H11547

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey: **Hydrographic / SSS & SWMB**

Registry Number: **H11547**

LOCALITY

State: Mississippi-Alabama

General Locality: Gulf of Mexico

Sub-locality: 9 NM South of Dauphin Island

2006

CHIEF OF PARTY

Scott Cholmondeley
TerraSond Ltd

LIBRARY & ARCHIVES

DATE

NOAA FORM 77-28 (11-72)

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

REGISTRY NO.

H11547

HYDROGRAPHIC TITLE SHEET

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

FIELD NO.

State MISSISSIPPI-ALABAMA

General locality GULF OF MEXICO

Sub-Locality 7 NM SOUTH OF MOBILE POINT

Scale 1:20,000 Date of survey JUNE 7, 2006 – DECEMBER 10,2006

Instructions Dated JUNE 2006 Project No. OPR-J364-KR-06

Vessel *R/V DAIVDSON, BELLE MARIE*

Chief of Party *SCOTT CHOLMONDELEY*

Surveyed by:

Soundings taken by **echo sounder**, hand lead, pole MULTIBEAM ECHOSOUNDER

Graphic record scaled by

Graphic record checked by

Protracted by Automated Plot

Verification by ~~*ALANTIC HYDROGRAPHIC BRANCH*~~

Soundings in fathoms, ~~**meters,**~~ ***feet*** at MLW, **MLLW**

REMARKS: **Contract:** DG-133C-05-CQ-1079
Contractor: TERRASOUND LTD.
1617 SOUTH INDUSTRIAL WAY
PALMER, ALASKA 99645
907-745-7215
ALL TIMES ARE RECORDED IN UTC

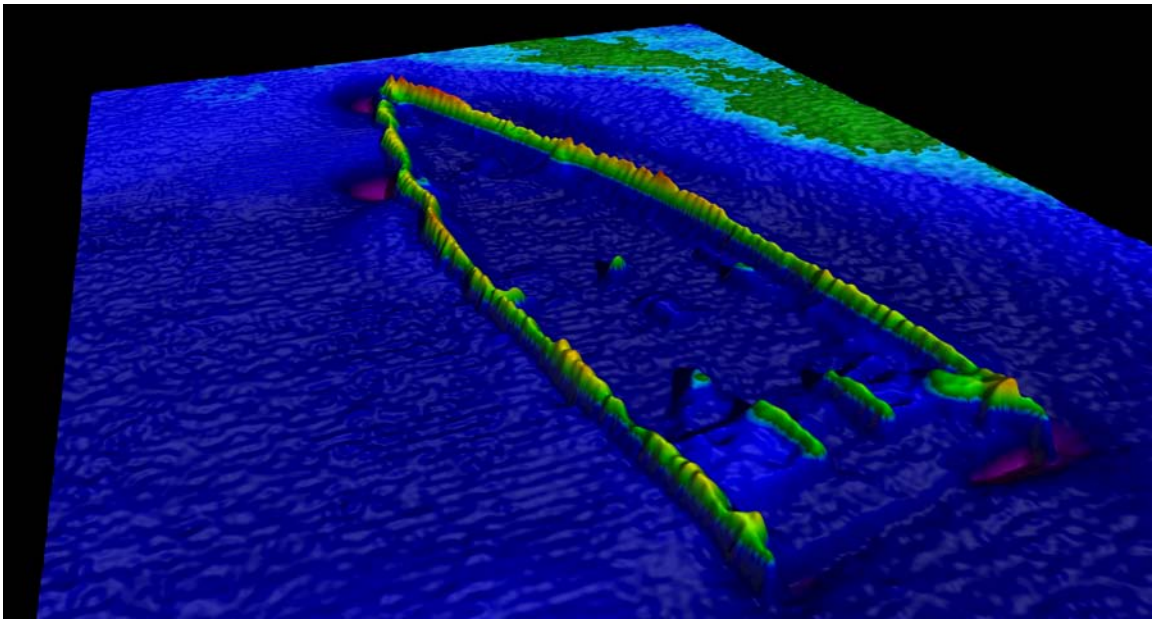
NOAA FORM 77-28 SUPERSEDES FORM C&GS-537.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1976—665-661/1222 REGION NO. 6

Bold italic red notes in Descriptive Report were made during office processing.

DESCRIPTIVE REPORT

OPR-J364-KR-06



H-11547

FIELD SHEET C

STATE: MISSISSIPPI-ALABAMA

LOCALITY: GULF OF MEXICO

SUBLOCALITY: 9 NM SOUTH OF DAUPHIN ISLAND, AL

YEAR: 2006

TERRASOND

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Data filed with original field records.

Descriptive Report to Accompany Hydrographic Survey H-11547

Sheet C

June 7 – December 10, 2006

TerraSond Ltd.

Lead Hydrographer: Scott Cholmondeley

A. AREA SURVEYED

This survey was conducted in accordance with Statement of Work, Shallow Water Multibeam Sonar and Side Scan Sonar Survey Services, OPR-J364-KR-06, 9 nautical miles (NM) South of Dauphin Island, Gulf of Mexico, Mississippi-Alabama; dated January 9, 2006.

The purpose of this contract is to provide NOAA with modern, accurate hydrographic survey data to update the nautical charts of this area. The project area covers approximately 43.8 square nautical miles and is oriented roughly parallel to and 7 nautical miles south of Horn Island, a barrier island in the Gulf of Mexico.

The project area is approximately 46 nautical miles southeast of the Port of Biloxi, MS. The Port of Biloxi is an important sport fishing center and resort with a large commercial seafood industry. The port has a small craft harbor used by sport fisherman and pleasure craft.

The Port of Pascagoula, MS is approximately 27 nautical miles to the northwest of the project area. Pascagoula is ranked as one of the top 20 ports in the United States for short tonnage imports and exports. The Port of Pascagoula has access to U.S. Highway 90 and Interstate 10. The port is also served by the CSXT and Mississippi Export Railroad. The port's main imports are oil and machinery. Pascagoula has several large facilities for ship building and repair, oil refining, and seafood packing and processing. The port exports fertilizers, meat, oil and paper. Pascagoula is also one of the gateway ports to the Mississippi River.

The ports Biloxi and Pascagoula, and the ships that use them, rely heavily on the accuracy of the nautical charts for this area.

Full bottom coverage, consisting of 200% side scan sonar supplemented with shallow-water multibeam echosounder coverage, was achieved within the limits of hydrography for this survey. The side scan and multibeam imagery was used to locate and determine the least depth over obstructions, wrecks, and shoals as well as to determine the least depths over the entire project area. This survey area has a maximum depth of ~~71~~ ***78*** feet and a minimum depth of ~~45~~ ***43*** feet below the Mean Lower Low Water (MLLW) tidal datum.

For complete survey limits, see Figure 1 on the following page.

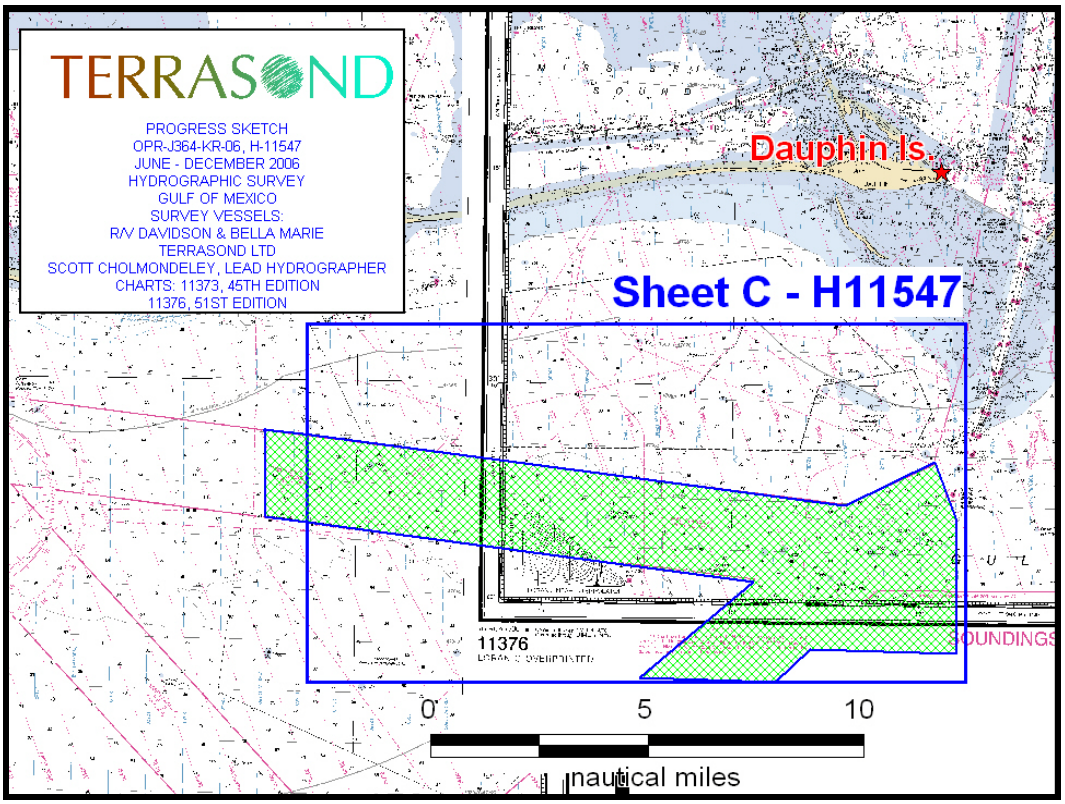

Figure 1 – Overview of H-11547 with Chart 11373, 45th Edition dated Jan. 2007 and Chart 11376, 50th Edition dated Mar. 2005.

B. DATA ACQUISITION AND PROCESSING *SEE ALSO THE EVALUATION REPORT.*

B.1 Equipment

Bathymetry and side scan imagery for this survey were acquired using the hydrographic survey vessels *R/V Davidson* and *Bella Marie*.

R/V Davidson

The *R/V Davidson* is a steel hull vessel, 53.3 meters in length overall with an 11.6 meter beam and a 5.4 meter draft. Major systems used on the *R/V Davidson* are listed in the following table.

VESSEL *R/V Davidson* LOA: 53.3m, BEAM 11.6m, DRAFT: 5.4m	
Equipment	**Manufacturer & Model**
Multibeam sonar	Reson 8101
Side Scan Sonar	EdgeTech 4200-FS
Positioning	Primary -- Seatex Seapath 200 RTK
Sound speed	Sea Sciences LTV50 Acrobat Towed Vehicle and Applied Microsystems SV&P Smart Sensor
Vessel attitude	Seatex MRU-5

Equipment performance details are provided in the Data Acquisition and Processing Report (DAPR)*, Sections A. Equipment and B. Quality Control.

Data filed with original field records.

Bella Marie

The *Bella Marie* is an aluminum hulled catamaran hydrographic survey vessel, 11.9 m in length with a 4.3 m beam and a 0.75 m draft. Major systems used on the *Bella Marie* are listed in the following table.

VESSEL *Bella Marie* LOA: 11.9m, BEAM 4.3m, DRAFT: 0.75m	
Equipment	**Manufacturer & Model**
Multibeam sonar	Reson 8124
Side Scan Sonar	EdgeTech 4200-FS
Positioning	Seatex Seapath 200 RTK
Sound speed	Applied Microsystems SV&P Smart Sensor and Odom Digibar Pro
Vessel attitude	Seatex MRU-5

Equipment performance details are provided in the Data Acquisition and Processing Report (DAPR),* Sections A. Equipment and B. Quality Control.

Data filed with original field records.

B2. Quality Control

Side Scan Sonar

Daily confidence checks of the side scan sonar operation were conducted by recording a screen shot of the side scan record which included the side scan image and all operational settings. The confidence checks were performed when distinctive bottom features (e.g. trawl scars, submerged vessels, etc.) were continuously visible in the record from the maximum range of one channel to the maximum range of the other channel. A rub test was performed on both channels of the side scan transducer prior to deployment to ensure adequate signal return.

Data for this sheet were collected at various range scales depending on environmental conditions. Strong thermoclines were common throughout the survey area due to localized heating of the surface waters and freshwater runoff. While surveying with the *R/V Davidson*, the towfish was positioned below the layer when significant thermoclines were encountered whenever practical. This periodically resulted in a towfish height that was less than that required in the specifications for the100m range scale. When this occurred, adjacent swath records were carefully examined to ensure the side scan coverage specified in the statement of work was achieved. Refer to "Separate I: ACQUISITION AND PROCESSING LOGS"* for range scales for individual lines. While surveying with the *Bella Marie*, which used a fixed-mount side scan array, line spacing and side scan range scale were reduced when thermoclines were encountered to ensure adequate coverage was achieved.

Shallow Water Multibeam

No conditions with the potential for adversely affecting data integrity were encountered with the multibeam suites used during this survey.

Multibeam confidence checks were conducted on the *R/V Davidson* and the *Bella Marie* to verify proper operation of the multibeam suite on a weekly basis, weather permitting. The *R/V Davidson* performed the checks by comparing nadir beam depths with lead line depths. The *Bella Marie* performed the confidence checks using standardized bar check procedures. The results of these comparisons and the line acquisition logs detailing aspects of quality control for each survey line are contained in *"Separate I: Acquisition and Processing Logs" of this report.

A detailed discussion of multibeam system calibrations, patch tests, data acquisition, and processing is provided in the Data Acquisition and Processing Report (DAPR)* for this project.

Crosslines

173 lines totaling 1,137.7 lineal nautical miles of mainscheme lines and twenty-nine (29) lines totaling 66.7 lineal nautical miles of crosslines were run during the 2006 survey of H-11547. The ratio of the lineal nautical miles of crosslines to the lineal nautical miles of mainscheme lines, at 5.8%, exceeds the 5% required by "NOAA Hydrographic Surveys Specifications and Deliverables", Section 5.5.3. A total of 25 crossings were analyzed using CARIS HIPS, in conjunction with Microsoft Excel, and comparisons were good. The crossings varied spatially and temporally. A location plot of all mainscheme and crossline intersections is included in "Separate V: CROSSLINE COMPARISONS".*

Data filed with original field records.

A comprehensive explanation of the crossline analysis process is in the Data Acquisition and Processing Report (DAPR).* The reports generated from the crossline analysis are in "Separate V: CROSSLINE COMPARISONS".*

Contemporary Survey Junctions ***See also the Evaluation Report.***

The westerly limits of this survey junctions with the easterly limits of H-11546 (2006) and the easterly limits junctions with the westerly limits of H-11583 (2006). The soundings are in general agreement between the two surveys. No adjustments or recommendations were made based on the junction analysis.

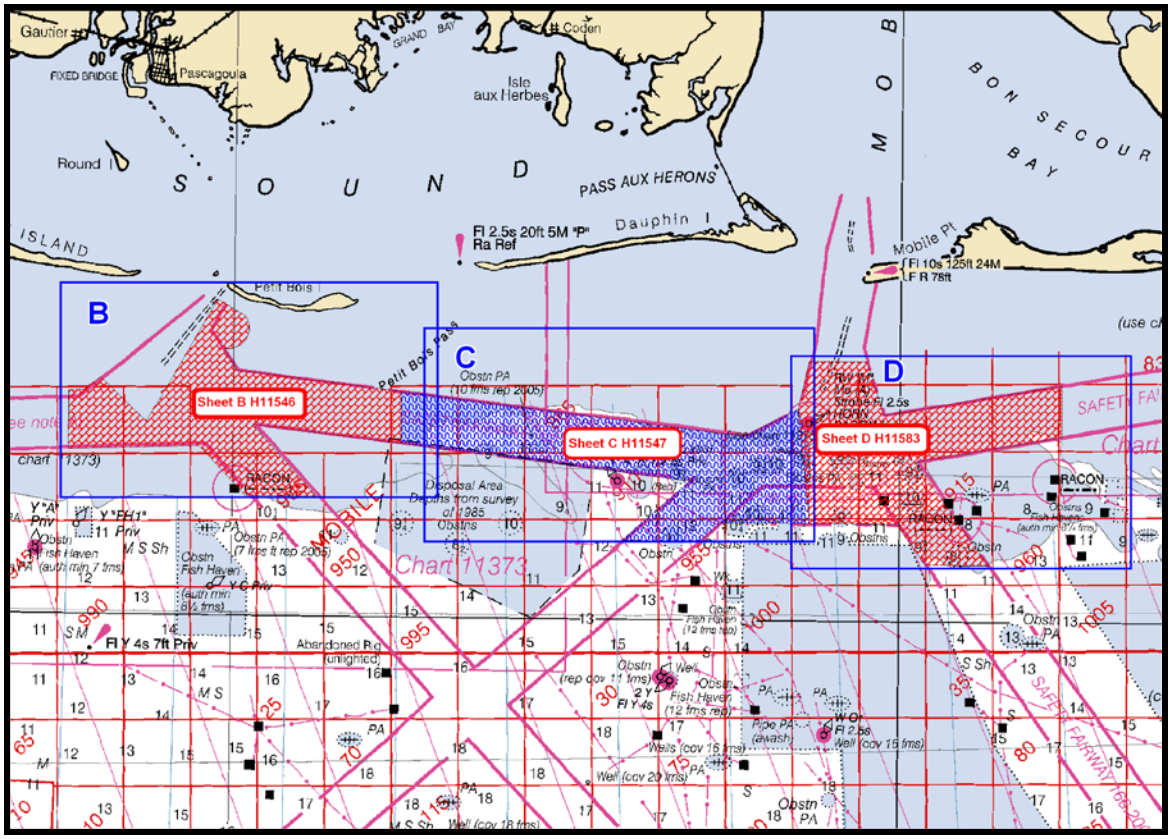

Figure 2 – Overview of survey area showing the junction locations of H-11546, H-11547, and H-11583.

Data filed with original field records.

B3. Corrections to Echo Soundings

Hydrographic Survey H-11547 was performed in conjunction with nine other surveys in Projects OPR-J364-KR-06 and S-J977-KR-TE. Any change to the corrections to echo soundings affects all surveys in the area and is described in detail in the Data Acquisition and Processing Report (DAPR)* accompanying this report.

Sounding data were reduced using zoning provided by NOAA/CO-OPS under the project instructions and verified tides from the National Water Level Observation Network (NWLON) station at Dauphin Island, AL (873-8151) and the Pascagoula NOAA Lab, MS water level station (874-1533). Refer to the Horizontal and Vertical Control Report (HVCR)* for tidal zoning methods and operations.

B4. Data Processing

The final depth information for this survey was submitted as a collection of CARIS BASE surfaces which best represented the seafloor at the time of the 2006 survey. All possible measures were taken to ensure the data were correctly processed and the appropriate designated soundings, representing the least depth of significant contacts, were selected and retained in the finalized surfaces.

The submittal of several grids of varying resolution was unnecessary for H-11547 due to the shallow depths and relatively flat bottom throughout the survey area. A grid spacing of 2 meters was used for all BASE surfaces and Digital Terrain Models (DTM).

In accordance with the statement of work, line spacing was set to achieve the desired side scan sonar coverage. This was not optimal for shallow water multibeam (SWMB) coverage and resulted in SWMB coverage gaps as the outer beams of adjacent lines did not meet and the use of a grid resolution smaller than two meters resulted in data holidays which could preclude features from inclusion on the surface.

