H12254

NOAA FORM 76-35A
U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

DESCRIPTIVE REPORT

Type of Survey: Hydrographic Multibeam & 200% Sidescan

Project No. : OPR-K354-KR-10

Registry No. : H12254

LOCALITY

State: Louisiana

General Locality: Gulf of Mexico

Sublocality: 8 NM South of Central Ship Shoal

2012

CHIEFS OF PARTY
Scott Croft, Tara Levy

NOAA FORM 77-28 (11-72)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HYDROGRAPHIC TITLE SHEET

REGISTRY NUMBER: H12254

FIELD NUMBER: Sheet 12

State: Louisiana

General Locality: Gulf of Mexico

Locality: 8 NM South of Central Ship Shoal

Scale: 1:40,000 Date of Survey: December 2010

Instructions Dated: May 2010 Project Number: OPR-K354-KR-10

Vessels: M/V *Inez McCall*

Chiefs of Party: Scott Croft, Tara Levy

Surveyed by: C&C Technologies

Soundings taken by echosounder, hand lead line, or pole: Simrad EM3002 Multibeam Echosounder

Verification by: ***Atlantic Hydrographic Branch***

Soundings in: Feet: X Fathoms: _____ Meters: _____ at MLW: _____ MLLW: X

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. Revisions and Red notes were generated during office processing. The processing branch concurs with all information and recommendations in the DR unless otherwise noted. Page numbering may be interrupted or non-sequential. All pertinent records for this survey, including the Descriptive Report, are archived at the National Geophysical Data Center (NGDC) and can be retrieved via http://www.ngdc.noaa.gov/.

Remarks: Hydrographic Survey of Sheet 12 (H12254
Data collection in meters, referenced to MLLW, later converted into feet
200% side scan sonar, with concurrent multibeam coverage
UTC time was used exclusively
Grab samples were not taken
Tidal Zones: CGM 716, 717, 718, 732, 733, WGM 266, 414, 415, 416
Tidal Station: 8762075 (Port Fourchon, LA)
UTM Zone 15

NOAA FORM 77-28 SUPERSEDES FORM C & GS - 537

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DESCRIPTIVE REPORT TO ACCOMPANY HYDROGRAPHIC SURVEY H12254

INTRODUCTION

The purpose of this survey is to provide accurate hydrographic data to NOAA in order to update existing nautical charts in a high commercial traffic area in the Gulf of Mexico near the Louisiana coast.

A. AREA SURVEYED

The survey area is located 8 NM S of Central Ship Shoal in the Gulf of Mexico. Illustrations No. 1 and 2 show the layout of H12254 (Sheet 12) of Project OPR-K354-KR-10. Surveyed water depths in the area range from 29 to 53 feet Mean Lower Low Water. Survey statistics including the total survey line and crossline nautical miles, number of investigations and acquisition dates are shown in Tables No. 1 – 3.

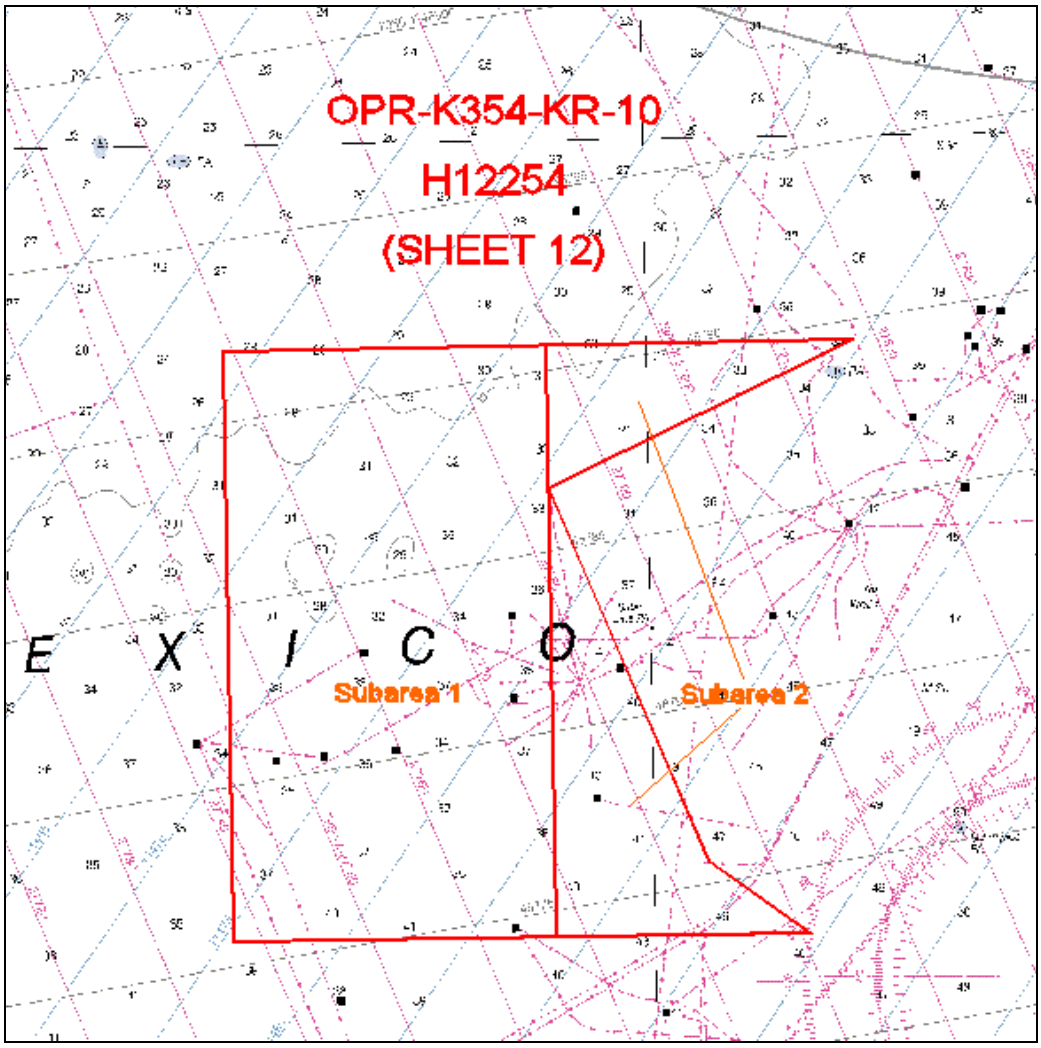


Illustration No. 1. Large scale survey coverage graphic.

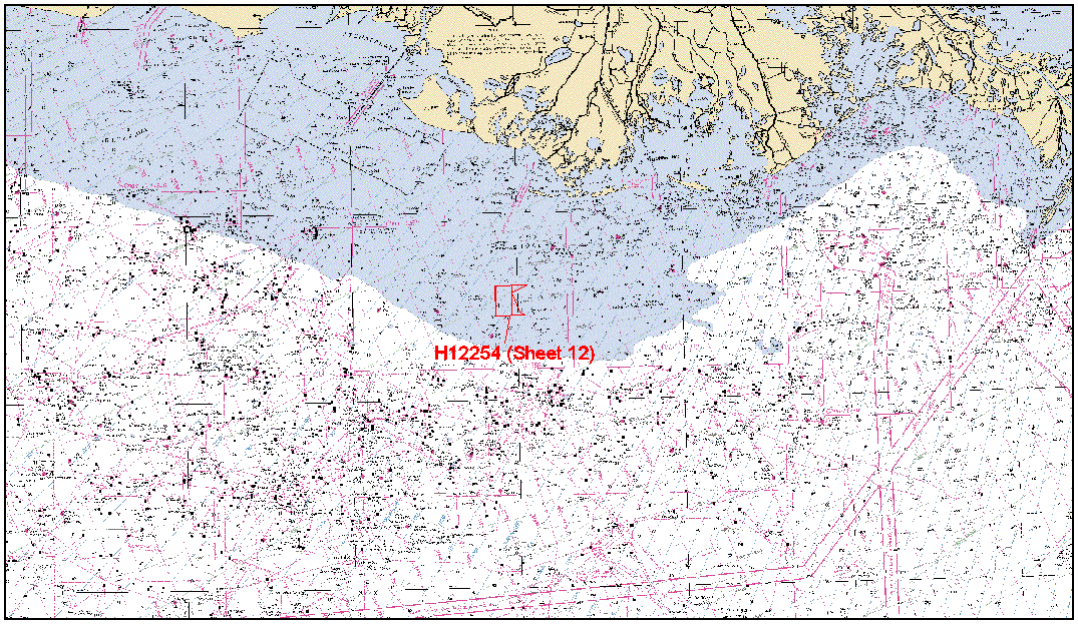


Illustration No. 2. Small scale survey coverage graphic.

Table No. 1. Survey Line Statistics

	Inez McCall	Total
LNM Side Scan + Multibeam	406.59	406.59
LNM Crosslines	22.60	22.60
LNM Investigations	0.00	0.00

Table No. 2. Additional Survey Statistics

Total square nautical miles of survey area	18.76
Number of items investigated	0

Table No. 3. Data acquisition dates

Month	Day	Year
December	2 – 5, 8 – 10, 14	2010

B. DATA ACQUSITION AND PROCESSING

Refer to the OPR-K354-KR-10 Data Acquisition and Processing Report (DAPR) for additional information regarding survey systems, operational, processing and quality control procedures. Additional and supplemental information is included in this descriptive report.

B.1. Equipment

Survey operations were conducted from the *M/V Inez McCall*. The vessel is 33.5 meters long and 7.5 meters wide with an approximate draft of 2.75 meters. A central reference point was established prior to the survey from which all relevant offsets were measured. Primary systems and equipment utilized on the *M/V Inez McCall* are listed in Table No. 4.

