

H12712

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

**DESCRIPTIVE REPORT**

Type of Survey: Basic Hydrographic Survey

Registry Number: H12712

**LOCALITY**

State(s): Louisiana

General Locality: Western Vicinity of Lake Borgne

Sub-locality: 8NM West of Chandeleur Islands

**2014**

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

LIBRARY & ARCHIVES

Date:

**HYDROGRAPHIC TITLE SHEET**

**H12712**

**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: **Western Vicinity of Lake Borgne**

Sub-Locality: **8NM West of Chandeleur Islands**

Scale: **40000**

Dates of Survey: **12/15/2014 to 06/02/2015**

Instructions Dated: **08/29/2014**

Project Number: **OPR-J311-KR-14**

Field Unit: **David Evans & 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, 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 Geophysical Data Center (NGDC) and can be retrieved via <http://www.ngdc.noaa.gov/>.*

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## Descriptive Report to Accompany Survey H12712

Project: OPR-J311-KR-14

Locality: Western Vicinity of Lake Borgne

Sublocality: 8NM West of Chandeleur Islands

Scale: 1:40000

December 2014 - June 2015

**David Evans & Associates, Inc.**

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

### A. Area Surveyed

David Evans and Associates, Inc. (DEA) conducted hydrographic survey operations in Chandeleur Sound approximately eight nautical miles west of the Chandeleur Islands. Survey H12712 was conducted in accordance with the Statement of Work (July 9, 2014) and Hydrographic Survey Project Instructions (August 29, 2014).

The Hydrographic Survey Project Instructions reference the National Ocean Service (NOS) Hydrographic Surveys Specifications and Deliverables Manual (HSSD), April 2014 as the technical requirements for this project.

#### A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
30° 4' 49.87" N 89° 2' 3.49" W	29° 58' 52.09" N 88° 56' 38.62" W

*Table 1: Survey Limits*

*Figure 1: OPR-J311-KR-14 Assigned Survey Areas*

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

## A.2 Survey Purpose

The purpose of this project is to provide contemporary surveys to update National Ocean Service (NOS) nautical charting products. This project is located in an area subject to the influence of hurricanes on an annual basis, thus producing a very dynamic environment requiring frequent re-surveying. In addition, the tug and tow industry will be re-routed to the west of the Chandeleur Islands due to a Gulf Intracoastal Waterway West (GIWW) closure in the Summer of 2015. A large portion of the proposed alternative route for the tug and tow industry lies within the southern portion of this project area. This project will cover approximately 129 SNM of emerging critical areas and 4.5 SNM of priority 2 areas as identified in the 2012 NOAA Hydrographic Survey Priorities (NHSP). The project area is located in the vicinity of Lake Borgne, the Gulfport Sound Channel, and west of the Chandeleur Islands.

## A.3 Survey Quality

The entire survey is adequate to supersede previous data.

## A.4 Survey Coverage

### *Figure 2: H12712 Survey Outline*

The survey consisted of 200% side scan sonar coverage with concurrent MBES and backscatter using the Set Line Spacing coverage technique. Significant side scan sonar contacts were developed with multibeam sonar to meet Object Detection coverage requirements for multibeam surveys. The project's inshore limit, which was defined as the farthest offshore of either the surveyed 4-meter depth contour or the Navigable Area Limit Line (NALL), was not applicable to the survey area. The entire H12712 survey area as depicted in the OPR-J311-KR-14 Project Reference File (PRF) was surveyed.

DEA received a waiver to use the full sonar range when the towfish altitude was less than 8% of the range scale when operating at the 50-meter range scale. This waiver removed the minimum towfish height requirement at the 50-meter range scale as specified in Section 6.1.2.3 of the HSSD. A copy of the email correspondence granting this waiver is included in OPR-J311-KR-14 Project Correspondence.

