

H12924

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

DESCRIPTIVE REPORT

Type of Survey: Basic Hydrographic Survey

Registry Number: H12924

LOCALITY

State(s): Mississippi

General Locality: Southeastern Vicinity of the
Chandeleur Islands

Sub-locality: 20 NM SW of Chandeleur Islands

2016

CHIEF OF PARTY
Jonathan L. Dasler, PE, PLS, CH

LIBRARY & ARCHIVES

Date:

HYDROGRAPHIC TITLE SHEET

H12924

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): **Mississippi**

General Locality: **Southeastern Vicinity of the Chandeleur Islands**

Sub-Locality: **20 NM SW of Chandeleur Islands**

Scale: **40000**

Dates of Survey: **08/13/2016 to 11/18/2016**

Instructions Dated: **07/15/2016**

Project Number: **OPR-J311-KR-16**

Field Unit: **David Evans and Associates, Inc.**

Chief of Party: **Jonathan L. Dasler, PE, PLS, CH**

Soundings by: **Reson 7125 SV2**

Imagery by: **EdgeTech 4200-HF**

Verification by: **Atlantic Hydrographic Branch**

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

Remarks:

NAD83, UTM Zone 16 North, Meters, Times are UTC. The purpose of this contract is to provide NOAA with modern, accurate hydrographic survey data with which to update nautical charts of the assigned area.

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 H12924

Project: OPR-J311-KR-16

Locality: Southeastern Vicinity of the Chandeleur Islands

Sublocality: 20 NM SW of Chandeleur Islands

Scale: 1:40000

August 2016 - November 2016

David Evans and Associates, Inc.

Chief of Party: Jonathan L. Dasler, PE, PLS, CH

A. Area Surveyed

David Evans and Associates, Inc. (DEA) conducted a hydrographic survey of the assigned area in the Gulf of Mexico, south of the Chandeleur Islands. Survey H12924 was conducted in accordance with the Statement of Work (July 15, 2016) and Hydrographic Survey Project Instructions (July 15, 2016).

The Hydrographic Survey Project Instructions reference the National Ocean Service (NOS) Hydrographic Surveys Specifications and Deliverables Manual (HSSD), 2016 as the technical requirements for this project.

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
29° 38' 43.39" N 88° 59' 6.38" W	29° 32' 52.67" N 88° 46' 38.96" W

Table 1: Survey Limits

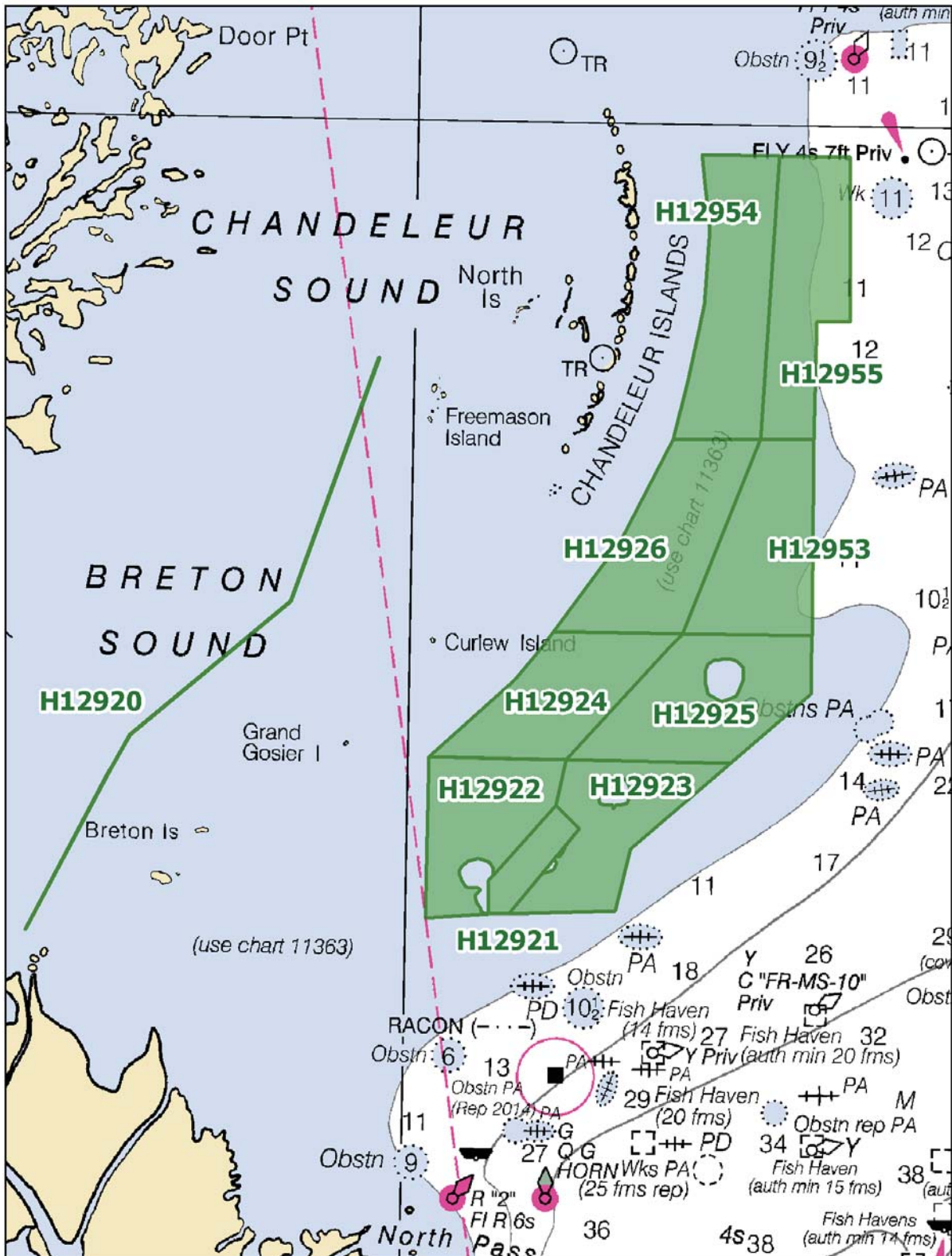


Figure 1: OPR-J311-KR-16 Assigned Survey Areas

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

A.2 Survey Purpose

The purpose of this project is to provide contemporary surveys to update National Ocean Service (NOS) nautical charting products. This project includes two survey areas totaling 263 SNM of which 226 SNM are classified as emerging critical areas, 32 SNM as priority two areas and 2 SNM as priority three as identified in the 2012 NOAA Hydrographic Survey Priorities. The first area is a narrow corridor located to the west of the Chandeleur Islands and extends from Baptiste Collette, LA towards Gulfport, MS. This corridor will serve as an alternate traffic route during the August 2016 closure of the INHC Lock in New Orleans. The second area, located to the east of the Chandeleur Islands, is a heavily trafficked area and encompasses approximately 125 SNM with multiple oil platforms and well heads.