Table No. 4. Equipment List

System	Manufacturer	Model
Multibeam Echo Sounder	Simrad	EM3002
Side Scan Sonar	Klein	5000
Single Beam Echo Sounder	ODOM	Echotrac DF3200 MK II
Motion Sensor	Applanix	POS MV-320 V.3
Primary Positioning System	CNAV	2050
Secondary Positioning System	CNAV	2050
Tertiary Positioning System	Applanix	POS MV-320 V.3
Sound Speed at Transducer	YSI Electronics	600R
Sound Speed Profiler	Seabird	SBE19
SSS collection	Chesapeake Technology Inc.	SonarWiz Map
Multibeam collection	C&C Technologies	Hydromap
SSS Cable Payout Indicator	Subsea Systems, Inc	PI-5600

B.2. Quality Control

Side scan sonar and multibeam data were acquired in accordance with the coverage required for this survey. To ensure quality control, specific field procedures were conducted as well as a variety of data analyzing tools to validate the data. These methods are briefly outlined below. Refer to the DAPR for additional data acquisition, processing and quality control procedures.

B.2.1. Survey Methods

For management purposes, the survey area was divided into two subareas (labeled 1 and 2) with separate line-plans in order to conduct survey operations. The main survey lines in Subarea 1 and in the northern section of Subarea 2 were oriented east-west, whereas lines were oriented north-south in the southern section of Subarea 2. Two hundred percent (200%) side scan sonar (SSS) coverage and concurrent set line spacing multibeam echosounder (MBES) data were acquired in accordance with the coverage requirements as stated in the Project Instructions for this survey. Additional high-resolution multibeam developments were conducted over significant features (see section B.4.2 for more details).

The shallowest charted soundings determined survey line spacing and the side scan sonar range scale. Charted depths range from 29 to 41 feet in Subarea 1 and from 31 to 46 feet in Subarea 2. The line spacing was set to 90 meters and the side scan sonar was operated with a range of 100 m per channel for the entirety of the survey area.

The criteria of acquiring 200% SSS coverage for object detection was accomplished using the aforementioned parameters and Technique 2 as set forth in Section 6.1 of the HSSD (2010). The SSS tracklines used to generate coverage mosaics were identified by an odd/even numbering system.

B.2.2. Crosslines

Crosslines were run prior to the collection of main line data and perpendicular to the mainscheme lines so that quality control statistics could be performed after each main line was completed. Based on pre-plot calculations, the total crossline miles were 22.60 nm and the total main line miles were 406.59 nm. The cross lines comprised 5.6 percent of the total data set as compared to the mainscheme lines, compliant with set line spacing crossline requirements of Section 5.2.4.3 of the HSSD (2010), which states that lineal mileage of crosslines will be at least 4% of mainscheme mileage in areas surveyed with set line spacing coverage. Rerun line miles are not included in these totals.

During data acquisition, each mainline was compared to all crosslines for which there was overlapping data. The graphs show the mean difference, RMS difference, and confidence interval for each beam. As can be seen in the sample statistics found in Separates V, the mainline and cross line depth values generally showed good agreement.

Crossline comparisons were also performed in CARIS HIPS/SIPS 7.1 using the surface difference tool. Separate 1-m BASE surfaces of the mainscheme lines and crosslines were created for each subarea and a difference BASE surface computed. The difference surfaces were examined using a color range map in 0.2 m increments from -0.6 to 0.6 m.

The depth difference values for Subarea 1 range from -0.50 to 0.46 m, and the majority of difference values are within -0.2 to 0.0 m (Illustration No. 3). These values are within the maximum allowable TVU (total vertical uncertainty) for water depths of 9.00 to 15.31 m, which ranges from ±0.51 to ±0.54 m. Therefore, the depth difference values between mainline and crossline data do not differ by more than the maximum allowable TVU in Subarea 1.

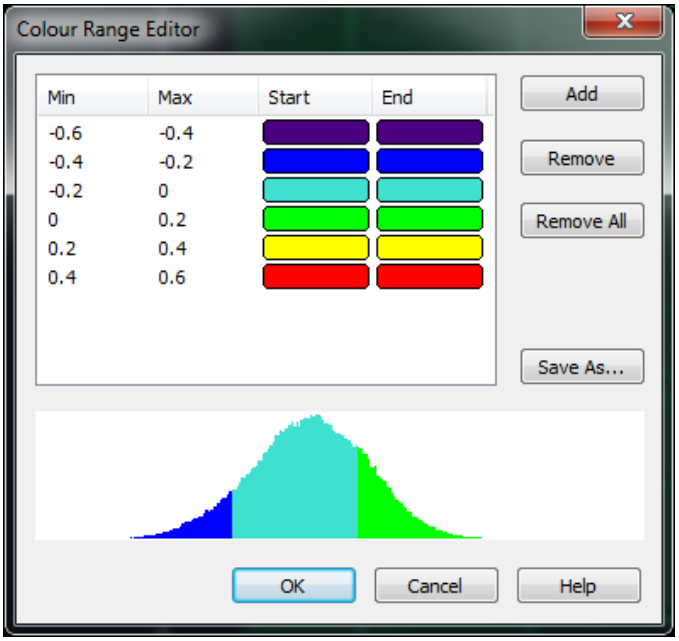


Illustration No. 3. Color range map and histogram used to evaluate the depth differences between mainlines and crosslines for Subarea 1.

The depth difference values for Subarea 2 range from -0.42 to 0.36 m, and the majority of difference values are within -0.2 to 0.2 m (Illustration No. 4). These values are within the maximum allowable TVU for water depths of 9.26 to 16.18 m, which ranges from ±0.51 to ±0.54 m. Therefore, the depth difference values between mainline and crossline data do not differ by more than the maximum allowable TVU in Subarea 2.

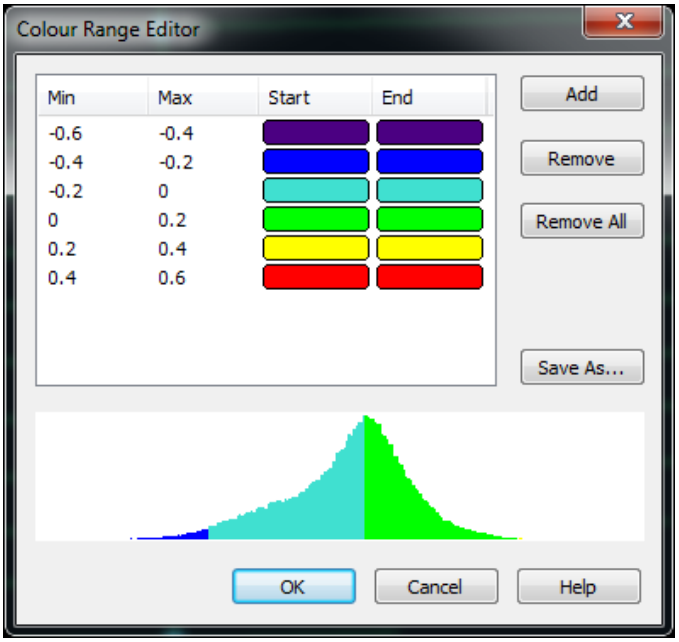


Illustration No. 4. Color range map and histogram used to evaluate the depth differences between mainlines and crosslines for Subarea 2.

Statistical crossline information was also generated by comparing each of the crosslines to the depth layer of the 1-m BASE surface of the main survey lines. In general, >99% of crossline soundings were considered to meet IHO Order 1a standards. Crossline comparisons generated with the CARIS QC report utility are shown in Separate IV.

B.2.3. Uncertainty

CARIS HIPS was used to compute the Total Propagated Uncertainty (TPU) for each sounding. The measured tide uncertainty parameter was set to 0.009 m and the zoning parameter set to 0.102 m. The measured sound speed parameter was set to 2 m/s and the surface sound speed parameter set to 0.800 m/s. All BASE surfaces were created based upon the IHO Order 1a standards.

B.2.4. Survey Junctions

Survey H12254 has junctions with two contemporary OPR-K354-KR-10 surveys and one prior OPR-K354-KR-09 survey. Details of these surveys are shown in Table No. 5 and outlined in Illustration No. 5. Although continuous multibeam coverage is not obtained within a survey or between surveys due to the set-line spacing multibeam survey operations, a CARIS difference surface between the 1-m BASE surfaces of the junction surveys and the

1-m BASE surfaces of survey H12254 was computed to ensure general agreement of depths where overlap of sounding data occurred. Difference surfaces were created with the CARIS Difference Surface tool with H12254 as Surface 1 and the adjoining survey as Surface 2. The difference surfaces were initially evaluated with a user-defined color range map in 0.2 m increments from -0.6 to 0.6 m. A summary of each junction analysis follows.

Table No. 5. H12254 Survey Junctions.

Registry Number	Scale	Year	Sublocality
H12252	40000	2010	4 NM S of Central Ship Shoal
H12255	40000	2010	7 NM S of West Ship Shoal
H12121	10000	2010	17 NM S of Isles Dernieres

