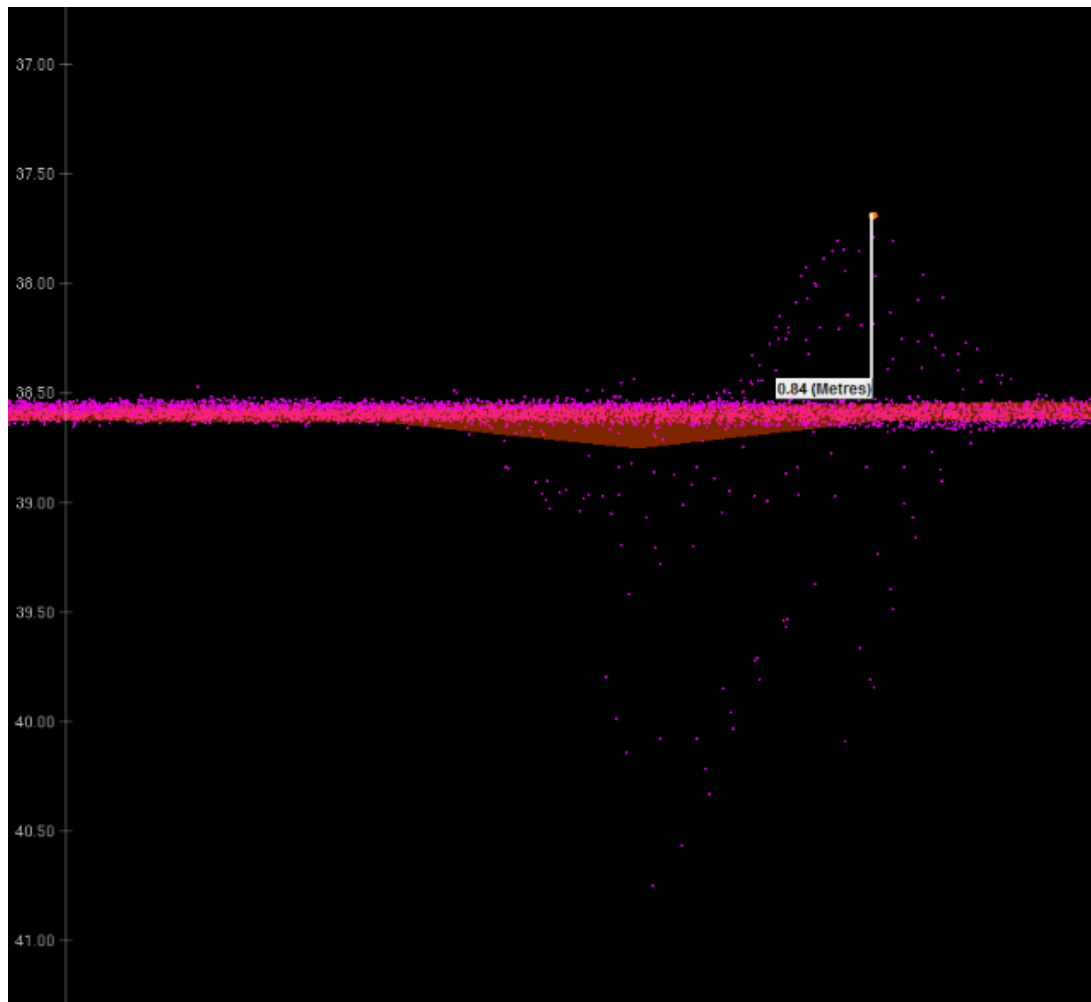


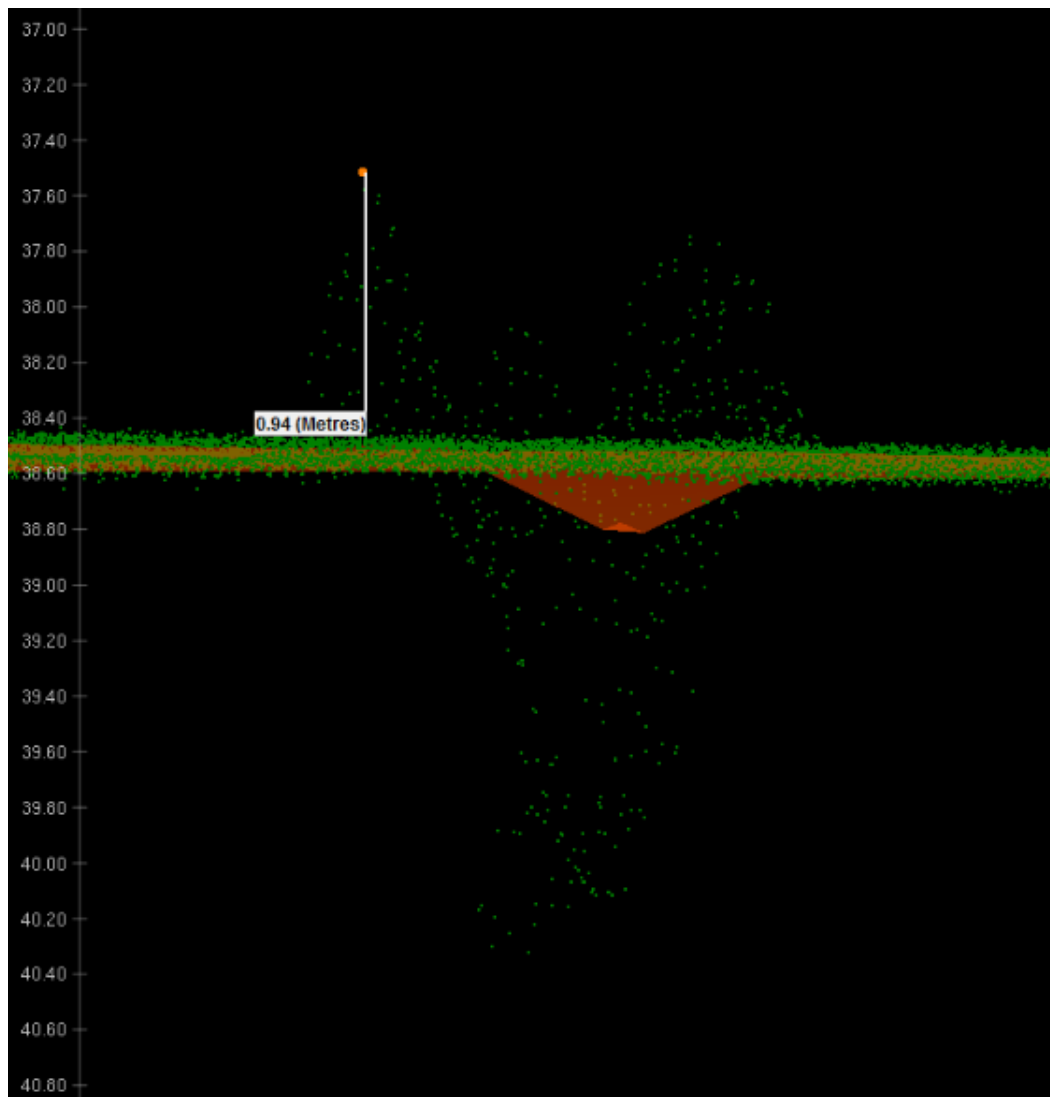
3D Subset



Designation Examples







--  
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[www.etracinc.com](http://www.etracinc.com)

**From:** [Castle Parker - NOAA Federal](#)  
**To:** ["David Neff"; Megan Greenaway - NOAA Federal](#)  
**Cc:** [Katrina Wyllie - NOAA Federal](#); [Corey Allen - NOAA Federal](#); [Matthew Jaskoski - NOAA Federal](#)  
**Subject:** RE: Bathymetric Splits on Significant Shoals  
**Date:** Monday, August 10, 2015 12:05:00 PM  
**Attachments:** [image001.png](#)  
[H12765\\_DepthCurveDevelopments\\_AHB.000](#)

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Good day Dave,

I have reviewed the sounding plot and compared to the chart and the grid image. I only have a few suggestions for additional splits which would assist with defining the current survey depth and the charted depth curve interval. Attached is an S57 file with AHB's suggestion. Overall, I think you would be OK if you did not get to the suggestions, as it would not be mandatory.

A denser sounding set could potentially rule out the selections forwarded to you. The S57 file are only suggestions based upon the sounding density submitted last week.

There are a couple of shoal ridges that extend northeasterly, but those are within the same contour or depth range and it would not benefit with additional data.

There is one 4ft sounding that I would submit as a DtoN; 4.649ft located in 26-33-49.113N 097-16-13.902W. This is the only one that I've noticed so far. I will continue to review for DtoNs.

I apologize for not getting back to you sooner, but this is being a real Monday with some diversions. Nevertheless, reference the attached file. None of the suggestions are mandatory, just that the additional data would assist with defining the charted depth curves in specified areas.