## A.5 Survey Statistics

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

	<b>HULL ID</b>	<i>S/V Blake</i>	<i>Total</i>
<b>LNM</b>	<b>SBES Mainscheme</b>	0	0
	<b>MBES Mainscheme</b>	1.38	1.38
	<b>Lidar Mainscheme</b>	0	0
	<b>SSS Mainscheme</b>	7.15	7.15
	<b>SBES/SSS Mainscheme</b>	0	0
	<b>MBES/SSS Mainscheme</b>	1152.01	1152.01
	<b>SBES/MBES Crosslines</b>	92.42	92.42
	<b>Lidar Crosslines</b>	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>			24.08

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>
12/15/2014	349
12/16/2014	350
12/17/2014	351
12/18/2014	352
12/19/2014	353
01/09/2015	9
01/10/2015	10
01/12/2015	12
01/13/2015	13
01/14/2015	14
01/15/2015	15
01/18/2015	18
01/19/2015	19
04/15/2015	105
06/02/2015	153

*Table 3: Dates of Hydrography*

## **B. Data Acquisition and Processing**

### **B.1 Equipment and Vessels**

The OPR-J311-KR-14 Data Acquisition and Processing Report (DAPR), previously submitted with survey H12708, details equipment and vessel information as well as data acquisition and processing procedures used during this survey. 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:

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

<b>Manufacturer</b>	<b>Model</b>	<b>Type</b>
Reson	7125 SV2	MBES
Edgetech	4200-HF	SSS
Applanix	POS/MV 320 v4	Positioning & Attitude
Rolls Royce	MVP30-350 with AML Micro SVP&T	Primary Sound Speed Profiler
AML	Micro SV Exchange	Surface Sound Speed
Sea-Bird Electronics	SEACAT SBE 19-03 CTD	Secondary Sound Speed Profiler
AML	SV Plus V2	Secondary Sound Speed Profiler

*Table 5: Major Systems Used*

## B.2 Quality Control

### B.2.1 Crosslines

Crosslines acquired for this survey totaled 8% of mainscheme acquisition.

Crosslines were run in a direction perpendicular to main scheme lines across the entire surveyed area, providing a good representation for analysis of consistency. All crosslines were used for crossline comparisons.

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 4-meter CUBE surface encompassing mainscheme data for the entire survey area. The QC Report tabular output and plot are included in Separate II Digital Data. The results of the analysis meet the requirements as stated in the 2014 HSSD.

Additional crossline analysis was performed by computing a 4-meter CUBE surface from the crossline data. The surface was then differenced from a 4-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. All outliers from the difference analysis were reviewed in HIPS subset editor and found to result from a combination of sound speed artifacts in the outer beams and tide zoning errors.

*Figure 4: H12712 Crossline Differences*

### B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

<b>Measured</b>	<b>Zoning</b>
0.000 meters	0.102 meters

*Table 6: Survey Specific Tide TPU Values*

<b>Hull ID</b>	<b>Measured - CTD</b>	<b>Measured - MVP</b>	<b>Surface</b>
S/V Blake	n/a meters/second	1 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" 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 4-meter Set Line Spacing multibeam surface range from 0.209 meters to 0.271 meters with a standard deviation of 0.003 meters.

The uncertainty values of all nodes in the finalized 50-centimeter Object Detection multibeam surface range from 0.209 meters to 1.037 meters with a standard deviation of 0.013 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 4-meter Set Line Spacing multibeam surface, the allowable uncertainty utilized ranges from 41% to 54%. The mean allowable uncertainty for the surface is 42% with a standard deviation of 0.006. There are no values exceeding 100% which indicates that all nodes meet specification.

For the 50-centimeter Object Detection multibeam surface, the allowable uncertainty utilized ranges from 41% to 205%. The mean allowable uncertainty for the surface is 42% with a standard deviation of 0.027. In total 27 nodes out of 53,745 fail to meet specification.

Nodes that were reported out of specification were coincident with an area of high depth standard deviation over a significant feature with steep slopes. All uncertainty values were within allowable specification prior to surface finalization when standard deviation was incorporated into the solution when it was greater than the node uncertainty.

