H11626

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 No. **H11629**

LOCALITY

State **ALABAMA**

General Locality **Alabama Fairways**

Sub-locality **Mobile Point to Pine Beach**

2007

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.

H11626

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 ALABAMA

General locality ALABAMA FAIRWAYS

Sub-Locality MOBILE POINT TO PINE BEACH

Scale 1:20,000 Date of survey JANUARY 8, 2007 – MARCH 25, 2007

Instructions Dated JULY 2006 Project No. OPR-J977-KR-TE-06

Vessel *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:

Contractor: TERRASOUND LTD.
1617 SOUTH INDUSTRIAL WAY
PALMER, ALASKA 99645
907-745-7215
ALL TIMES ARE RECORDED IN UTC

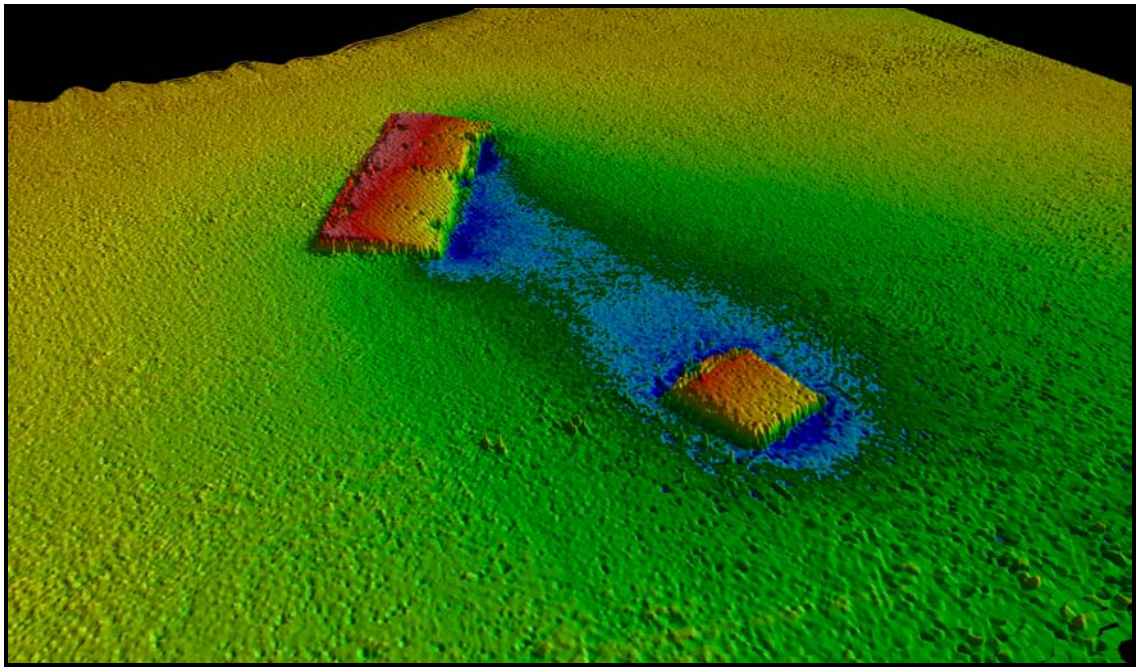
NOAA FORM 77-28 SUPERSEDES FORM C&GS-537.

☆ 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

S-J911-KR-TE



H-11626

SURVEY I

STATE: ALABAMA

GENERAL LOCALITY: Alabama Fairways

SUB LOCALITY: Mobile Point to Pine Beach

YEAR: 2007

TERRASOND

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Data filed with original field records.

Descriptive Report to Accompany Hydrographic Survey H-11626

Survey I

January 8th – March 25th, 2007

TerraSond Ltd.

Lead Hydrographer: Scott Cholmondeley

A. AREA SURVEYED

This survey was conducted in accordance with Statement of Work, Side Scan Sonar Survey Services, S-J977-KR-TE, Mobile Point to Pine Beach, Alabama Fairways, Alabama, dated September 25, 2006.

The purpose of this contract is to provide NOAA accurate hydrographic survey data suitable for item detection and debris mapping in the assigned area. The project area covers approximately 52.4 square nautical miles and is oriented roughly parallel to and 0.5 nautical miles south of Pine Beach, AL, which is on the peninsula separating Mobile Bay from the Gulf of Mexico.

The project area is approximately 26 nautical miles south of the Port of Mobile, AL at the head of Mobile Bay. Mobile, 24 miles north of the bay entrance, is one of the largest and most important seaports on the Gulf of Mexico. A fully equipped ocean terminal, excellent transportation facilities, large shipyards and marine supplies are available in Mobile. Foreign exports include marine supplies, paper products, lumber, wood pulp, flour, aluminum, chemicals, grain, soybeans, coal and bunker fuel, iron and steel products, and fertilizer. Foreign imports include bauxite, mahogany, crude rubber, sugar, newsprint, seafood, rubber, pig iron, ores, molasses, automobiles, fishmeal, frozen foods, and chemicals. Coastal trade consists mainly of petroleum products, shell, lumber, iron and steel products, chemicals, and food products. Inland waterway transportation facilities for handling iron and steel products, ore, sugar, grain and coal serve the Warrior, Tombigbee and Alabama River systems with connections to the Mississippi River.