Regards,  
Gene Parker

*Castle Eugene Parker  
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Hydrographic Team Lead / Physical Scientist  
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**From:** Castle Parker - NOAA Federal [mailto:castle.e.parker@noaa.gov]  
**Sent:** Friday, August 07, 2015 2:13 PM  
**To:** 'David Neff'; Megan Greenaway - NOAA Federal  
**Cc:** Katrina Wyllie - NOAA Federal; Corey Allen - NOAA Federal; Matthew Jaskoski - NOAA Federal  
**Subject:** RE: Bathymetric Splits on Significant Shoals

Dave,

If you send a sounding file Monday morning, I will devote the time and effort to review and

respond. I should be able to respond within one hour, no more than two hours upon receiving and start reviewing.

Let me say that AHB would be doing this only as a sanity check for eTrac and HSD; I have confidence that eTrac will be able to determine if any additional developments are needed. AHB does not want to hold up demob, nor add or specify additional work that diverts eTrac's plans. Sanity check only.

Regards,  
Gene

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

**Sent:** Friday, August 07, 2015 2:01 PM

**To:** Megan Greenaway - NOAA Federal

**Cc:** Katrina Wyllie - NOAA Federal; Corey Allen - NOAA Federal; Castle Parker - NOAA Federal

**Subject:** Re: Bathymetric Splits on Significant Shoals

Hi Megan,

Thanks for the additional feedback. We are in the process of creating a sounding plot. We may be demobilizing as early as Monday or Tuesday. With the information you've provided I believe we are comfortable performing the analysis ourselves. The fact that our survey lines are oriented perpendicular to the strands gives us confidence that they are not under-developed and that we are not missing the shoalest peak of them. We may be able to prepare a sounding plot by this afternoon, and if not then over the weekend so AHB could have it first thing Monday morning. I'm not sure what kind of time AHB would need with it to be of assistance. Maybe Gene has an idea of that?

Dave

On Fri, Aug 7, 2015 at 3:31 PM, Megan Greenaway - NOAA Federal

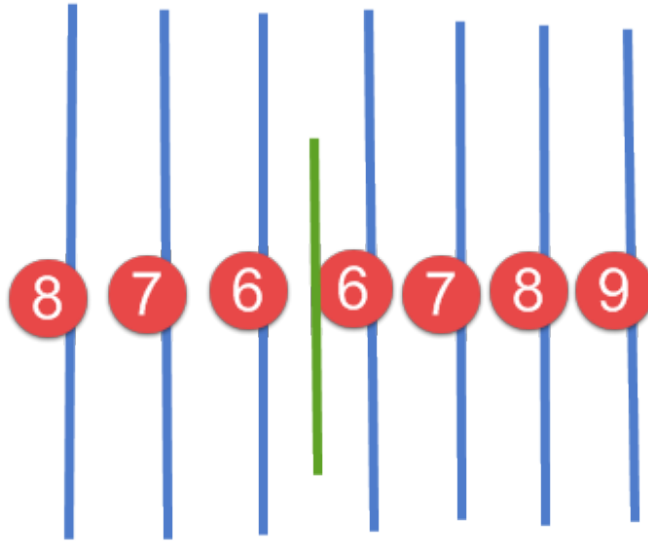
<[megan.greenaway@noaa.gov](mailto:megan.greenaway@noaa.gov)> wrote:

Dave,

There are a couple options if you would like more guidance regarding adequately covering shoals:

**1. More guidance via email:**

- Please see page 95, Set Line Spacing Split Requirement, if you have not done so already.
- Two items to keep in mind are:
  - **Charted soundings:** "If a charted depth falls between 2 sounding lines and is shallower than the adjacent survey soundings, the field unit shall split the lines to verify or disprove the charted depth."
  - **Convergence:** In order to meet the following requirement, "In depths of 20m or less in a navigable area all indications of shoaling shall be investigated and developed to object detection standards." please use the following guidance. If there are split lines next to each other which are converging towards a shoaler depth, another split line shall be run to determine the least depth of the shoal. See image below. The blue lines are the survey lines and the red numbers are the soundings. In this case you would need to run the green line split because the soundings are converging towards a shoal.



2. **eTrac can send a sounding plot** (via .hob or S-57 file) to AHB and they will review to see if there are any areas which need further development. It's not possible for AHB to provide clear guidance without seeing the data. If this is the case, what date are you projecting to demobilize? AHB will prioritize the review but it will be helpful to know your projected schedule. If you cannot send via email then I can provide the Commerce FTP site.