### **B.2.3 Junctions**

Survey H12712 junctions with H12711, H12721, and D00140. Surveys H12711 and H12721 were also performed by DEA as part of project OPR-J311-KR-14. Prior survey D00140 was a hydrographic reconnaissance survey which used a vertical beam echosounder with 1,000 meter line spacing to evaluate chart adequacy.

The Bathymetric Attributed Grid (BAG) for survey D00140 was downloaded from NOAA's National Geophysical Data Center (NGDC) website for comparison with H12712. The 4-meter finalized H12712 surface was compared to the junction survey by generating a difference surface with CARIS Base Editor.

At the time of writing, data from H12711 and H12721 were still being processed. The Descriptive Reports for H12711 and H12721 will include a junction analysis with H12712.

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
D00140	1:20000	2008	Terrasond, Ltd.	S
H12711	1:40000	2014	David Evans & Associates, Inc.	E
H12721	1:40000	2014	David Evans & Associates, Inc.	S

*Table 8: Junctioning Surveys*

### D00140

The southern half of the H12712 survey area junctions with prior hydrographic reconnaissance survey D00140. The maximum reported differences (H12712 up to 52 centimeters deeper than D00140) appear to be related to sediment migration since the prior survey with deviations occurring at the edges of sediment waves visible in the H12712 survey data. The minimum reported differences (H12712 up to 28 centimeters shoaler than D00140) coincide with questionable depth values in the 5-meter BAG from D00140. On average the H12712 data is approximately 6 centimeters deeper than the prior survey from 2008. Results from this analysis are shown in Figure 5.

*Figure 5: Junction results between H12712 4-meter and D00140 5-meter bathy grids*

### H12711

The junction analysis between H12712 and H12711 will be included in the H12711 DR.

### H12721

The junction analysis between H12712 and H12721 will be included in the H12721 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**

### DN015 Surface Sound Speed Spikes

Numerous spikes in surface sound speed (SSP) sensor values occurred during acquisition on January 15, 2015 (DN015). The AHB Hydro Team Lead provided guidance (via a phone conference) on preferred editing of this data, which was to reject SSP spikes without interpolation in the HIPS sensor editor and also reject sonar pings acquired coincident with the SSP spikes using the HIPS swath editor.

The occurrence of spikes in measured SSP values correlated to an increase in sea state. On January 15, 2015 the frequency of these anomalies dissipated and eventually ended after the survey vessel moved to calmer waters in the H12720 survey area.

*Figure 6: HIPS Attitude Editor View of DN015 SSP Spikes*

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

### DN013 POS MV real-time data outage

On January 13, 2015 (DN013) logging of the Applanix POS MV real-time and raw data, which includes delayed heave, were inadvertently stopped during acquisition of survey lines 2015BL0131040 and 2015BL0131126. Line segments missing delayed heave were rejected and the resulting holidays were filled on April 15, 2015 (DN105).

### Tide Zoning Artifacts

The survey area lies in the Chandeleur Sound, which is protected by the Chandeleur Islands, and is over 20 to 30 nautical miles from the controlling NWLON (National Water Level Observation Network ) stations at Bay Waveland Yacht Club and Pascagoula NOAA Lab. Vertical errors resulting from the limitations of tide zoning are visible in the data. These errors generally range from 10 to 15 centimeters, but in some extreme cases approach 30 centimeters (Figure 6). This vertical offset is within the typical 20 to 45 centimeter error contribution for tides and water levels. The largest contributing factor to water level errors in the Chandeleur Sound is meteorological influences which cannot be accounted for by zoning.

*Figure 7: Example of tide zoning artifact seen within H12712*

### Side Scan Sonar Data Gaps

Additional side scan sonar acquisition occurred on June 2, 2015 (DN153) to fill previously unknown coverage holidays. This data acquisition occurred after the survey had been reported as complete. Data holidays were caused by missing ping datagrams in the XTF files and masked by default settings in the side scan sonar processing software. The missing sonar pings may have been caused by a bad solder on one of the SSS topside unit boards. SonarWiz is set to move pings and navigation points when it detects a gap in coverage in order to prevent an along-track holiday. This issue impacted survey lines 2014BL3510313 and 2015BL0150155. The Project Contracting Officer's Representative and Contracting Officer's Technical Representative were notified about this issue.