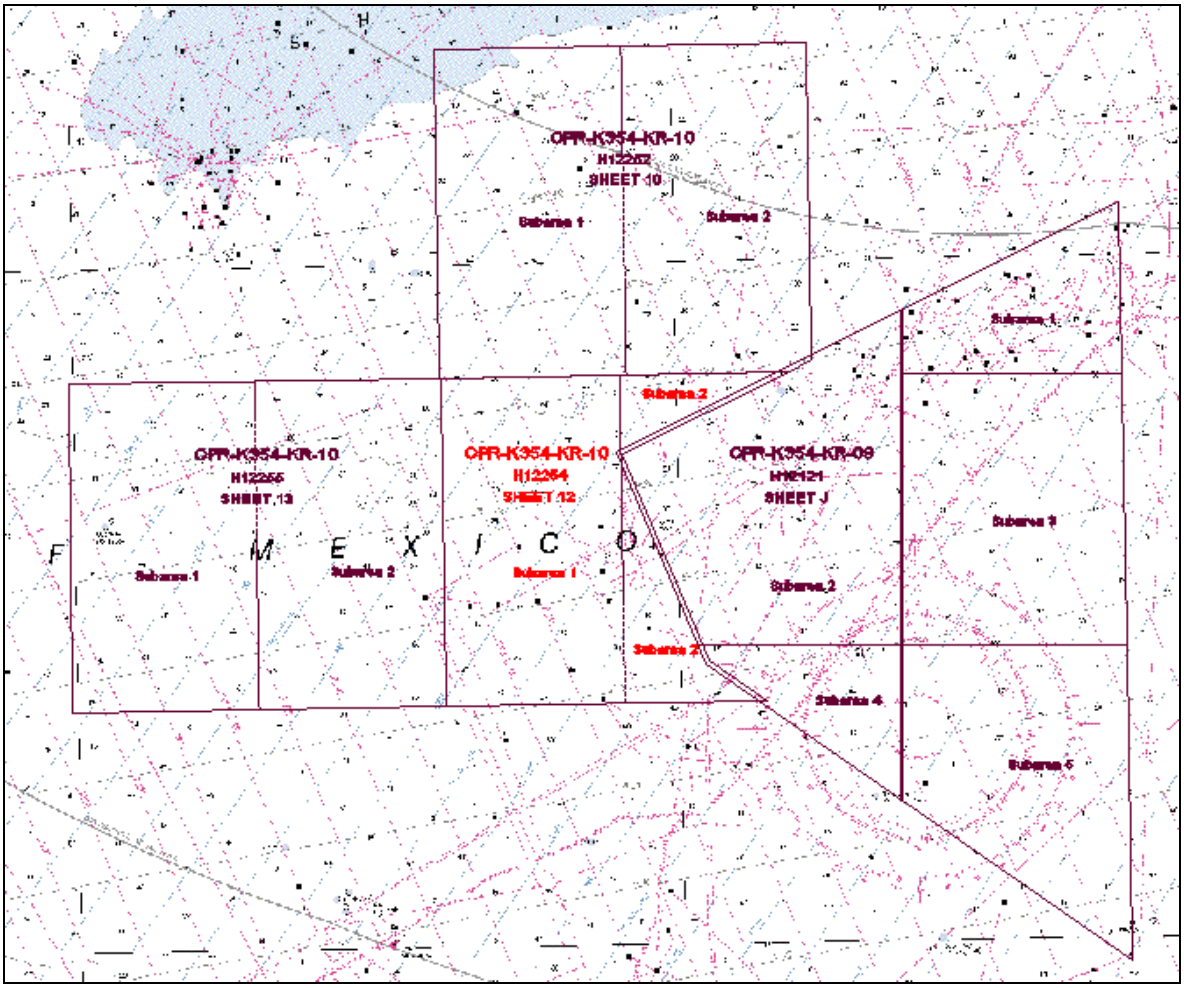


Illustration No. 5. H12254 Survey Junctions.

Junction with H12252

The northern margin of survey H12254 junctions with the southern margin of survey H12252 and preliminary 1-m BASE surfaces were created for each subarea of H12252 to which H12254 was compared. Any changes to this junction analysis will be addressed in the Descriptive Report of H12252. Subareas 1 and 2 of the sheets overlap one another (Illustration No. 5), and crossline data of each survey overlaps mainline data of the adjoining survey.

The depth difference values between Subareas 1 of each survey range between -0.54 to 0.50 m and it appears that there is a bimodal distribution of depth difference values (Illustration No. 6). This may occur because neither survey is consistently shallower or deeper than the adjoining survey: the tie lines of survey H12252 are consistently deeper than the mainlines of survey H12254 whereas the mainlines of H12252 are consistently shallower than the tie lines of survey H12254.

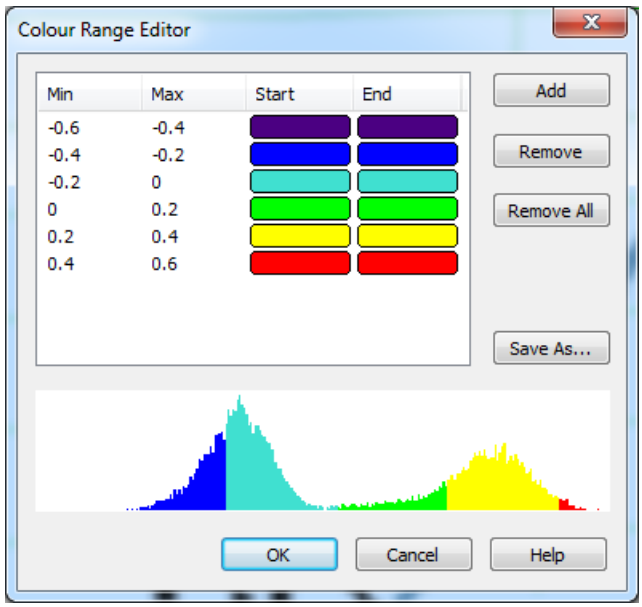


Illustration No. 6. Color range map and histogram used to evaluate the depth differences between the junction of Subarea 1 of H12254 and Subarea 1 of H12252.

The majority of depth difference values between Subareas 2 of each survey range between -0.4 and 0.0 m (Illustration No. 7). However, the difference values range from -0.62 to 0.16 m and the difference surface was further examined with a separate colormap to evaluate the differences that exceed -0.5 m. These values occur mainly along the edges of data overlap where the crosslines of H12252 overlap the mainlines of H12254. In addition, survey data from H12254 is consistently shallower than that of H12252.

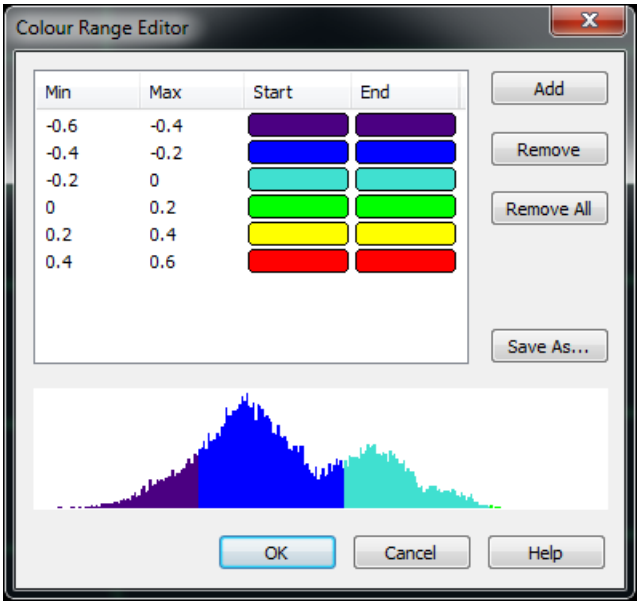


Illustration No. 7. Color range map and histogram used to evaluate the depth differences between the junction of Subarea 2 of H12254 and Subarea 2 of H12252.

Junction with H12255

The western margin of Subarea 1 of survey H12254 junctions with the eastern margin of Subarea 2 of survey H12255 (Illustration No. 5) and mainline data of each survey overlaps. The 1-m BASE surface of H12254 was compared to the finalized 1-m BASE surface of H12255. Although the range of depth difference values varies from -0.42 to 0.57 m, the majority of depth difference values are between -0.2 and 0.4 m (Illustration No. 8). The values that exceed 0.50 m are located in one isolated area where line 12046-1 of survey H12254 overlaps line 13145-1 of survey H12255.

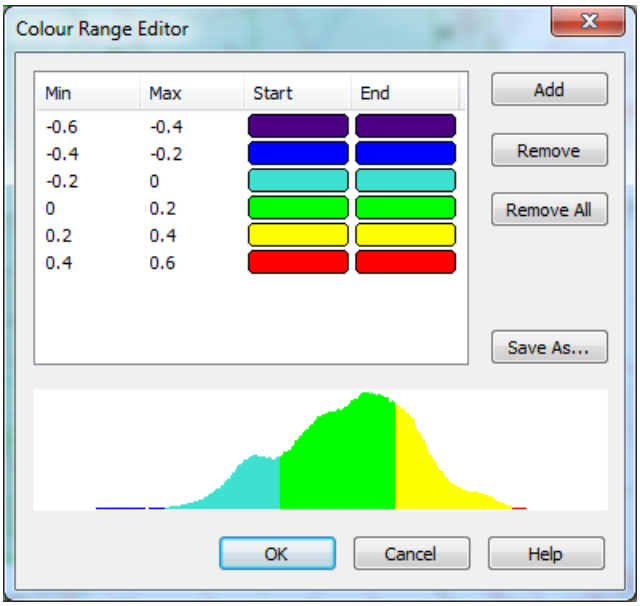


Illustration No. 8. Color range map and histogram used to evaluate the depth differences between the junction of Subarea 1 of H12254 and Subarea 2 of H12255.

Junction with H12121

The eastern margin of Subarea 2 of survey H12254 junctions with the western margins of Subareas 2 and 4 of survey H12121 (Illustration No. 5) and mainline data of each survey area overlaps. 1-m BASE surfaces were generated for Subareas 2 and 4 of survey H12121 for comparison to survey H12254. Several lines of Subarea 2 were further cleaned due to the presence of depth fliers found upon preliminary evaluation of the junction survey. This BASE surface has been included.

Although the range of depth difference values between Subarea 2 of H12254 and Subarea 4 of survey H12121 varies from -0.59 to 0.28 m, the majority of difference values are between -0.2 and 0.0 m (Illustration No. 9). The difference values that exceed -0.50 m were found to constitute a very small portion and are located where the edges of H12121 swath data overlap H12254 data. In addition, survey data of H12254 is shallower than that of survey H12121.

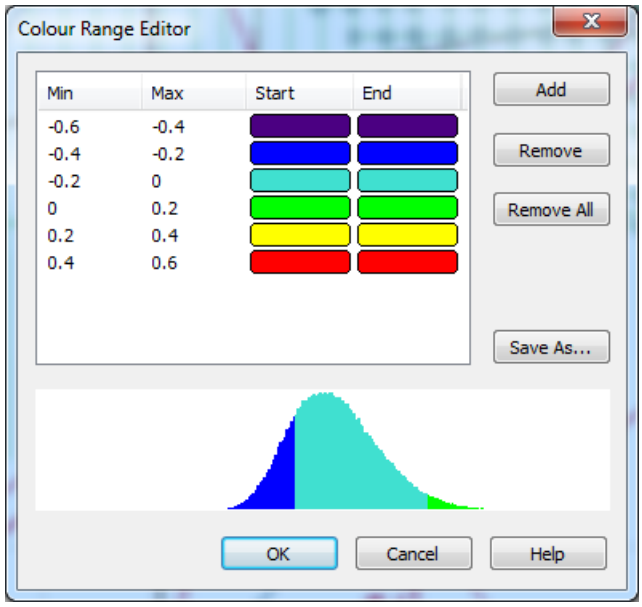


Illustration No. 9. Color range map and histogram used to evaluate the depth differences between the junction of Subarea 2 of H12254 and Subarea 4 of H12121.

