**NOAA FORM 76-35A**

**U.S. DEPARTMENT OF COMMERCE**
National Oceanic and Atmospheric Administration
National Ocean Survey

**DESCRIPTIVE REPORT**

<table>
<thead>
<tr>
<th>Type of Survey:</th>
<th>Navigable Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registry Number:</td>
<td>H12188</td>
</tr>
</tbody>
</table>

**LOCALITY**

<table>
<thead>
<tr>
<th>State:</th>
<th>Louisiana</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Locality:</td>
<td>Northern Gulf of Mexico</td>
</tr>
<tr>
<td>Sub-locality:</td>
<td>45 NM Southeast of Sabine, TX</td>
</tr>
</tbody>
</table>

**2010**

**CHIEF OF PARTY**
CDR Shepard M. Smith
NOAA

DATE

LIBRARY & ARCHIVES
## HYDROGRAPHIC TITLE SHEET

### State:

**Louisiana**

### General Locality:

**Northern Gulf of Mexico**

### Sub-Locality:

**45 NM Southeast of Sabine, TX**

### Scale:

**1:40,000**  
**Date of Survey:** **04/20/10 to 05/12/10**

### Instructions Dated:

**12 March 2010**  
**Project Number:** **OPR-K371-TJ-10**

### Vessel:

**NOAA Ship Thomas Jefferson**

### Chief of Party:

**CDR Shepard M. Smith, NOAA**

### Surveyed by:

**Thomas Jefferson Personnel**

### Soundings by:

**Reson 7125 multibeam echosounders**

### Graphic record scaled by:

**N/A**

### Graphic record checked by:

**N/A**

### Protracted by:

**N/A**  
**Automated Plot:** **N/A**

### Verification by:

**Atlantic Hydrographic Branch**

### Soundings in:

**Feet Meters at MLLW**

### H-Cell Compilation Units:

**Feet at MLLW**

### Remarks:

*Bold, Italic, Red notes in the Descriptive Report were made during office processing.*

1) *All Times are in UTC.*

2) *This is a Navigable Area Hydrographic Survey.*

3) *Projection is NAD83, UTM Zone 15 N.*
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Descriptive Report to Accompany Hydrographic Survey H12188

Project OPR-K371-TJ-10
Cameron, LA to Sabine, TX
45 NM Southeast of Sabine, TX
Scale 1:40,000
April 20th – May 12th, 2010
NOAA Ship Thomas Jefferson

A. AREA SURVEYED

This hydrographic survey was completed as specified by Hydrographic Survey Letter Instructions OPR-K371-TJ-10, dated 12th March, 2010*.

*Submitted with original field records.

<table>
<thead>
<tr>
<th>Northern limit</th>
<th>Southern limit</th>
<th>Eastern limit</th>
<th>Western limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>28°59'42.84&quot; N</td>
<td>28°48'50.15&quot; N</td>
<td>28°51'09.94&quot; N</td>
<td>28°57'25.56&quot; N</td>
</tr>
<tr>
<td>093°30'16.79&quot; W</td>
<td>093°26'16.69&quot; W</td>
<td>093°22'44.50&quot; W</td>
<td>093°33'49.34&quot; W</td>
</tr>
</tbody>
</table>

Data acquisition was conducted from April 20th – May 12th, 2010.  Concur.

The purpose of the project is to provide accurate depths and object detection of the Safety Fairways and approaches to Sabine, LA to support safe and efficient marine transportation in the region. This project covers approximately 173 nm of critical survey area as designated in the NOAA Hydrographic Survey Priorities, 2009 edition.  Concur.

<table>
<thead>
<tr>
<th>Linear Nautical Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNM Single beam mainscheme only</td>
</tr>
<tr>
<td>LNM Multibeam mainscheme only</td>
</tr>
<tr>
<td>LNM Lidar mainscheme only</td>
</tr>
<tr>
<td>LNM Side Scan Sonar mainscheme only</td>
</tr>
<tr>
<td>Lineal nautical miles of any combination of the above techniques (SSS 200%, MBES)</td>
</tr>
<tr>
<td>LNM Crosslines singlebeam and multibeam combined</td>
</tr>
<tr>
<td>LNM Lidar Crosslines</td>
</tr>
<tr>
<td>LNM development lines non mainscheme</td>
</tr>
<tr>
<td>LNM shoreline/nearshore investigations</td>
</tr>
<tr>
<td>Number of Bottom Samples</td>
</tr>
<tr>
<td>Number of items investigated that required additional time/effort in the field beyond the above survey operations</td>
</tr>
<tr>
<td>Total number of square nautical miles</td>
</tr>
</tbody>
</table>

Table 1: Hydrographic Survey Statistics
Fig. 1: H12188 Small Scale Survey Area.