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

Sound Speed Cast Frequency: Approximately 15-minute intervals.

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. 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.

Where 200% side scan coverage was required, demonstration of 200% coverage was achieved by producing two separate 100% 1 meter resolution mosaics. 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. Significant side scan sonar contacts were developed with multibeam sonar to obtain a least depth of the contact using multibeam Object Detection coverage requirements.

### **B.2.9 Density**

The multibeam sonar Set Line Spacing sounding density requirement of 95% of all nodes populated with at least three soundings 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 99.7% of all final CUBE surface nodes contained three or more soundings. Density statistics for all individual item investigation surfaces was reviewed and surpassed the requirement 95% of all nodes populated with at least five soundings..

## B.3 Echo Sounding Corrections

### B.3.1 Corrections to Echo Soundings

Data reduction procedures for survey H12712 are detailed in the DAPR. Since submitting the DAPR the S/V Blake's MRU Alignment values, which are used in TPU computations, have been updated. These values are reported in Table 6 of the DAPR and DAPR Appendix II and have been included in Figure 7 of this report. A summary of the multibeam processing logs is included Separate I Acquisition and Processing Logs of this report.

*Figure 8: Revised S/V Blake MRU Alignment Values*

### B.3.2 Calibrations

No additional calibration tests were conducted beyond those discussed in the DAPR.

## B.4 Backscatter

Multibeam backscatter was logged in Hypack 7K format and included with the H12712 digital deliverables. Data were processed periodically in CARIS HIPS to evaluate backscatter quality but the processed data is not included with the deliverables.

## B.5 Data Processing

### B.5.1 Software Updates

The following software updates occurred after the submission of the DAPR:

Manufacturer	Name	Version	Service Pack	Hotfix	Installation Date	Use
CARIS	HIPS	8.1	0	13	06/07/2015	Processing

*Table 9: Software Updates*

The following Feature Object Catalog was used: 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
H12712_MB_4m_MLLW	CUBE	4.0 meters	4.07 meters - 9.54 meters	NOAA_4m	Multibeam sonar Set Line Spacing Coverage
H12712_MB_4m_MLLW_Final	CUBE	4.0 meters	4.07 meters - 9.54 meters	NOAA_4m	Finalized Multibeam sonar Set Line Spacing coverage
H12712_MB_50cm_MLLW	CUBE	50 centimeters	5.85 meters - 6.99 meters	NOAA_0.5m	Object Detection Coverage
H12712_MB_50cm_MLLW_Final	CUBE	50 centimeters	5.38 meters - 6.99 meters	NOAA_0.5m	Finalized Object Detection Coverage
H12712_100Percent	Mosaic	1.0 meters	-	N/A	First 100-percent coverage
H12712_200Percent	Mosaic	1.0 meters	-	N/A	Second 100- percent coverage

*Table 10: Submitted Surfaces*

Bathymetric grids were created relative to Mean Lower Low Water (MLLW) in CUBE format using Set Line Spacing and Object Detection resolution requirements as described in the HSSD.

## C. Vertical and Horizontal Control

A complete description of the horizontal and vertical control for survey H12712 can be found in the OPR-J311-KR-14 Horizontal and Vertical Control Report (HVCR), submitted under a separate cover. A summary of horizontal and vertical control for this survey follows.

## 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
Pascagoula NOAA Lab, MS	8741533
Bay Waveland Yacht Club, MS	8747437

*Table 11: NWLON Tide Stations*

File Name	Status
8741533.tid	Verified Observed
8747437.tid	Verified Observed

*Table 12: Water Level Files (.tid)*

File Name	Status
J311KR2014CORP_rev2.zdf	Final

*Table 13: 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 NAD83 UTM Zone 16 North.