The range of depth difference values between Subarea 2 of H12254 and Subarea 2 of H12121 varies from -0.89 to 0.31 m. Because there is a large portion of depth differences that exceed -0.5 m, the differences were evaluated with a histogram with increments of -0.6 to -0.5 m and -0.5 to -0.4 m. It is evident that although extreme depth differences exist, the majority of differences are between -0.4 and 0.0 (Illustration No. 10).

Data acquisition of Subarea 2 of survey H12121 occurred during September 23 and 24 (JD 266 and 267), October 20 (JD 293), November 29 (JD 333), December 6, (JD 340) and December 13 – 14 (JD 347 and 348) of 2009. The majority of the depth discrepancy between Subarea 2 of H12254 and Subarea 2 of H12121 occurs with data that was collected on December 14, 2009 (JD 348) of survey H12121. In general, data from this day appears noisier than data from other days.

The majority of the very large depth differences between H12254 and H12121 appear to occur where there are seabed depressions within the H12121 data that are not present in the H12254 survey data. These depressions were mainly found on lines 10231-1, 10238-1, 10239-1, 10252-2 and an example is shown in Illustrations No. 11 and 12. The majority of the H12121 data was collected more than a year before the H12254 data, and it is not unlikely that there would be changes in sediment deposition and erosion during this time period that would serve to fill in the depressions. In addition, survey data of H12254 is shallower than that of survey H12121.

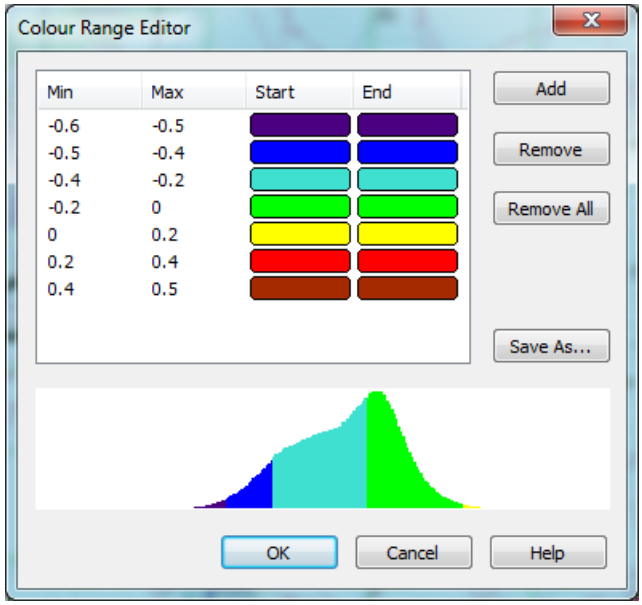


Illustration No. 10. Color range map and histogram used to evaluate the depth differences between the junction of Subarea 2 of H12254 and Subarea 2 of H12121.

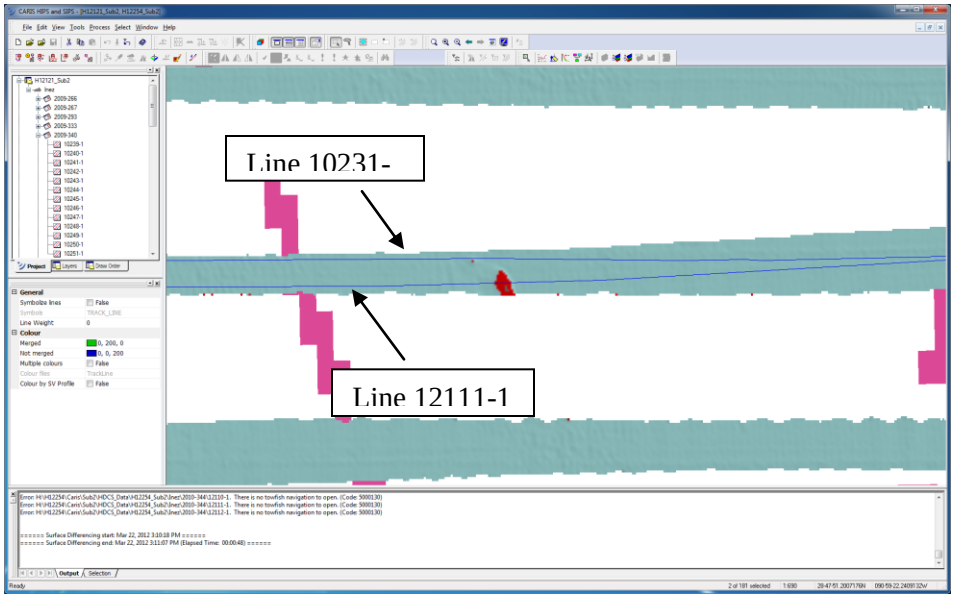


Illustration No. 11. Area of large depth difference between H12254 data (line 12111-1) and H12121 data (line 10231-1). Teal blue indicates depth differences between -0.5 and 0.5 m, the red indicates depth differences between -0.5 and -0.7 m and the gray indicates depth differences that exceed -0.7 m.

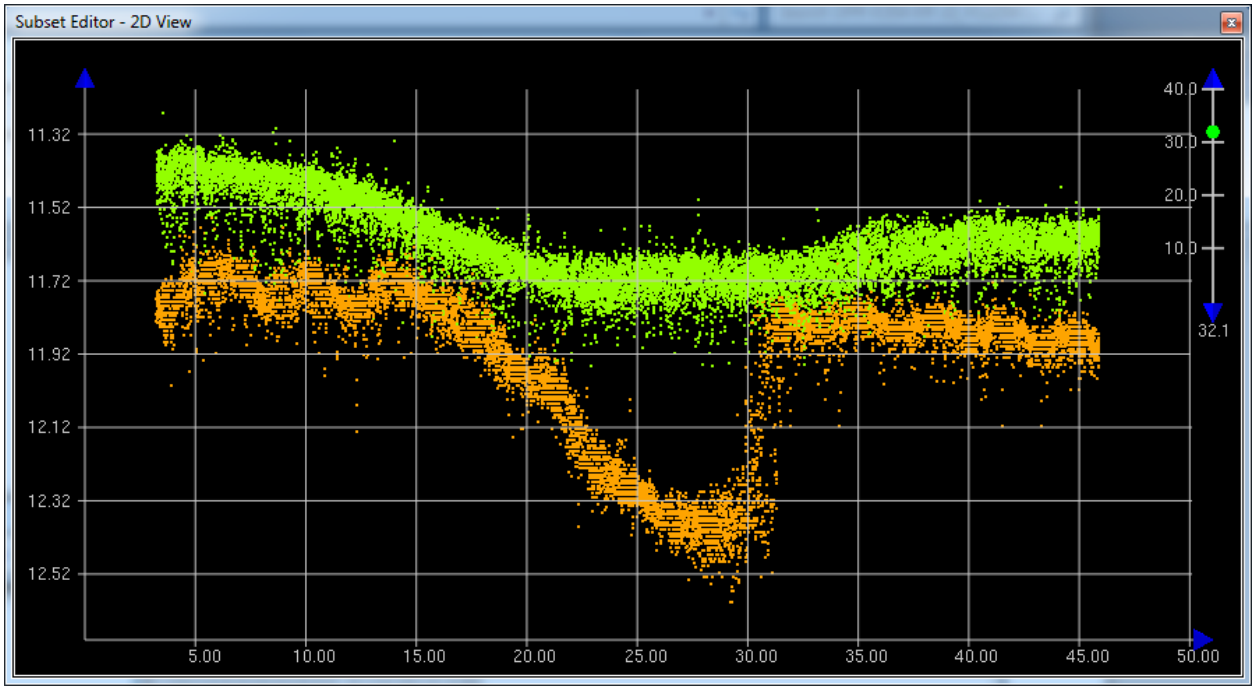


Illustration No. 12. View of 2D CARIS subset editor across lines 12111-1 (green) and 10231-1 (orange) from Illustration No. 11 that shows a depression in line 10231-1 but not in 12111-1.

B.2.5. Sonar System Quality Control

An initial multibeam patch test took place south of Cameron, LA on June 7, 2010 (Table No. 6). On June 14th, 2011 a patch test was performed for the commencement of the 2011 NOAA project OPR-K354-KR-11. A second patch test was conducted on June 30th, 2011 as a check on the quality of the first calibration (Table No. 7). The results from the June 30th patch tests were used as the final angular offsets, which were used correct the multibeam offsets for project OPR-K354-KR-10 after October 7, 2010 (refer to section B.3). This was done because of concerns with the accuracy of the heading results from the June 14th patch test.

Table No. 6: Patch test results (June 7, 2010-south of Cameron, LA)

Roll	Pitch	Heading
-0.236°	2.440°	358.430°

Table No. 7: Patch test results (June 30, 2011 – south of Cameron, LA)

Roll	Pitch	Heading
-0.125°	4.463°	-1.665°

The angular sector on the multibeam was set so that the criterion of two times water depth, as well as all accuracy, resolution, and detection criteria as set forth in Sections 5.2 and 5.3 of the "Specifications and Deliverables" document, were met.

Leadlines were conducted daily, when possible, to assess whether draft corrections needed to be applied in the multibeam collection software. The lead line logs are included in Separate I – Data Acquisition and Processing Logs.

An Odom Echotrac MKII single beam echosounder was used as an independent check on the multibeam system. Sound velocity was imported daily into the echo sounder.

Sound velocity casts were performed daily to measure the sound speed in the water column. Often casts were performed more than once to ensure accurate multibeam bottom detection. The water column sound speed was compared to the sound speed at the transducer, which was measured with an Endeco YSI sound speed profiler. Refer to the Data Acquisition and Processing Report for a description of sound speed corrections and to Separates II – Sound Speed Data for additional information.

B.2.6. Unusual Conditions/Factors Affecting Soundings/Imagery

Fish and dolphins were noted when reviewing the side scan sonar data during post-processing. Additional factors in the area that had the potential to impact the side scan imagery include shallow and warm water, the presence of thermoclines and a soft bottom. The quality of the side scan sonar was monitored closely and the height of the tow fish manually adjusted to obtain the best possible data.