The port of Mobile, and the ships that use it, rely heavily on the accuracy of the nautical charts for this area

Full bottom coverage, consisting of 100% side scan sonar supplemented with either shallow-water multibeam or singlebeam echosounder coverage, was achieved within the limits of hydrography for this survey. The side scan and multibeam/singlebeam imagery was used to locate and determine the least depth over obstructions and wrecks. This survey area has a maximum depth of ~~60~~*59* feet and a minimum depth of ~~12~~*7* feet below the Mean Lower Low Water (MLLW) tidal datum.

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

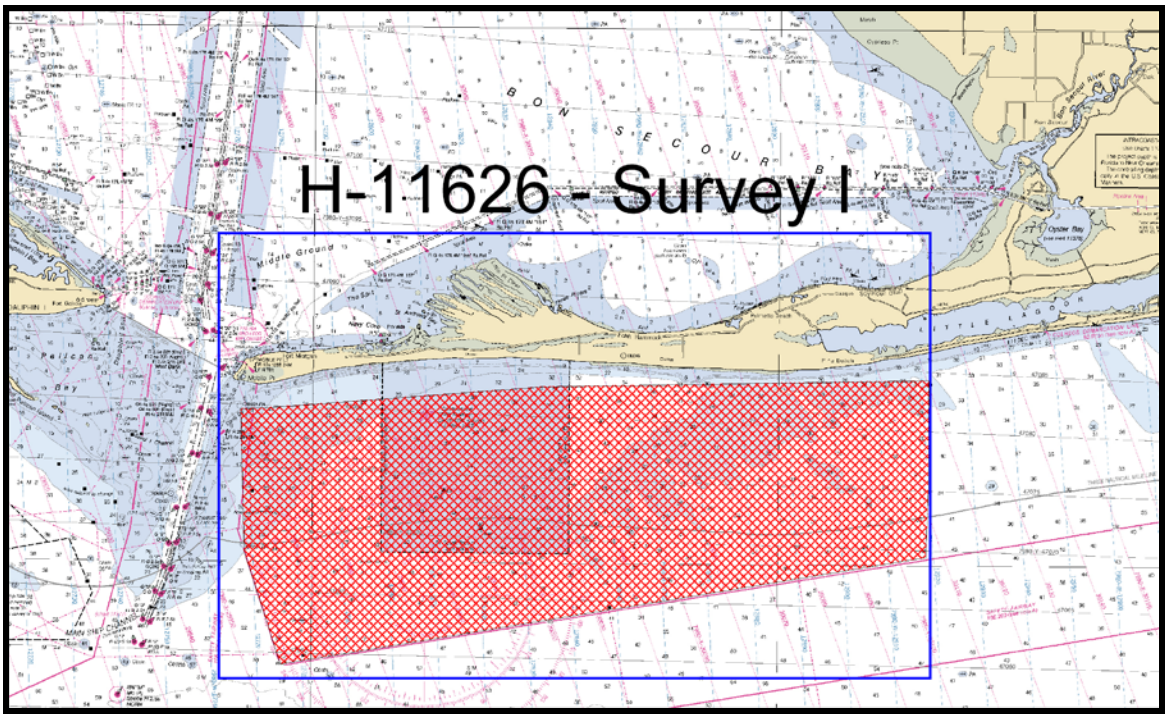


Figure 1- Overview of H-11626 with Chart 11376, 51st Edition, Feb. 2006.

B. DATA ACQUISITION AND PROCESSING *SEE ALSO THHE EVLUATION REPORT.*

B.1 Equipment

Bathymetry and side scan imagery for this survey was acquired using the hydrographic survey vessel *Bella Marie.*

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 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 *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 *Bella Marie* to verify proper operation of the multibeam suite on a weekly basis, weather permitting. 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

392 mainscheme lines, totaling 1060.5 lineal nautical miles, and 15 crosslines, totaling 53.6 lineal nautical miles, were run during the 2007 survey of H-11626. The ratio of the linear nautical miles of crosslines to the linear nautical miles of mainscheme lines, at 5.1%, 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 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." *

Data filed with original records.

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

This survey junctions with three other surveys. The easterly limits of this survey junctions with the westerly limits of H-11627 (2007). The southerly limits junction with

H-11584 and H-11583 from OPR-J364-KR-06 (2007). CARIS BASE Editor was used to compute the difference between sounding values from each sheet in areas of overlap. The sounding differences were gridded to a 1 meter resolution DTM and analyzed for each survey junction. The soundings are in general agreement between the surveys. No adjustments or recommendations were made based on the junction analysis.