During survey operations, some Differential Global Positioning System (DGPS) outages from the primary beacon (293 kHz) occurred. The system was manually switched to the secondary beacon (295 kHz) when the primary signal was lost. No data was acquired during DGPS beacon outages.

The following DGPS Stations were used for horizontal control:

<b>DGPS Stations</b>
English Turn, LA (293 kHz)
Eglin Air Force Base, FL (295 kHz)

*Table 14: USCG DGPS Stations*

## **D. Results and Recommendations**

### **D.1 Chart Comparison**

The majority of the chart comparison was performed by comparing H12712 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 Multibeam Echo Sounder (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 RNCs covering the survey area to the corresponding ENCs 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:

<b>Chart</b>	<b>Scale</b>	<b>Edition</b>	<b>Edition Date</b>	<b>LNM Date</b>	<b>NM Date</b>
11363	1:80000	44	02/2013	04/28/2015	05/02/2015
11373	1:80000	52	05/2015	04/28/2015	05/01/2015

*Table 15: Largest Scale Raster Charts*

#### 11363

Coastal chart 11363 was compared to US4LA34M within the H12712 survey area. One minor difference in the placement of the 18-foot contour was observed at the northern edge of the US5LA34M.

#### 11373

No differences were observed between coastal chart 11373 and US4MS12M within the H12712 survey area.

### D.1.2 Electronic Navigational Charts

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

<b>ENC</b>	<b>Scale</b>	<b>Edition</b>	<b>Update Application Date</b>	<b>Issue Date</b>	<b>Preliminary?</b>
US4MS12M	1:80000	22	12/17/2014	05/06/2015	NO
US4LA34M	1:80000	29	01/06/2015	05/11/2015	NO

*Table 16: Largest Scale ENC's*

#### US4MS12M

In general, surveyed depths are between 0 to 5 feet deeper than charted.

*Figure 9: Depth Difference between H12712 and charts US4MS12M and US4LA34M*  
US4LA34M

Chart comparison with US4LA34M shows similar results to the comparison with US4MS12M. Surveyed depths are between 0 to 5 feet deeper than charted.

#### **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**

The charted Obstruction PA (Position Approximate) at the southern end of the survey area has been disproved by the survey. The feature has been included in the Final Feature File (FFF) with a description of 'Delete'.

No other features are charted within the survey area.

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

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

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

No Dangers to Navigation (Dtons) were reported for this survey.

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

A shoal depicted by the 12-foot contour is charted along the western edge of the survey area. Surveyed depths in this area are deeper than charted with no soundings of 12 feet or shoaler located by the survey.

### **D.1.9 Channels**

The H12712 survey area does not contain any anchorage areas, maintained navigation channels or channel lines.

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

Five bottom samples were acquired on April 8, 2015 (DN098). 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**

A shoreline investigation was not performed for this survey. The OPR-J311-KR-14 Project Instructions required a limited shoreline verification but the H12712 survey area does not junction with shoreline.

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

Other than the previously mentioned junction analysis 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 H12712 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**

No submarine cables, submarine pipelines, or tunnels were charted or located within the H12712 survey area.

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

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

**D.2.7 Platforms**

No platforms were charted or located within the H12712 survey area.

**D.2.8 Significant Features**

There was no additional information of scientific or practical value observed during the survey. There were no unusual submarine features or anomalous tidal or environmental conditions observed during the survey that impacted the quality of the survey or worthy of charting.

**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
Data Acquisition and Processing Report	2015-04-24

Approver Name	Approver Title	Approval Date	Signature
Jonathan L. Dasler, PE, PLS, CH	NSPS/THSOA Certified Hydrographer, Chief of Party	06/12/2015	 <small>Digitally signed by Jon Dasler DN: cn=Jon Dasler, o=David Evans and Associates, Inc., ou=Marine Services Division, email=jjld@deainc.com, c=US Date: 2015.06.15 08:09:21 -0700'</small>
Jason Creech, CH	NSPS/THSOA Certified Hydrographer, Lead Hydrographer	06/12/2015	 <small>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: 2015.06.15 08:10:00 -0700'</small>