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

A.4 Survey Coverage

The following table lists the coverage requirements for this survey as assigned in the project instructions:

Water Depth	Coverage Required
All Sheet Numbers	All MBES acquisition requires backscatter acquisition (refer to HSSD Section 6.2)
Sheet Number 3 - 10	Complete Coverage (refer to HSSD Section 5.2.2.3)

Complete coverage was obtained over the survey area using 100 percent side scan sonar coverage with concurrent multibeam echosounder (MBES) and backscatter. This coverage type follows Option B of the Complete Coverage requirement specified in Section 5.2.2.3 of the 2016 HSSD. Significant side scan sonar contacts were developed with multibeam sonar at object detection resolution as required by the coverage classification. Object detection multibeam coverage was obtained within the search radii (160 meters for charted features labeled with PA and 80 meters for charted features without a PA label) for all feature disapprovals. Survey coverage was obtained within the survey area depicted in the Project Reference File (PRF) OPR-J311-KR-16_PRF.000. Coverage was also obtained within the 160-meter search radii of three charted Wrecks and a charted Obstruction labelled as Position Approximate (PA) located outside of the survey area's western border.

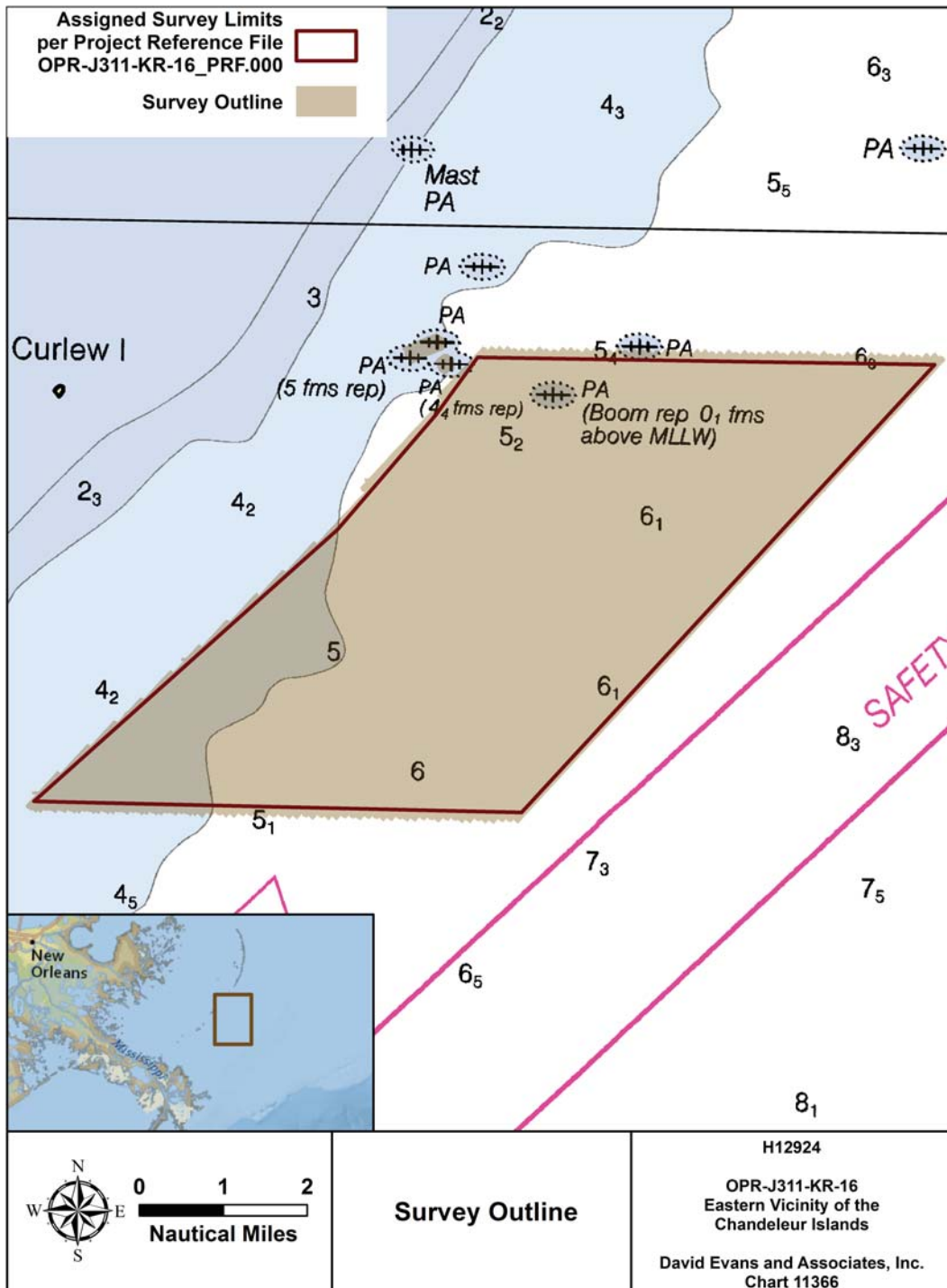


Figure 2: H12924 Survey Outline

A.5 Survey Statistics

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

	HULL ID	<i>S/V Blake</i>	<i>Total</i>
LNM	SBES Mainscheme	0.0	0
	MBES Mainscheme	38.4	38.4
	Lidar Mainscheme	0.0	0
	SSS Mainscheme	11.3	11.3
	SBES/SSS Mainscheme	0.0	0
	MBES/SSS Mainscheme	501.7	501.7
	SBES/MBES Crosslines	22.9	22.9
	Lidar Crosslines	0.0	0
Number of Bottom Samples			3
Number Maritime Boundary Points Investigated			0
Number of DPs			0
Number of Items Investigated by Dive Ops			0
Total SNM			31.63

Table 2: Hydrographic Survey Statistics

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

Survey Dates	Day of the Year
08/13/2016	226
08/14/2016	227
08/15/2016	228
08/16/2016	229
08/20/2016	233
08/21/2016	234
09/04/2016	248
09/05/2016	249
09/06/2016	250
09/17/2016	261
11/17/2016	322
11/18/2016	323

Table 3: Dates of Hydrography

B. Data Acquisition and Processing

B.1 Equipment and Vessels

The OPR-J311-KR-16 Data Acquisition and Processing Report (DAPR), previously submitted with survey H12920, details equipment and vessel information as well as data acquisition and processing procedures. There were no vessel or equipment configurations used during data acquisition that deviated from those described in the DAPR.

B.1.1 Vessels

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

Hull ID	<i>S/V Blake</i>
LOA	83 feet
Draft	4.5 feet

Table 4: Vessels Used



Figure 3: S/V Blake

B.1.2 Equipment

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

Manufacturer	Model	Type
Reson	7125 SV2	MBES
Edgetech	4200-HF	SSS
Applanix	POS/MV 320 v5	Positioning & Attitude
Rolls Royce	MVP30-350 with AML Micro SV&P	Primary Sound Speed Profiler (until 9/3/16)
Rolls Royce	MVP30-350 with AML MVP X	Primary Sound Speed Profiler (after 9/3/16)
AML	Micro SV Xchange	Surface Sound Speed
Sea-Bird Electronics	SEACAT SBE 19-03 CTD	Secondary Sound Speed Profiler

Table 5: Major Systems Used

An equipment malfunction prevented use of the MVP30-350 during part of the day on November 18, 2016 (DN 323). The SEACAT CTD was used in its place to acquire profiles at the following times: 02:53:00, 03:24:00, 03:54:00, 04:22:00, 04:58:00, 05:25:00.