A CARIS BASE uncertainty surface was submitted, which covers the entire survey area, where the finalized uncertainty is the greater of the standard deviation and *a priori* uncertainty. One sun-illuminated DTM created from the final elevation surface was submitted in addition to the BASE surface. The naming conventions for each grid are:

CARIS BASE Uncertainty Surface: H11547_1_OF_1.hns
Sun-Illuminated Elevation DTM: H11547_1_OF_1.tif

The Data Acquisition and Processing Report Sections A: EQUIPMENT – DATA COLLECTION and B: QUALITY CONTROL* contain a detailed discussion of the steps followed when acquiring and processing the 2006 survey data.

Data filed with original field records.

VERTICAL AND HORIZONTAL CONTROL ***SEE ALSO THE EVALUATION REPORT.***

Sounding data were tide adjusted using verified tide levels for the National Water Level Observation Network (NWLON) station at Dauphin Island, AL (873-8151) and the Pascagoula NOAA Lab, MS water level station (874-1533) tide stations through December 10, 2006. Verified data from the Dauphin Island and Pascagoula gauges were downloaded from the NOAA internet Hydro Hot list (http://co-ops.nos.noaa.gov/hydro.shtml). The final zoning methodology is described in detail in the project wide Horizontal and Vertical Control Report. *

Approved tides were applied during field processing.

The horizontal control datum used for this survey is the North American Datum of 1983 (NAD 83). The projection used was UTM, Zone 16 North.

Sounding position control was determined using the Global Positioning System (GPS). The United States Coast Guard differential GPS (DGPS) stations *Mobile Point, AL, StaID 26* and *English Turn, LA, StaID 28,* were used to provide navigation correctors. A summary of weekly DGPS confidence checks is provided in Separate I: ACQUISITION AND PROCESSING LOGS* included with this report.

***DATA FILED WITH ORIGINAL FIELD RECORDS.**

RESULTS AND DISCUSSION *SEE ALSO THE EVALUATION REPORT.*

D1. Chart Comparison

In the absence of a paper smooth sheet, sounding data from the 2006 survey used for chart comparison were produced using CARIS HIPS & SIPS Field Sheet Editor. The final edited data were decimated to a $10m^2$ binned surface and populated with the shoalest sounding value within the limits of each bin. In order to replicate traditional smooth sheet sounding selection criteria, a shoal-biased sounding selection using a 60m radius was applied to each binned surface. The soundings were then compared the largest scale chart (or charts) covering the surveyed area. The results of this comparison are discussed in the following pages.

No Local Notice to Mariners (LNM) affected the survey area. LNM number 06 (Weekly Edition-February 2007) was the last notice reviewed for this project. Eight features from H-11547 were submitted as Dangers to Navigation (DTON) for the 2006 survey. The DTON report is included in Appendix I. to this report. ***Concur***

Raster Chart Comparison - Survey H-11547

All charted features were investigated using side scan and multibeam sonar. The 2006 survey generally agrees with the largest scale nautical charts covering the area surveyed. Figure 3 shows the survey limits and the intersection between Chart 11373, 45th Edition; Chart 11376, 51st Edition; Chart 11378, 34th Edition; and Chart 1115A, 41st Edition.

The following pages detail discrepancies found between charted features and the 2006 survey data. The hydrographer recommends that *seven uncharted features be added, four charted features be removed, and four charted features be updated with the 2006 survey data. ***See the following pages for final charting recommendations.*** The 2006 survey data also indicate that depth contours are migrating shoreward near the western edge of the survey area. ***Concur***

The 2006 survey data are compared to the following charts.

Chart	Scale	Edition Number	Edition Date	Issue Date
11378	1:40,000	34	2/1/2006	1/27/2007
11373	1:80,000	45	2/1/2006	1/27/2007
11376	1:80,000	51	2/1/2006	1/27/2007
1115A	1:456,394	41	3/1/2005	1/27/2007

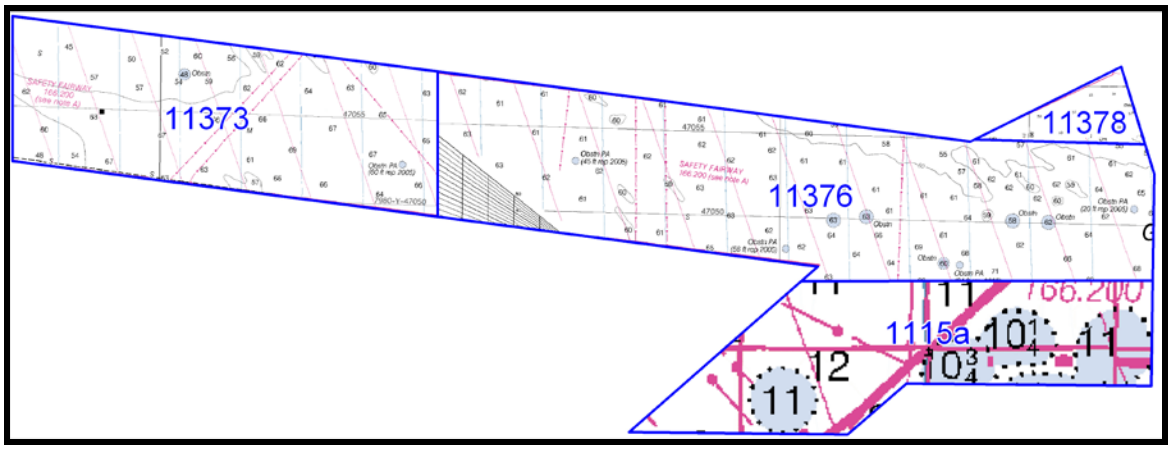

Figure 3 - Survey limits of H-11547 showing the largest scale charts covering the survey area. This includes Charts 1115A, 41st Edition; 11373, 45th Edition; 11376, 51st Edition; and 11378, 34th Edition.

New Features: Survey H-11547

The 2006 survey identified seven features which are not currently charted. These features are described in detail in Table 1 and the figures on the following pages. The hydrographer recommends updating the affected charts with the 2006 survey data. ***See the following pages for final charting recommendations.***

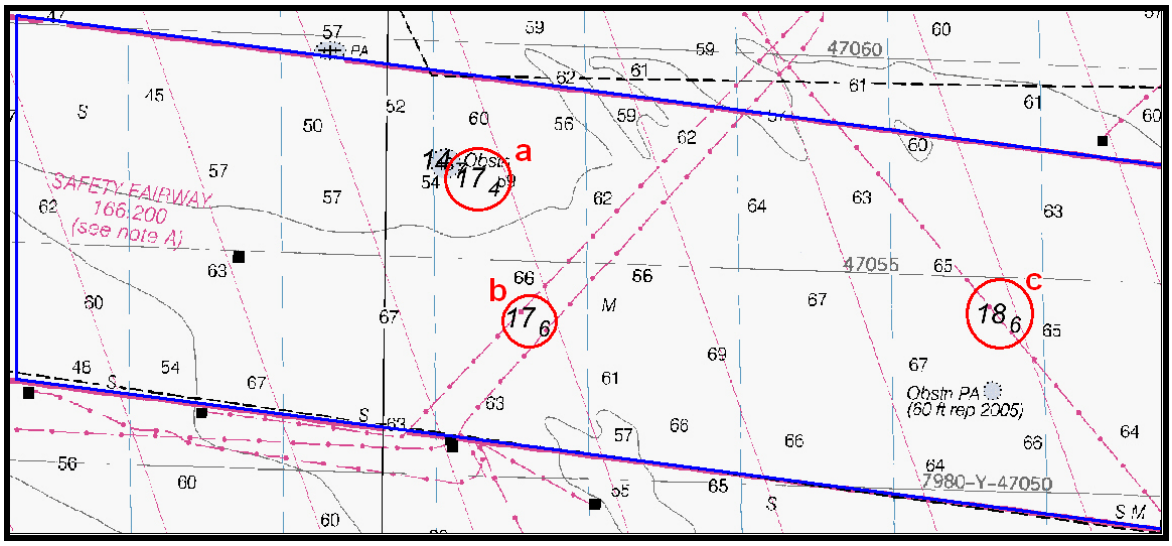

*Figure 4 - Overview of survey area H-11547, covered by Chart 11376, 51st Edition, showing three of the seven uncharted features identified by the 2006 survey. The features, with depths shown in meters, are enclosed by the red circles. *See the following pages for final charting recommendations.*

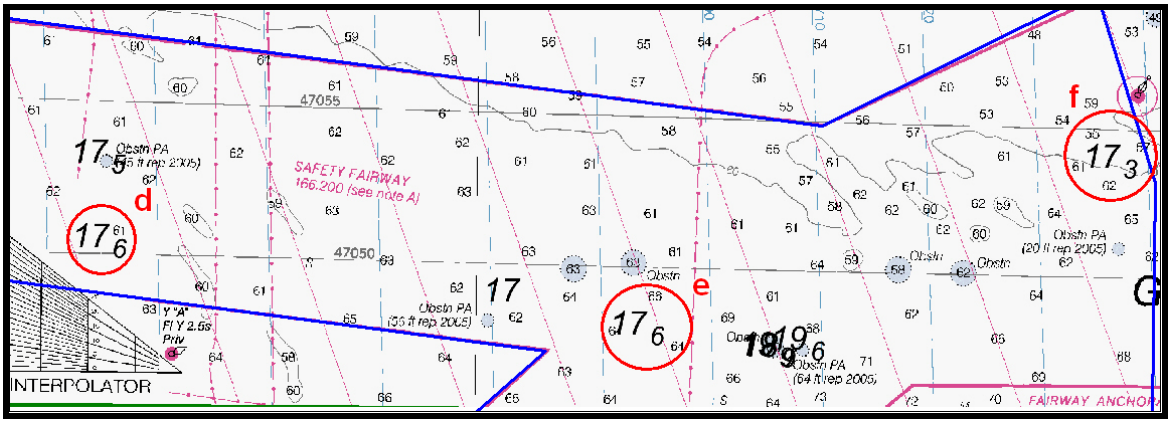

*Figure 5 – Overview of survey area H-11547, covered by Chart 11373, 45th Edition, showing three of the seven uncharted features identified by the 2006 survey. The features, with depths shown in meters, are enclosed by the red circles. *See the following pages for final charting recommendations.*

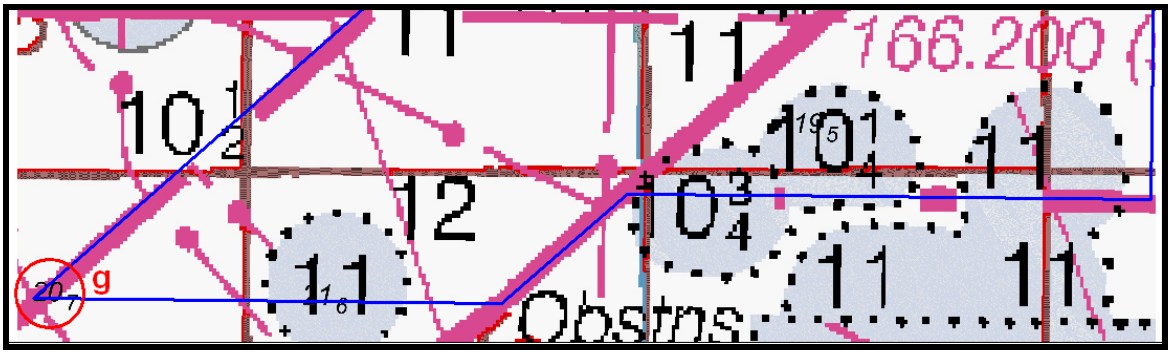

*Figure 6 – Overview of survey area H-11547, covered by Chart 1115A, 41st Edition showing one of the seven uncharted features identified by the 2006 survey. The feature, with depths shown in meters, is enclosed by the red circle. *See the following pages for final charting recommendations.*

Table 1 – Uncharted features within the survey limits of H-11547. The chart listed is the largest scale chart covering the area with the new features. The feature letter refers to the features shown in Figures 4-6.

Feature Letter	Chart	Survey Sounding	Latitude N	Longitude W	Comment	Figure
a	11373	57.1ft (17.4m)	30°07'55.99"	88°19'23.59"	Obstruction*	4
b	11373	57.7ft (17.6m)	30°07'09.~~66~~*80*"	88°19'~~04.44~~ *03.94*"	Obstruction *Chart 58 Obstn*	4
c	11373	~~61.0~~ *58.1*ft	30°07'~~13.08~~*12.87*"	88°16'~~01.67~~*02.85*"	Obstruction **	4
d	11376	57.7ft (17.6m)	30°06'~~19.80~~*16.76*"	88°13'~~21.36~~*19.25*"	Obstruction *Chart 57 Obstn*	5
e	11376	57.7ft (17.6m)	30°05'~~39.84~~*39.36*"	88°08'32.~~28~~*19*"	Obstruction *Chart 57 Obstn*	5
**Determined insignificant during office processing. Do not chart. **See Evaluation Report for final charting recommendation.*						

Feature Letter	Chart	Survey Sounding	Latitude N	Longitude W	Comment	Figure
f	11376	56.8ft (17.3m)	30° 06’ 59.40”	88° 04’ 18.48”	Obstruction*	5
g	1115A	67.9ft (20.7m)	30° 03’ 10.08”	88° 12’ 17.64”	Obstruction**	6

Determined insignificant during office processing. Do not chart.
****Determined insignificant during office processing. Do not chart. Chart survey depth.***

Changed Features: Survey H-11547

The 2006 survey identified four features which are significantly shoaler and/or horizontally offset from the corresponding charted features. These features are described in detail in Figures 7-8 and Tables 2-3. The hydrographer recommends updating the affected charts with data produced by the 2006 survey. ***See the following pages for final charting recommendations.***

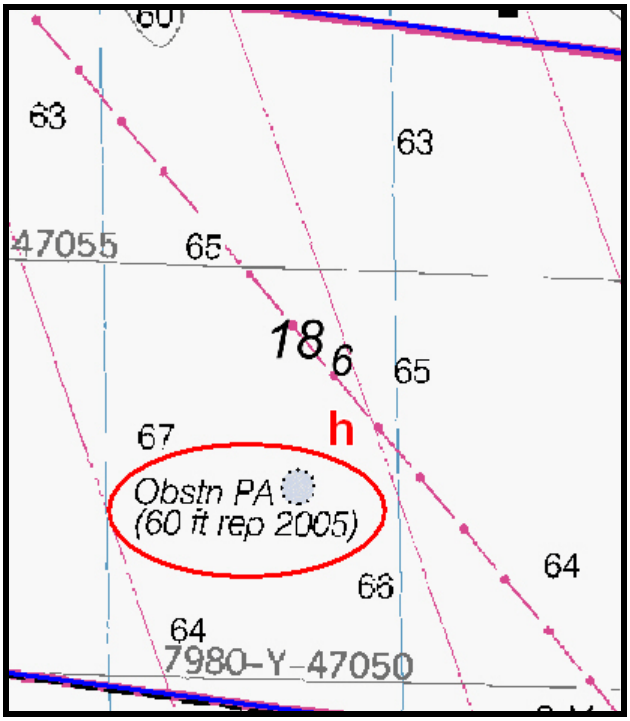

Figure 7 – Overview of survey area H-11547, covered by Chart 11373, 45th Edition, where features identified in the 2006 survey are significantly different and/or horizontally offset from the corresponding charted features. Charted soundings are in feet, while survey soundings are in meters. ***Concur***

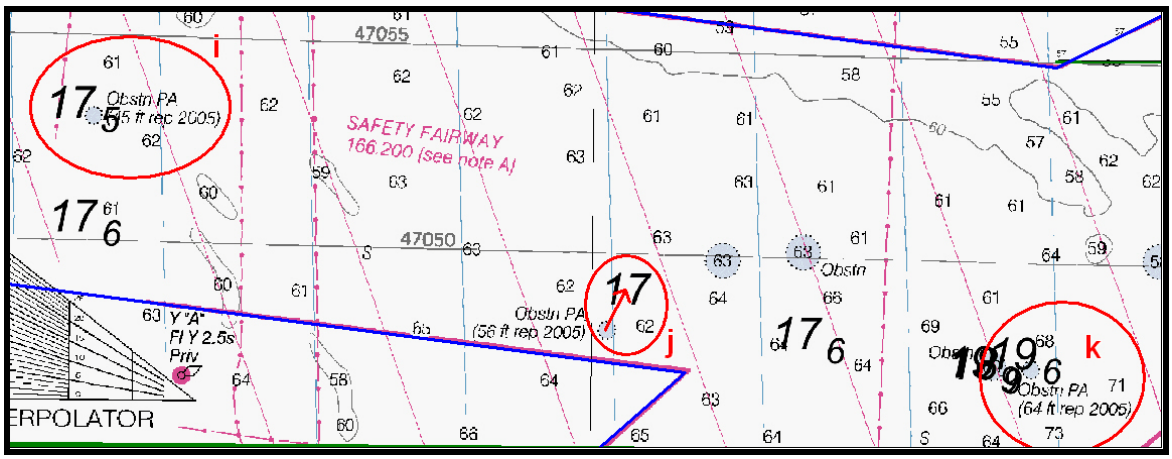

Figure 8 – Overview of survey area H-11547, covered by Chart 11373, 45th Edition, where features identified in the 2006 survey are significantly different and/or horizontally offset from the corresponding charted features. Charted soundings are in feet, while survey soundings are in meters. ***Concur***

Table 2 – Charted features which differ significantly from the features found during the 2006 survey. The feature letter refers to the features shown in Figures 7-8. The chart listed is the largest scale chart covering the area with the changed features.

Feature Letter	Chart	Latitude N	Longitude W	Charted Depth (feet)	Survey Sounding (feet)	Vertical Difference (feet)	Horizontal Offset (feet)
h*	11373	30° 06’ 47.70”	88° 16’ 06.06”	60	61.7ft (18.8m)	1.7	n/a
i*	11376	30° 06’ 54.36”	88° 13’ 18.19”	45	57.4ft (17.5m)	12.4	n/a
j*	11376	30° 05’ 56.58”	88° 09’ 45.43’	56	55.8ft (17.0m)	0.2	1476 NE
k*	11376	30° 05’ 29.29”	88° 07’04.76”	64	64.3ft (19.6m)	0.3	n/a

See Evaluation Report for final charting recommendations.

Table 3 – Charted features from Table 2 including the hydrographer’s recommendation and related AWOIS item investigation record, when applicable. The feature letter refers to the features shown in Figures 7-8.

Feature Letter	Recommendation	Figure	AWOIS Record
h**	Remove “PA”	7	N/A
i**	Update charted depth & remove “PA” label	8	13369
j**	Update charted location & Remove “PA”	8	N/A
k**	Remove “PA”	8	13370

See feature letters above for final charting recommendations.

Disproved Features: Survey H-11547

There are four features recommended for removal from Chart 11376, 51st Edition. This recommendation is based on side-scan sonar and multibeam data analysis. The position and depth information for these features are shown in Figure 9 and Table 4. All four of the features are included in the Automated Wreck and Obstruction Information System (AWOIS) listing for this survey.