APPENDIX I  
TIDE NOTE AND GRAPHICS

# H12712

## TIMES OF HYDROGRAPHY

**Project:** OPR-J311-KR-14

**Contractor Name:** David Evans and Associates, Inc.

**Date:** April 15, 2015

**Inclusive Dates:** December 15, 2014 - April 15, 2015

Field work is complete

Time (UTC)

Day Number	Date	Start Time	End Time
349	12/15/2014	0:48:26	13:14:09
350	12/16/2014	3:02:49	23:57:29
351	12/17/2014	0:12:01	23:55:40
352	12/18/2014	0:08:47	23:55:34
353	12/19/2014	0:13:17	10:26:22
9	01/09/2015	2:04:05	23:59:58
10	01/10/2015	0:29:20	3:51:26
12	01/12/2015	15:02:24	23:53:44
13	01/13/2015	0:06:27	23:58:25
14	01/14/2015	0:11:53	23:56:06
15	01/15/2015	0:08:09	9:21:19
18	01/18/2015	18:29:13	23:55:36
19	01/19/2015	0:07:42	10:54:21
105	04/15/2015	6:41:18	11:09:09

# H12712

## FINAL TIDE NOTE

**DATE:** April 15, 2015

**HYDROGRAPHIC BRANCH:** Atlantic Hydrographic Branch

**HYDROGRAPHIC PROJECT:** OPR-J311-KR-14

**HYDROGRAPHIC SURVEY:** H12712

**LOCALITY:** Western Vicinity of Lake Borgne, LA

**SUB-LOCALITY:** 8NM West of Chandeleur Islands

**TIME PERIOD**<sup>1</sup> : December 15, 2014 - April 15, 2015

### TIDE STATIONS USED:

<u>Station Name</u>	<u>Station ID</u>	<u>Type</u>	<u>Latitude</u>	<u>Longitude</u>
Pascagoula NOAA Lab, MS	8741533	Control	30° 22.1' N	88° 33.8' W
Bay Waveland Yacht Club, MS	8747437	Control	30° 19.6' N	89° 19.5' W

### PLANE OF REFERENCE (MEAN LOWER LOW WATER) :

8741533	0.000m
8747437	0.000m

### HEIGHT OF MEAN HIGH WATER ABOVE PLANE OF REFERENCE:

8741533	0.440m
8747437	0.497m

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<sup>1</sup> Please refer to the comprehensive list in attached Times of Hydrography.