B.2 Quality Control

B.2.1 Crosslines

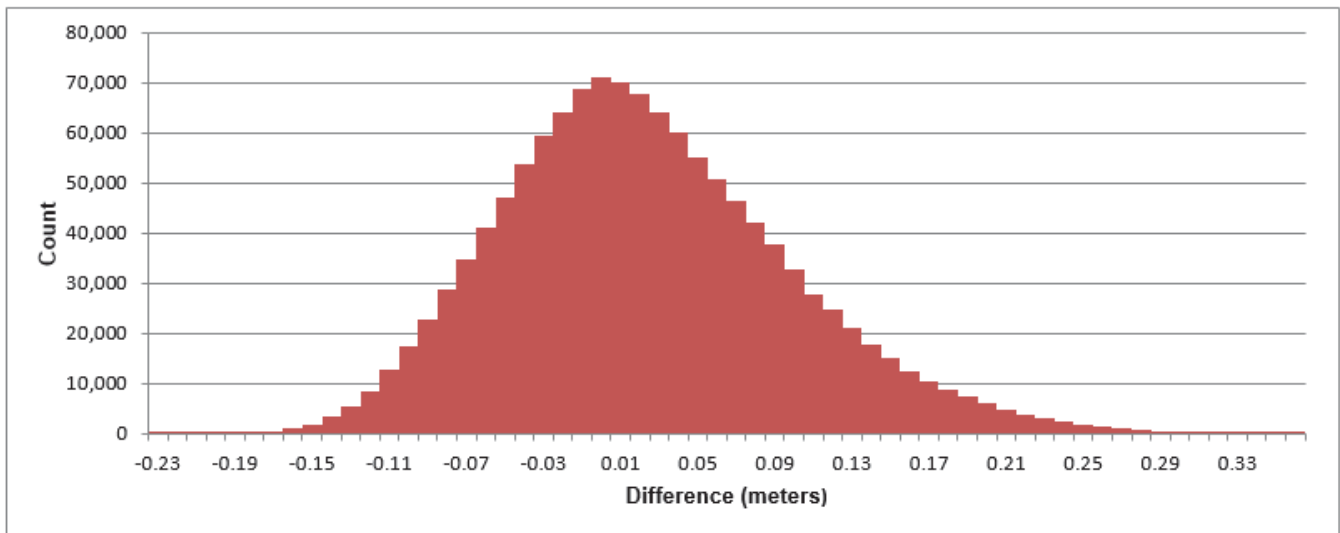
Crosslines acquired for this survey totaled 4.24% of mainscheme acquisition.

Crosslines were run across the entire survey area in order to provide a varied spatial and temporal distribution for analysis of internal consistency within the survey data.

Crossline analysis was performed using the CARIS Hydrographic Information Processing System (HIPS) Quality Control (QC) Report tool, which compares crossline data to a gridded surface and reports results by beam number. Crosslines were compared to a 1-meter CUBE surface encompassing mainscheme data for the entire survey area. The QC Report tabular output and plot are included in Separate II. The results of the analysis meet the requirements as stated in the 2016 HSSD.

Additional crossline analysis was performed by computing a 1-meter CUBE surface from the crossline data. The surface was then differenced from a 1-meter surface comprised of all mainscheme, fill, and investigation data. The resultant difference surface was exported using the Base Surface to ASCII function and statistics were compiled on the ASCII data.

Results from the crossline to mainscheme difference analysis are depicted in Figure 4. The largest differences (20 to 36 centimeters) appear to be associated with natural seafloor change which occurred between the acquisition of mainscheme and crossline data.



Mean:	0.026 m	Standard Deviation:	0.075 m
Minimum:	-0.227 m	Bin size:	0.01 m
Maximum:	0.363 m	Number of Nodes:	1,242,303

Figure 4: H12924 Crossline Differences

B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

Measured	Zoning	Method
0.00 meters	0.112 meters	Discrete

Table 6: Survey Specific Tide TPU Values

Hull ID	Measured - CTD	Measured - MVP	Surface
S/V Blake	n/a meters/second	1.0 meters/second	0.5 meters/second

Table 7: Survey Specific Sound Speed TPU Values

Additional discussion of these parameters is included in the DAPR.

During surface finalization in HIPS, the "Greater of the two values" option was selected, where the calculated uncertainty from total propagated uncertainty (TPU) is compared to the standard deviation of the soundings influencing the node, and where the greater value is assigned as the final uncertainty of the node. The uncertainty of the finalized surfaces increased for nodes where the standard deviation of the node was greater than the total propagated uncertainty.

The resulting calculated uncertainty values of all nodes in the finalized 1-meter Complete Coverage multibeam surface range from 0.235 meters to 0.876 meters with a standard deviation of 0.006 meters

To determine if surface grid nodes met International Hydrographic Organization (IHO) Order 1 specification, a ratio of the final node uncertainty to the allowable uncertainty at that depth was determined. As a percentage, this value represents the amount of error budget utilized by the uncertainty value at each node. Values greater than 100% indicate nodes exceeding the allowable IHO uncertainty.

For the 1-meter Complete Coverage multibeam surface, the allowable uncertainty utilized ranges from 44% to 161%. The mean allowable uncertainty for the surface is 46% with a standard deviation of 0.013.

B.2.3 Junctions

Survey H12924 junctions with surveys H12847, H12922, H12923, H12925, H12926, and H12953.

For H12847, a copy of the finalized CSAR surface that DEA submitted to the Atlantic Hydrographic Branch was used.

The finalized H12924 surface was compared to each junction survey by generating a difference surface with CARIS HIPS. At the time of writing, data from surveys H12925, H12926, and H12953 were still being processed. The Descriptive Reports for these respective surveys will include the junction analysis with H12924.

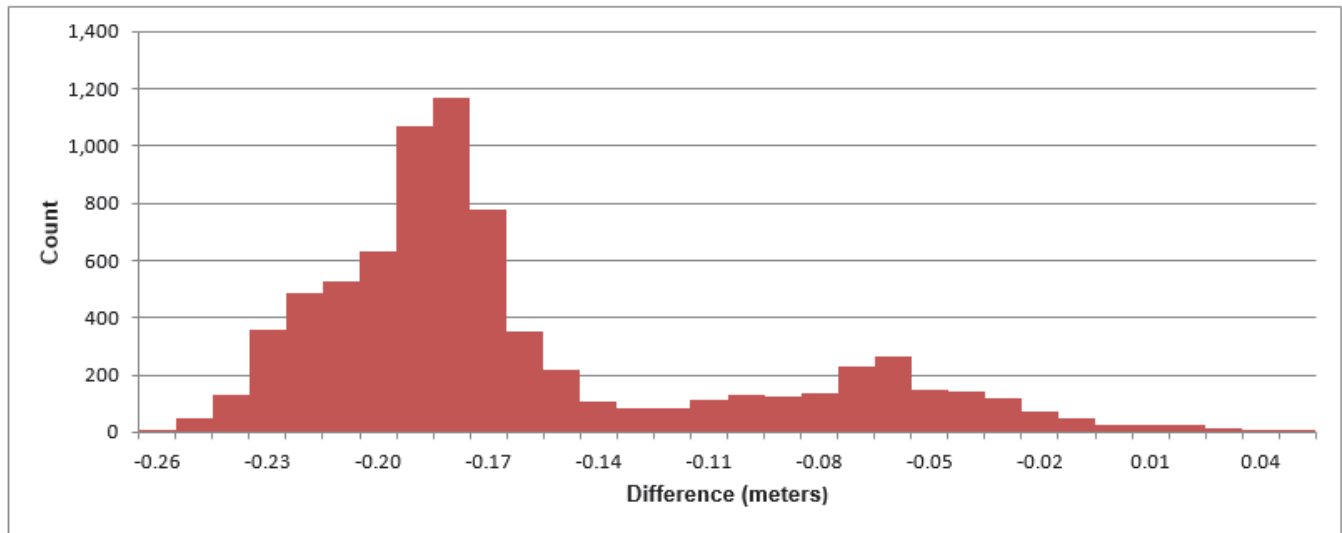
The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H12847	1:20000	2015	David Evans and Associates, Inc.	W
H12922	1:40000	2016	David Evans and Associates, Inc.	S
H12923	1:40000	2016	David Evans and Associates, Inc.	S
H12925	1:40000	2016	David Evans and Associates, Inc.	E
H12926	1:40000	2016	David Evans and Associates, Inc.	N
H12953	1:40000	2016	David Evans and Associates, Inc.	N