Fig. 2: H12188 Large Scale Survey Area.
<table>
<thead>
<tr>
<th>Calendar Date</th>
<th>Julian Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-April-10</td>
<td>110</td>
</tr>
<tr>
<td>21-April-10</td>
<td>111</td>
</tr>
<tr>
<td>22-April-10</td>
<td>112</td>
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<tr>
<td>26-April-10</td>
<td>116</td>
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<tr>
<td>27-April-10</td>
<td>117</td>
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<td>28-April-10</td>
<td>118</td>
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<td>5-May-10</td>
<td>125</td>
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<td>6-May-10</td>
<td>126</td>
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<td>8-May-10</td>
<td>128</td>
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<tr>
<td>11-May-10</td>
<td>131</td>
</tr>
<tr>
<td>12-May-10</td>
<td>132</td>
</tr>
</tbody>
</table>

Table 2: SSS/ MBES Acquisition Dates

B. DATA ACQUISITION AND PROCESSING  

See also H-Cell Report.

Refer to OPR-K371-TJ-10 Data Acquisition and Processing Report (DAPR)* for a complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods. Additional information to supplement sounding and survey data, and any deviations from the DAPR* are included in this descriptive report.

B.1 EQUIPMENT AND VESSELS

Data were acquired by NOAA Ship Thomas Jefferson, Hydrographic Survey Launches 3101 and 3102. NOAA Ship Thomas Jefferson acquired Reson 7125 multibeam echo sounder (MBES) soundings, Klein 5000 Side Scan Sonar (SSS) imagery, and sound velocity profiles. Launch 3101 and 3102 acquired Reson 7125 SV multibeam echosounder soundings and sound velocity profiles. Sea bed samples were collected by NOAA Ship Thomas Jefferson. Vessel configurations, equipment operation and data acquisition and processing were consistent with specifications described in the DAPR*.

B.2 QUALITY CONTROL

B.2.1 System Certification and Calibration

Refer to NOAA Ship Thomas Jefferson’s DAPR* and Hydrographic Systems Readiness Report (HSRR)** for a complete description of system integration and initial calibration results for equipment and sensors used for this survey. *Filed with H-Cell deliverables. **Submitted with original field records.
**B.2.2 Sounding Coverage**

As per the Letter Instructions, this survey was conducted using 200% SSS coverage with concurrent MBES bathymetry in areas anticipated to be less than 20m, comprising the easternmost ¼ of the survey area. Object detection MBES was acquired over additional areas determined to be less than 20m and not covered by 200% SSS. (See Figure 3) For water depths greater than 20 meters complete MBES bathymetry was acquired.  

*Concur.*

![Fig. 3 Area of Object detection coverage.](image)

200% sidescan was acquired with the exception of two (2) areas measuring 18m by 60m and 14m by 58m (see figure 3). These areas are not covered by MBES bathymetry or 200% sidescan sonar, however they are covered by the 100% sidescan mosaic and no navigationally significant features were seen.  

*Concur.*

![Fig. 4 MBES bathymetry and 200% sidescan coverage](image)
The sidescan mosaics which represent 100% and 200% coverage show along track gaps in many of the individual GeoBars. Further examination of the sidescan waterfall showed no gaps in coverage (see Figure 4). The gaps are caused by the yaw of the vessel.  

Concur.

Fig. 5 Along track SSS gaps and waterfall.

B.2.3 Crosslines

Multibeam echosounder cross-lines totaling 83.06 LNM, approximately 6.2% of the total multibeam hydrography, were acquired during the course of the survey.

As per email dated 10 Sept, 2009 from AHB located in the Descriptive Report, Appendix 5/***, quality control was performed using the standard deviation layer of the survey’s CUBE surface. Areas of unusually high standard deviation were investigated and resolved in processing, except where caused by areas of high bathymetric relief or as described in Section 2.5 Systematic Errors.  

***Appended to this report.

B.2.4 Junctions and Prior Surveys

Survey H12187 junctions with H12188 to the North/Northwest. The difference in soundings between the two surveys is no greater than one foot. Survey H12189 junctions with H12188 to the South/Southeast. The difference in soundings between the two surveys is no greater than one foot.

<table>
<thead>
<tr>
<th>Registry #</th>
<th>Scale</th>
<th>Date</th>
<th>Field Party</th>
<th>Junction side</th>
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<tbody>
<tr>
<td>H12187</td>
<td>1:40,000</td>
<td>2010</td>
<td>Thomas Jefferson</td>
<td>Northwest</td>
</tr>
<tr>
<td>H12189</td>
<td>1:40,000</td>
<td>2010</td>
<td>Thomas Jefferson</td>
<td>Southeast</td>
</tr>
</tbody>
</table>
B.2.5 Systematic Errors

Some heave or pitch artifacts are present in the data on rougher sea days, and is most noticeable in deeper areas (See figure 7). *Concur.*
A tide artifact exists in some areas of the survey, although generally this does not exceed 20cm as shown in figure 8.  