B.3. Corrections to Echo Soundings

Prior to data collection on October 7th, 2010, the computer for the EM3002 control software was swapped out due to a hardware failure. At this time, the positional and angular EM3002 mounting offsets in the control software (SIS) were also changed. No change should have been made to the offsets, and all future data was collected using these incorrect values.

To correct this error, the HIPS vessel file was updated with a second entry under Swath 1. This entry, beginning on October 7th (2010-280), uses the HVF correction values found in Tables No. 8 and No. 9 below to adjust the data.

Due to the shallow water in the area, the angular, along track, and across track values went unnoticed. The vertical offset of nearly 0.4 meters was noticed right away when the lead line performed prior to data collection on 2010-280 was off by 0.4 meters. This error was corrected for in the multibeam control software as a subtraction to the waterline to CRP (draft) value. Because of this real-time correction, the 0.398 meter vertical offset is not entered in the HIPS vessel file.

To correct the angular offsets, the patch test results from June 30th, 2011 were used (Refer to Section B.2). This was done because after testing, the roll value from this patch test better corrected the data.

Table No. 8: Multibeam positional offsets (from CRP)

	Y (Forward)	X (Starboard)	Z (Vertical)
Correct value (in SIS)	14.518 m	0.170 m	3.048 m
Incorrect value (in SIS)	14.80 m	0.00 m	2.65 m
HVF correction	-0.282	0.170	0.00

Table No. 9: Multibeam angular offsets

	Roll (Positive starboard down)	Pitch (Positive bow up)	Heading (Positive clockwise)
Correct value (in SIS)	-0.125	4.463	358.335 (-1.665)
Incorrect value (in SIS)	0.10	9.3	3.28
HVF correction	-0.225	-4.837	-4.945

B.4. Data Processing

B.4.1. Coverage BASE Surfaces and Mosaics

Multibeam data processing was conducted using CARIS HIPS/SIPS 6.1 SP2 on the vessel and CARIS HIPS/SIPS 7.1.1 SP1 and SP1Hotfix1. One BASE surface was created for each subarea at a scale of 1:40000 with a resolution of 1 m, in accordance with Section 5.2.2.2 and 5.2.2.3 of the HSSD (2010), which states that a 1-m BASE surface will be created for 0 – 22 m water depths. One BASE surface was created for investigations at a scale of 1:40000 and a resolution of 0.5 m.

The majority of the side-scan sonar data was processed using Chesapeake Technologies SonarWiz4 V.4.04.0118. However, due to a measurement issue of contacts in Subarea 2, the project was converted into a SonarWiz5 V5.04.0022 compatible format in order to be able to obtain accurate shadow measurements. All of the side-scan sonar data collected for this project has been layback corrected. 1-m resolution mosaics were created for even and odd lines in each subarea to ensure 100% SSS coverage mosaics.

B.4.2. SSS Imagery and Contacts

Side scan sonar data was evaluated twice and all contacts with a shadow identified on each 100% SSS coverage. These contacts were correlated and evaluated in either the CARIS HIPS/SIPS or CARIS Notebook map window with respect to BASE surfaces and charted information. In accordance with Section 6.3.2 of the HSSD (2010), in water depths of less than or equal to 20 m, contacts with heights computed from the shadow length of 1 m or more were considered significant. All significant contacts not fully developed with mainscheme MBES coverage were investigated with additional MBES coverage. A sounding that represented the least depth of each significant contact was designated using CARIS HIPS/SIPS; least depths of insignificant contacts and pipelines are labeled ‘Examined’. A list of all side scan sonar contacts is contained in Separate V and significant features are represented and attributed in the S-57 feature file. Refer to the Data Acquisition and Processing Report for details on the side scan sonar contact processing and correlation workflow.

C. VERTICAL AND HORIZONTAL CONTROL

The vertical datum for the soundings is Mean Lower Low Water (MLLW). Tide and water level corrections were determined and applied in accordance with the CO-OPS Statement of Work. Data from Port Fourchon, LA (8762075) was used as the source of tides. Verified tides with final tide zoning were applied to the data.

The horizontal datum for the survey is the North American Datum of 1983 (NAD 83) and the projection is Universal Transverse Mercator (UTM) Zone 15 North.

D. RESULTS AND RECOMMENDATIONS

D.1. Chart Comparison

D.1.1. Charts and Notices to Mariners

Chart comparisons were performed in CARIS HIPS/SIPS 7.1 using the final BASE surfaces of mainscheme and investigation lines, colored depth ranges, and sounding layers. The data was compared to the largest scale chart in this area, summarized in Tables No. 10 and 11.

Table No. 10. Nautical Charts used for Comparison

Chart Number	Scale	Edition	Edition Date
11356	1:80,000	38	Jun 08

Table No. 11. Nautical Chart Correction Dates

Chart Number	Corrected Through	
	NM	LNM
11356	Jun 14/08	Jun 03/08

The Local Notices to Mariners (LNM) were reviewed for the duration of the survey. The last Notice to Mariners reviewed was LNM 51/10 8th Dist on 12/18/2010. No Notice to Mariners was issued within the survey bounds during survey operations. However, on 11/3/2011 (LNM 43/11 8th Dist), a platform was added (Contango-300-01) at 28-47-39.41 N, 91-00-57.74 W.

D.1.2. Charted Soundings

Charted soundings were compared to a sounding layer as well as color range maps. The sounding layers were generated from the 1-m BASE surfaces with a 550-ft single-defined radius for Subarea 1 and a 500-ft single-defined radius for Subarea 2. (Refer to the Data Acquisition and Processing Report for sounding selection criteria). Depths in the survey area range from 29 to 53 feet and there is a general deepening from northwest to southeast (Illustration No. 13 and 14).

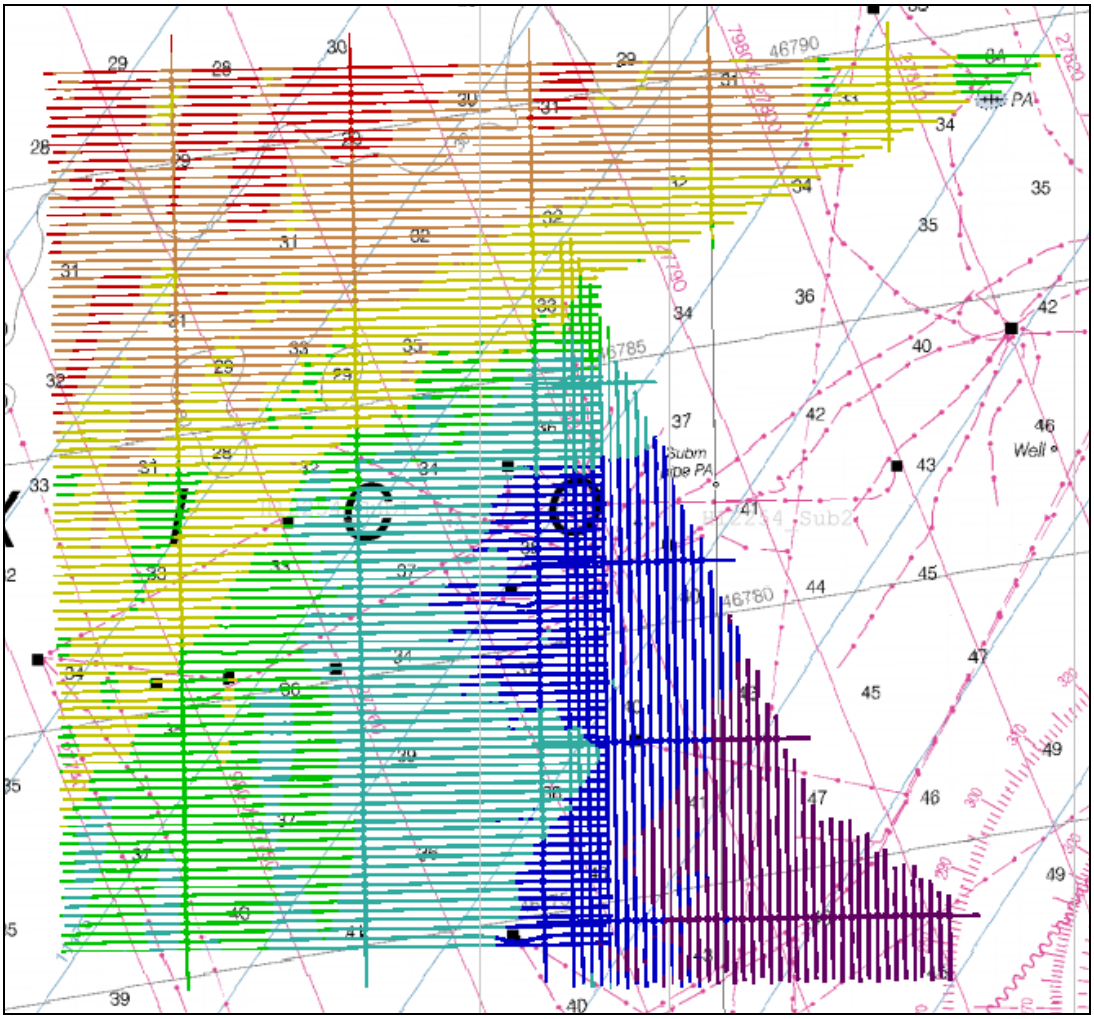
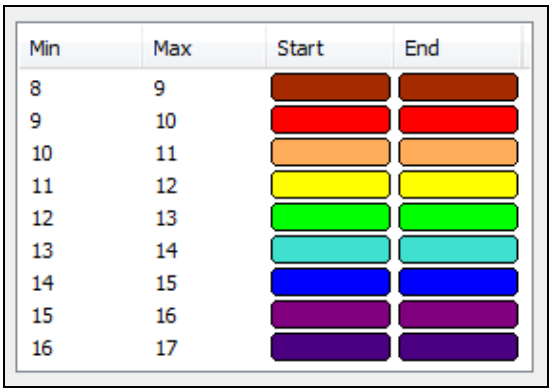


Illustration No. 13. H12254 survey area with colored depth ranges shown in Illustration No. 14.