Table 8: Junctioning Surveys

H12847

H12924 survey depths are generally 20 centimeters deeper than those from H12847. The slight bimodal distribution, observed in the histogram of differences, results from the influence of tide zoning artifacts on a small area overlap. Only three survey lines from H12924 overlap with the junction survey. Two of these lines were acquired consecutively on the same day (and tidal cycle) and are represented in the junction differences on the left side of the histogram. A single line acquired during a high tide event on the last day of survey operation represents the differences on the right side of the histogram.

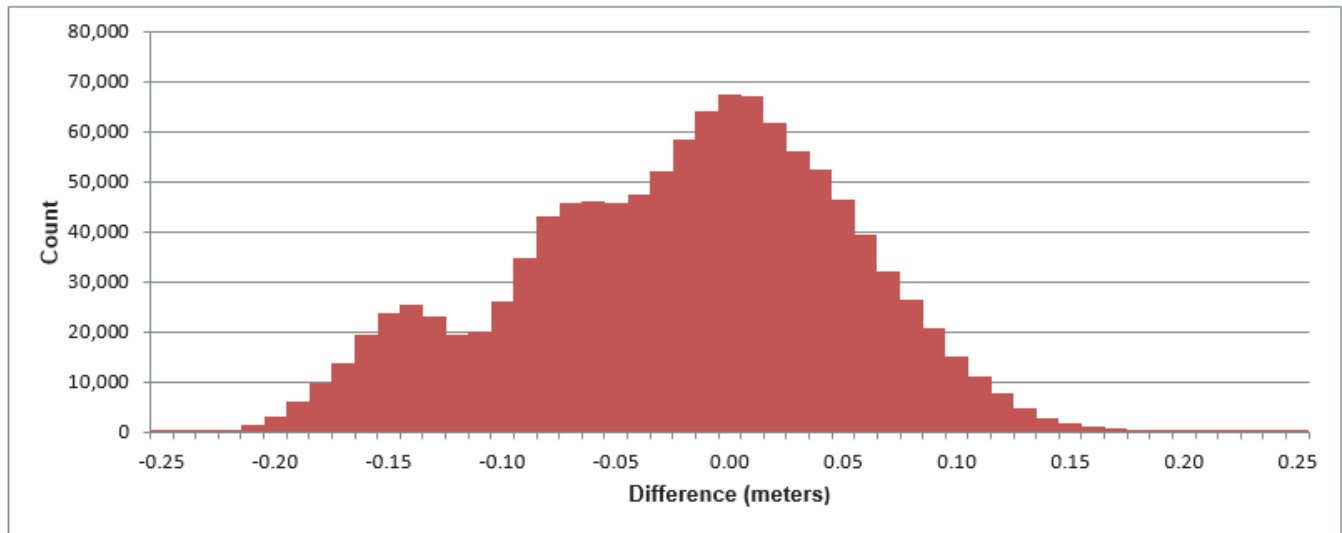


Mean:	-0.165 m	Standard Deviation:	0.059 m
Minimum:	-0.265 m	Bin size:	0.01 m
Maximum:	0.048 m	Number of Nodes:	7,671

Figure 5: Junction results between H12924 1-meter and H12847 1-meter bathymetry grids

H12922

H12924 survey depths generally range from 10 centimeters deeper than H12922 to 10 centimeters shallower than H12922. The slight bimodal distribution, observed in the histogram of differences, appears to be caused by the limitations of tide zoning and with the survey area located over 50 to 60 nautical miles from the controlling NWLON (National Water Level Observation Network) station. The minimum and maximum differences are associated with sound speed and tide artifacts.

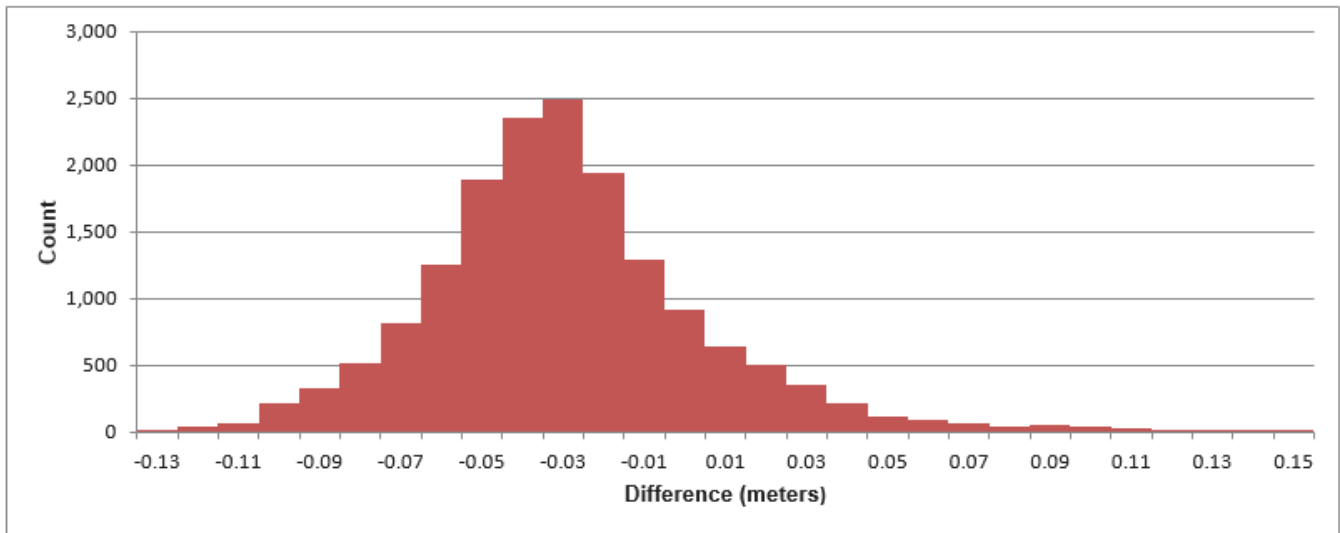


Mean:	-0.019 m	Standard Deviation:	0.073 m
Minimum:	-0.248 m	Bin size:	0.01 m
Maximum:	0.255 m	Number of Nodes:	1,145,265

Figure 6: Junction results between H12924 1-meter and H12922 1-meter bathy grids

H12923

The mean difference between H12924 and H12923 survey depths is 3 centimeters (H12924 deeper than H12923). The minimum and maximum differences are associated with sound speed and tide artifacts.



Mean:	-0.028 m	Standard Deviation:	0.035 m
Minimum:	-0.132 m	Bin size:	0.01 m
Maximum:	0.155 m	Number of Nodes:	16,336

Figure 7: Junction results between H12924 1-meter and H12923 1-meter bathy grids

H12925

The junction analysis between H12925 and H12924 will be included in the H12925 DR.