Concur.

Figure 8: Tide artifact.

B.3  CORRECTIONS TO ECHO SOUNDING

HDCS sounding data were reduced to mean lower-low water (MLLW) using verified water levels from the Galveston Pleasure Pier (8771510) using preliminary zoning accepted as final zoning and illustrated in Figure 9.  

Concur.

Fig 9: Final Tide Zoning
All other datum reduction procedures conform to those outlined in the DAPR*.

All methods and instruments used for sound velocity correction were as described in the DAPR*. A table detailing all sound velocity casts is located in Separate II** of this Descriptive Report. *Filed with H-Cell deliverables. **Submitted with original field records.

Sound velocity corrections for this survey were applied using the ship’s and launches’ Moving Vessel Profiler (MVP) and Conductivity, Temperature and Depth (CTD) profiler. Concur.

All SVP casts were applied in CARIS using Nearest in time. Concur.

B.4 DATA PROCESSING

B.4.1 Total Propagated Uncertainty

For the 2010 field season, Total Propagated Uncertainty (TPU) parameters for sound, speed, and tides are calculated separately for each project. The project-specific parameters for OPR-K371-TJ-10, Survey H12188 are as follows:

<table>
<thead>
<tr>
<th>Vessel</th>
<th>Tide Values Combined Measured &amp; Zoning</th>
<th>Sound Velocity Values</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>CTD</td>
<td>MVP</td>
</tr>
<tr>
<td>S222</td>
<td>0.2m</td>
<td>4m/s</td>
</tr>
<tr>
<td>3101</td>
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</tr>
<tr>
<td>3102</td>
<td>0.2m</td>
<td>4m/s</td>
</tr>
</tbody>
</table>

Table 3: TPU Parameters

These values were used as inputs to the TPU calculation in CARIS for all MBES data immediately following merge.

B.4.2 BASE Surfaces and Mosaics

The following table describes all BASE Surfaces submitted as part of Survey H12188:

<table>
<thead>
<tr>
<th>Name of Surface</th>
<th>Resolution</th>
<th>Type</th>
<th>Purpose</th>
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<td>CUBE</td>
<td>H12188 DTM</td>
</tr>
<tr>
<td>H12188_CUBE_NOAA_50cm_Final</td>
<td>50cm</td>
<td>CUBE</td>
<td>H12188 DTM</td>
</tr>
<tr>
<td>H12188_SSS_100_1m</td>
<td>1m</td>
<td>Mosaic</td>
<td>100% SSS Coverage</td>
</tr>
<tr>
<td>H12188_SSS_200_1m</td>
<td>1m</td>
<td>Mosaic</td>
<td>200% SSS Coverage</td>
</tr>
</tbody>
</table>

Table 4: BASE Surfaces and Mosaics

This survey was processed using the Combined Uncertainty and Bathymetry Estimator (CUBE) algorithm. The CUBE configuration was set to NOAA_0.5m and NOAA_2m for all main scheme surfaces, as requires for each of the various surface resolutions. The finalized surfaces were depth thresholded using values of 0.00m to 20.0m and 19.0m to 40.0m for the 50cm and

B.4.3 Data Cleaning

The survey data was cleaned using the swath and subset editor tools in CARIS. All areas of the BASE surface that indicated a high standard deviation were examined and cleaned as required such that no residual errors exist in the surface that exceed the IHO order 1 depth accuracy requirements.

C. HORIZONTAL AND VERTICAL CONTROL

See also H-Cell Report.

As per FPM section 5.2.3.2.3 a HVCR report was not filed as no horizontal and vertical control stations were established by the field party for this survey. A summary of horizontal and vertical control for this survey follows. Concur.

C.1.1 Horizontal Control

The horizontal datum for this project is the North American Datum of 1983 (NAD83). Differential GPS (DGPS) was the sole method of positioning. Differential corrections from U.S. Coast Guard beacons at Angleton, TX (301Khz) and English Turn, LA (293Khz) were used during this survey. Concur.

No horizontal control stations were established by the field party for this survey. Concur.

C.1.2 Vertical Control

The vertical datum for this project is Mean Lower-Low Water (MLLW). The operating National Water Level Observation Network (NWLON) station at the Galveston Pleasure Pier, TX (8771510) will serve as datum control for H12188. A request for delivery of final approved (verified) tides for this survey was forwarded to N/OPS1 on 12 May 2010** in accordance with the FPM and project letter instructions. Final smooth tide letter was received 25 May 2010**, and states preliminary zoning is accepted as the final zoning. **Appended to this report (Appendix V).