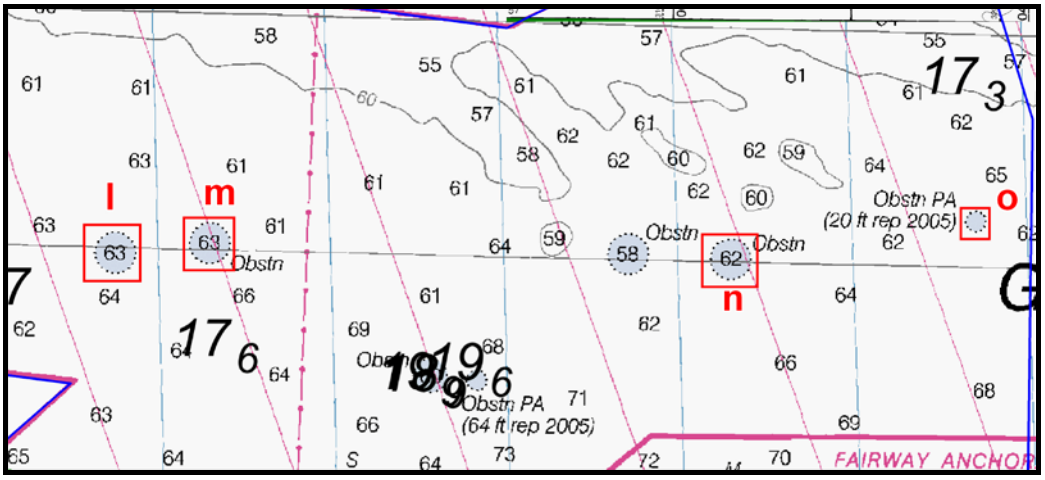

Figure 9 – Overview of survey area H-11547, covered by Chart 11376, 51st Edition, showing charted features which are unsupported by the 2006 survey data. The features, marked by red squares, are recommended for removal. Charted depths are in feet and survey depths are shown in meters.

Table 4 – Features found on Chart 11376, 51st Edition, recommended for removal. Feature letters are keyed to areas indicated in Figure 9.

Feature Letter	Latitude N	Longitude W	Sounding Value (ft) on Chart	AWOIS Record Number
l	30° 06’ 05.616”	88° 09’ 09.360”	63	8614 *Delete 63 Obstn and danger curve.*
m	30° 06’ 08.856”	88° 08’ 35.772’	63	8613 *Delete 63 Obstn and danger curve.*
n	30° 06’ 05.796’	88° 05’ 39.984”	62	8729 *Delete 62 Obstn and danger curve.*
o	30° 06’ 18.000”	88° 04’ 18.408”	20	13371 *Delete Obstn PA (20 ft rep 2005).*

Figures 10-13 include images from CARIS HIPS & SIPS Subset Editor 3D view of the features recommended for removal from Chart 11376, 51st Edition. Each image is keyed to Table 4.

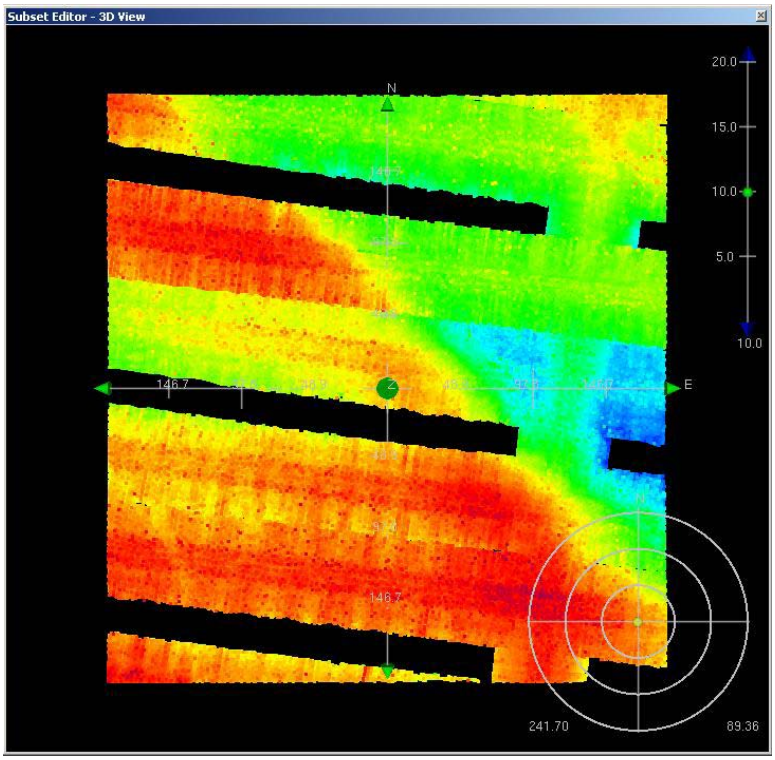

Figure 10 - CARIS HIPS & SIPS Subset Editor 3D view of feature "l" from Figure 9. The color scale represents depth. The consistency of color and lack of anomalous data in the figure indicate the charted feature is no longer present. ***Concur***

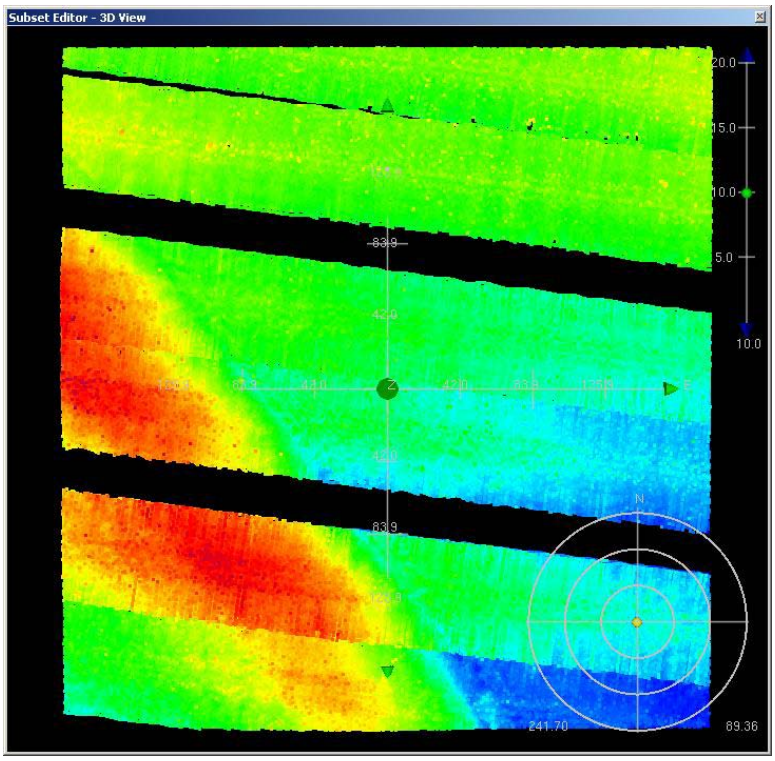

Figure 11 - CARIS HIPS & SIPS Subset Editor 3D view of feature "m" from Figure 9. The color scale represents depth. The consistency of color and lack of anomalous data in the figure indicate the charted feature is no longer present. Concur

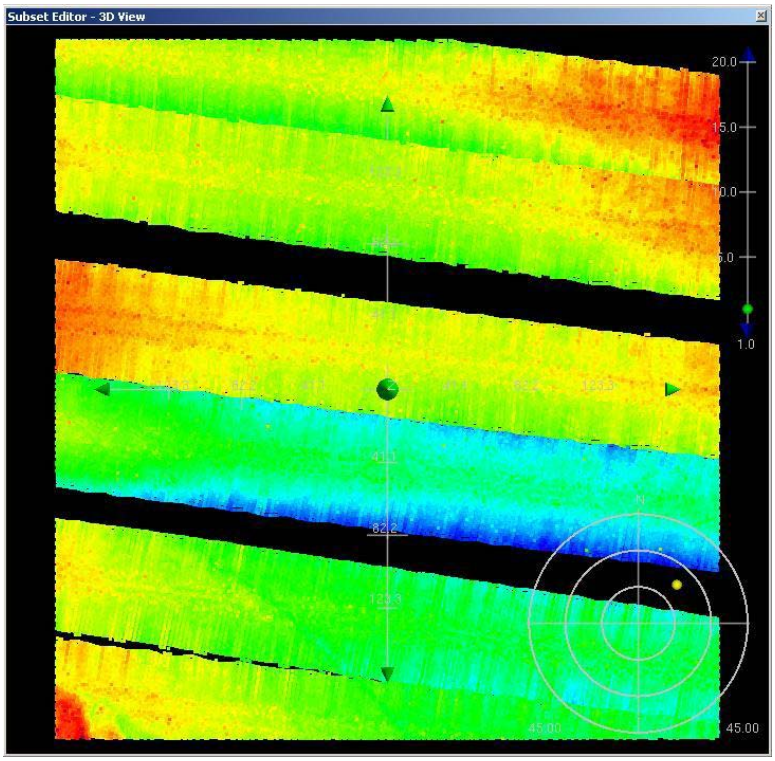

Figure 12 - CARIS HIPS & SIPS Subset Editor 3D view of feature "n" from Figure 9. The color scale represents depth. The consistency of color and lack of anomalous data in the figure indicate the charted feature is no longer present. Concur

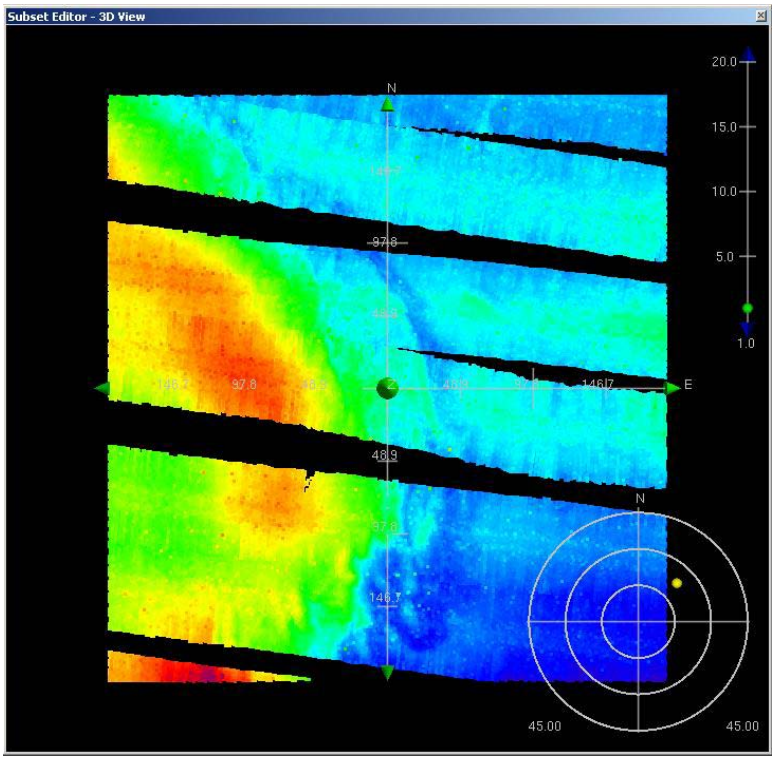

Figure 13 - CARIS HIPS & SIPS Subset Editor 3D view of feature "o" from Figure 9. The color scale represents depth. The consistency of color and lack of anomalous data in the figure indicate the charted feature is no longer present. ***Concur***

Soundings: Survey H-11547

The 2006 survey soundings are in general agreement with the charted soundings on the largest scale charts available covering survey area H-11547. ***Concur***

Trends and Changeable Areas: Survey H-11547

The 2006 survey data identify an area of changing bottom conditions in the vicinity of Latitude 30º 07'33" N and Longitude 88º 20'21" W. The 2006 sounding data place the 60 foot depth contour from 1,900 to 5,500 feet closer to the shore than is currently positioned on Chart 11373, 45th Edition. Figure 14 shows the charted 60 foot contour with an overlay showing the 60 foot contour generated from the 2006 survey data. The hydrographer recommends updating the 60 foot contour in H-11547 to reflect this change. ***Concur***

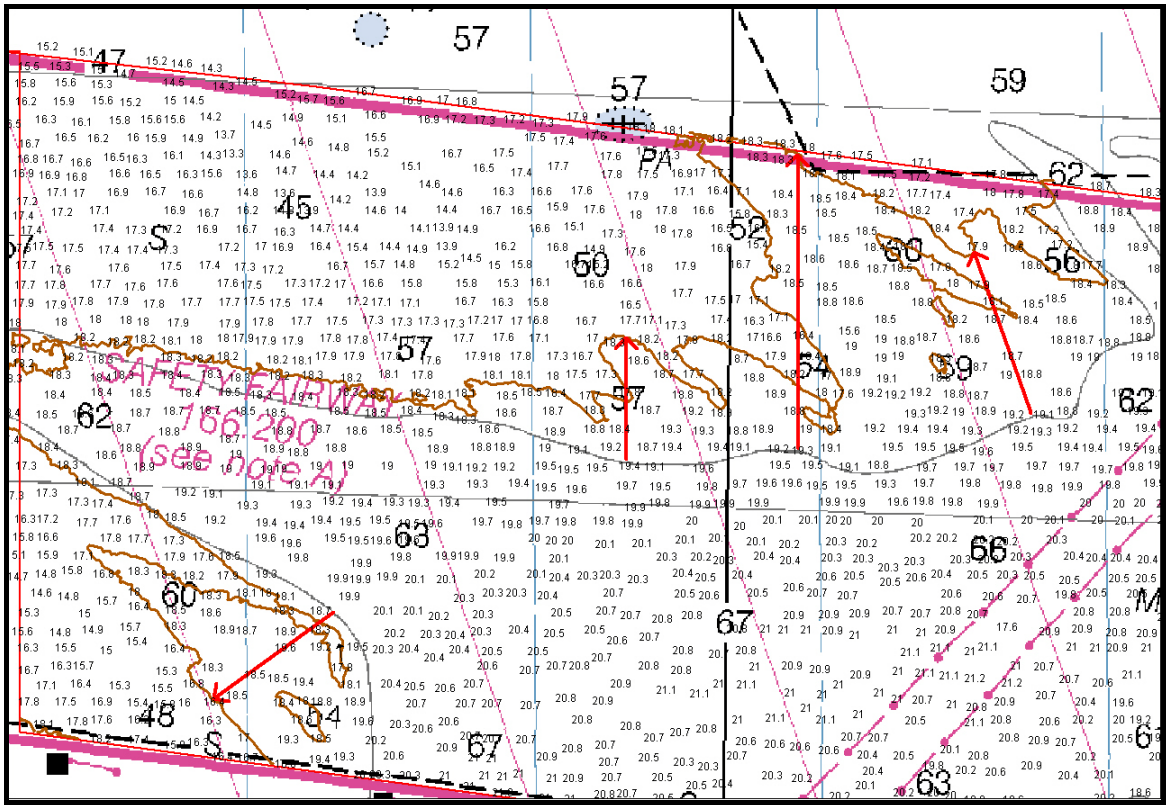

Figure 14 – Overview of the survey area H-11547, covered by Chart 11373, 45th Edition, where the 2006 survey data locates the 60 foot contour shoreward of the currently charted contour. Concur

Electronic Navigational Chart (ENC) Comparison - Survey H-11547

All charted features were investigated using side scan and multibeam sonar. The survey agrees, in general, with the largest scale ENC's covering the survey area. Figure 15 shows the survey limits and the intersections between ENC US4MS12M, 8th Edition; ENC US4AL11M, 13th Edition; ENC US5AL13M, 11th Edition; and ENC US3GC05M, 8th Edition.

The following pages detail discrepancies found between charted features and the 2006 survey data. The hydrographer recommends that seven uncharted features be added, two charted features be removed, and four features be updated with the 2006 survey data. Additionally, the 2006 survey produced sounding data that support changing the position and orientation of the depth contours in the survey area. **** See section D.1. of this report for final charting recommendations.***

The 2006 survey data are compared to the following ENC's.

Cell Name	Chart	Scale	Edition Number	Issue Date
US4MS12M	11373	1:80,000	8	1/5/2007
US4AL11M	11376	1:80,000	13	1/22/2007
US5AL13M	11377	1:40,000	11	12/26/2006
US3GC05M	1115A	1:456,394	8	3/09/2007

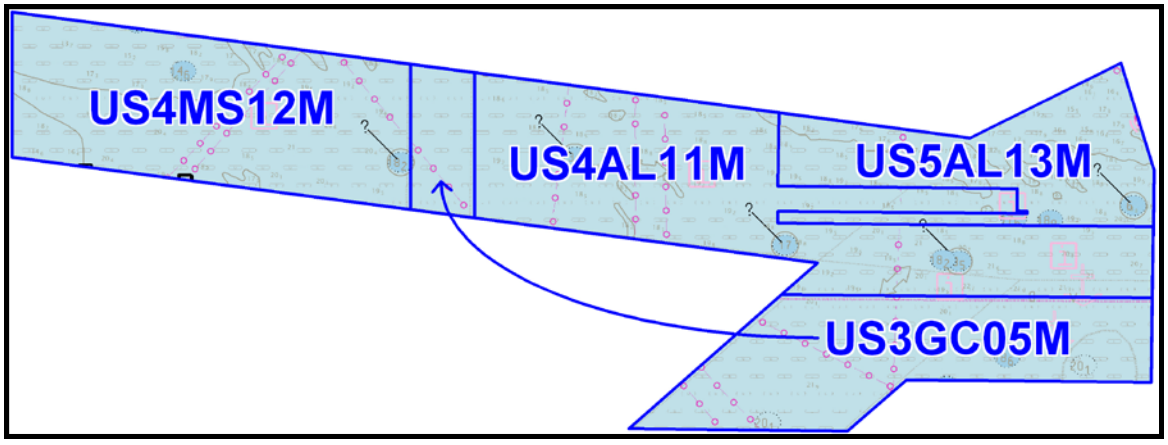

Figure 15 - Overview of the survey limits of H-11547 showing the intersection between the survey and the largest scale ENC's covering the area.

New Features: Survey Area H-11547

The 2006 survey identified seven features which are not currently charted. These features are described in detail in Table 5 and the Figures 16-19. The hydrographer recommends updating the affected charts with data from the 2006 survey.