H12926

The junction analysis between H12926 and H12924 will be included in the H12926 DR.

H12953

The junction analysis between H12926 and H12924 will be included in the H12953 DR.

B.2.4 Sonar QC Checks

Quality control is discussed in detail in Section B of the DAPR. Results from weekly position checks and weekly multibeam bar checks are included in Separate I Acquisition and Processing Logs of this report. Sound speed checks can be found in Separate II Sound Speed Data Summary of this report.

Multibeam data were reviewed at multiple levels of data processing including: CARIS HIPS conversion, subset editing, and analysis of anomalies revealed in CUBE surfaces.

B.2.5 Equipment Effectiveness

Navigation Data Gaps

Periodically, survey lines contained navigation gaps which were likely caused by a Hypack write delay during acquisition. Survey lines containing navigation data gaps greater than one second were updated with real-time DGPS/Inertial position data extracted from the POS/MV .000 files.

The following survey lines use real-time navigation from .000 files: 2016BL2281734 and 2016BL2262256.

B.2.6 Factors Affecting Soundings

Sound speed artifacts

Data artifacts, which appear to be related to sound speed, are visible in the raw survey data in some areas. These artifacts were removed from the processed data by reducing the full 70-degree multibeam swath to 65-degrees with a HIPS swath filter.

The 65-degree swath filter was applied to the following lines:

DN228
2016BL2282221
2016BL2282330

DN248
All lines

DN249
All lines

DN250
2016BL2500143
2016BL2500147

DN261
2016BL2611642
2016BL2611815
2016BL2611910
2016BL2612055
2016BL2612102

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: Approximately 15-minute intervals.

Approximate 30-minute intervals on November 18, 2016 (DN 323)

A Rolls Royce Moving Vessel Profiler (MVP) was the primary instrument used to acquire sound speed readings during multibeam operations. MVP sound speed readings were measured at approximately 15-minute intervals during survey operations.

Due to a malfunction with the MVP, some casts acquired on November 18, 2016 (DN 323) were collected with the secondary sound speed profiler. These profiles were acquired at approximate 30-minute intervals during the last four hours of acquisition.

Additional discussion of sound speed methods can be found in the DAPR.

B.2.8 Coverage Equipment and Methods

Survey speeds were maintained to meet or exceed along-track sounding density and side scan sonar ensonification requirements.

Side scan mosaics were thoroughly reviewed for holidays and areas of poor quality coverage due to biomass, vessel wakes, or other factors. A fill plan was created in order to acquire side scan data where holidays and significant poor quality coverage existed. Side scan sonar contacts were developed with multibeam sonar to obtain a least depth of the contact using Object Detection Coverage requirements.

B.2.9 Density

The sounding density requirement of 80% of all nodes, populated with at least five soundings per node, was verified by exporting the density child layer of the finalized CUBE surface to an ASCII text file and compiling statistics on the density values. More than 98% of all final CUBE surface nodes contained five or more soundings.

B.3 Echo Sounding Corrections

B.3.1 Corrections to Echo Soundings

Data reduction procedures for survey H12924 are detailed in the DAPR. A summary multibeam processing log is included in Separate I of this report.

B.3.2 Calibrations

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

Calibration Type	Date	Reason
MBES (400kHz)	2016-10-28	Routine calibration test

Table 9: Calibrations not discussed in the DAPR.

The H12924 survey was still active at time of DAPR submission. Additional calibration tests not reported in the DAPR are included in Table 9. A revision to DAPR Appendix II, which includes these additional calibration tests and results from a new weekly bar check, has been included with the H12924 deliverables.

B.4 Backscatter

Multibeam backscatter was logged in Hypack 7K format and included with the H12924 digital deliverables. Data were processed periodically in CARIS HIPS to evaluate backscatter quality but the processed data is not included with the deliverables.

For data management purposes, the names of multibeam crosslines have been appended with the suffix `_XL`. This change was made to HIPS files only. The original file names of raw data files (Hypack HSX and 7k) have been retained.

B.5 Data Processing

B.5.1 Primary Data Processing Software

The following software program was the primary program used for bathymetric data processing:

Manufacturer	Name	Version
CARIS	HIPS	9.1.6

Table 10: Primary bathymetric data processing software

The following software program was the primary program used for imagery data processing:

Manufacturer	Name	Version
Chesapeake Technology, Inc.	SonarWiz	6.004.0006 and 6.004.0009

Table 11: Primary imagery data processing software

The following Feature Object Catalog was used: 5.3.4. A detailed listing of all data processing software is included in the OPR-J311-KR-16 DAPR.

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
H12924_MB_1m_MLLW	CUBE	1 meters	8.48 meters - 18.41 meters	NOAA_1m	Complete Coverage
H12924_MB_1m_MLLW_Final	CUBE	1 meters	7.26 meters - 18.41 meters	NOAA_1m	Finalized Complete Coverage
H12924_SSS_1m_100	Mosaic	1 meters	0 meters - 0 meters	N/A	100- percent coverage

Table 12: Submitted Surfaces

Bathymetric grids were created relative to Mean Lower Low Water (MLLW) in CUBE format using Complete Coverage resolution requirements as described in the HSSD.

C. Vertical and Horizontal Control

A complete description of the horizontal and vertical control for survey H12924 can be found in the OPR-J311-KR-16 Horizontal and Vertical Control Report (HVCR), submitted under a separate cover. A summary of horizontal and vertical control for this survey follows.

The horizontal datum for the project was the North American Datum of 1983 (NAD 83) as specified by Hydrographic Technical Directive (HTD) 2016-3: Revision of Horizontal Datum in 2016 HSSD. A copy of this HTD is included in the OPR-J311-KR-16 Project Correspondence.

C.1 Vertical Control

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

Standard Vertical Control Methods Used:

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

Station Name	Station ID
Dauphin Island	8735180

Table 13: NWLON Tide Stations

File Name	Status
8735180.tid	Verified Observed

Table 14: Water Level Files (.tid)

File Name	Status
J311KR2016RevCORP.zdf	Final

Table 15: Tide Correctors (.zdf or .tc)

Tide zoning file J311KR2016RevCORP.zdf was provided with the project instructions and used for sounding correction within the assigned survey area.

C.2 Horizontal Control

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

The projection used for this project is NAD83 UTM Zone 16 North.

The following DGPS Stations were used for horizontal control:

DGPS Stations
English Turn, LA (293 kHz)

Table 16: USCG DGPS Stations

D. Results and Recommendations

D.1 Chart Comparison

The majority of the chart comparison was performed by comparing H12924 depths to a digital surface generated from electronic navigational charts (ENCs) covering the survey area. A 50-meter product surface was generated from a triangular irregular network (TIN) created from the soundings, depth contours, and depth features for each ENC scale. An additional 50-meter HIPS product surface of the entire survey area was generated from the finalized MBES CUBE surfaces. The chart comparison was conducted by creating and reviewing the resultant difference surface. The chart comparison also included a review of all assigned charted features within the survey area.

The raster navigational chart (RNC) comparison was performed by manually comparing the RNC covering the survey area to the corresponding ENC and identifying discrepancies between the two chart formats.

The electronic and raster versions of the relevant charts used during the comparison were reviewed to check that all US Coast Guard (USCG) Local Notice to Mariners (LNMs) issued during survey acquisition and impacting the survey area were applied and addressed by this survey.