Min	Max	Start	End
8	9		
9	10		
10	11		
11	12		
12	13		
13	14		
14	15		
15	16		
16	17		

Illustration No. 14. CARIS color range map (in meters) used for Illustration No. 13.

Surveyed soundings were found to be deeper than charted depths. In the northern portion of the sheet, surveyed soundings and charted depths are most comparable, though surveyed soundings are generally at least 2 – 3 feet deeper than charted depths. In the southwestern corner of the survey area surveyed depths are generally 2 – 5 feet deeper than charted depths. The most extreme depth differences are located in the central and southeastern portions of the

survey area. In the central portion of the survey area, in the vicinity of the isolated 30-ft contours, surveyed soundings are up to 10 feet deeper than charted depths (Illustration No. 15). Surveyed depths of up to 9 feet deeper than charted depths also occur in the southeast portion of the survey area (Illustration No. 16).

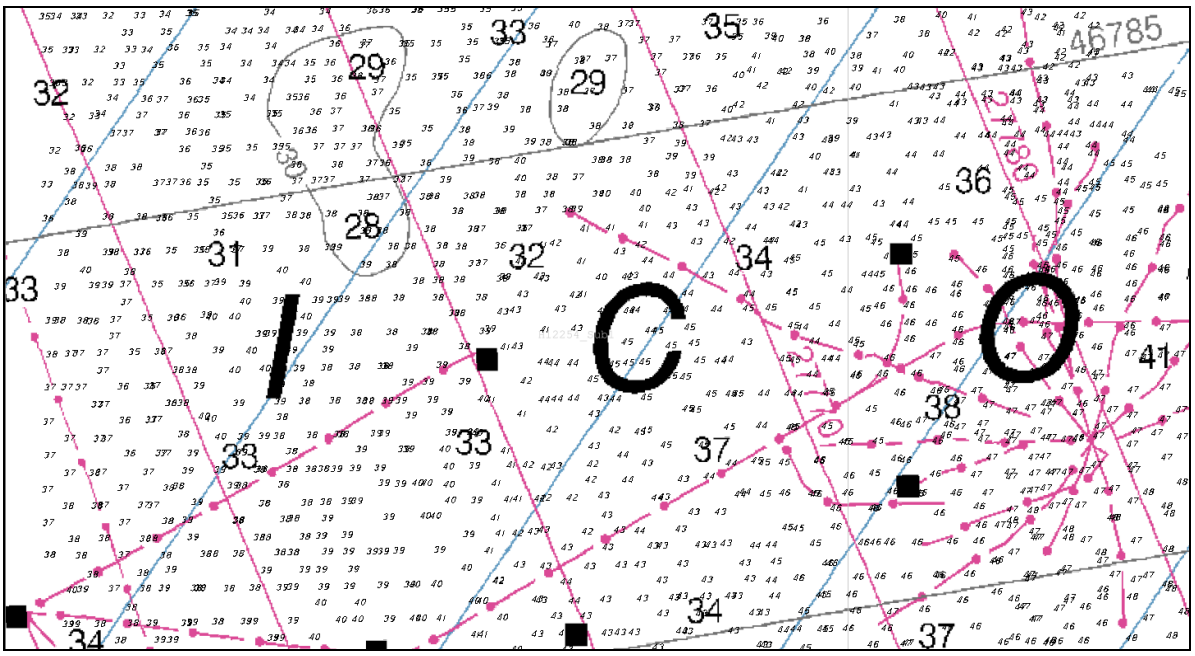


Illustration No. 15. In the central portion of the survey area surveyed depths are up to 10 feet deeper than charted depths.

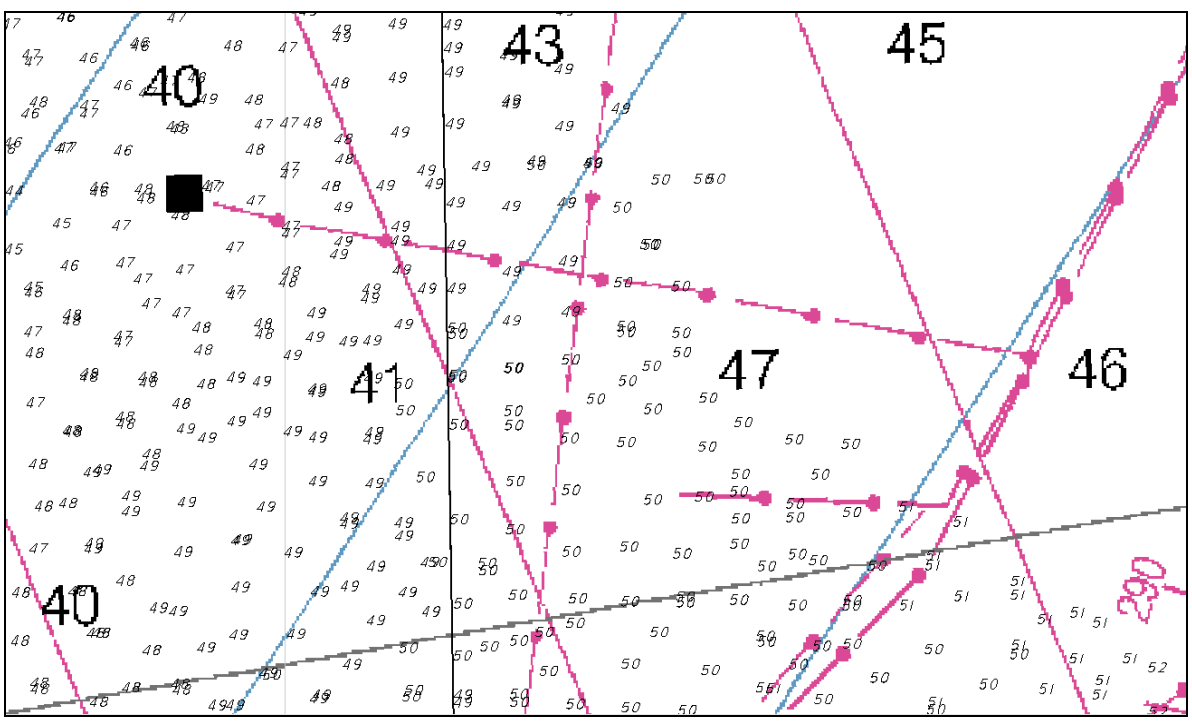


Illustration No. 16. Southeastern portion of the survey area where surveyed depths are up to 9 feet deeper than charted depths.

The 30-ft contour extends through the northern portion of Subarea 1 and a small portion of the contour extends into the northern portion of Subarea 2. In addition, there are two isolated 30-ft contour regions in the central region of Subarea 1. In order to evaluate differences and similarities between the charted contour and surveyed soundings, a color range chart was created in CARIS with soundings of 0 – 9.144 m in red and soundings greater than 9.144 m in blue; 9.144 m represents ~30 ft. There is only one small region in the northwest portion of the survey area where surveyed soundings are less than 30 feet (Illustration No. 17).

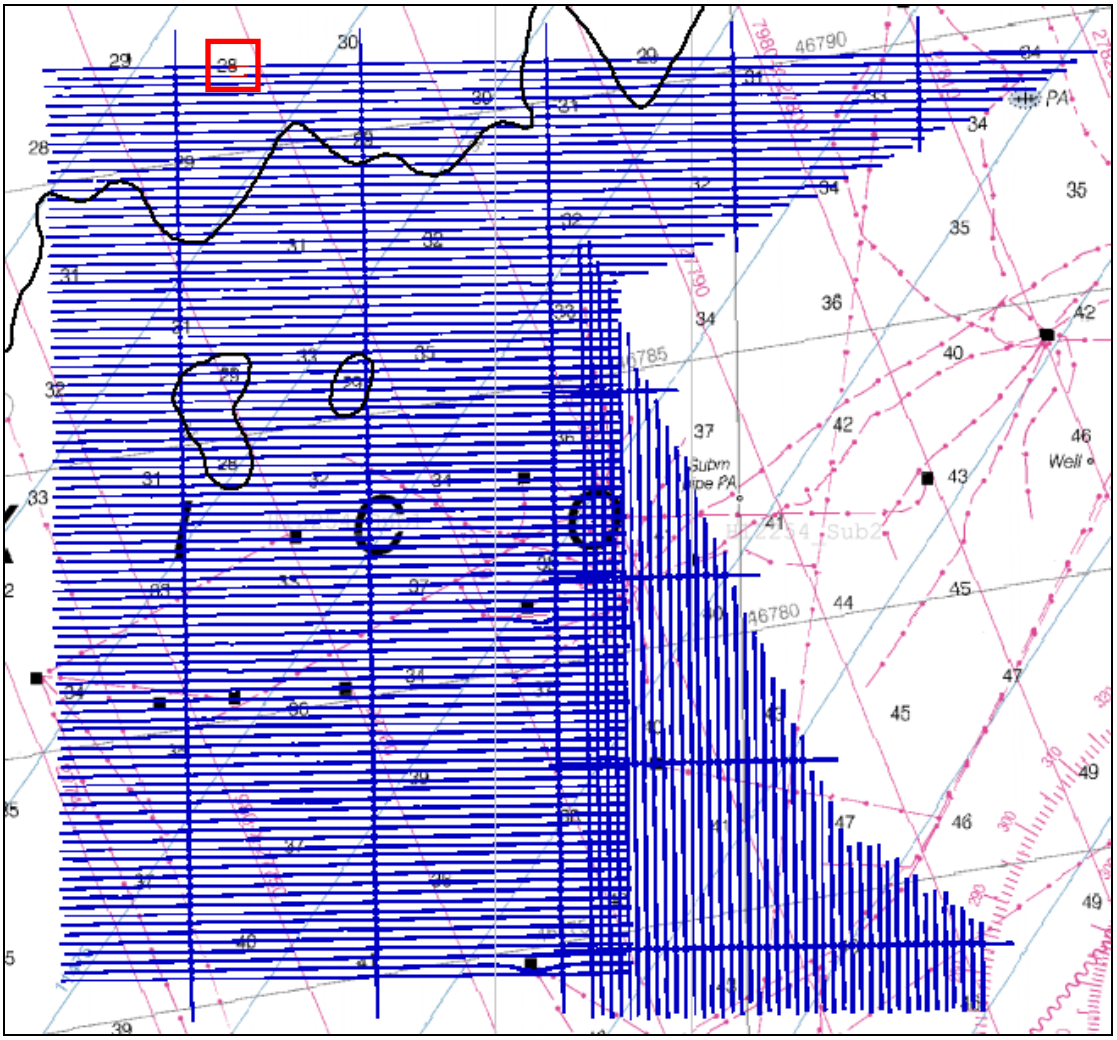


Illustration No. 17. Comparison of charted 30-ft contour and surveyed soundings. Soundings of 0 – 9.144 m are in red and soundings greater than 9.144 m are in blue; 9.144 m represents ~30 ft. The red box indicates the small region where surveyed depths are less than 30 feet.