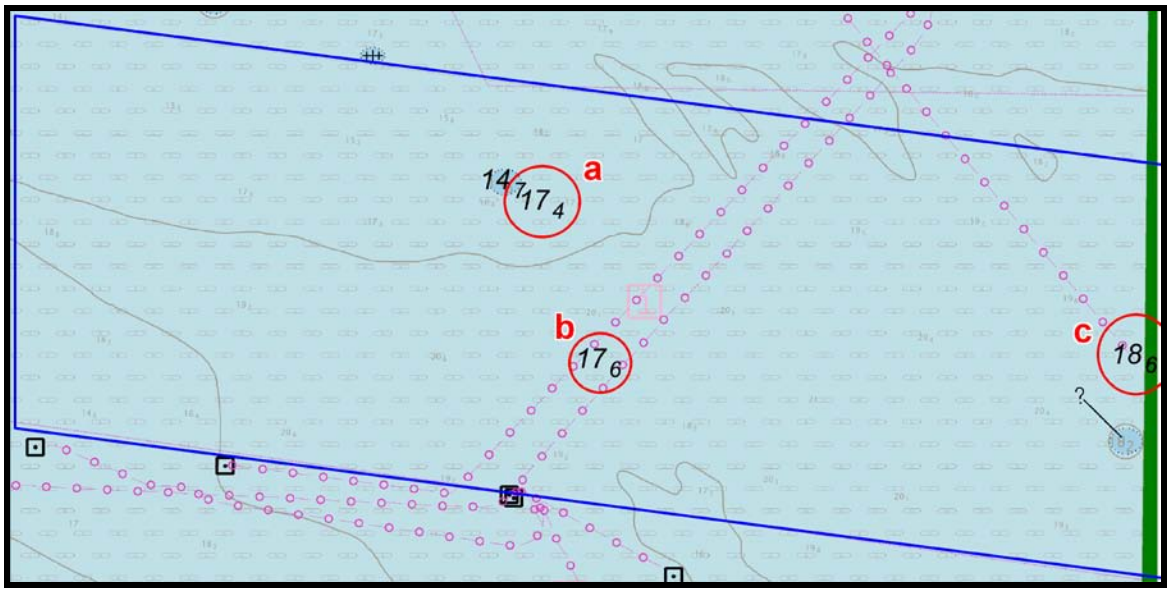

Figure 16– Overview of survey area H-11547, covered by ENC US4MS12M, 8th Edition, showing three of the seven uncharted features identified by the 2006 survey. All soundings are in meters. Refer to Table 5 for survey sounding information.

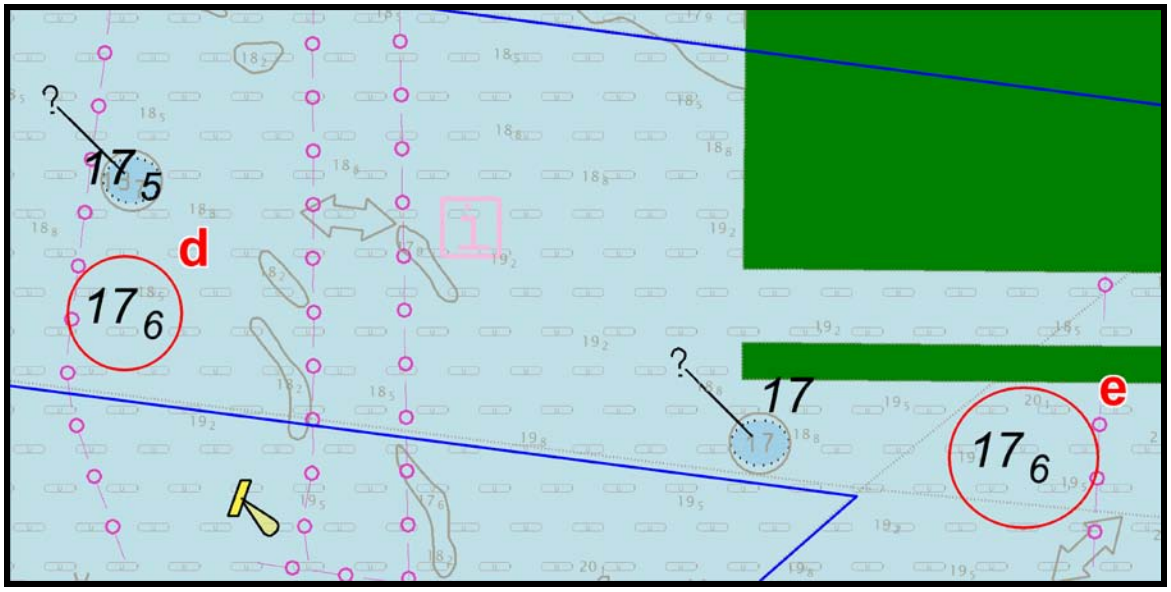

Figure 17- Overview of survey area H-11547, covered by ENC US4AL11M, 13th Edition, showing two of the seven uncharted features identified by the 2006 survey. All soundings are in meters. Refer to Table 5 for survey sounding information.

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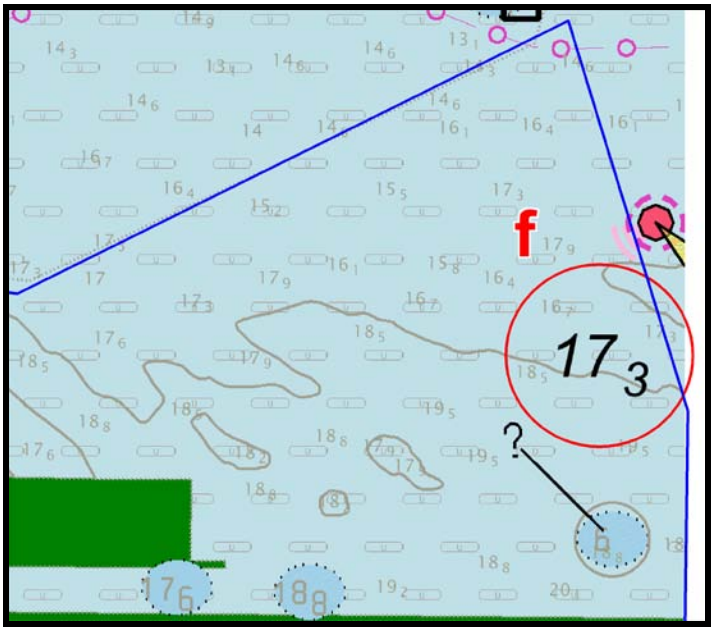


Figure 18- Overview of survey area H-11547, covered by ENC US5AL13M, 11th Edition, showing one of the seven uncharted features identified by the 2006 survey. All soundings are in meters. Refer to Table 5 for survey sounding information.

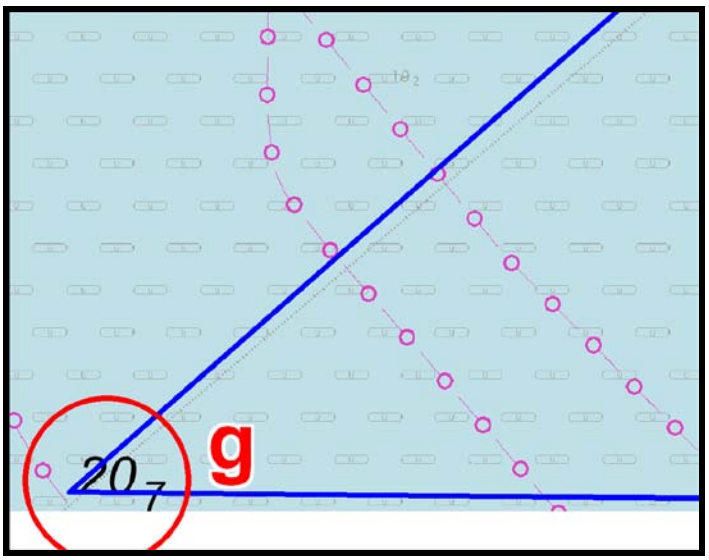


Figure 19 –Overview of survey area H-11547, covered by ENC US3GC05M, 8th Edition, showing one of the seven uncharted features identified by the 2006 survey. All soundings are in meters. Refer to Table 5 for survey sounding information.

Table 5 – Uncharted features that were identified during the 2006 survey of H-11547. The feature letter references each feature on the figures indicated. The ENC specified is the largest scale ENC covering the area where the features located. All soundings are in meters.

Feature Letter	ENC Cell Name	Sounding Value (m)	Latitude N	Longitude W	Figure
a*	US4MS12M	17.4	30° 07' 55.99"	88° 19' 23.59"	16
b*	US4MS12M	17.6	30° 07' 09.66"	88° 19' 04.44"	16
c*	US4MS12M	18.6	30° 07' 13.08"	88° 16' 01.66"	16
d*	US4AL11M	17.6	30° 06' 19.80"	88° 13' 21.36"	17
e*	US4AL11M	17.6	30° 05' 39.84"	88° 08' 32.28"	17
f*	US5AL13M	17.3	30° 06' 59.40"	88° 04' 18.48"	18
g*	US3GC05M	20.7	30° 03' 10.08"	88° 12' 17.64"	19

See section D.1. of this report for final charting recommendations.

Changed Features: Survey H-11547

The 2006 survey identified four features which differ significantly from the corresponding charted features. These features are described in detail in Tables 6-7 and the Figures 20-21. The hydrographer recommends updating the affected ENC's with data from the 2006 survey.
Concur

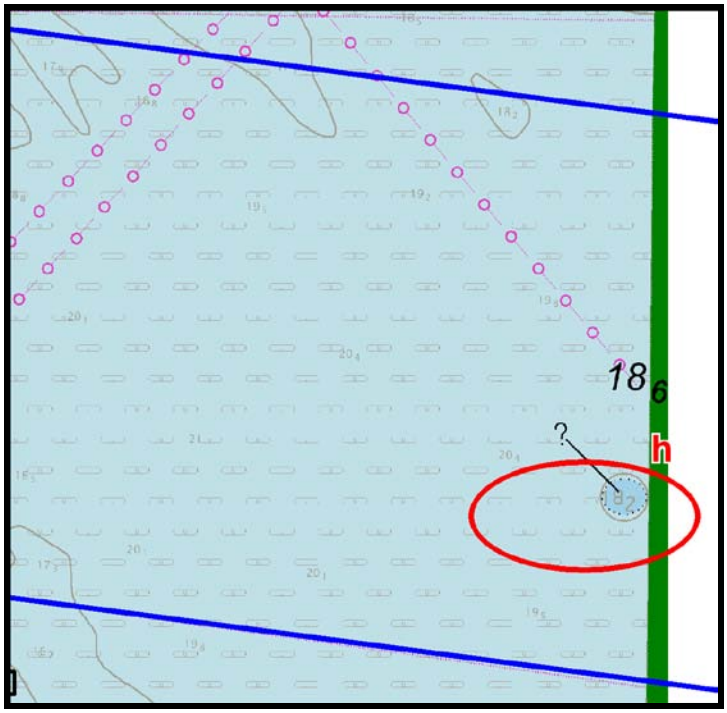


Figure 20 – Overview of survey area H-11547, covered by ENC US3GC05M, 8th Edition, showing one of the four features identified in the 2006 survey that differs significantly from the corresponding charted feature. This feature is circled in red and assigned a letter designator that corresponds to the details in Tables 6- 7. All soundings are in meters.

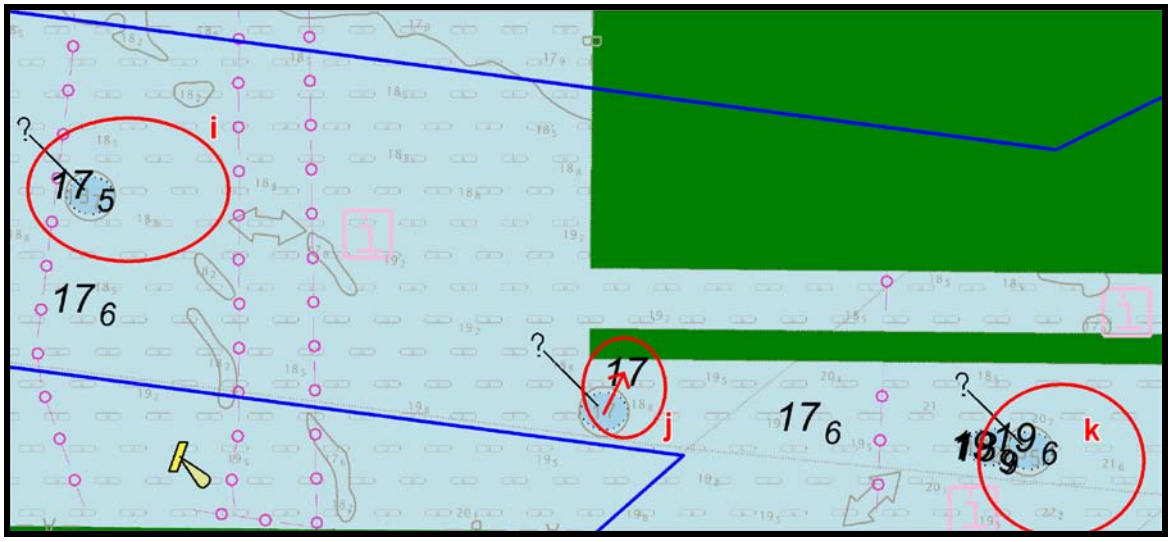


Figure 21–Overview of survey area H-11547, covered by ENC US4AL11M, 13th Edition, showing three of the four features identified in the 2006 survey that differ significantly from the corresponding charted features. The features are circled in red and assigned a letter designator that corresponds to the details in Tables 6-7. All soundings are in meters.

Table 6 - Charted features which differ significantly from the features found during the 2006 survey. The feature letters refer to the features shown in Figures 20-21. The ENC Cells listed are the largest scale ENC's covering the area with the changed features. Survey and charted soundings are in meters.

Feature Letter	ENC Cell Name	Latitude N	Longitude W	Chart Depth (m)	Survey Depth (m)	Difference (m)	Distance Moved (m)
h*	US4MS12M	30 06 47.70	88 16 06.06	18.2	18.8	0.6	n/a
i*	US4AL11M	30 06 54.36	88 13 18.192	13.7	17.5	3.8	n/a
j*	US4AL11M	30 05 56.58	88 09 45.432	17.0	17.0	0.0	450
k*	US4AL11M	30 05 29.292	88 07 4.764	19.5	19.6	0.1	n/a

**** See section D.1. of this report for final charting recommendations.***

Table 7 - Charted features from Table 6 including the hydrographer's recommendation and related AWOIS item investigation record, when applicable. The feature letters refer to the features shown in Figures 20-21.

Feature Letter	Recommendation	Figure	AWOIS Record
h*	Remove "?"	20	N/A
i*	Update charted depth & remove "?" label	21	13369
j*	Update charted location & Remove "?"	21	N/A
k*	Remove "?"	21	13370

Disproved Features: Survey H-11547

There are two features recommended for removal from the ENC's covering the H-11547 survey area. This recommendation is based on side-scan sonar and multibeam data analysis. Position and depth information are shown in Table 8 and Figure 22. Both positions are also included in the AWOIS listing for this survey.

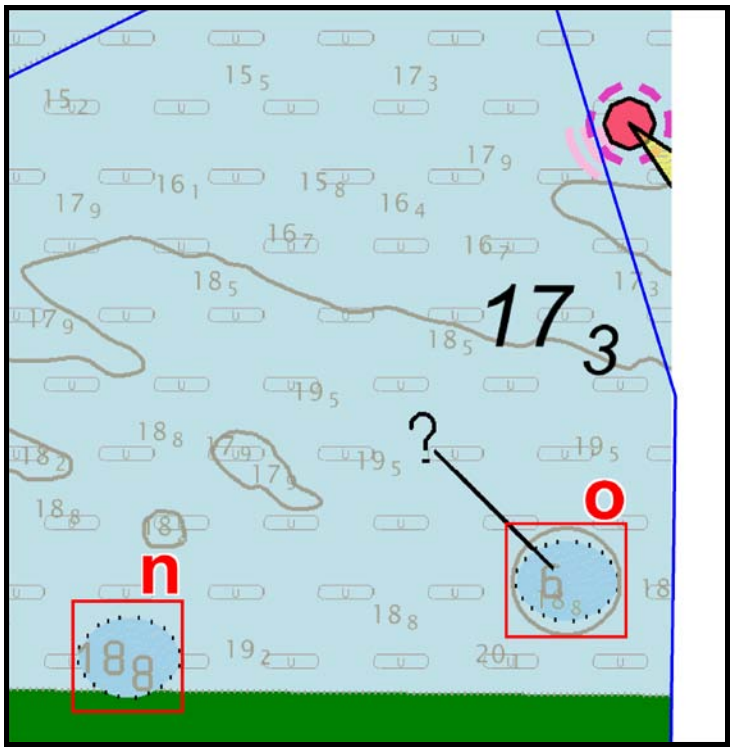


Figure 22 – Overview of survey area H-11547, covered by ENC US5AL13M, 11th Edition, showing features which are unsupported by the 2006 survey and are recommended for removal. The features, enclosed by red squares, are described in detail in Table 8. All depths are shown in meters.

Table 8 – Features appearing on the ENC's covering survey area H-11547 that are not supported by the 2006 survey and are recommended for removal. Feature letters are keyed to the areas enclosed by red squared in Figure 22.

Feature Letter	ENC Cell Name	Latitude N	Longitude W	Sounding on ENC (m)	Figure	AWOIS Record
n*	US5AL13M	30° 06' 05.79"	88° 05' 39.98"	18.8	22	8729
o*	US5AL13M	30° 06' 18.00"	88° 04' 18.41"	6.0	22	13371

** See section D.1. of this report for final charting recommendations.*

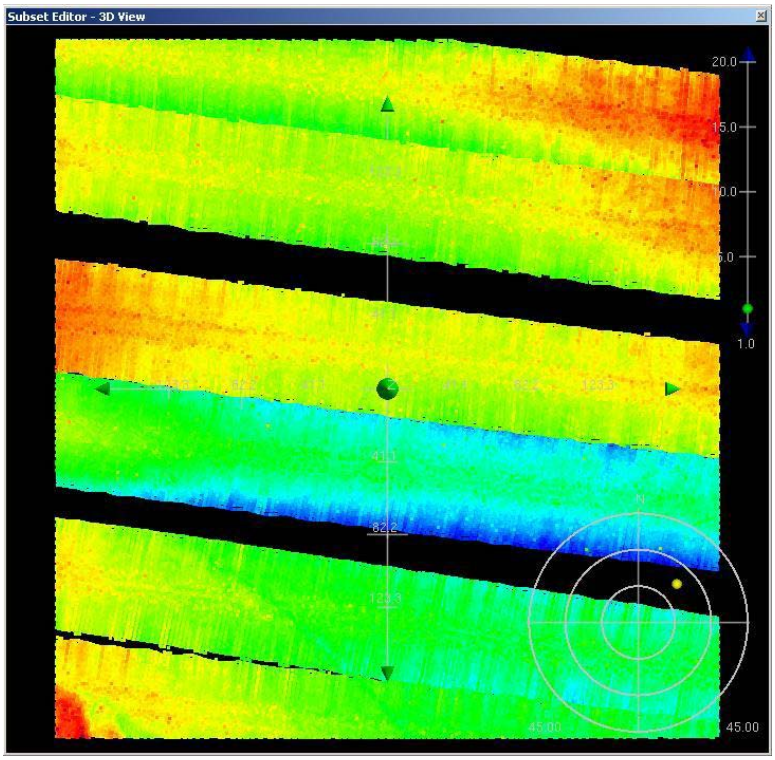


Figure 23- CARIS HIPS & SIPS Subset Editor 3D view of feature "n" from Figure 22. The color scale represents depth. The consistency of color and lack of anomalous data in the figure indicate the charted feature is no longer present.