D.1.1 Raster Charts

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

Chart	Scale	Edition	Edition Date	LNM Date	NM Date
11363	1:80000	44	02/2013	11/26/2016	12/13/2016
11366	1:250000	16	06/2015	11/26/2016	12/13/2016

Table 17: Largest Scale Raster Charts

11363

Approach chart 11363 was compared to US4LA34M within the H12924 survey area. No differences were observed between the charts.

11366

General Chart was compared to US3GC04M within the H12924 survey area. No differences were observed between the charts.

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?
US4LA34M	1:80000	29	01/06/2015	12/14/2016	NO
US3GC04M	1:250000	52	11/05/2014	12/14/2016	NO

Table 18: Largest Scale ENC's

US4LA34M

In general, surveyed depths range from ten feet deeper to four feet shoaler than charted on ENC US4LA34M. The disproval of the charted Wreck PA (Boom rep 1 ft above MLLW) is not depicted in the chart comparison surface. This feature is included in the ENC with an empty value of sounding field.

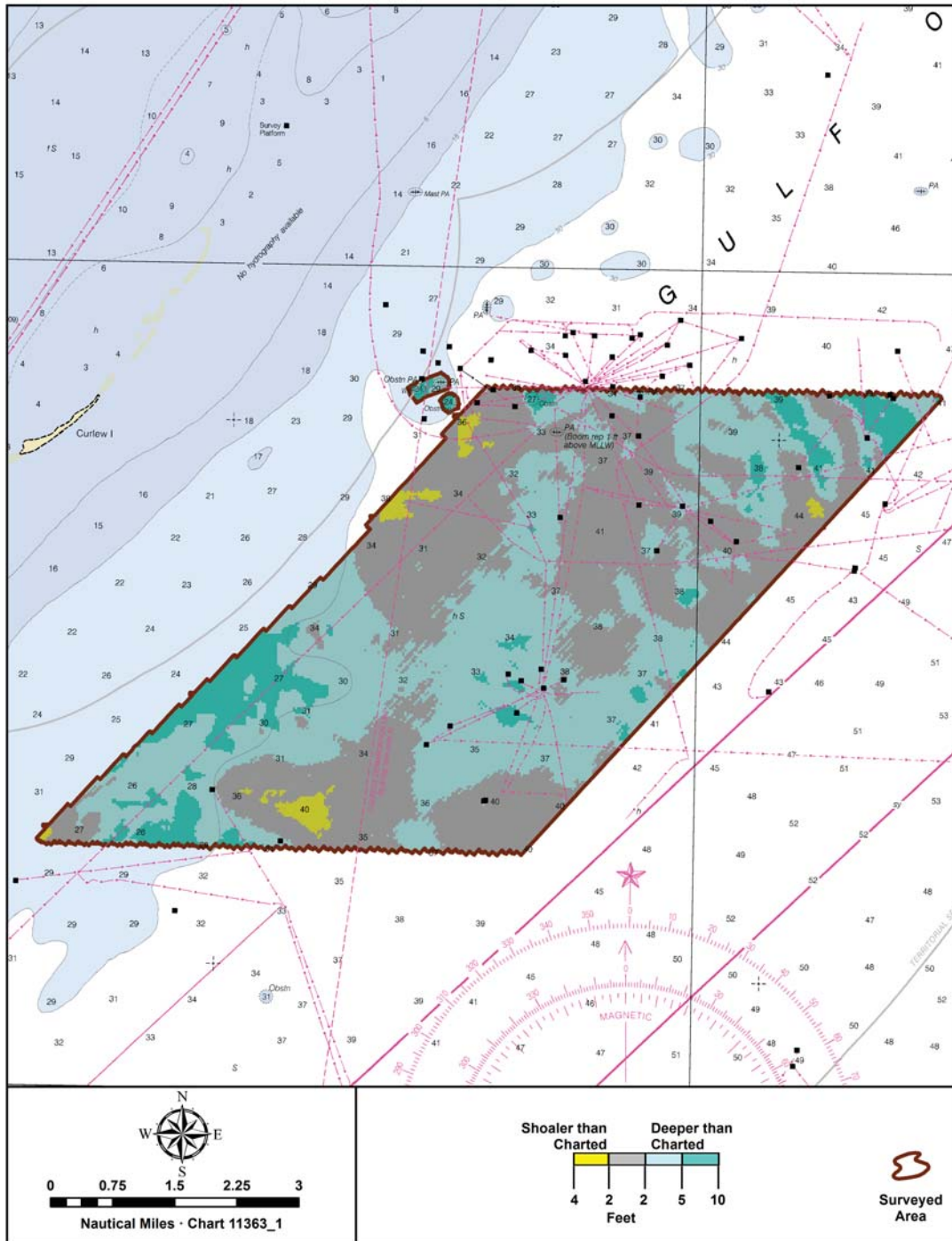


Figure 8: Depth Difference between H12924 and chart US4LA34M

US3GC04M

In general, surveyed depths range from ten feet deeper to one foot shoaler than charted on ENC US3GC04M. Survey depths are up to 35 feet deeper than charted in the vicinity of the disproved charted Wreck PA (0-fathom 1-foot reported above MLLW) charted in the northwest corner of the survey.