D.1.3. Charted Features

D.1.3.1. AWOIS

No AWOIS items were assigned for investigation within the H12254 survey area.

D.1.3.2. Investigation Items

No investigations were conducted in the H12254 survey area. However, an investigation was conducted during survey operations of H12255 which developed Primary SSS contact 306-04511S. This investigation was technically inside the bounds of H12254 and the H12255 contact corresponds to Primary SSS contact 337-205034P in H12254. The feature is on the edge of H12254 swath data and has a least depth of 12.578 m at 28-44-12.203N, 91-03-46.661W. This is ~12 cm deeper than the least depth measured from the investigation data of H12255 (12.460 m). Although this feature was measured at rising at least 1 m off the bottom in both H12255 and H12254 survey data, because the feature is located on a charted pipeline, the item was not submitted as a DTON.

D.1.3.3. Danger to Navigation Reports

One Danger to Navigation Report was submitted for this survey, which corresponds to Primary side scan sonar contact 337-021210P. However, due to the proximity of the feature to a charted pipeline, this feature would not be applied as a new obstruction to the chart. The submitted DTON Report can be found in Appendix I and the feature has been maintained within the Final Feature File as an obstruction.

D.1.3.4. Existing Infrastructure

The platforms in Table No. 12 were observed as charted and the platforms in Table No. 13 were present at the time of the survey but are currently uncharted. The position of these platforms was obtained from the layback corrected primary sidescan sonar contact. There was a lift boat on station next to platform SS 145 E at the time of survey. However, this lift boat is temporary and should not be charted. A S57 feature file will not be submitted for this vessel. The list of structures in Table No. 14 are currently charted, but were no longer present at the time of the survey. Refer to Appendix II: Survey Feature Report, the SSS contact list and the Final Feature File for more information.

Table No. 12. Charted platforms observed in charted location at the time of survey.

Surveyed Position			
Latitude	Longitude	Platform Name	Chart Action
28°43'36.376"N	91°01'17.812"W	SS 145 E	Remain as charted
28°46'08.924"N	91°01'17.340"W	SS 134 #21	Remain as charted

Table No. 13. Uncharted platforms observed at the time of survey.

Surveyed Position			
Latitude	Longitude	Platform Name	Chart Action
28°44'54.302"N	91°03'09.191"W	SS 146 A	Add to chart
28°45'24.756"N	91°01'08.910"W	SS 134 #3	Add to chart

Table No. 14. Currently charted platforms not present at the time of survey.

Charted Position		
Latitude	Longitude	Chart Action
28°44'59.960"N	91°03'28.718"W	Remove
28°45'01.449"N	91°03'01.616"W	Remove
28°45'03.626"N	91°02'22.231"W	Remove
28°45'28.616"N	91°01'16.314"W	Remove
28°45'51.674"N	91°02'38.824"W	Remove
28°45'42.450"N	91°00'17.249"W	Remove
28°44'38.894"N	91°00'30.945"W	Remove

D.1.3.5. Feature Report

A Final Feature File for obstructions and infrastructure has been submitted as a CARIS .hob file in a CARIS Notebook project.

D.2. Additional Results

D.2.1. Prior Surveys

Sheet H12254 conjoins with one sheet from project OPR-K354-KR-09. Refer to Section B.2.4 for information on survey junctions and Section D.1 for comparison to nautical chart 11356.

D.2.2. Aids to Navigation

No Aids to Navigation are charted within the survey area and none were found during survey operations.

D.2.3. Additional Infrastructure

There are many charted submarine pipelines within the survey area, some of which were observed within the side scan sonar and/or multibeam survey data. Information on these exposures, including least depths (if applicable) and distance from charted pipelines can be found in the contact listing in Separates V.

D.2.4. Significant Scientific/Practical Findings

In Subarea 2 there are are several areas of small-scale irregular bathymetry that often resemble contacts, but are not associated with a specific contact. These were mainly recognized during the 3D evaluation of the BASE surface and these regions also have higher standard deviation. The side scan sonar data was further evaluated and shows evidence of irregular bathymetry as well.

Table No. 15. Regions of small scale irregular bathymetry in Subarea 2.

Line Name	Shotpoints
12124-1	43
12131-1	14 – 15
12131-2	14 – 15
12132-1	15
12133-1	19 – 21
12134-1	20

The following Illustrations show an example of irregular bathymetry from line 12133-1 between shotpoints 19 and 20. Illustration No. 18 shows the location along the line and Illustrations No. 19 and 20 show the swath editor and 3D subset editor of the area. Illustration No. 21 shows the SSS imagery of the line in approximately the same location.

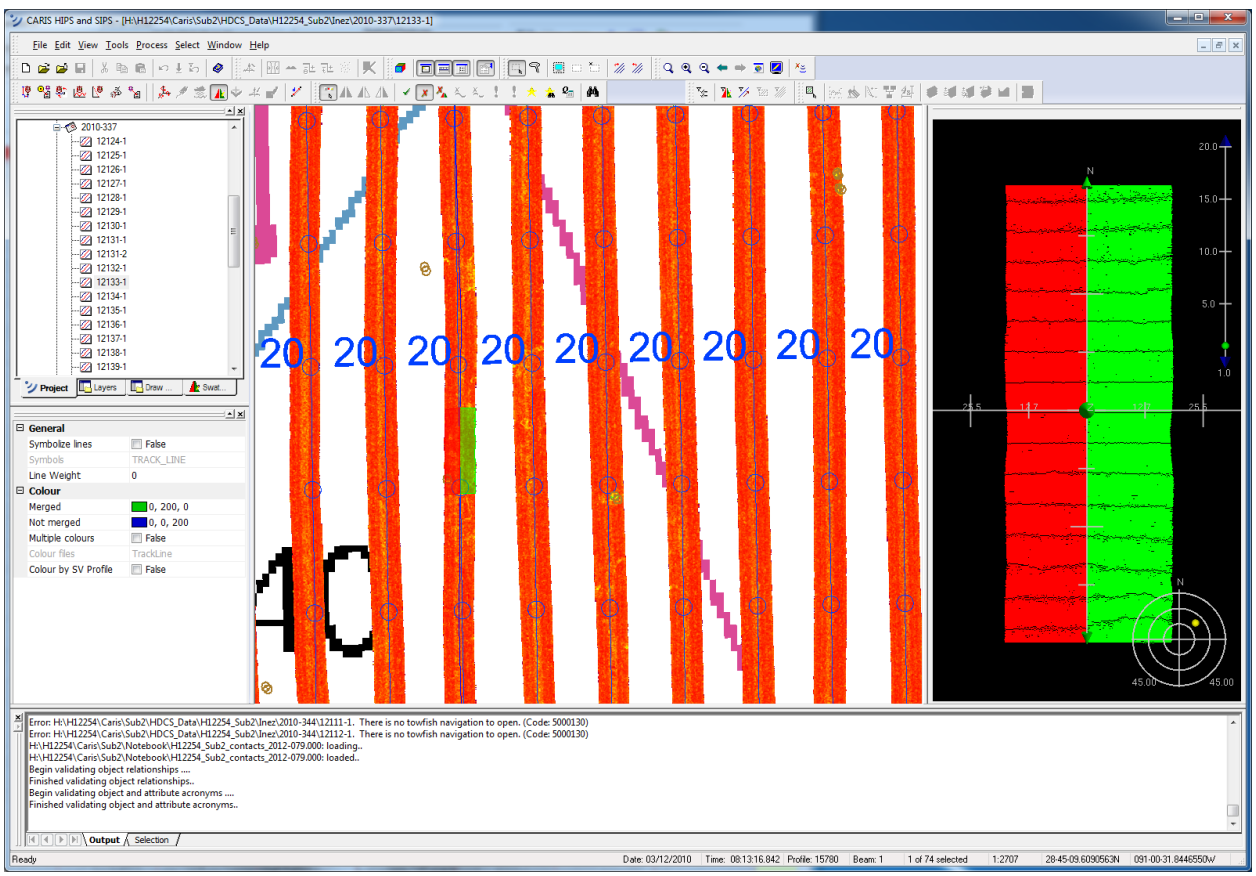


Illustration No. 18. Location of irregular bathymetry along line 12133-1.

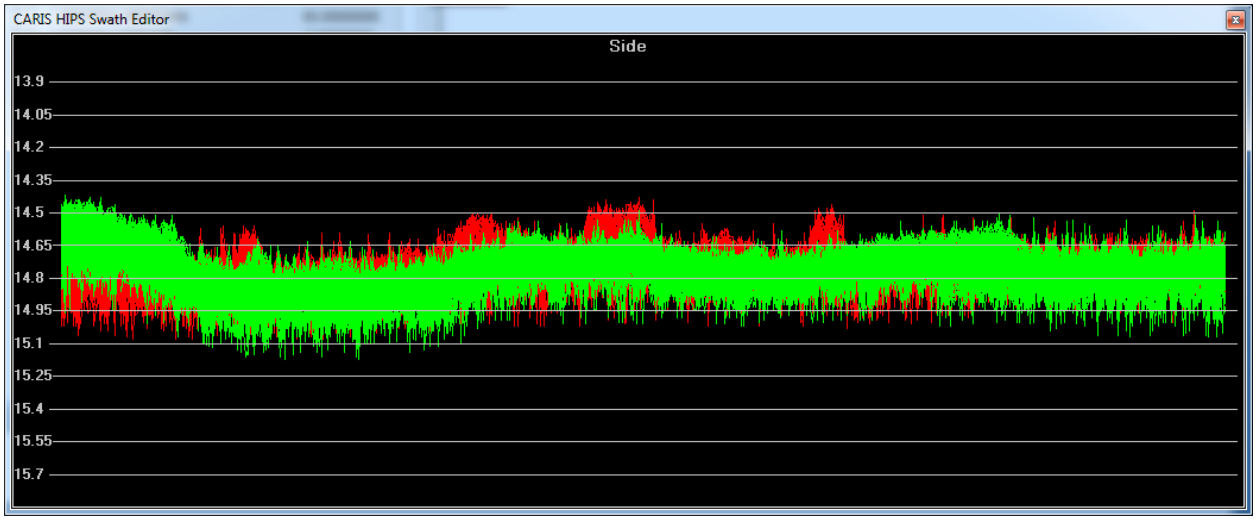


Illustration No. 19. View in swath editor of irregular bathymetry.