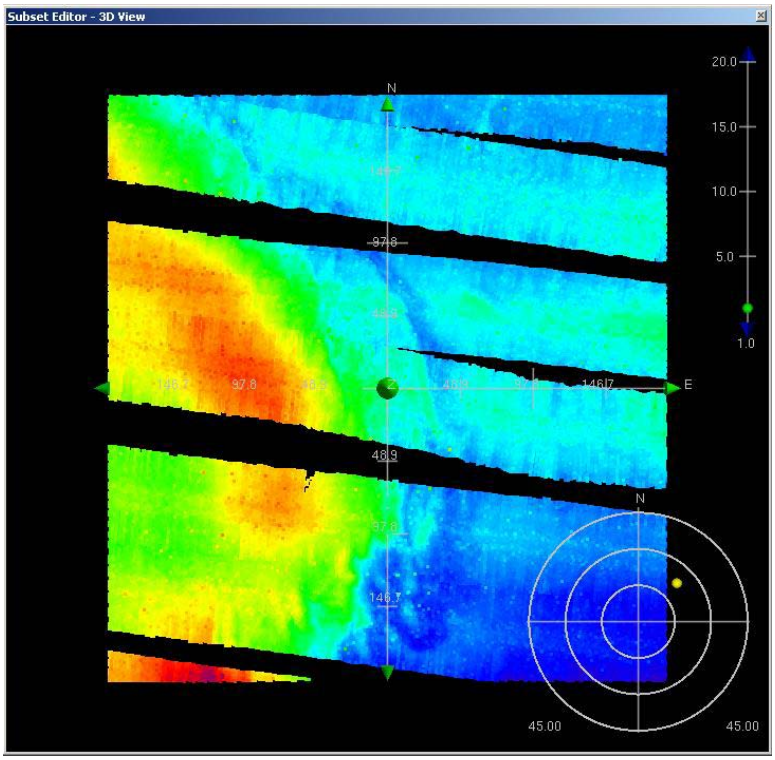


Figure 24- CARIS HIPS & SIPS Subset Editor 3D view of feature "o" from Figure 22. The color scale represents depth. The consistency of color and lack of anomalous data in the figure indicate the charted feature is no longer present.

Soundings: Survey H-11547

2006 survey depths are in general agreement with the charted depths for ENC's US4MS12M, 8th Edition; US4AL11M 13th Edition; US5AL13M, 11th Edition; and US3GC05M, 8th Edition. ***Concur***

Trends and Changeable Areas: Survey H-11547

The 2006 survey data identify an area of changing bottom conditions in the vicinity of Latitude 30º 07'33" N and Longitude 88º 20'21" W. The 2006 sounding data place the 18.3 meter depth contour from 600 to 1700 meters closer to the shore than is currently positioned on ENC US4MS12M, 8th Edition. Figure 25 shows the charted 18.3 meter contour with an overlay showing the 18.3 meter contour generated from the 2006 survey data. The hydrographer recommends updating the 18.3 meter contour in H-11547 to reflect this change.

Concur

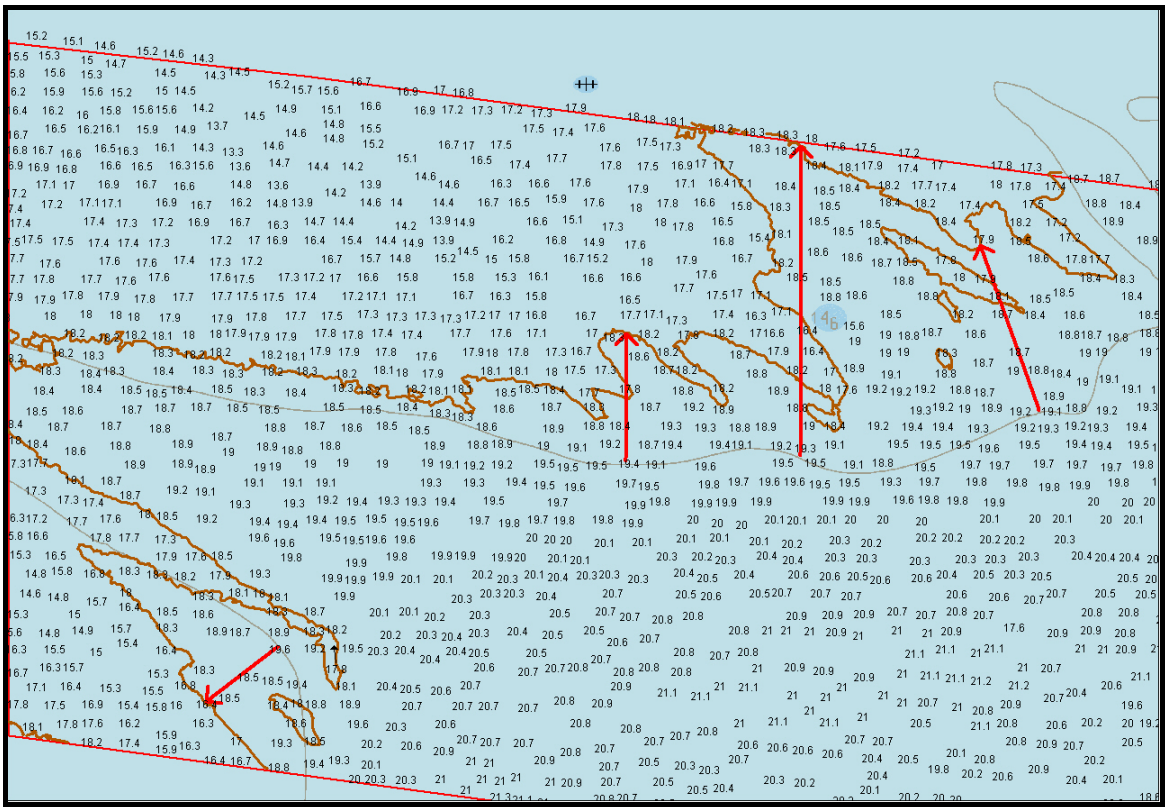


Figure 25- Overview of the area in H-11547 where the 2006 survey data suggests the 18.3 meter contour is located shoreward of the currently plotted contour. ENC US4MS12M, 8th Edition.

AWOIS Items Summary

This survey involved a full investigation of ten Automated Wreck and Obstruction Information System (AWOIS) items. The table below is a summary of the items and the investigation results. Refer to Appendix II: SURVEY FEATURE REPORT for AWOIS item investigation reports and associated graphics files.

AWOIS Record No.	Description	Comment
7333	61 ft OBSTR (Concrete, Debris)	Debris found in 500m radius. Recommend charting a debris field with a 500m radius from reported AWOIS position. Controlling depth 19.2m. Depth for chart 1115A in fathoms leave at 10 ¼ fathoms. ***Do not concur – Item determined insignificant during office processing. Do not chart item. Chart present survey depths. Delete 61 Obstn and danger curve.***
7334	Obstn 60, Reported 69 ft OBSTR (Concrete, Debris)	Insignificant debris found south of AWOIS reported positions with a least depth of 18.8m Recommend removing Obstn 60 and charting at 62 ft. ***Concur with clarification - Delete 60 Obstn and danger curve. Chart 62 Obstns and danger curve.***
7335	Obstn 60, Reported 64 ft OBSTR (Concrete, Debris)	Insignificant debris found south of AWOIS reported positions with a least depth of 18.8m Recommend removing Obstn 60 and charting at 62 ft. ***Concur with clarification – Shoaler obstruction in vicinity. Do not chart. Item incorporated with AWIOS #7334.***
8613	Obstn 63, Metal dredge pipeline float	Item not found. Recommend removing Obstn 63 from the chart. ***Concur - Delete 63 Obstn and danger curve.***
8614	Obstn 63, Net pile on turtle extruder device.	Item not found. Recommend removing Obstn 63 from chart. ***Concur - Delete 63 Obstn and danger curve.***
8615	Obstn PA (20.3 m rep 1993)	Item measures 45 ft in length, 10 ft wide, and 2 ft high with a least depth of 71 ft. Recommend charting Obstn at position from this survey. ***Concur – Delete 66 Obstn and danger curve. Chart 71 Obstn.***
8727	Obstn, Not on chart.	Item measures 5.5m long by 12.0m wide with a least depth of 18.9m. No further action recommended. ***Concur with clarification – Determined insignificant. Do not chart.***
8728	Obstn 58	Item not found. Recommend removing Obstn 58 from the chart. . ***Concur - Delete 58 Obstn and danger curve.***
8729	Obstn 62	Item not found. Recommend remove Obstn 62 from chart. ***Concur - Delete 62 Obstn and danger curve.***
13369	Obstn PA (45 ft rep 2005)	Item measures 6.3m long, 2.4m wide and 1.5m tall. Covered by 17.5m of water. Recommend removing Obstn PA (45 ft rep 2005) and replace with a 57 ft sounding. ***Concur with clarification – See Evaluation Report for final charting recommendation.***
13370	Obstn PA (64ft rep 2005)	Item measured approximately 4.5m long, 2.4m wide and 1.5m high. Covered by 19.3m of water. Recommend changing Obstn PA (64 ft rep 2005) to Obstn ~~63~~***64*** at position from this survey. ***Concur with clarification – See Evaluation Report for final charting recommendation.***
13371	Obstn PA (20ft rep 2005)	Item not found. Recommend removing Obstn PA (20 ft rep 2005) from chart. ***Concur - Delete Obstn PA (20 ft rep 2005).***

D2. Additional Results

Aids to Navigation

All the floating aids to navigation in this survey appear as charted, match the Light List and chart characteristics and serve their intended purpose. ***Concur***

Drilling Structures

There are three drilling structures or production platforms within the survey limits of H-11547.

Description	Latitude	Longitude
BRT-MO-8633 (1 platform)	30° 06' 38.99988" N	88° 21' 10.59984" W*
MOMO-869-A (1 platform)	30° 08' 22.70000" N	88° 04' 43.70002" W**
CALLON-MO-908-A (2 platforms)	30° 06' 30.80002" N	88° 19' 32.80001" W*

See the Evaluation Report for final charting recommendations.

****See bluenotes for final charting recommendation.***

Comparison with Prior Surveys

A comparison with prior surveys is not required under this task order. See Section D1 for a comparison to the nautical charts. ***Concur***

Bottom Samples

Thirty-seven (37) bottom samples were collected in support of the 2006 survey. The samples were distributed geographically to obtain a full representation of the bottom characteristics as specified in NOAA Hydrographic Surveys Specifications and Deliverables, Section 7.1. A table listing the position and description of the bottom samples is included in Appendix V to this report. ***Concur***

Bridges and Overhead Cables

There were no bridges or overhead cables in the survey area. ***Concur***

Submarine Cables and Pipelines

There were no charted submarine cables or pipelines located in the survey area and the side scan sonar and multibeam echosounder surveys did not produce any images that indicated the potential presence of any uncharted pipelines or cables. ***Concur***

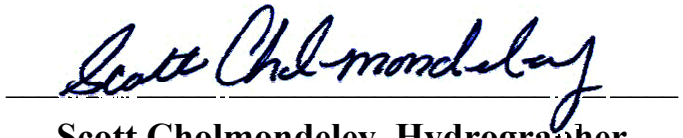
LETTER OF APPROVAL

REGISTRY NO. H-11547

This report and the accompanying digital data are respectfully submitted.

Field operations contributing to the accomplishment of survey H-11547 were conducted under my direct supervision with frequent personal checks of progress and adequacy. This report, digital data, and accompanying records have been closely reviewed and are considered complete and adequate as per the Statement of Work. Other reports submitted with this survey include the Data Acquisition and Processing Report and the Horizontal and Vertical Control Report.

I believe this survey is complete and adequate for its intended purpose.



Scott Cholmondeley, Hydrographer
TerraSond Ltd.

Date 06/06/2007

TERRASOND

APPENDIX I

Danger to Navigation Reports

Danger to Navigation Report

Report of Danger to Navigation

Sheet: C

Registry No.: H-11547

State: Mississippi – Alabama

General Locality: Gulf of Mexico

Sub locality: 9 NM South of Dauphin Island

Project Number: OPR-J364-KR-06

Survey Dates: June 7th, 2006 – December 6th, 2006

Depths are reduced to Mean Lower Low Water (MLLW) using verified tides. Positions are based on the NAD83 horizontal datum.

The DTONs in this report result from comparison of 2006 survey data to the largest scale chart(s) covering the survey area.

Affected nautical charts:

Chart	Scale	Edition Number	Edition Date	Charted Horizontal Datum	Issue Date
1115A 1:	456,394	41	3/1/2005	NAD83	1/27/2007
11373 1:	80,000	45	2/1/2006	NAD83	1/27/2007
11376 1:	80,000	51	2/1/2006	NAD83	1/27/2007
11378 1:	40,000	34	2/1/2006	NAD83	1/27/2007

ENC	Chart	Scale	Edition Number	Charted Horizontal Datum	Issue Date
US4AL11M 11	376	1:80,000	13	NAD83	1/27/2007
US4MS12M 11	373	1:80,000	8	NAD83	1/5/2007
US5AL13M 11	377	1:40,000	11	NAD83	1/27/2007

Comments: During office review of H-11547 the following 2006 soundings proved uncharted, and are recommended for addition.

Feature Letter	Latitude N	Longitude W	Sounding Value (feet)	Comment
a 30	-07-56.3	-88-19-23.9	57.1	Obstruction
b 30	-07-09.8	-88-19-03.9	57.7	Obstruction
c 30	-07-12.9	-88-16-02.8	61.2	Obstruction
d 30	-06-17.3	-88-13-19.4	57.7	Obstruction
e 30	-03-08.4	-88-12-12.6	67.8	Obstruction
f 30	-05-39.4	-88-08-32.2	57.7	Obstruction
g 30	-06-58.7	-88-04-20.8	56.7	Obstruction

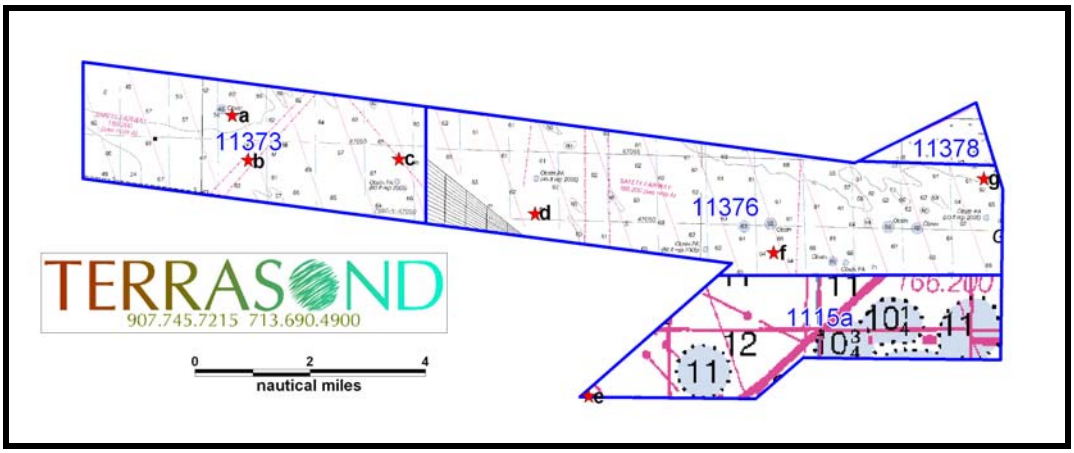


Figure 1 - Overview of H-11547 showing DTON locations, Chart 1115A 41st Edition (1:456,394 scale), Chart 11373 45th Edition (1:80,000 scale), Chart 11376 51st Edition (1:80,000 scale), and Chart 11378 34th Edition (1:40,000 scale).

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APPENDIX II

Survey Feature Report

Item Investigation Field Report

Description (as charted): Not assigned

Source: AWOIS record number 7333

Charted Position: Lat. 33º04’11.72”N Long. 088º06’23.34”W

Charts Affected: 11360 1:456,394, 41st ed. March 2005

Investigation

Date(s)/Day Number(s): June 19-20, 2006
July 10, 2006

Survey Vessel Name: *R/V Davidson*

Position Numbers/Time: Survey lines:
0390C (JD170 22:24-22:27 UTC)
0422C (JD171 11:16-11:19 UTC)
0423C (JD171 12:00-12:03 UTC)
0424C (JD171 12:28-12:31 UTC)
0425C (JD171 13:14-13:16 UTC)

0426C (JD171 13:41-13:44 UTC)

0427C (JD171 14:29-14:31 UTC)

0429C (JD171 15:42-15:44 UTC)

0431C (JD171 16:53-16:55 UTC)

0913C (JD191 07:09-07:10 UTC)

0914C (JD191 07:29-07:31 UTC)

0915C (JD191 07:35-07:37 UTC)

Investigation Method: 200% sidescan sonar; supported by MBES

If Found: Surveyed Position: Lat. 30º04’19.60”N Long. 088º06’30.51”W

(NAD83) Lat. 30º04’19.22”N Long. 088º06’29.98”W

Lat. 30º04’16.92”N Long. 088º06’29.74”W

Lat. 30º04’14.12”N Long. 088º06’26.39”W

Lat. 30º04’11.89”N Long. 088º06’24.48”W

Lat. 30º04’11.38”N Long. 088º06’25.65”W

Lat. 30º03’58.60”N Long. 088º06’29.65”W

Position Determined By: DGPS

Investigation Summary: Debris found in 500m radius. Recommend charting a debris field with a 500m radius from reported AWOIS position. Controlling depth 19.2m. Depth for chart 1115A in fathoms leave at 10 ¼ fathoms.

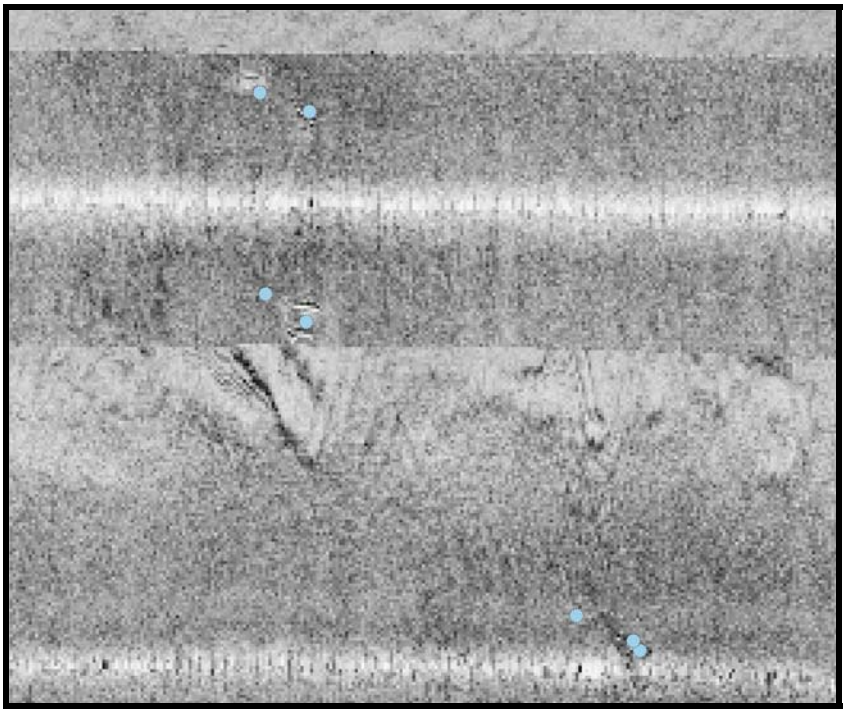


Figure 1 – A Mosaic of side scan sonar records near the location of AWOIS 7333, a debris field in 10¼ fathoms.