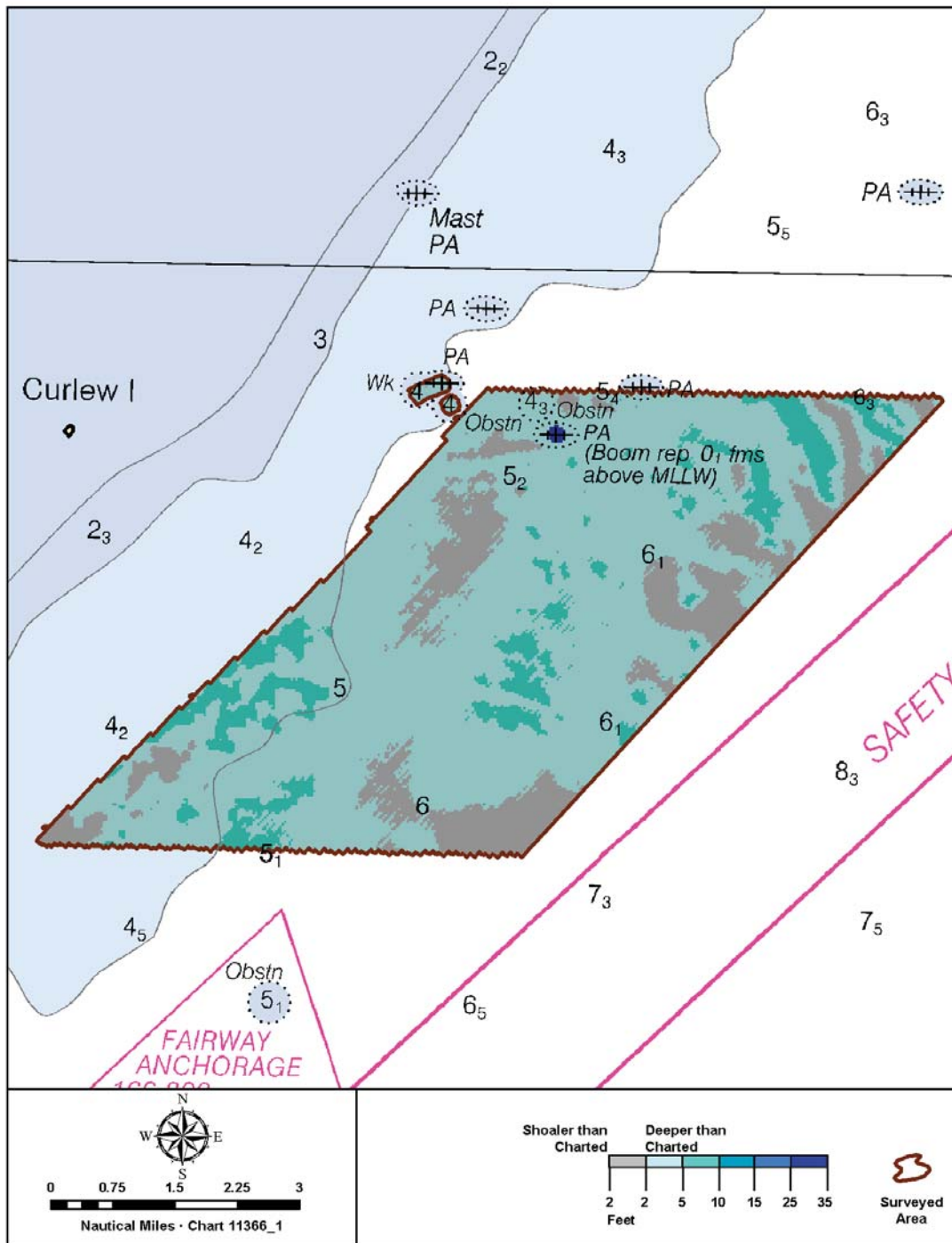


Figure 9: Depth Difference between H12924 and chart US3GC04M

D.1.3 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.4 Charted Features

The Wreck PA (Boom 1-ft above MLLW reported) has been disproved with Object Detection MBES coverage and is included in the FFF with a description of 'Delete'.

The Wreck PA (28-ft reported) has been disproved with Object Detection MBES coverage and is included in the FFF with a description of 'Delete'.

The Wreck PA (30-ft reported) has been disproved with Object Detection MBES coverage and is included in the FFF with a description of 'Delete'.

The Wreck PA (depth unknown) has been disproved with Object Detection MBES coverage and is included in the FFF with a description of 'Delete'.

The Obstruction PA (depth unknown) has been disproved with Object Detection MBES coverage and is included in the FFF with a description of 'Delete'.

The survey area does not contain any charted features labeled as Reported, Position Doubtful (PD), or Existence Doubtful (ED).

D.1.5 Uncharted Features

All uncharted features are portrayed in the FFF as surveyed and attributed with the description of 'New'.

D.1.6 Dangers to Navigation

Four Dangers to Navigation (DtoN) were submitted for this survey.

H12924 DtoN 01 reports an uncharted obstruction within the survey area. This feature has been added to the charts using preliminary survey information.

H12924 DtoN 02 and DtoN 03 reported sections of pipeline which are visibly exposed and separated from the seabed in the multibeam data. While not a direct hazard to surface navigation these exposed pipelines were submitted using the DtoN process in order to facilitate the review and reporting of exposed pipelines.

H12924 DtoN 04 reports an uncharted obstruction and an uncharted wreck within the survey area. These features have been added to the charts using preliminary survey information.

D.1.7 Shoal and Hazardous Features

No shoal or hazardous features were charted or located within the H12924 survey area.

D.1.8 Channels

The H12924 survey area does not contain any anchorage areas, maintained navigation channels, or channel lines.

D.1.9 Bottom Samples

Three bottom samples were acquired on September 6, 2016 (DN250). The sampling plan followed suggested sample locations included in the PRF provided by the Hydrographic Surveys Division.

D.2 Additional Results

D.2.1 Shoreline

Shoreline investigation was not assigned for this survey.

D.2.2 Prior Surveys

Other than the previously mentioned junction analyses, no other comparisons with prior surveys were conducted.

D.2.3 Aids to Navigation

No Aids to Navigation (AtoNs) were charted or located within the H12924 survey area.

D.2.4 Overhead Features

There were no overhead bridges, cables, or other structures which would impact overhead clearance in the survey area.

D.2.5 Submarine Features

Sections of pipeline which are visibly exposed on the seabed were reported as a DtoN and are included in the H12924 FFF as pipeline features. These features were submitted to the processing branch using the DtoN process so that the proper authorities could be notified about the condition of the pipelines.

No submarine cables or tunnels were charted or located within the H12924 survey area.

D.2.6 Ferry Routes and Terminals

There were no ferry routes or terminals within the survey area.

D.2.7 Platforms

Twenty-three platforms are charted within the survey area. All 23 of the charted platforms were disproved by the survey and are included in the FFF with description of 'Delete'. All platforms were disproved with Object Detection MBES coverage.

D.2.8 Significant Features

There was no other information of scientific or practical value observed during the survey.

D.2.9 Construction and Dredging

No construction or dredging activities were observed during survey operations.

D.2.10 New Survey Recommendation

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

D.2.11 Inset Recommendation

No new insets are recommended for this area.

E. Approval Sheet

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

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

The survey data meets or exceeds requirements as set forth in the NOS Hydrographic Surveys and Specifications Deliverables Manual, Statement of Work, and Hydrographic Survey Project Instructions. These data are adequate to supersede charted data in their common areas. This survey is complete and no additional work is required.

Report Name	Report Date Sent
OPR-J311-KR-16 Data Acquisition and Processing Report	2016-11-03

Approver Name	Approver Title	Approval Date	Signature
Jonathan L. Dasler, PE, PLS, CH	NSPS/THSOA Certified Hydrographer, Chief of Party	01/18/2017	 Digitally signed by Jon Dasler DN: cn=Jon Dasler, o=David Evans and Associates, Inc., ou=Marine Services Division, email=jld@deainc.com, c=US Date: 2017.01.18 10:43:15 -08'00'
Jason Creech, CH	NSPS/THSOA Certified Hydrographer, Charting Manager / Project Manager	01/18/2017	 Digitally signed by Jason Creech DN: cn=Jason Creech, o=David Evans and Associates, Inc., ou=Marine Services Division, email=jasc@deainc.com, c=US Date: 2017.01.18 10:42:57 -08'00'
Kathleen Schacht	MBES Data Processing Manager	01/18/2017	 Digitally signed by Kathleen Schacht DN: cn=Kathleen Schacht, o=David Evans and Associates, Inc., ou, email=kmssc@deainc.com, c=US Date: 2017.01.18 09:55:10 -08'00'
John Staly	Lead Hydrographer	01/18/2017	 Digitally signed by John Staly DN: cn=John Staly, o=David Evans and Associates, Inc., ou=Marine Services Division, email=jstaly@deainc.com, c=US Date: 2017.01.18 09:52:43 -08'00'

F. Table of Acronyms

Acronym	Definition
AHB	Atlantic Hydrographic Branch
ASCII	American Standard Code for Information Interchange
AWOIS	Automated Wreck and Obstruction Information System
BAG	Bathymetric Attributed Grid
CH	Certified Hydrographer
CSF	Composite Source File
CTD	Conductivity Temperature Depth
DAPR	Data Acquisition and Processing Report
DEA	David Evans and Associates, Inc
DGPS	Differential Global Positioning System
DN	Day Number
DtoN	Danger to Navigation
ED	Existence Doubtful
ENC	Electronic Navigational Chart
GPS	Global Positioning System
HIPS	Hydrographic Information Processing System
HSD	Hydrographic Surveys Division
HSSD	Hydrographic Surveys Specifications and Deliverables
HVCR	Horizontal and Vertical Control Report
IHO	International Hydrographic Organization
LNM	Local Notice to Mariners
MBES	Multibeam Echo Sounder
MLLW	Mean Lower Low Water
MVP	Moving Vessel Profiler
NOAA	National Oceanic and Atmospheric Administration
NSPS	National Society of Professional Surveyors
NWLON	National Water Level Observation Network
PA	Position Approximate
PD	Position Doubtful
PE	Professional Engineer
PLS	Professional Land Surveyor

Acronym	Definition
PRF	Project Reference File
QC	Quality Control
RNC	Raster Navigational Chart
SBES	Single Beam Echo Sounder
SSS	Side Scan Sonar
TIN	Triangular Irregular Network
TPU	Total Propagated Uncertainty
USCG	United States Coast Guard

APPENDIX I
TIDES AND WATER LEVELS

H12924

TIMES OF HYDROGRAPHY

Project: OPR-J311-KR-16

Contractor Name: David Evans and Associates, Inc.