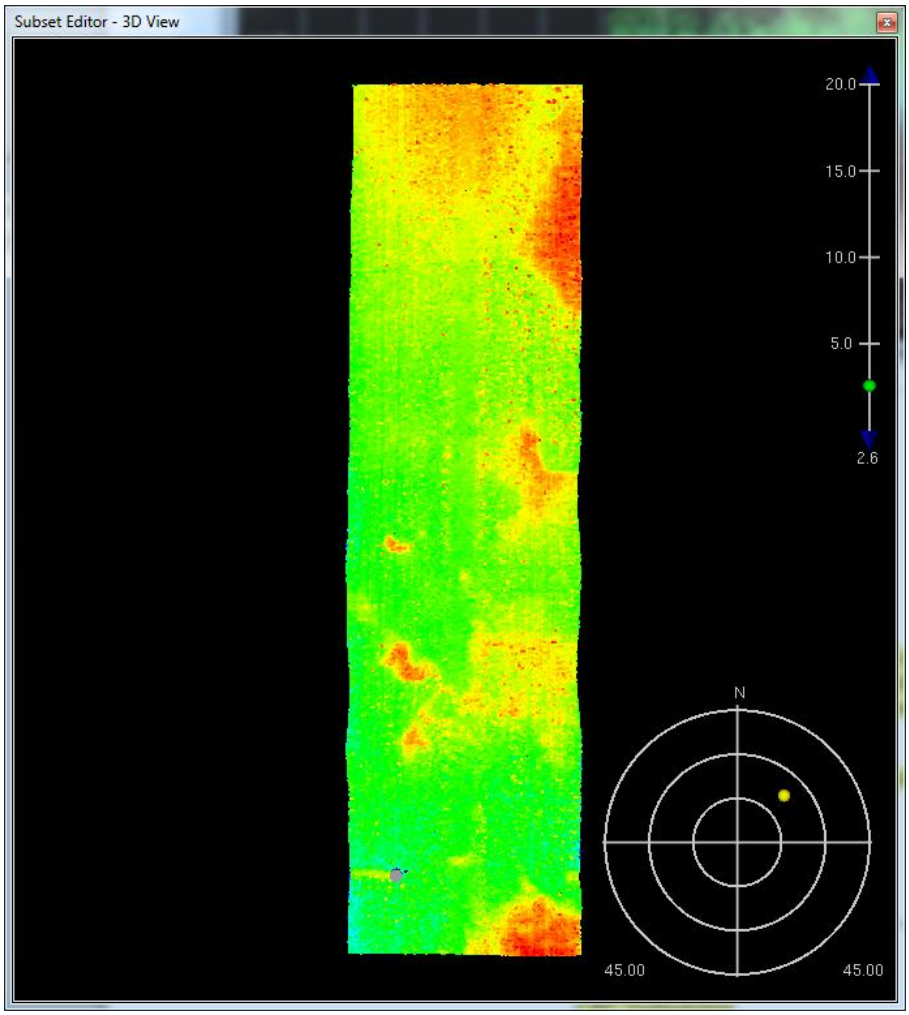


Illustration No. 20. View (from above) of 3D subset editor of irregular bathymetry; the gray circle in the bottom left indicates an actual contact.

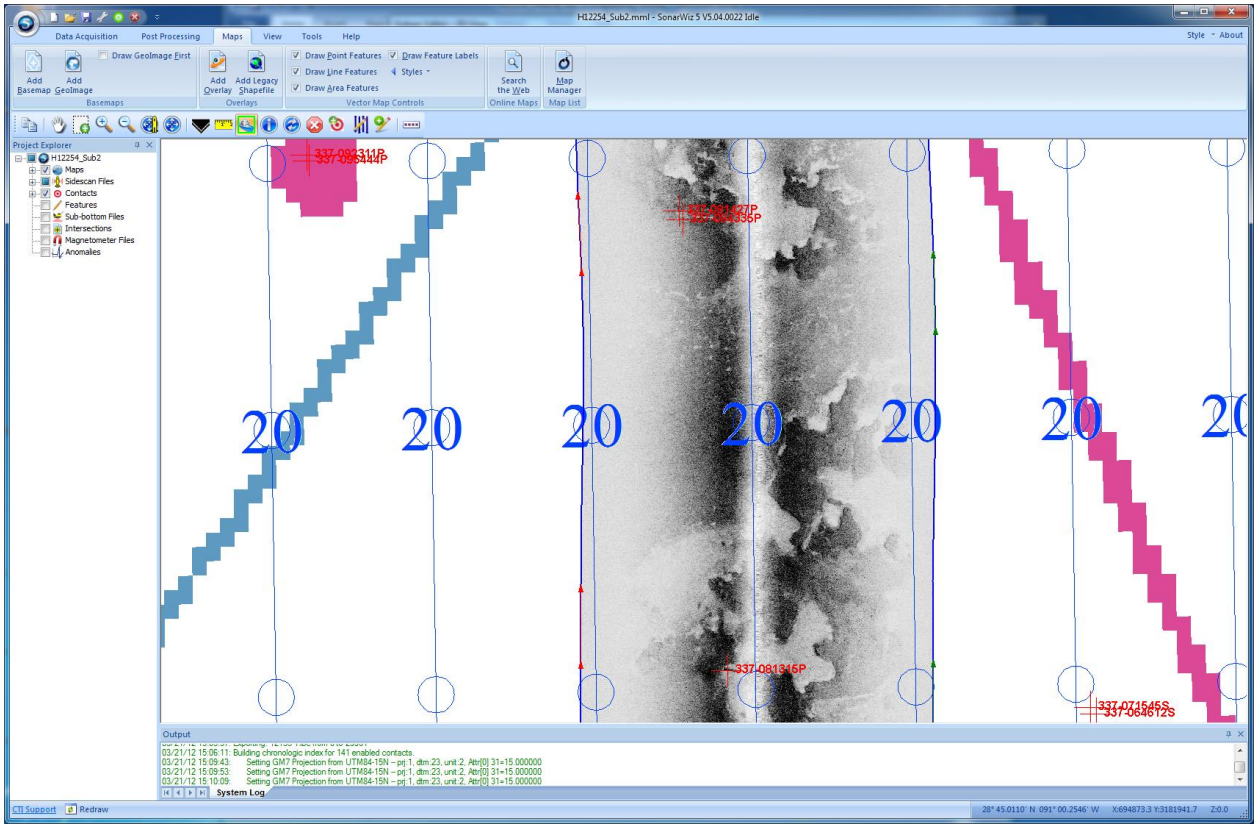


Illustration No. 21. SSS imagery of irregular bathymetry along line 12133-1; the contact in the center bottom corresponds to that of Illustration No. 20.

APPROVAL SHEET

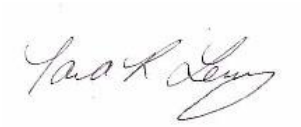
LETTER OF APPROVAL

REGISTRY NUMBER H12254

This report and the accompanying smooth sheet are respectfully submitted.

Field operations contributing to the accomplishment of the survey H12254 were conducted under my direct supervision with frequent personal checks of progress and adequacy. This report and CARIS project have been closely reviewed and are considered complete and adequate as per the Statement of Work.

This report is accompanied by the Data Acquisition and Processing Report for project OPR-K354-KR-10.



Tara Levy
Chief of Party
C&C Technologies
March 2012

APPENDIX I

Tides and Water Levels

The verified tidal data from Port Fourchon, LA (Station 876075) was downloaded from the website shown below and applied to the multibeam data with final tidal zoning.

http://tidesandcurrents.noaa.gov/station_retrieve.shtml?type=Historic%20Tide%20Data&state=Louisiana&id1=876

ABSTRACT OF TIMES OF HYDROGRAPHY

Project: OPR-K354-KR-10
Contractor Name: C & C Technologies, Inc.
Inclusive Dates: December 2nd, 2010 - December 14th, 2010
Registry No.: H12254 (Sheet 12)
Date: March 2012
Sheet Number: 12
Field Work is Complete
Time (UTC)

Date	Julian Day	Start	End	Year
12/2/2010	336	1653	2242	2010
12/2/2010	336	2307	2400	2010
12/3/2010	337	0000	1042	2010
12/3/2010	337	1058	1400	2010
12/3/2010	337	1433	2244	2010
12/3/2010	337	2250	2400	2010
12/4/2010	338	0000	0436	2010
12/4/2010	338	0501	1049	2010
12/4/2010	338	1102	1853	2010
12/4/2010	338	1915	2400	2010
12/5/2010	339	0000	1100	2010
12/8/2010	342	0201	0932	2010
12/9/2010	343	2140	2400	2010
12/10/2010	344	0000	0525	2010
12/14/2010	348	1015	1053	2010

APPENDIX II

SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCE

– None

APPENDIX III

Features

AWOIS – None

Wrecks – None

DtoNs – None

Maritime Boundaries - None

APPROVAL PAGE

H12254

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

- H12254_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12254_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: _____

Digitally signed by Abigail Higgins
DN: cn=Abigail Higgins, o=NOAA, ou=Office of Coast Survey, email=abigail.higgins@noaa.gov, c=US
Date: 2012.09.05 16:31:00 -04'00'

LT Abigail Higgins
Chief, Atlantic Hydrographic Branch