Item Investigation Field Report

Description (as charted): Obstn 60

Source: AWOIS record number 7334 & 7335

Charted Position: Lat. 30º05’33.69”N Long. 088º07’19.54”W

Lat. 30º05’33.03”N Long. 088º07’23.72”W

Charts Affected: 11360 1:456,394, 41st ed. March 2005

11376 1:80,000, 51st ed. February 2006

Investigation

Date(s)/Day Number(s): June 8, 13-14, 2006

Survey Vessel Name: *R/V Davidson*

Position Numbers/Time: Survey lines:

0308C (JD159 21:32-21:35 UTC)

0328C (JD164 16:45-16:47 UTC)

0329C (JD164 18:56-18:58 UTC)

0330C (JD164 22:32-22:35 UTC)

0331C (JD165 00:58-01:01 UTC)

0338C (JD165 08:29-08:31 UTC)

0340C (JD165 14:28-14:31 UTC)

Investigation Method: 200% sidescan sonar; supported by MBES

If Found: Surveyed Position: Lat. 30º05’27.06”N Long. 088º07’22.37”W

(NAD83) Lat. 30º05’28.80”N Long. 088º07’27.70”W

Lat. 30º05’30.21”N Long. 088º07’23.56”W

Lat. 30º07’22.01”N Long. 088º07’22.01”W

Lat. 30º07’20.74”N Long. 088º07’20.74”W

Position Determined By: DGPS

Investigation Summary: Insignificant debris found south of AWOIS reported positions with a least depth of 18.8m Recommend removing Obstn 60 and charting at 62 ft.

Item Investigation Field Report

Description (as charted): Obstn 63

Source: AWO IS record number 8613

Charted Position: Lat. 30º06'09.64"N Long. 088º08'35.89"W

Charts Affected: 11376 1:80,000, 51st ed. February 2006

Investigation

Date(s)/Day Number(s): June 15, 19, 2006

Survey Vessel Name: *R/V Davidson*

Position Numbers/Time: Survey lines:
0345C (JD166 08:18-18:21 UTC)
0347C (JD166 10:53-10:55 UTC)
0348C (JD166 15:01-15:04 UTC)
0349C (JD166 16:39-16:41 UTC)
0351C (JD166 22:14-22:17 UTC)
0384C (JD170 17:35-17:37 UTC)

Investigation Method: 200% sidescan sonar; supported by MBES

If Found: Surveyed Position: (NAD83) Item not found

Position Determined By: DGPS

Investigation Summary: Item not found. Recommend removing Obstn 63 from the chart.

Item Investigation Field Report

Description (as charted): Obstn 63

Source: AWOIS record number 8614

Charted Position: Lat. 30º06’07.87”N Long. 088º09’06.97”W

Charts Affected: 11376 1:80,000, 51st ed. February 2006

Investigation

Date(s)/Day Number(s): June 14-15, 19, 2006

Survey Vessel Name: *R/V Davidson*

Position Numbers/Time: Survey lines:

0341C (JD165 18:46-18:49 UTC)

0344C (JD166 14:08-14:10 UTC)

0345C (JD166 08:13-08:16 UTC)

0347C (JD166 10:57-10:59 UTC)

0349C (JD166 16:43-16:45 UTC)

0351C (JD166 22:19-22:21 UTC)

0384C (JD170 17:30-17:33 UTC)

Investigation Method: 200% sidescan sonar; supported by MBES

If Found: Surveyed Position: Item not found

(NAD83)

Position Determined By: DGPS

Investigation Summary: Item not found. Recommend removing Obstn 63 from chart.

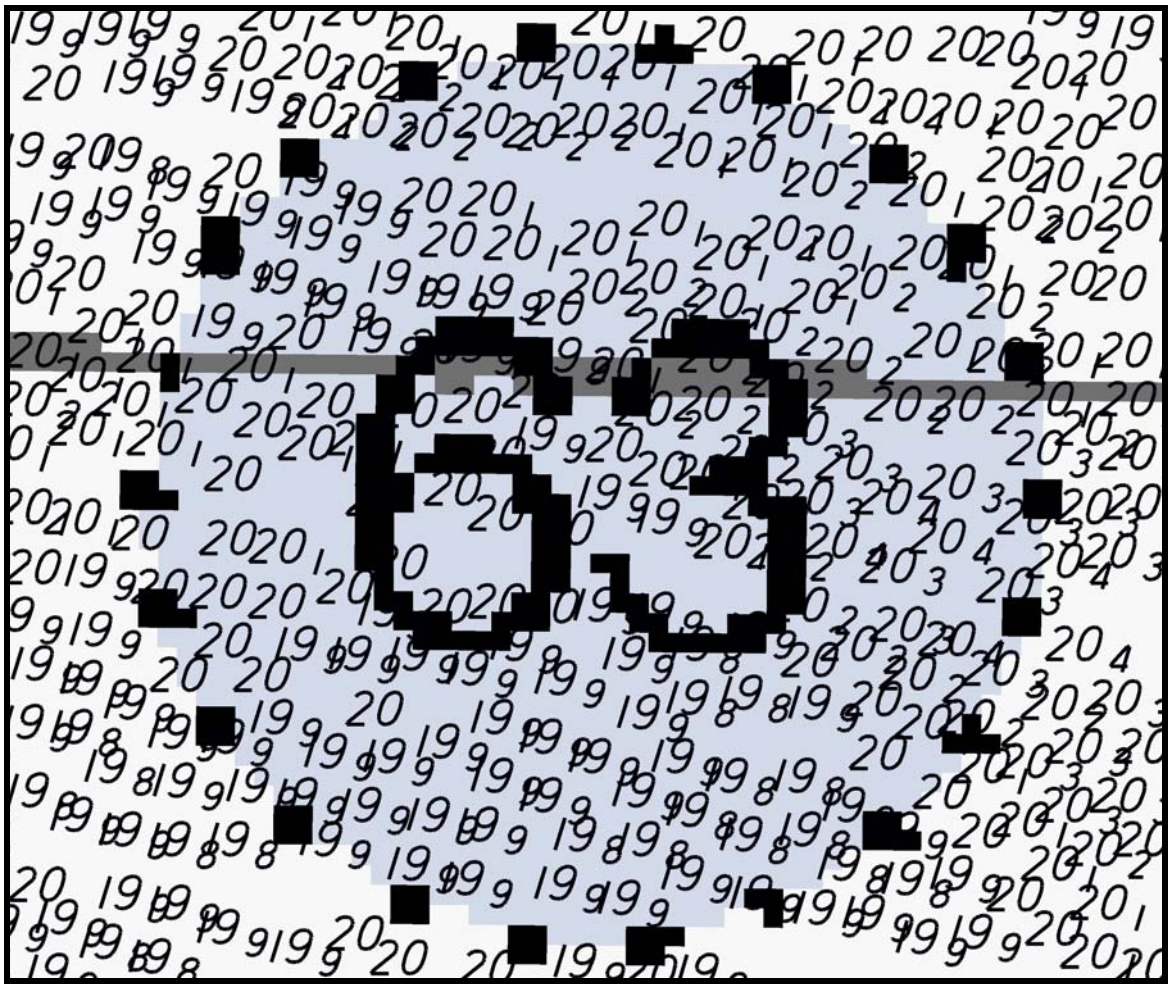


Figure 2 – 2006 Soundings (in meters) overlain on Chart 11376, 51st Edition, near position of AWOIS 8614. The charted obstruction(63') is recommended for removal.

Item Investigation Field Report

Description (as charted): Obstn PA

Source: AWO IS record number 8615

Charted Position: Lat. 30º03'07.99"N Long. 088º10'10.99"W

Charts Affected: 11360 1:456,394, 41st ed. March 2005
11376 1:80,000, 51st ed. February 2006

Investigation

Date(s)/Day Number(s): June 21, 2006

Survey Vessel Name: *R/V Davidson*

Position Numbers/Time: Survey lines:
0464C (JD172 11:00-11:02 UTC)
0466C (JD172 12:15-12:17 UTC)
0467C (JD172 13:27-13:26 UTC)
0468C (JD172 13:57-13:59 UTC)
0469C (JD172 15:03-15:04 UTC)
0471C (JD172 16:14-16:15 UTC)
0473C (JD172 17:28-17:29 UTC)

Investigation Method: 200% sidescan sonar; supported by MBES

If Found: Surveyed Position: Lat. 30º03'18.15"N Long. 088º10'10.97"W
(NAD83)

Position Determined By: DGPS

Investigation Summary: Item measures 45ft in length, 10ft wide and 2ft high with a least depth of 71ft. Recommend charting Obstn at position from this survey.

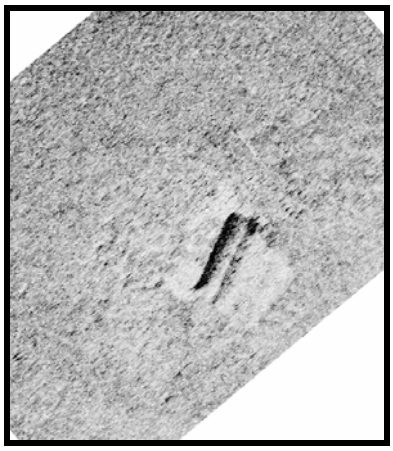


Figure 3 – Side scan sonar image of AWOIS 8615, an obstruction in 71 feet of water.

Item Investigation Field Report

Description (as charted): Not Assigned

Source: AWOIS record number 8727

Charted Position: Lat. 30º06’22.32”N Long. 088º06’58.89”W

Charts Affected: 11376 1:80,000, 51st ed. February 2006

Investigation

Date(s)/Day Number(s): June 16-17, 2006

Survey Vessel Name: *R/V Davidson*

Position Numbers/Time: Survey lines:

0354C (JD167 08:37-08:37 UTC)

0358C (JD167 16:01-16:04 UTC)

0359C (JD167 17:08-17:11 UTC)

0361C (JD168 00:30-00:31 UTC)

0363C (JD168 06:12-06:14 UTC)

Investigation Method: 200% sidescan sonar; supported by MBES

If Found: Surveyed Position: Lat. 30º06’22.27”N Long. 088º06’59.17”

(NAD83)

Position Determined By: DGPS

Investigation Summary: Item measures 5.5m long by 12.0m wide with a least depth of 18.9m. No further action recommended.

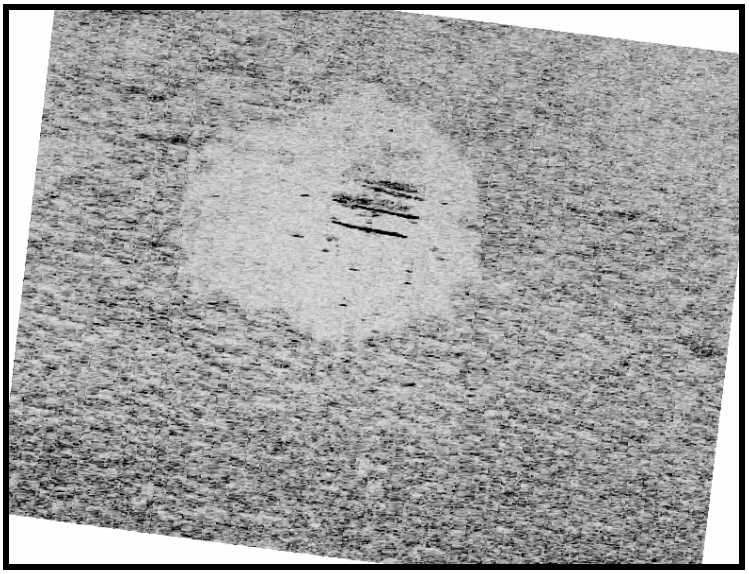


Figure 4 – Side scan sonar image of AWOIS 8727, a contact in 18.9 meters of water.

Item Investigation Field Report

Description (as charted): Obstn 58

Source: AWO IS record number 8728

Charted Position: Lat. 30º06'05.92"N Long. 088º06'13.13"W

Charts Affected: 11376 1:80,000, 51st ed. February 2006
11377 1:40,000, 6th ed. January 2007

Investigation

Date(s)/Day Number(s): June 15-16, 2006

Survey Vessel Name: *R/V Davidson*

Position Numbers/Time: Survey lines:
0348C (JD166 15:22-15:25 UTC)
0350C (JD166 21:01-21:04 UTC)
0352C (JD167 02:54-02:57 UTC)
0353C (JD167 03:49-03:52 UTC)
0354C (JD167 08:43-08:45 UTC)
0355C (JD167 09:41-09:43 UTC)
0359C (JD167 17:02-17:05 UTC)

Investigation Method: 200% sidescan sonar; supported by MBES

If Found: Surveyed Position: (NAD83) Item not found.

Position Determined By: DGPS

Investigation Summary: Item not found. Recommend removing Obstn 58 from the chart.

Item Investigation Field Report

Description (as charted): Obstn 62

Source: AWOIS record number 8729

Charted Position: Lat. 30º06'05.81"N Long. 088º05'38.17"W

Charts Affected: 11376 1:80,000, 51st ed. February 2006

11377 1:40,000, 6th ed. January 2007

Investigation

Date(s)/Day Number(s): June 15-17, 2006

Survey Vessel Name: *R/V Davidson*

Position Numbers/Time: Survey lines:

0350C (JD166 21:08-21:05 UTC)

0352C (JD167 02:59-03:02 UTC)

0353C (JD167 03:44-03:47 UTC)

0354C (JD167 08:48-08:50 UTC)

0355C (JD167 09:40-09:36 UTC)

0359C (JD167 16:57-17:00 UTC)

0363C (JD168 06:00-06:03 UTC)

Investigation Method: 200% sidescan sonar; supported by MBES

If Found: Surveyed Position: Item not found

(NAD83)

Position Determined By: DGPS

Investigation Summary: Item not found. Recommend remove Obstn 62 from chart.

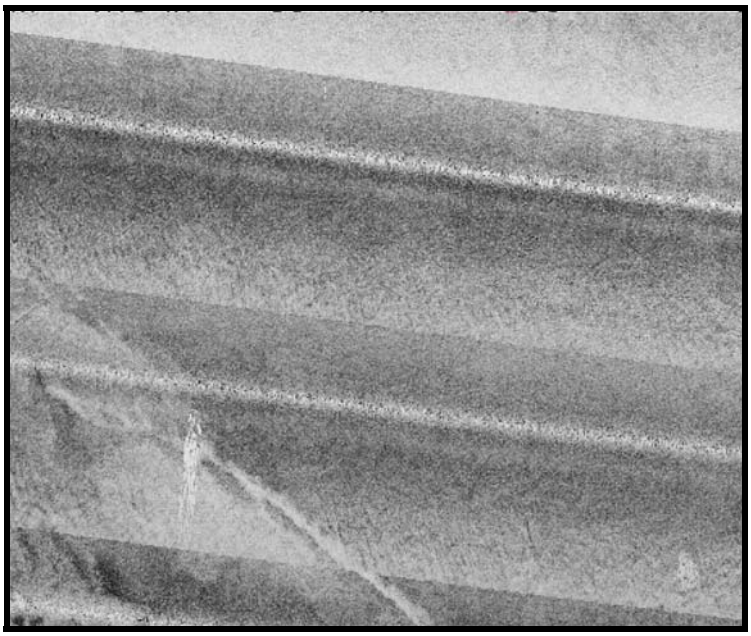


Figure 5 – Side scan sonar mosaic near AWOIS 8729, a charted obstruction not present in 2006 soundings.

Item Investigation Field Report

Description (as charted): Obstn PA (45 ft rep 2005)

Source: AWOIS record number 13369

Charted Position: Lat. 30º06'54"N Long. 088º13'18"W

Charts Affected: 11376 1:80,000, 51st ed. February 2006
11373 1:80,000, 45th ed. February 2006

Investigation

Date(s)/Day Number(s): June 15-17, 2006

Survey Vessel Name: *R/V Davidson*

Position Numbers/Time: Survey lines:

0348C (JD166 14:18-14:21 UTC)

0350C (JD166 20:03-20:06 UTC)

0352C (JD167 01:56-01:59 UTC)

0353C (JD167 04:51-04:54 UTC)

0354C (JD167 07:45-07:48 UTC)

0355C (JD167 10:39-10:42 UTC)

0359C (JD167 18:01-18:04 UTC)

0363C (JD168 07:04-07:07 UTC)

Investigation Method: 200% sidescan sonar; supported by MBES

If Found: Surveyed Position: Lat. 30º06’56.27”N Long. 088º13’20.55”W

(NAD83)

Position Determined By: DGPS

Investigation Summary: Item measures 6.3m long, 2.4m wide and 1.5m tall. Covered by 17.5m of water. Recommend removing Obstn PA (45 ft rep 2005) and replace with a 57 ft sounding.

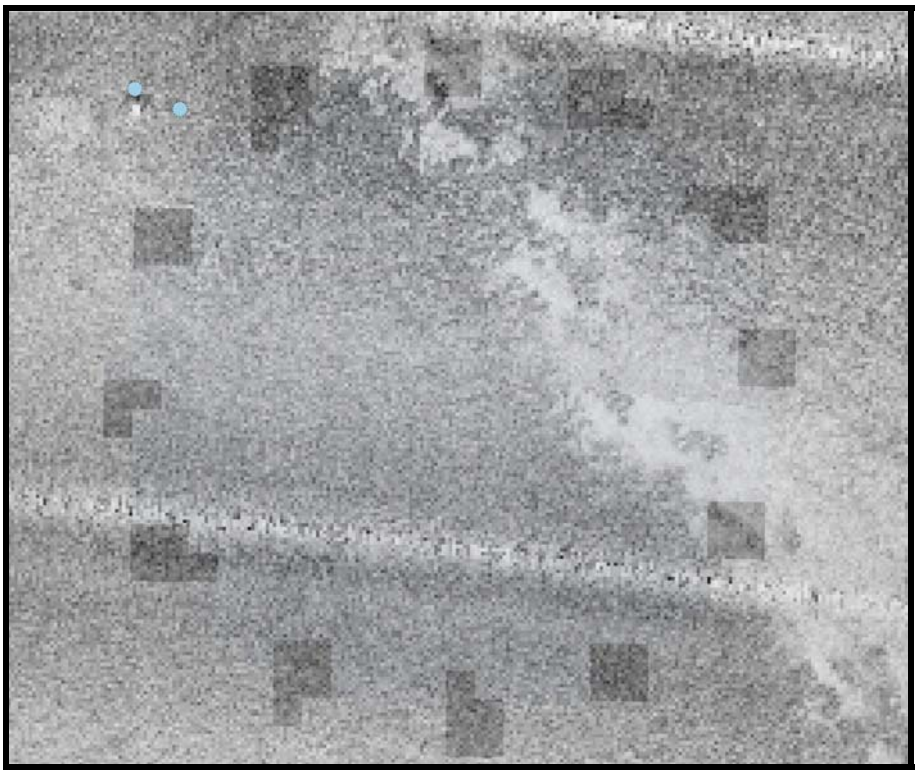


Figure 6 – Side scan sonar mosaic near AWOIS 8729 transparent over an obstruction charted on Chart 11376, 51st Edition. The blue circles represent contacts found in sidescan processing.