Date: November 18, 2016

Inclusive Dates: August 13, 2016 - November 18, 2016

Field work is complete

Time (UTC)

Day Number	Date	Start Time	End Time
226	08/13/2016	14:34:36	23:53:11
227	08/14/2016	0:13:05	23:55:56
228	08/15/2016	0:33:19	23:51:04
229	08/16/2016	0:21:52	3:15:08
233	08/20/2016	23:00:22	23:46:11
234	08/21/2016	0:21:02	1:08:18
248	09/04/2016	8:41:58	23:56:56
249	09/05/2016	0:19:53	23:49:50
250	09/06/2016	0:16:28	5:07:23
261	09/17/2016	15:06:21	21:55:45
323	11/18/2016	0:30:00	5:21:00

H12924

FINAL TIDE NOTE AND ZONING

DATE: November 18, 2016

HYDROGRAPHIC BRANCH: Atlantic Hydrographic Branch

HYDROGRAPHIC PROJECT: OPR-J311-KR-16

HYDROGRAPHIC SURVEY: H12924

LOCALITY: Southeastern Vicinity of the Chandeleur Islands

SUB-LOCALITY: 20 NM SW of Chandeleur Islands

TIME PERIOD¹ : August 13, 2016 - November 18, 2016

TIDE STATIONS USED:

<u>Station Name</u>	<u>Station ID</u>	<u>Type</u>	<u>Latitude</u>	<u>Longitude</u>
Dauphin Island, AL	8735180	Control	30° 15.0' N	88° 4.5' W

PLANE OF REFERENCE (MEAN LOWER LOW WATER) :

8735180 0.000m

HEIGHT OF MEAN HIGH WATER ABOVE PLANE OF REFERENCE:

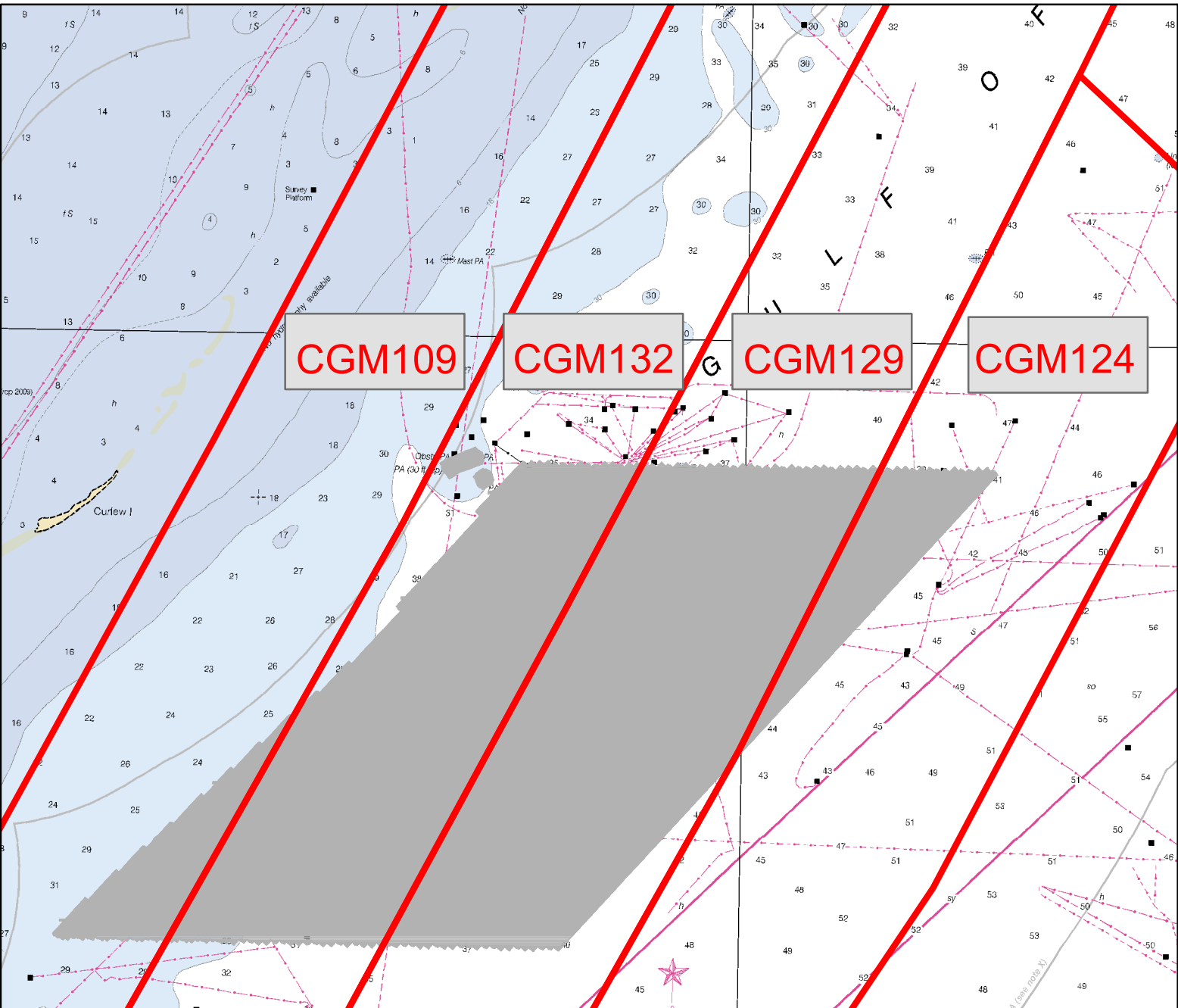
8735180 0.361m

FINAL ZONING AND TIDAL REDUCERS TO CHART DATUMN:

<u>Zone</u>	<u>(Mins)</u>	<u>Range Ratio</u>	<u>Station</u>
CGM109	-36	1.13	8735180
CGM124	-72	1.08	8735180
CGM129	-60	1.08	8735180
CGM 132	-48	1.13	8735180

¹ Please refer to the comprehensive list in attached Times of Hydrography.

<http://tidesandcurrents.noaa.gov/benchmarks.html?id=8735180>




Survey Coverage
 Final Tide Zoning



OPR-J311-KR-16
Eastern Vicinity of the Chandeleur Islands
David Evans and Associates, Inc.
Chart 11363

H12924
Final Tide Zoning


 0 0.5 1
 Nautical Miles

OTHER CORRESPONDENCE
(NOT APPLICABLE)

APPROVAL PAGE

H12924

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

- H12924_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12924_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 W. Hillstrom, NOAA
Chief, Atlantic Hydrographic Branch