D. RESULTS AND RECOMMENDATIONS

See also H-Cell Report.

D.1 Chart Comparison

D.1.1 Chart 11330 Comparison

Survey H12188 was compared to Chart 11330, (20th Ed., 11/01/2009, 1:250,000), the largest scale chart covering the survey area. Generally soundings agreed with the chart to within 3 feet throughout the survey area. Charted depths were slightly shoal of the current surveyed depths.
The largest discrepancy is in location 28° 56.39’N, 093°28.3’W. The charted depth at this location is 65 feet, but the current findings are as much as 7 feet deeper. Concur.

D.1.2 ENC US3GC02M Comparison

In general the soundings agree within 1 meter. Where there are differences, surveyed depths tend to be deeper. In some cases there is up to almost a 2 meter difference. Concur.

D.2 Additional Results

D.2.1 Automated Wreck and Obstruction Information Service (AWOIS) Items

There are no AWOIS items within the sheet limits of survey H12188. Concur.

D.2.4 Shoreline

There is no shoreline within the sheet limits of survey H12188. Concur.

D.2.5 Charted Features

D.2.6 Charted Pipelines and Cables

Several charted cable and pipeline areas are within the survey area. Multiple uncovered pipelines were found within this survey. Some of pipelines were observed in areas where pipelines were not noted on the chart. Concur.

These findings were not navigationally significant, and therefore the hydrographer recommends no change to the chart. Concur.

D.2.7 Bridges, Ferry Routes, and Overhead Cables

There are no ferry routes, bridges, or overhead cable crossings within the limits of the survey. Concur.

D 2.8 Platform Structures

There were two charted platforms within the survey limits. None of the charted structures were present within the survey area. An additional platform* was located within close proximity to the survey limits of H12188, near the survey area’s uppermost corner. This platform* is also no longer present at its charted location. is addressed in Survey H12187 of the same project, OPR-K371-TJ-10. *See uncharted obstruction feature in Appendix II of this report.

The Hydrographer recommends removing charted platforms from the charts survey area. Concur.
D.3 Dangers to Navigation and Shoals

D.3.1 Dangers to Navigation

No dangers to navigation were found or reported to the NOAA’s Office of Coast Survey. *Concur.*

D.3.2 Shoals

There were no significant uncharted shoals discovered during this survey. *Concur.*

D.4 Aids to Navigation

There are no charted Aids to Navigation (ATON) within the limits of H12188. *Concur.*

D.5 Coast Pilot Information

The Hydrographer has no recommendations for changes or addenda to the Coast Pilot. *Concur.*

D.6 Miscellaneous

Bottom Samples

Bottom samples were collected in accordance with NOAA Hydrographic Survey Specifications and Deliverables. A complete description of all bottom samples acquired during Survey H12188 is contained in the Pydro PSS. A total of five bottom samples were acquired. A list of all bottom samples acquired during Survey H12188 is also contained in Appendix V of this report. *Concur.*

Environmental Conditions and Notes

No significant environmental conditions occurred during the survey.

D.8 Adequacy of Survey

This survey is considered complete and adequate to supersede charted depths and features within the area defined in the file H12188_outline.hob, located in Appendix 3, Final Progress Survey Outline*, except as noted in this report. *Appended to this report.*

Summary and Recommendations for Additional Work

No additional work is needed to complete this survey. No changes significant to navigation have been noted and it is recommended that this survey receive normal processing priority. *Concur.*
E.  APPROVAL

As Lead Hydrographer, I have ensured that standard field surveying and processing procedures were followed in producing this examination in accordance with the Office of Coast Survey Hydrographic Surveys Division’s Field Procedures Manual, and NOS Hydrographic Surveys Specifications and Deliverables. Field operations for this basic hydrographic survey were conducted under my daily supervision with frequent checks of progress and adequacy.

All field sheets, this Descriptive Report, and all accompanying records and data are approved. All records are forwarded for final review and processing to N/CS33, Atlantic Hydrographic Branch.

The Data Acquisition and Processing Report for OPR-K371-TJ-10 is submitted separately and contains additional information relevant to this survey.