Item Investigation Field Report

Description (as charted): Obstn PA (64ft rep 2005)

Source: AWOIS record number 13370

Charted Position: Lat. 30º05'30"N Long. 088º07'06"W

Charts Affected: 11376 1:80,000, 51st ed. February 2006

11373 1:80,000, 45th ed. February 2006

Investigation

Date(s)/Day Number(s): June 8, 13-14, 2006

Survey Vessel Name: *R/V Davidson*

Position Numbers/Time: Survey lines:

0306C (JD159 15:52-15:55 UTC)

0308C (JD159 21:34-21:38 UTC)

0328C (JD164 16:47-16:50 UTC)

0329C (JD164 18:53-18:56 UTC)

0330C (JD164 23:34-23:28 UTC)

0331C (JD165 00:56-00:59 UTC)

0338C (JD165 18:26-18:29 UTC)

0340C (JD165 14:26-14:29 UTC)

Investigation Method: 200% sidescan sonar; supported by MBES

If Found: Surveyed Position: Lat. 30º05’33.06”N Long. 088º07’06.45”W

(NAD83)

Position Determined By: DGPS

Investigation Summary: Item measured approximately 4.5m long, 2.4m wide and 1.5m high. Covered by 19.3m of water. Recommend changing Obstn PA (64 ft rep 2005) to Obstn 63 at position from this survey.

Figure 7 – Side scan sonar mosaic near AWOIS 13370, a charted obstruction recommended for update based on 2006 soundings.

Item Investigation Field Report

Description (as charted): Obstn PA (20ft rep 2005)

Source: AWOIS record number 13371

Charted Position: Lat. 30º06'18"N Long. 088º04'18"W

Charts Affected: 11376 1:80,000, 51st ed. February 2006
11377 1:40,000, 6th ed. January 2007
11373 1:80,000, 45th ed. February 2006

Investigation

Date(s)/Day Number(s): June 17-18, 2006
July 10, 2006

Survey Vessel Name: *R/V Davidson*

Position Numbers/Time: Survey lines:
0361C (JD168 00:05-00:08 UTC)
0362C (JD168 05:23-05:26 UTC)
0364C (JD168 17:29-17:32 UTC)

0365C (JD168 11:51-11:54 UTC)

0366C (JD168 17:17-17:20 UTC)

0367C (JD168 17:51-17:54 UTC)

0369C (JD169 00:26-00:28 UTC)

0371C (JD169 05:59-06:02 UTC)

0895C (JD191 02:32-02:35 UTC)

0902C (JD191 04:25-04:26 UTC)

0907C (JD191 05:37-05:40 UTC)

Investigation Method: 200% sidescan sonar; supported by MBES

If Found: Surveyed Position: Item not found

(NAD83)

Position Determined By: DGPS

Investigation Summary: Item not found. Recommend removing Obstn PA (20 ft rep 2005) from chart.

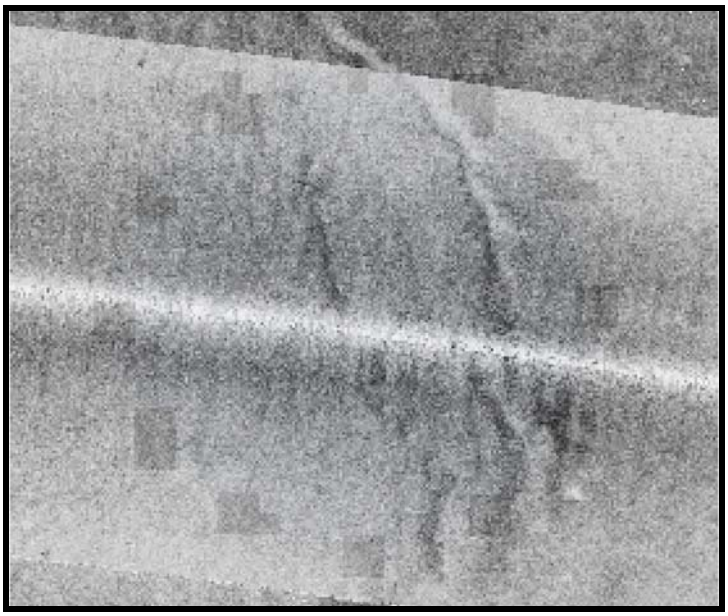
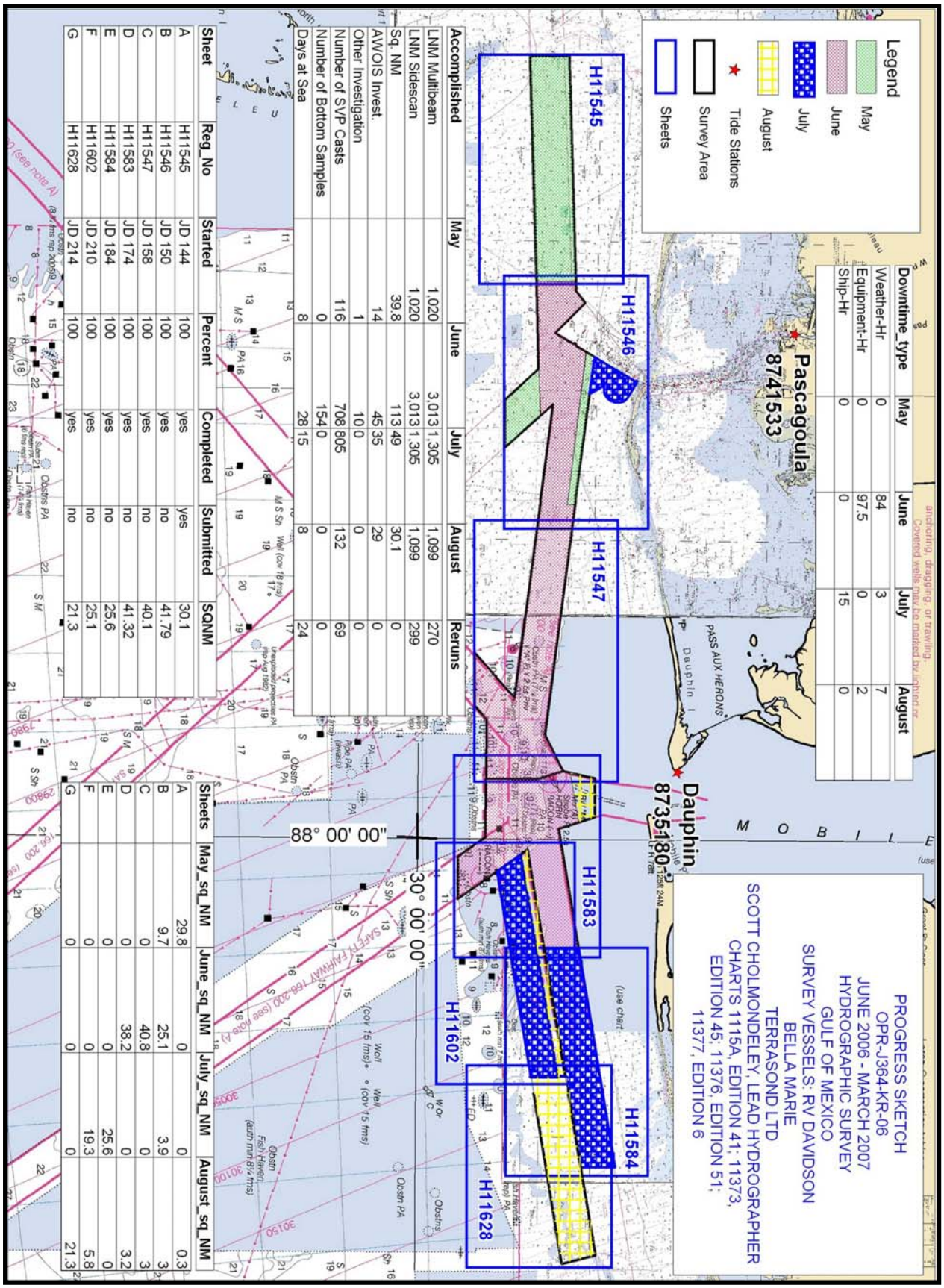


Figure 8 – Side scan sonar mosaic near AWOIS 13371, a 20' charted obstruction not present in 2006 soundings.

APPENDIX III

Progress Sketch



Downtime_type	May	June	July	August
Weather-Hr	0	84	3	7
Equipment-Hr	0	97.5	0	2
Ship-Hr	0	0	15	0

Accomplished	May	June	July	August	Reruns
LNM Multibeam	1,020	3,013	1,305	1,099	270
LNM Sidescan	1,020	3,013	1,305	1,099	299
Sq. NM	39.8	113.49		30.1	0
AWOIS Invest.	14	45	35	29	0
Other Investigation	1	10	0	0	0
Number of SVP Casts	116	708	805	132	69
Number of Bottom Samples	0	154	0	0	0
Days at Sea	8	28	15	8	24

Sheet	Reg_No	Started	Percent	Completed	Submitted	SQNM
A	H11545	JD 144	100	yes	yes	30.1
B	H11546	JD 150	100	yes	no	41.79
C	H11547	JD 158	100	yes	no	40.1
D	H11583	JD 174	100	yes	no	41.32
E	H11584	JD 184	100	yes	no	25.6
F	H11602	JD 210	100	yes	no	25.1
G	H11628	JD 214	100	yes	no	21.3

Sheets	May_sq_NM	June_sq_NM	July_sq_NM	August_sq_NM
A	29.8	0	0	0.3
B	9.7	25.1	3.9	3.2
C	0	40.8	0	3.2
D	0	38.2	0	3.2
E	0	0	25.6	0
F	0	0	19.3	5.8
G	0	0	0	21.3

Figure 1: Final Progress Sketch for OPR-J364-KR-06

TERRASOND

APPENDIX IV

Tides and Water Levels

Abstract of Times of Hydrography for Smooth Tides

Project: OPR-J364-KR-06 Registry No.: H-11547

Sheet: C Inclusive Dates: June 7, 2006 – December 6th, 2006

START		END	
Day (Julian)	Time (UTC)	Day (Julian)	Time (UTC)
158	8:51:13	158	23:59:59
159	0:00:00	159	23:59:59
164	0:00:00	164	23:59:59
165	0:00:00	165	23:01:01
166	0:34:11	166	23:59:59
167	0:00:00	167	22:33:27
168	0:03:05	168	23:41:24
169	0:23:08	169	23:59:59
170	0:00:00	170	23:22:35
171	0:05:54	171	23:59:59
172	0:00:00	172	23:57:59
173	0:14:25	173	12:14:01
191	2:30:09	191	15:08:14
221	22:11:32	221	23:36:54
222	0:24:46	222	01:40:37
340	14:55:33	340	19:16:08

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT to Accompany
Surveys H11547 (2007)

This Evaluation Report has been written to supplement and/or clarify the original Descriptive Report. Sections in this report refer to the corresponding sections of the Descriptive Report.

B. DATA ACQUISITION AND PROCESSING

B.1 DATA PROCESSING

The following software was used to process and review data at the Atlantic Hydrographic Branch (AHB):

CARIS HIPS/SIPS version 6.1
CARIS BASE Manager 2.1
CARIS HOM ENC 3.3
PYDRO, version 8.7
CARIS S-57 Composer 2.0

B.2 QUALITY CONTROL

H-Cells

The AHB source depth grid was generated as a 2m resolution BASE surface. Survey scale soundings were extracted from AHB generated 2m Base surface at a 1:40000 scale using a radius of 2m. Over 18000 soundings were created at the radius. The 1M radius was too dense to perform the compilation. Soundings were selected for charting by hand using the latest raster charts 11373, 11376 and 11377. Soundings were then checked for conflicts, corrected to remove conflicts, and edited to allow for proper sounding compilation placement with respect to existing charted depths outside the survey area. The BASE surface was referenced when selecting the chart scale soundings, to ensure that the selected soundings portrayed the bathymetry within the common area.

Depth curves were drawn from the Base surface. The curves were utilized during chart scale sounding selection at AHB.

The compilation products and Stand Alone HOB Files (SAHOB) are detailed in the Compilation Process Log of this document. All individual SAHOB files were assembled in BASE Editor during H-Cell compilation.

The completed H-Cell was exported as a Base Cell File (ENC.000) in S-57 format with all values in metric units. The metric equivalent ENC.000 file was then converted to NOAA chart units (ENC_CS.000) with all values measured in feet following NOAA sounding rounding rules.

The H11547 CARIS H-Cell final deliverables include the following products:

H11547_CS.000	1:40,000 Scale	H11547 Selected Soundings (Chart Scale)
H11547_SS.000	1:20,000 Scale	H11547 Selected Soundings (Survey Scale)

JUNCTIONS

H11583 (2006-2007)	to the east
H11546 (2006)	to the west

Survey H11583 (2006-2007) junctions with the present survey to the east. Present survey soundings are 1 foot shoaler than survey H11583 (2007).

Survey H11546 (2006) junctions with the present survey to the west. Present survey soundings are 1 foot shoaler than survey H11546 (2006).

C. VERTICAL AND HORIZONTAL CONTROL

Final vertical correction processing was completed by the field unit with no additional corrections required by Atlantic Hydrographic Branch personnel. The field unit applied verified water levels in conjunction with the preliminary tidal zoning which was accepted and approved by N/OPSI CO-OPS as the final zoning for H11547. Sounding datum is Mean Lower Low Water (MLLW). 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 16. Office ENC processing of

this survey required translating the datum to meet S-57 ENC requirements. The horizontal geodetic datum was translated to Latitude and Longitude (LLDG) World Geodetic System-84 (WGS-84) during CARIS Base Manager processing.

D. RESULTS AND RECOMMENDATIONS

Chart Comparison **11373 (47rd. Edition, Oct. /08**
Corrected through NM, Oct. 11/08
Corrected through LNM, Sep. 30/08
Scale 1:80,000

Chart Comparison **11376 (53rd. Edition, Aug. /08**
Corrected through NM, Aug. 30/08
Corrected through LNM, Aug. 19/08
Scale 1:80,000

Chart Comparison **11377 (7th. Edition, Oct. /07**
Corrected through NM, Oct. 13/07
Corrected through LNM, Oct. 2/07
Scale 1:40,000

ENC Comparison **US4MS12M**
Mississippi Sound and Approaches
Edition 13
Update Application Date 2009-01-30
Issue Date 2009-03-27
References: Charts 11373

ENC Comparison **US4AL11M**
Mobile Bay Alabama
Edition 21
Update Application Date 2009-02-02
Issue Date 2009-02-29
References: Charts 11376

ENC Comparison **US5AL13M**
Mobile Bay Approaches and Lower Half
Edition 23
Update Application Date 2009-03-03
Issue Date 2009-03-03
References: Charts 11377

Hydrography

The charted Hydrography originates with prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in Section D. of the Descriptive Report. The following should be noted:

1) A charted ***Obstn PA (60 ft rep 2005)*** in the vicinity of Latitude 30°06′48″N, Longitude 88°16′06″W was located by 200% side scan and multibeam. It was located as an ***obstruction*** with a depth of ***58 feet*** in Latitude 30°07′12.87″N, Longitude 88°16′02.85″W. It is recommended that the ***Obstn PA (60 ft rep 2005)*** be deleted. It is also recommended that a ***58 Obstn*** be charted in present survey location. The ***58 Obstn*** is not a part of the pipeline. Chart 58 Obstn and danger curve.

2) AWOIS #13369, a charted ***Obstn PA (45 ft rep 2005)*** in the vicinity of Latitude 30°06′54″N, Longitude 88°13′18″W was located by 200% side scan and multibeam. It was located as an ***obstruction*** with a depth of ***57 feet*** in Latitude 30°06′56.27″N, Longitude 88°13′20.55″W. It is recommended that the ***Obstn PA (45 ft rep 2005*** be deleted. It is also recommended that a ***57 Obstn*** be charted in present survey location. Chart 57 Obstn and danger curve.

3) A charted ***Obstn PA (56 ft rep 2005)*** in the vicinity of Latitude 30°05′42″N, Longitude 88°09′54″W was disproved by 200% side scan and multibeam. It is recommended that the ***Obstn PA (56 ft rep 2005*** be deleted.

4) A charted ***55 Obstn*** in the vicinity of Latitude 30°05′56″N, Longitude 88°09′45″W was verified by 200% side scan and multibeam. It was located as an ***obstruction*** with a depth of ***59 feet*** in Latitude 30°05′56.43″N, Longitude 88°09′44.59″W. It is recommended that the ***55 Obstn*** and ***danger curve*** be deleted. It is also recommended that a ***59 Obstn*** be charted in present survey location. Chart 59 Obstn and danger curve.

5) AWOIS #11370, a charted ***Obstn PA (64 ft rep 2005)*** in the vicinity of Latitude 30°05′30″N, Longitude 88°07′06″W was located by 200% side scan and multibeam. It was located as an ***obstruction*** with a depth of ***64 feet*** in

Latitude 30°05’33.06”N, Longitude 88°07’06.45”W. It is recommended that the ***Obstn PA (64 ft rep 2005)*** be deleted. It is also recommended that a ***64 Obstn*** be charted in present survey location. Chart 64 Obstn and danger curve.

6) An ***obstruction*** with a depth of ***48 feet*** was located in Latitude 30°08’02.20”N, Longitude 88°19’36.88”W by 200% side scan and multibeam during office processing. The ***48 Obstn*** was submitted as a DTON. It is recommended that a ***48 Obstn*** and danger curve be charted. The ***48 Obstn*** is shown on chart #11373, Edition #47, Oct/08. No change in charting is recommended.

7) A charted ***60 Obstn*** in the vicinity of Latitude 30°05’30”N, Longitude 88°07’22”W was verified by 200% side scan and multibeam. It was located as an ***obstruction*** with a depth of ***67 feet*** in Latitude 30°05’29.67”N, Longitude 88°07’21.96”W. It is recommended that the ***60 Obstn*** and ***danger curve*** be deleted. It is also recommended that a ***67 Obstn*** be charted in present survey location. Chart 67 Obstn and danger curve.

8) A charted ***platform*** in the vicinity of Latitude 30°08’22”N, Longitude 88°04’43”W was located by the present survey in Latitude 30°08’21.51”N, Longitude 88°04’43.33”W. It is recommended that the charted ***platform*** be revised to present survey location.

9) A charted ***platform*** in the vicinity of Latitude 30°06’37”N, Longitude 88°21’09”W was located by the present survey in Latitude 30°06’38.99”N, Longitude 88°21’10.59”W. It is recommended that the charted ***platform*** be revised to present survey location.

10) A charted ***platform*** in the vicinity of Latitude 30°06’30”N, Longitude 88°19’33”W was located by the present survey in Latitude 30°06’30.82”N, Longitude 88°19’32.81”W. It is recommended that the charted northern ***platform*** be revised to present survey location.

11) An uncharted ***65 Obstn*** in the vicinity of Latitude 30°05’32”N, Longitude 88°04’36”W was disproved by 200% side scan and multibeam. No change in charting is recommended.