<http://tidesandcurrents.noaa.gov/benchmarks.html?id=8741533>

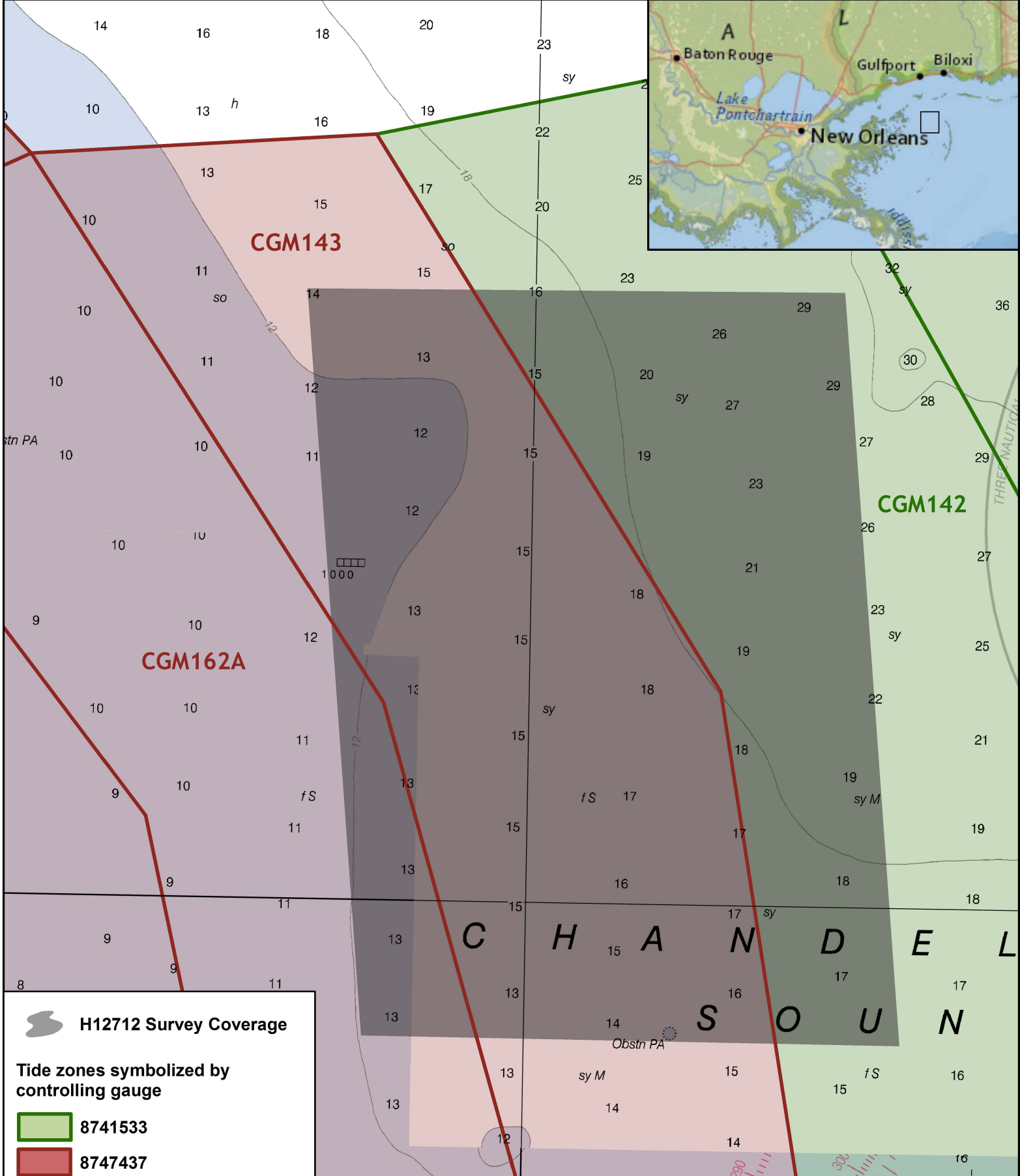
<http://tidesandcurrents.noaa.gov/benchmarks.html?id=8747437>

# H12712

## FINAL TIDE NOTE ZONING

<b>Zone</b>	<b>Time Corrector (Mins)</b>	<b>Range Ratio</b>	<b>Reference Station</b>
CGM142	36	1.04	8741533
CGM143	-48	0.92	8747437
CGM162A	-36	0.92	8747437

NOTE: Final soundings were reduced to chart datum using a revised version of the zoning scheme that was originally provided with the tides project instructions. The revision did not impact the zoning scheme covering the survey area.



**H12712 Survey Coverage**

**Tide zones symbolized by controlling gauge**

- 8741533
- 8747437

A compass rose showing cardinal directions (N, S, E, W). Below it is a scale bar for Nautical Miles, marked at 0, 0.5, and 1.

**H12712**  
**Final Tide Zoning Chartlet**

**OPR-J311-KR-14**  
**Western Vicinity of Lake Borgne, LA**  
**David Evans and Associates, Inc.**  
**Chart 11363, 11373**

APPENDIX II

SUPPLEMENTAL SURVEY RECORDS  
AND CORRESPONDENCE

(No supplemental Correspondence)

APPROVAL PAGE

H12712

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

- H12712\_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12711\_H12712\_H12720\_H12721\_H12722\_GeoImage.pdf

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

Approved: \_\_\_\_\_

**Lieutenant Commander Matthew Jaskoski, NOAA**  
Chief, Atlantic Hydrographic Branch