Approved and Forwarded:

Mark Blankenship
LT Mark A. Blankenship, NOAA
Field Operations Officer

CDR Shepard M. Smith, NOAA
Commanding Officer

In addition, the following individuals were also responsible for overseeing data acquisition and processing of this survey:

Survey Managers:

Michael C. Davidson
Z
ENS Lindsay Morrison, NOAA
Junior Officer

Michael C. Davidson
Z
ENS Marina Kosenko, NOAA
Junior Officer
Appendix I

Dangers to Navigation

-None reported
Appendix II

Survey Features Report

1. AWOIS Items
   0

2. Charted Features
   0

3. Uncharted Features
   1
DR Uncharted

Registry Number: H12188
State: Louisiana
Locality: Northern Gulf of Mexico
Sub-locality: 45 NM Southeast of Sabine, TX
Project Number: OPR-K371-TJ-10
Survey Date: 10/15/2010

Charts Affected

<table>
<thead>
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<th>Scale (RNC)</th>
<th>RNC Correction(s)*</th>
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<td>[L]NTM: ?</td>
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<tr>
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<td>73rd</td>
<td>08/01/2008</td>
<td>1:458,596 (1116A_1)</td>
<td>[L]NTM: ?</td>
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<tr>
<td>411</td>
<td>52nd</td>
<td>09/01/2007</td>
<td>1:2,160,000 (411_1)</td>
<td>[L]NTM: ?</td>
</tr>
</tbody>
</table>

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

Features

<table>
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<tr>
<th>No.</th>
<th>Name</th>
<th>Feature Type</th>
<th>Survey Depth</th>
<th>Survey Latitude</th>
<th>Survey Longitude</th>
<th>AWOIS Item</th>
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</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Obstruction - Unknown Depth</td>
<td>Obstruction</td>
<td>[None]</td>
<td>28° 59' 36.8&quot; N</td>
<td>093° 30' 13.6&quot; W</td>
<td>---</td>
</tr>
</tbody>
</table>
1.1) Obstruction - Unknown Depth

Survey Summary

Survey Position: 28° 59' 36.8" N, 093° 30' 13.6" W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None] ; TVU (TPEv) [None]
GP Dataset: ChartGPs - Digitized
GP No.: 2
Charts Affected: 11330_1, 1116A_1, 11340_1, 411_1

Remarks:
Field unit disproved the charted offshore production platform by visual examination at the ocean surface. However, the multibeam and sidescan coverage of the seafloor at this site is incomplete. The sidescan and multibeam data suggest that the debris associated with the former platform may continue outside of survey coverage.

Feature Correlation

<table>
<thead>
<tr>
<th>Address</th>
<th>Feature</th>
<th>Range</th>
<th>Azimuth</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>ChartGPs - Digitized</td>
<td>2</td>
<td>0.00</td>
<td>000.0</td>
<td>Primary</td>
</tr>
</tbody>
</table>

Hydrographer Recommendations

Recommend to chart an Obstruction (snag/stump, depth unknown) at the survey position.

S-57 Data

Geo object 1: Obstruction (OBSTRN)
Attributes: CATOBS - 1:snag / stump
QUASOU - 2:depth unknown
SORDAT - 20100512
SORIND - US,US,graph,H12188
TECSOU - 2,3:found by side scan sonar,found by multi-beam
WATLEV - 3:always under water/submerged
Concur. Add an Obstruction (snag/stump, depth unknown) to the chart at the survey position.
Appendix III

Progress Sketch
Appendix IV

Tides and Water Levels

1. Request for Approved Tides

2. Final Tide Notes
MEMORANDUM FOR: Chief, Requirements and Development Division, N/OPS1

FROM: CDR Shep Smith, NOAA Ship THOMAS JEFFERSON (MOA-TJ)

SUBJECT: Request for Approved Tides/Water Levels

Please provide the following data:

1. Tide Note
2. Final zoning in MapInfo and .MIX format
3. Six Minute Water Level data (Co-ops web site)

Transmit data to the following:

NOAA/NOS/Atlantic Hydrographic Branch
N/CS33, Building #2
439 West York Street
Norfolk, VA 23510
ATTN: Chief AHB

Commanding Officer
NOAA Ship Thomas Jefferson (S222)
439 West York St.
Norfolk, VA 23510
ATTN: CO Thomas Jefferson

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

Project No.: OPR-K371-TJ-10
Registry No.: H12188
State: Louisiana
Locality: Northern Gulf of Mexico
Sublocality: 45 NM Southeast of Sabine, TX

Attachments containing:

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

cc: N/CS33
<table>
<thead>
<tr>
<th>Year_DOY</th>
<th>Min Time</th>
<th>Max Time</th>
</tr>
</thead>
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</tr>
<tr>
<td>2010_112</td>
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<td>20:34:11</td>
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<td>2010_131</td>
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<tr>
<td>2010_132</td>
<td>02:04:09</td>
<td>02:38:49</td>
</tr>
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</table>
TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: May 25, 2010

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: OPR-K371-TJ-2010
HYDROGRAPHIC SHEET: H12188

LOCALITY: Northern Gulf of Mexico 45 NM Southeast of Sabine, Tx
TIME PERIOD: April 20 - May 12, 2010

TIDE STATION USED: 877-1510 Galveston Pleasure Pier, Tx
                    Lat. 29° 17.12' N  Long. 94° 47.37' W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.563 meters

REMARKS: RECOMMENDED ZONING

Preliminary zoning is accepted as the final zoning for project
OPR-K371-TJ-2010, H12188, during the time period between
April 20 to May 12, 2010.