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 File or the Blue Notes should be retained as charted. Refer to the Descriptive Report for further survey requirements recommended by the hydrographer.

Miscellaneous

Chart compilation was done by Atlantic Hydrographic Branch personnel, in Norfolk, Virginia. Compilation data will be forwarded to Marine Chart Division, 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.

REPORT OF DANGER TO NAVIGATION
H11547 #1

Hydrographic Survey Registry Number: H11547

Survey Title:	State:	Alabama
	Locality:	Gulf of Mexico
	Sub-locality:	9NM South of Dauphin Island

Project Number: OPR-J364-KR-06

Field Unit: TerraSond Ltd.
Survey Vessel *Davidson*

Survey Date: May 29, 2006 and On Going

Depths are reduced to Mean Lower Low Water using verified water level correctors and preliminary tidal zoning. Positions are referenced from USCG DGPS beacon and horizontal datum is North America Datum 83 (NAD83).

Charts affected:

- 11373_1 45th Edition Feb./2006, 1:80,000 scale, Corrected through NM Feb.4/06
  Corrected through LNM Jan.24/06

ENC Affected:

- US4MS12M 7th Edition June 16, 2006

The following item was found during hydrographic survey operations:

DANGERS TO NAVIGATION H11547 #1

	Feature	Depth (FT)	Latitude (N)	Longitude (W)
1.	Obstruction	48	30°08'02.20"	88°19'36.88"

Questions concerning this report should be directed to the Chief, Atlantic Hydrographic Branch at (757) 441-6746.

See Evaluation Report for final charting recommendation.

Registry Number: H11547

State: Mississippi Alabama

Locality: Gulf of Mexico

Sub-locality: 9 NM south of Dauphin Island

Project Number: OPR-J364-KR-06

Survey Date: 06/07/2006

Charts Affected

Number	Version	Date	Scale
11373	45th Ed.	02/01/2006	1:80000
11376	51st Ed.	02/01/2006	1:80000
1115A	41st Ed.	03/01/2005	1:456394
11360	41st Ed.	03/01/2005	1:456394
11006	32nd Ed.	08/01/2005	1:875000
411	51st Ed.	12/01/2006	1:2160000

Features

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Obstruction	GP	17.60 m	030° 07' 09.800" N	88° 19' 03.900" W	---
1.2	Obstruction	GP	17.59 m	030° 06' 17.300" N	88° 13' 19.400" W	---
1.3	Obstruction	GP	16.99 m	030° 05' 56.400" N	88° 09' 44.600" W	---
1.4	Obstruction	GP	17.58 m	030° 05' 39.400" N	88° 08' 32.200" W	---

1 - DR_DToN

1.1) Obstruction

DANGER TO NAVIGATION

Survey Summary

Survey Position:	030° 07' 09.800" N, 88° 19' 03.900" W
Least Depth:	17.60 m
Timestamp:	2006-158.00:00:00.000 (06/07/2006)
GP Dataset:	H11547_pydro.txt
GP No.:	2
Charts Affected:	11373_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

During survey review the following obstruction was found to be uncharted and recommended for possible addition to the affected nautical charts. Feature located between 2 charted pipelines.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11547_pydro.txt	2	0.00	000.0	Primary

Hydrographer Recommendations

Chart a dangerous obstruction with a depth of 57 feet below MLLW at the given location.

Cartographically-Rounded Depth (Affected Charts):

57ft (11373_1)

9 ½fm (1115A_1, 11360_1, 11006_1, 411_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	INFORM - Found during office review.
	OBJNAM - Obstruction 'b'
	QUASOU - 6:least depth known
	RECDAT - 20070502
	SORDAT - 20061214

SORIND - US,US,surve,H11547

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 17.6 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

See section D.1. of the Descriptive Report for final charting recommendation.

Feature Images

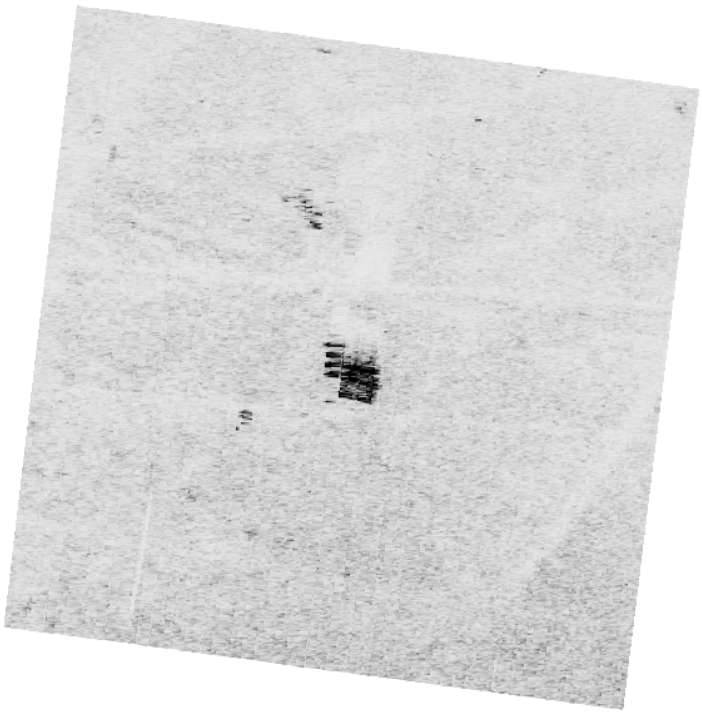


Figure 1.1.1

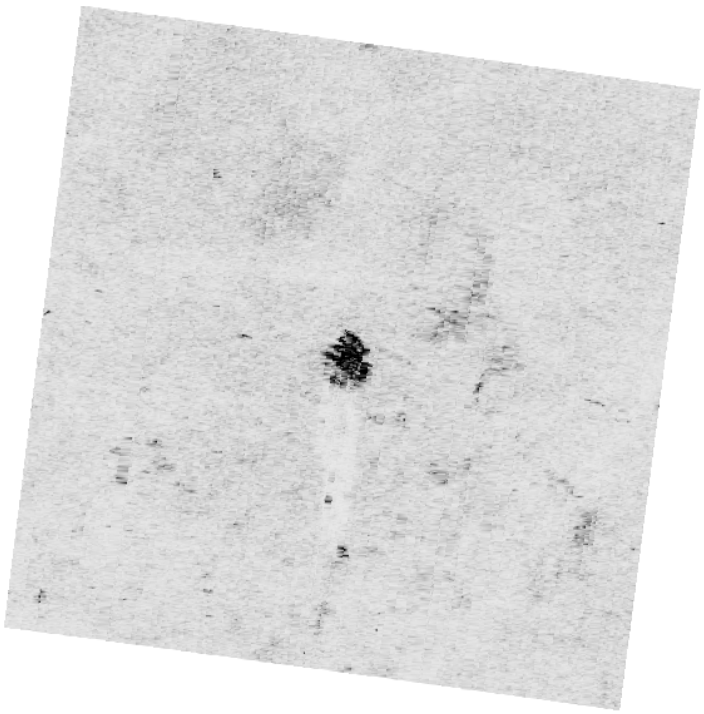


Figure 1.1.2

1.2) Obstruction

DANGER TO NAVIGATION

Survey Summary

Survey Position: 030° 06' 17.300" N, 88° 13' 19.400" W

Least Depth: 17.59 m

Timestamp: 2006-158.00:00:00.000 (06/07/2006)

GP Dataset: H11547_pydro.txt

GP No.: 4

Charts Affected: 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

During survey review the following obstruction was found to be uncharted and recommended for possible addition to the affected nautical charts.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11547_pydro.txt	4	0.00	000.0	Primary

Hydrographer Recommendations

Chart a dangerous obstruction with a depth of 57 feet below MLLW at the given location.

Cartographically-Rounded Depth (Affected Charts):

57ft (11376_1)

9 ½fm (1115A_1, 11360_1, 11006_1, 411_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: INFORM - Found during office review.

OBJNAM - Obstruction 'd'

QUASOU - 6:least depth known

RECDAT - 20070502

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 17.589 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

See section D.1. of the Descriptive Report for final charting recommendation.

Feature Images

Figure 1.2.1

1.3) Obstruction

DANGER TO NAVIGATION

Survey Summary

Survey Position:	030° 05' 56.400" N, 88° 09' 44.600" W
Least Depth:	16.99 m
Timestamp:	2006-158.00:00:00.000 (06/07/2006)
GP Dataset:	H11547_pydro.txt
GP No.:	6
Charts Affected:	11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

During survey review the following obstruction was found to be uncharted and recommended for possible addition to the affected nautical charts.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11547_pydro.txt	6	0.00	000.0	Primary

Hydrographer Recommendations

Chart a dangerous obstruction with a depth of 55 feet below MLLW at the given location.

Cartographically-Rounded Depth (Affected Charts):

55ft (11376_1)

9 ¼fm (1115A_1, 11360_1, 11006_1, 411_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	INFORM - Found during office review.
	OBJNAM - Obstruction 'f'
	QUASOU - 6:least depth known
	RECDAT - 20070502
	SORDAT - 20060625

SORIND - US,US,surve,H11547

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 16.988 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

See section D.1. of the Descriptive Report for final charting recommendation.

Feature Images

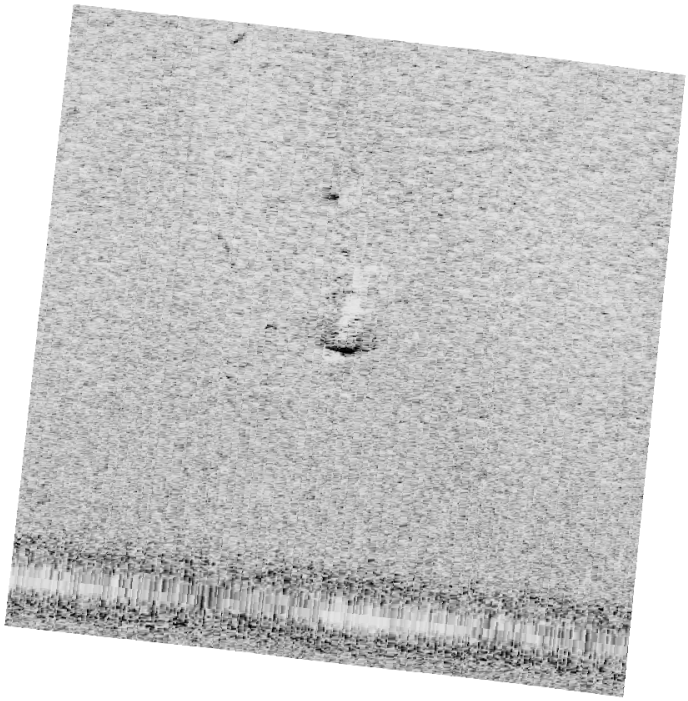


Figure 1.3.1

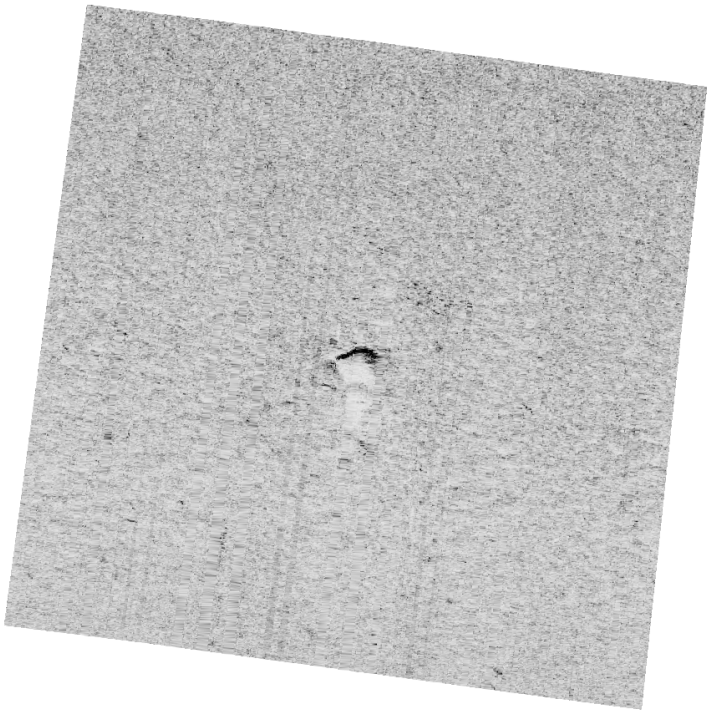


Figure 1.3.2

1.4) Obstruction

DANGER TO NAVIGATION

Survey Summary

Survey Position: 030° 05' 39.400" N, 88° 08' 32.200" W

Least Depth: 17.58 m

Timestamp: 2006-158.00:00:00.000 (06/07/2006)

GP Dataset: H11547_pydro.txt

GP No.: 7

Charts Affected: 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

During survey review the following obstruction was found to be uncharted and recommended for possible addition to the affected nautical charts.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11547_pydro.txt	7	0.00	000.0	Primary

Hydrographer Recommendations

Chart a dangerous obstruction with a depth of 57 feet below MLLW at the given location.

Cartographically-Rounded Depth (Affected Charts):

57ft (11376_1)

9 ½fm (1115A_1, 11360_1, 11006_1, 411_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: INFORM - Found during office review.

OBJNAM - Obstruction 'g'

QUASOU - 6:least depth known

RECDAT - 20070504

SORDAT - 20061015

SORIND - US,US,surve,H11547

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 17.577 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

See section D.1. of the Descriptive Report for final charting recommendation.

Feature Images

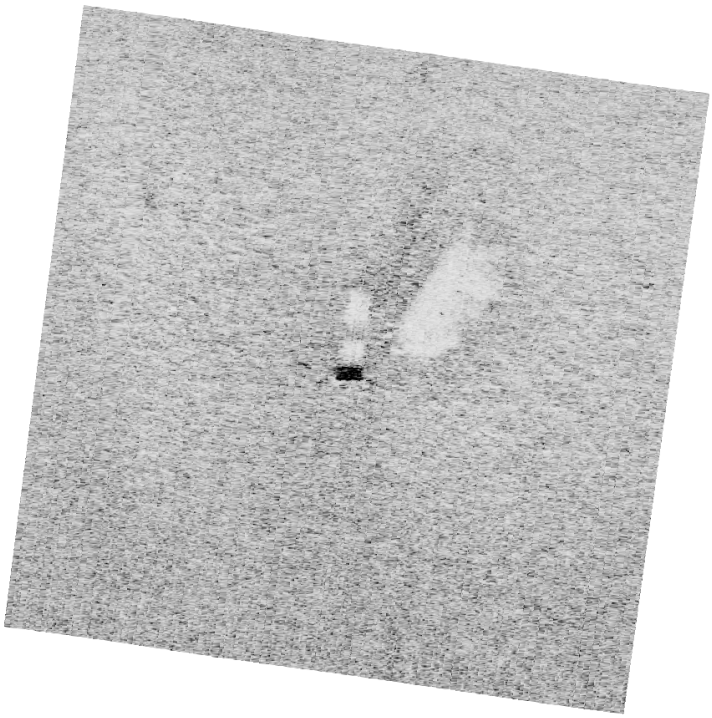


Figure 1.4.1

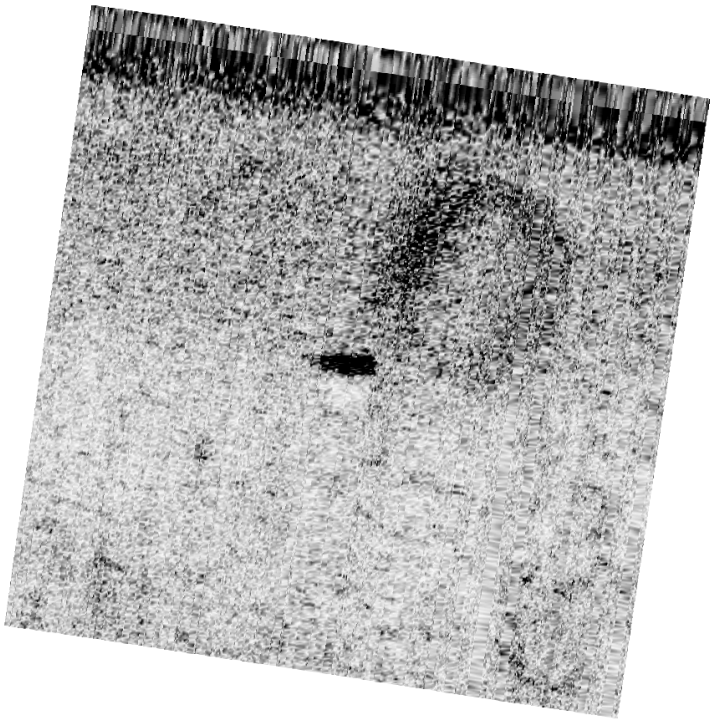


Figure 1.4.2

H11547 COMPILATION PROCESS LOG

REGISTRY No.	**H11547**
PROJECT No.	OPR-J364-KR-06
FIELD UNIT	TERRASOND LTD.
LARGEST SCALE CHART	#11377, edition #7, 20071001
CHART SCALE	1:11377
SURVEY SCALE	1:40000
DATE OF SURVEY	JUNE 7, 2006 – DECEMBER 10, 2006

Components	File Names
Product Surface	H11547_PS_2M..hns
Shifted Surface	H11547_SHIFTED_SURFACE_2M.hns
Contour Layer	H11547_CONTOURS_2M.hns
Survey Scale Soundings	H11547_SS_2M.hob
Chart Scale Soundings	H11547_CS_2M.hob
Feature Layer	H11547_Features.hob
Meta-Objects Layer	H11547_Meta_Layer.hob
Blue Notes	J11547_BlueNotes.hob

a. M_COVR attributes

Acronym	Value
SORDAT	20061012
CATCOV	Coverage available
SORIND	US,US,survy,H11547

b. M_QUAL attributes

Acronym	Value
CATZOC	CONFIDENCE U
INFORM	H11547, OPR-J364-KR-06, RV DAVIDSON
POSACC	10
SORDAT	20061210
SORIND	US,US,survy,H11547
SUREND	20061210
SURSTA	10060607

c. DEPARE attributes

Acronym	Value
DRVALV 1	43
DRVALV2	78
SORDAT	20061210
SORIND	US,US,nsurf,H11547

d. M_CSCL attributes

Acronym	Value
CSCALE	80000
SORDAT	20061210
SORIND	US,US,survy,H11547

APPROVAL SHEET
H11547

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, representation 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 Evaluation Report.

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

Norris Wike

Digitally signed by Norris Wike
DN: cn=Norris Wike, o=NOAA, ou=AHB, email=norris.a.wike@noaa.gov, c=US
Date: 2009.04.28 10:10:28 -04'00'

Norris A. Wike
Cartographer
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.

Approved:

Digitally signed by Shepard Smith
DN: cn=Shepard Smith, o=NOAA, ou=AHB, email=shep.smith@noaa.gov, c=US
Date: 2009.04.28 10:11:35 -04'00'

Shep Smith
Commander, NOAA
Chief, Atlantic Hydrographic Branch

Mark Lathrop
AWOIS/Surf Check
2009.05.08
10:58:16 -04'00'