Let me know how you wish to proceed.

Megan

On Thu, Aug 6, 2015 at 2:39 PM, David Neff <[david@etracinc.com](mailto:david@etracinc.com)> wrote:  
The depths range quite a bit from 30 to 60 feet. Our feeling is that being as large as they are, they are well developed for charting and are not in need of more coverage.

On Thu, Aug 6, 2015 at 11:28 AM, Megan Greenaway - NOAA Federal <[megan.greenaway@noaa.gov](mailto:megan.greenaway@noaa.gov)> wrote:

Dave,

Without know the depths from the images, this does look like "skin of the earth/general bathymetry". Are any of the depths navigationally significant?

Megan

On Thu, Aug 6, 2015 at 1:27 PM, David Neff <[david@etracinc.com](mailto:david@etracinc.com)> wrote:

Hi Megan,

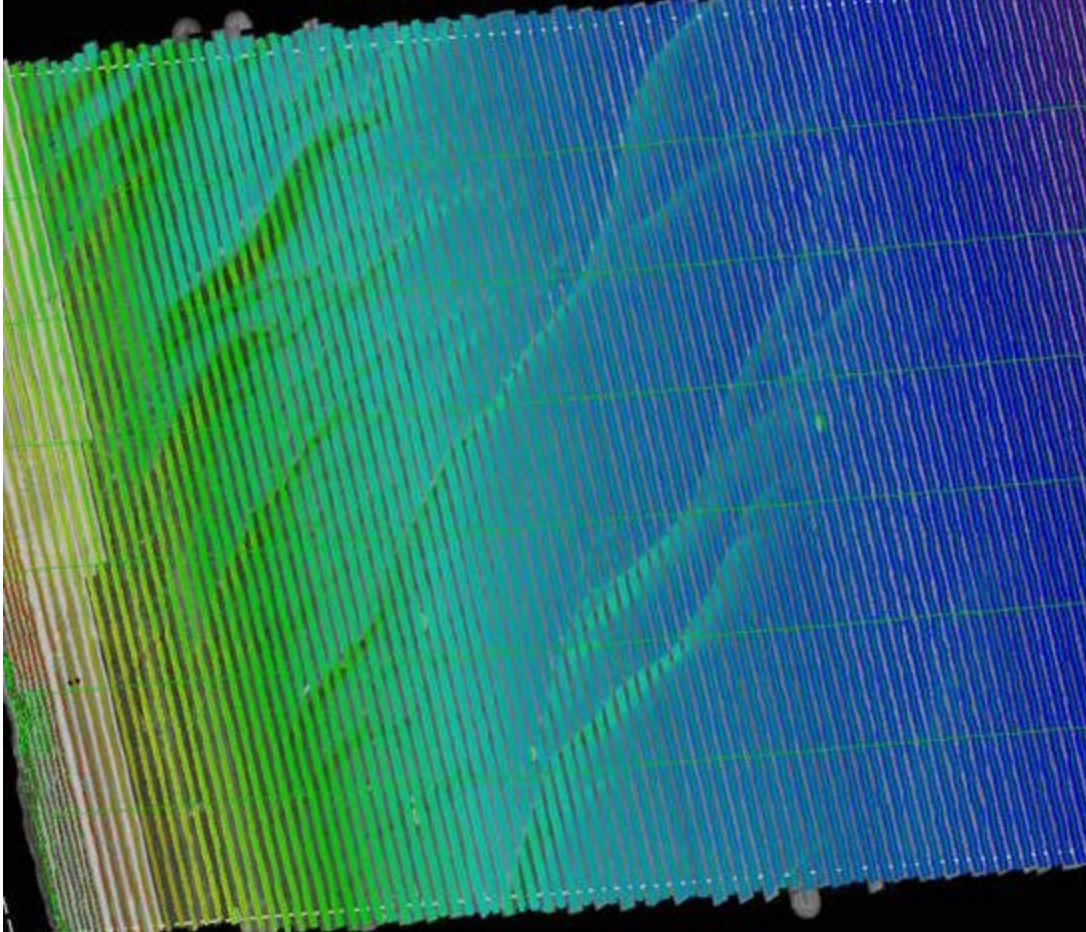
We want to be sure we are adequately addressing the last bullet on page 93 of the 2015 Specs.

"Bathymetric splits shall be acquired to adequately define shoals, ....."