Please use the zoning file "K371TJ2010CORP" submitted with the
project instructions for Cameron, LA to Sabine, TX. Zones WGM89,
WGM90, WGM294 and WGM393 are the applicable zones for H12188.

Refer to attachments for zoning information.

Note 1: Provided time series data are tabulated in metric units
       (meters), relative to MLLW and on Greenwich Mean Time on
       the 1983-2001 National Tidal Datum Epoch (NTDE).

Peter J. Stone

Digitally signed by Peter J. Stone
DN: cn=Peter J. Stone, o=CO-OPS, ou=NOAA/NOS,
    email=peter.stone@noaa.gov, c=US
Date: 2010.05.25 19:01:52 -04'00'

CHIEF, OCEANOGRAPHIC DIVISION
Appendix V

Supplemental Survey Records & Correspondence
August 17, 2010

Memorandum For: Nautical Data Branch

From: CDR Shepard M. Smith, NOAA
Commanding Officer, NOAA Ship *Thomas Jefferson*

Subject: Coast Pilot Report, H12188

The relevant Coast Pilot sections for this survey have been reviewed, and no additions or corrections have been noted.
Subject: Re: Crossline comparison
From: Chris van Westendorp <Christiaan.VanWestendorp@noaa.gov>
Date: Thu, 10 Sep 2009 13:00:35 -0400
To: "mark.blankenship" <Mark.Blankenship@noaa.gov>
CC: LCDR Rick Brennan <Richard.T.Brennan@noaa.gov>, Castle Parker <Castle.E.Parker@noaa.gov>, Edward Owens <Edward.Owens@noaa.gov>, LT Jasper Schae <jasper.schaer@noaa.gov>, CDR Shep Smith <Shep.Smith@noaa.gov>, Daniel Wright <Daniel.Wright@noaa.gov>

Mark,

Per 5.1.4.3 of the HSSD, AHB authorizes TJ to use the Standard Deviation layer to conduct surface difference comparison and analysis on future survey submissions of multibeam data. This meets the crossline comparison requirement laid out in HSSD.

Please let me know if you have any questions or need for further clarification.

R/
LCDR Chris van Westendorp, NOAA

mark.blankenship wrote:

Chris,

You mentioned in the meeting today that AHB was not going to require the multiple CUBE surface comparison, instead allowing us to use a single surface standard deviation layer to do our checks with. Is there any memo coming out for that?

Mark

LCDR Chris van Westendorp <christiaan.vanwestendorp@noaa.gov>
Atlantic Hydrographic Branch
NOAA OCS
### VESSEL No. S222

<table>
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<th>POSITION NUMBERS</th>
<th>DAY OF THE YEAR</th>
<th>SAMPLE</th>
<th>POSITION</th>
<th>LATITUDE (° ’ ”) North</th>
<th>LONGITUDE (° ’ ”) West</th>
<th>DEPTHS (METERS)</th>
<th>TYPE OF SAMPLER</th>
<th>APPROXIMATE PENETRATION (CENTIMETERS)</th>
<th>LENGTH OF CORE</th>
<th>FIELD DESCRIPTION</th>
<th>SIZE OR CONSISTENCY</th>
<th>COLOR-NOUN</th>
<th>REMARKS</th>
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<td>131</td>
<td>28° 56’ 00.48”</td>
<td>093° 31’ 00.92”</td>
<td>dk gy M brk Sh</td>
<td>NATQUA broken NATSUR shells, mud</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>2</td>
<td>131</td>
<td>28° 58’ 07.30”</td>
<td>093° 30’ 02.937”</td>
<td>fne S brk Sh</td>
<td>NATSUR mud</td>
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<td>3</td>
<td>131</td>
<td>28° 55’ 28.21”</td>
<td>093° 27’ 58.28”</td>
<td>dk gy M fne S brk Sh</td>
<td>NATSUR mud</td>
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<td></td>
<td></td>
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<td>4</td>
<td>131</td>
<td>28° 52’ 49.48”</td>
<td>093° 27’ 30.99”</td>
<td>Stk M fne S brk Sh</td>
<td>NATSUR mud</td>
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<td></td>
<td></td>
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<tr>
<td>5</td>
<td>131</td>
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<td>093° 25’ 56.19”</td>
<td>Sft M brk Sh</td>
<td>NATSUR mud</td>
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### AHB COMPILATION LOG