The image below is of our concurrent MBES laid over our SSS Moaic. I'm not a geologist, so I'm not sure what to call these strings of sediment but we want to be sure we have adequately

developed them. The first step is to determine what is a significant shoal. I think back to emails with Gene about "General Bathymetry" and "Skin of the Earth" and I believe this falls into that category. Just wanted to check.

Dave



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**From:** [Amy Borgens](#)  
**To:** [Castle Parker - NOAA Federal](#)  
**Subject:** RE: H12761 SHPO request  
**Date:** Thursday, April 07, 2016 6:10:19 PM  
**Attachments:** [image001.png](#)  
[image003.png](#)

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Gene,

Thank you for providing this additional information, the size of this vessel at ca. 26 ft. and its location just inside of the mouth of a man-made federally maintained entrance channel suggests that is it modern and not historic. The THC has no additional concerns.

Amy

**Amy A. Borgens, MA**

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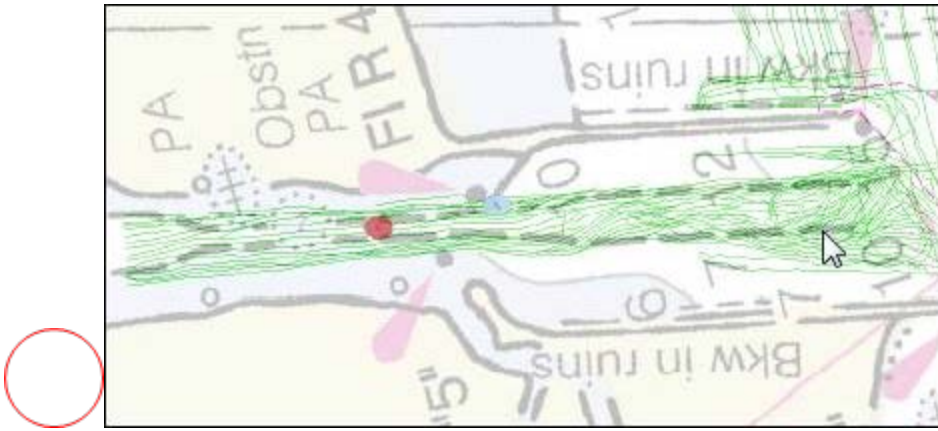


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**From:** Castle Parker - NOAA Federal [mailto:castle.e.parker@noaa.gov]  
**Sent:** Tuesday, March 29, 2016 8:24 AM  
**To:** Amy Borgens; Mark Wolfe  
**Cc:** Matthew Jaskoski - NOAA Federal; Marilyn Schluter - NOAA Federal; Mark Lathrop - NOAA Federal; Megan Greenaway - NOAA Federal; Katrina Wyllie - NOAA Federal  
**Subject:** FW: H12761 SHPO request

Good day,

Please reference the attached document "H12761 Port Mansfield TX 18ft Wreck Inquiry.pdf" as requested. The feature report has been updated with specific information as requested. The wreck's location is highlighted with the selected ENC feature object (red in color) and circled.



If additional information is needed please respond. If the wreck is deemed to be interpreted as historic, please respond so that we may classify the survey as Sensitive, thus restricting public access to the data and reports.

Regards,  
Gene Parker

*Castle Eugene Parker*  
*NOAA Office of Coast Survey*  
*Atlantic Hydrographic Branch*  
*Hydrographic Team Lead / Physical Scientist*  
[castle.e.parker@noaa.gov](mailto:castle.e.parker@noaa.gov)  
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**From:** Matthew Jaskoski - NOAA Federal [mailto:[matthew.jaskoski@noaa.gov](mailto:matthew.jaskoski@noaa.gov)]  
**Sent:** Monday, March 28, 2016 12:33 PM  
**To:** Castle Parker - NOAA Federal  
**Subject:** H12761 SHPO request

Hey Gene,  
could you look into this or task it to someone to follow up on?

also located Here:  
T:\Surveys\Surveys\H12761\_K370\_eTrac\_15\AHB\_H12761\Reports

thanks,  
Jasko

Lieutenant Commander Matthew Jaskoski, NOAA  
Chief, Atlantic Hydrographic Branch  
439 W. York St.  
Norfolk, VA 23510  
Office: 757-441-6746 x200  
Cell: 757-647-3356

APPROVAL PAGE

H12761

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

The following products will be sent to NGDC for archive

- H12761\_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12761\_H12762\_H12763\_H12764\_H12765\_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: \_\_\_\_\_

**Lieutenant Commander Briana Welton, NOAA**  
Chief, Atlantic Hydrographic Branch