#### General Survey Information

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<th>Registry No.</th>
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<tr>
<td>Project No.</td>
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<tr>
<td>Field Unit</td>
<td>NOAA Ship THOMAS JEFFERSON</td>
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<td>Date of Survey</td>
<td>20100420 - 20100512</td>
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<td>Largest Scale Chart</td>
<td>11330_1, edition 1, 20091101, 1:250,000</td>
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<td>Additional Charts</td>
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<td>Sounding Units</td>
<td>FEET</td>
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<tr>
<td>Compiler</td>
<td>Jasmine Cousins / James J. Miller II</td>
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<td>Interpolated TIN</td>
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<td>Survey Scale Soundings</td>
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<td>Chart Scale Soundings</td>
<td>H12188_CS_Soundings.hob</td>
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<td>Contour Layer</td>
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<td>Feature Layer</td>
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<td>Meta-Objects Layer</td>
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#### Meta-Objects Attribution

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<td>M_QUAL</td>
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M_CSCL

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</tr>
<tr>
<td>SORIND</td>
<td>N/A</td>
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</tbody>
</table>

**SPECIFICATIONS:**

I. **COMBINED SURFACE:**
   a. Number of SAR Final Grids: 2
   b. Resolution of Combined (m): 4 m

II. **SURVEY SCALE SOUNDINGS (SS):**
   a. Attribute Name: Depth
   b. Selection criteria: Radius, Shoal bias
   c. Radius value is: mm at map scale
      i. Use single-defined radius: 1.00
      ii. And/or use radius table file: N/A
   d. Queried Depth of All Soundings
      i. Minimum: 18.496 m
      ii. Maximum: 25.106 m

III. **INTERPOLATED TIN SURFACE:**
   a. Resolution (m): 12 m
   b. Interpolation method: Natural Neighbor
   c. Shift value: -0.75 ft

IV. **CONTOURS:**
   a. Attribute Name: Depth
   b. Use a Depth List: H12188_depth_contours.txt
   c. Output Options: Create contour lines
      i. Line Object: DEPCNT
      ii. Value Attribute: VALDCO

V. **FEATURES:**
   a. Number of Chart Features: 4
   b. Number of Non-Chart Features: 0

VI. **CHART SURVEY SOUNDINGS (CS):**
   a. Number of ENC CS Soundings: 5
   b. Attribute Name: Depth
   c. Selection criteria: Radius, Shoal bias
   d. Radius value is: Distance on the ground (m)
      i. Use single-defined radius: 5,600.00 m
      ii. And/or use radius table file: N/A
      iii. Enable Filter: Interpolated !=1
   e. Number Survey CS Soundings: 8

VII. **NOTES:**

[Type text]
This H-Cell Report has been written to supplement and/or clarify the original Descriptive Report (DR) and pass critical compilation information to the cartographers in the Marine Chart Division. Sections in this report refer to the corresponding sections of the Descriptive Report.

B. DATA ACQUISITION AND PROCESSING

B.2 QUALITY CONTROL

The AHB source depth grids for the survey’s nautical chart update were 50cm and 2m resolution BASE surfaces (*.CSAR), which were combined at 4m resolution. The survey scale soundings were created from the combined surface at a single defined radius of 1mm at the 1:250,000 chart scale. A TIN was created from the survey scale soundings, from which an interpolated surface was generated. The chart scale soundings were selected from the filtered interpolated surface using a single defined radius of 5,600m (on the ground). The chart scale soundings are a subset of the survey scale soundings. The surface model was referenced when selecting the chart scale soundings, to ensure that the selected soundings portray the bathymetry within the common area.

Depth contours were created from a shifted interpolated TIN surface of 12m resolution, with the contours in feet (60 ft). The depth contours are forwarded to MCD for reference only. The contours were utilized during chart scale sounding selection and quality assurance efforts at AHB. The depth contours are incorporated into the SS H-Cell product as per 2009 H-Cell Specifications.

The compilation products (Final *.HOB files) for this survey are detailed in the H12188 AHB Compilation Log contained within this document. The Final HOB files include depth areas (DEPARE), depth contours (DEPCNT), soundings (SOUNDG), meta-objects (M_COVR, M_QUAL), cartographic Blue Notes ($CSYMB), and features (OBSTRN, SBDARE, SNDWAV).

As dictated by Hydrographic Technical Directive 2008-8, the Final HOB files were combined into two separate H-Cell files in S-57 format. Both S-57 files were exported from CARIS Bathy DataBASE in meters, and then converted from metric units into feet using CARIS HOM ENC 3.3. Quality assurance and topology checks were conducted using CARIS S-57 Composer 2.1 validation tests and DKART Inspector 5.0 validation tests.

The final H-Cell products are two S-57 files, in Lat/Long NAD-83. The contents of these two H-Cell deliverables are listed in the table below:
TABLE 1 - Contents of H-Cell Files

<table>
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<tr>
<th>H12188_CS.000</th>
<th>Scale 1:250,000</th>
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<tr>
<td><strong>Object Class Types</strong></td>
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<tr>
<td>S-57 Object Acronyms</td>
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<tr>
<td></td>
<td>OBSTRN</td>
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<td></td>
<td>SNDWAV</td>
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<td>SOUNDG</td>
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<td>S-57 Object Acronyms</td>
<td>DEPCNT</td>
</tr>
<tr>
<td></td>
<td>SOUNDG</td>
</tr>
</tbody>
</table>

B.2.4  **Junctions and Prior Surveys**

Survey H12188 (2010) junctions with survey H12187 (2010) to the north, which is currently undergoing Survey Acceptance Review. Most present survey depths compare within 2 feet of survey H12187.

B.4  **DATA PROCESSING**

The following software was used to process data at the Atlantic Hydrographic Branch:

- CARIS Bathy DataBASE version 2.1/SP1/HF10
- CARIS Bathy DataBASE version 2.3/HF16
- CARIS Bathy DataBASE version 3.0/HF5
- CARIS HIPS and SIPS version 7.0/SP2/HF3
- CARIS S-57 Composer version 2.1/HF4
- CARIS HOM ENC version 3.3/SP3/HF8
- DKART Inspector version 5.0
- HSTP Pydro version 10.9 (r3015)

C.  **HORIZONTAL AND VERTICAL CONTROL**

The hydrographer makes adequate mention of horizontal and vertical control used for this survey in section C of the DR. The sounding datum for this survey is Mean Lower Low Water (MLLW), and the vertical datum is Mean High Water (MHW). Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD83), UTM projection zone 15 North.
D. RESULTS AND RECOMMENDATIONS

D.1 CHART COMPARISON 11330 (20th Edition, NOV/09)
Mermentau River to Freeport
LA-TX
Corrected through NM 09/11/2010
Corrected through LNM 08/31/2010
Scale 1:250,000

ENC COMPARISON US3GC02M
Mermentau River to Freeport
Edition 18
Application Date 2010/05/11
Issue Date 2010/08/04
Chart 11330

D.2 ADDITIONAL RESULTS

The charted hydrography originates with prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in section D and Appendix I and II of the DR. The hydrographer recommends that any charted features not specifically addressed either in the H-Cell files or the Blue Notes should be retained as charted. The following exception is noted:

1. One sandwave area (SNDWAV) was included with the H-Cell. This area was defined by undulating sandwaves with an amplitude of 1m or more.
D.6 MISCELLANEOUS

Chart compilation was completed by Atlantic Hydrographic Branch personnel in Norfolk, Virginia. Compilation data will be forwarded to the Marine Chart Division in Silver Spring, Maryland. See section D.1 of this report for a list of the Raster Charts and Electronic Navigation Charts (ENC) used for compiling the present survey.

D.7 ADEQUACY OF SURVEY

The present survey is adequate to supersede the charted bathymetry within the common area. Any features not specifically addressed either in the H-Cell files or the Blue Notes should be retained as charted. Refer to section D and Appendix I and II of the DR for further recommendations by the hydrographer.
Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of depth contours, disposition of critical depths, cartographic symbolization, and verification or disproval of charted data. All revisions and additions made to the H-Cell files during survey processing have been entered in the digital data for this survey. The survey records and digital data comply with National Ocean Service and Office of Coast Survey requirements except where noted in the Descriptive Report and the H-Cell Report.

All final products have undergone a comprehensive review per the Hydrographic Surveys Division Office Processing Manual and are verified to be accurate and complete except where noted.

Jasmine Cousins  
2010.10.19  
16:19:32 Z

James J. Miller II  
2010.10.19  
10:04:48 -04'00'

ENS Jasmine Cousins, NOAA  
Atlantic Hydrographic Branch

James J. Miller II  
Physical Scientist  
Atlantic Hydrographic Branch

I have reviewed the H-Cell files, accompanying data, and reports. This survey and accompanying Marine Chart Division deliverables meet National Ocean Service requirements and standards for products in support of nautical charting except where noted.

Richard T. Brennan  
I am approving this document  
2010.10.29 15:05:19 -04'00'

Approved:

CDR Richard T. Brennan, NOAA  
Chief, Atlantic Hydrographic Branch