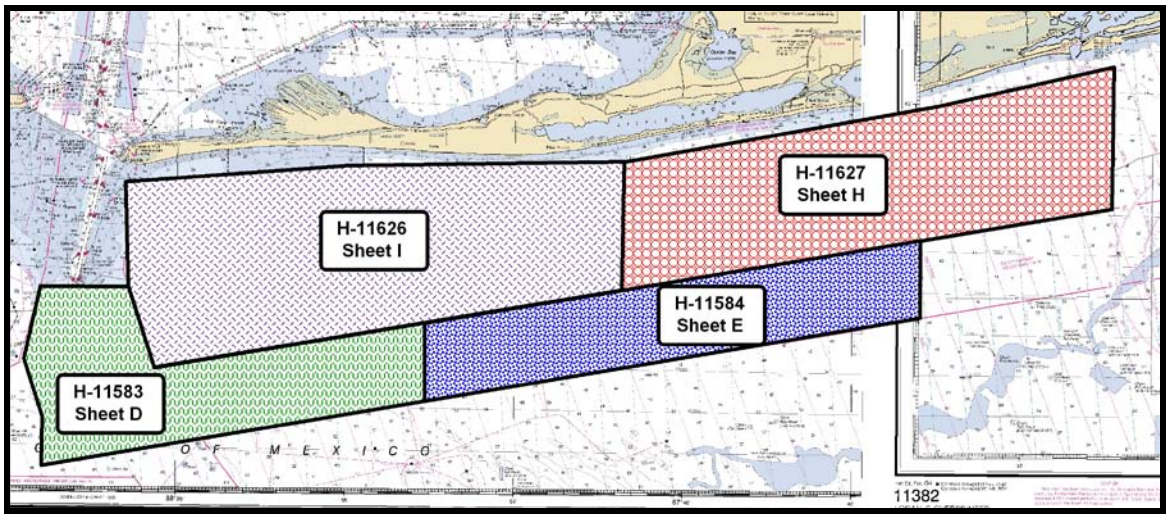


Figure 2– Overview of survey area showing the junction locations of H-11626 with H-11627, H-11583 (OPR-J364-KR-06), and H-11584 (OPR-J364-KR-06).

B3. Corrections to Echo Soundings

Hydrographic Survey H-11626 was performed in conjunction with two other surveys in Project S-J977-KR-TE and seven other surveys in Project OPR-J364-KR-06. 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 was 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). 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 2007 survey. All possible measures were taken to ensure the data was correctly processed and the appropriate designated soundings, representing the least depth of significant contacts, were selected and retained in the finalized surfaces.

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.

The submittal of several grids of varying resolution was unnecessary due to the shallow depths and relatively flat bottom throughout the survey area. A grid resolution of 2 meters was used for all multibeam BASE surfaces and DTMs. A grid resolution of 5 meters was used for all singlebeam BASE surfaces.

2007 multibeam survey depths were submitted as a CARIS BASE Uncertainty surface which was weighted by the greater of either the standard deviation of sounding values, or *a priori* uncertainty values derived from HIPS TPE calculation. 2007 singlebeam survey depths are submitted as a 5-meter resolution, swath angle-dependent, shoal-biased CARIS BASE surface. One sun-illuminated DTM created from each of the final elevation surfaces was submitted in addition to the BASE surfaces. The naming conventions for each grid are:

CARIS BASE Uncertainty Surface: H11626_1_OF_2.hns

CARIS BASE Swath Angle Surface: H11626_2_OF_2.hns

Sun-Illuminated Elevation DTM: H11626 _1_OF_2.tif

H11626_2_OF_2.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 2007 survey data.

Data filed with original field records.

C. VERTICAL AND *HORIZONTAL* CONTROL *SEE ALSO THE EVALAUTION REPORT.*

Sounding data was tide adjusted using verified tide levels for the National Water Level Observation Network (NWLON) station at Dauphin Island, AL 873-5180 through March 25th, 2007. Verified data from the Dauphin Island 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.

D. RESULTS AND RECOMMENDATIONS *SEE ALSO THE EVALUATION REPORT.*

D1. Chart Comparison

In the absence of a paper smooth sheet, sounding data from the 2007 survey used for chart comparison were produced using CARIS HIPS & SIPS Field Sheet Editor. Sounding were extracted from a finalized 2-meter resolution uncertainty surface. In order to replicate traditional smooth sheet sounding selection criteria, a shoal-biased sounding selection using a 60m radius was applied. The soundings were then compared the largest scale Electronic Navigational Chart (ENC) 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 12 (Weekly Edition-March 2007) was the last notice reviewed for this project. There are thirty features and three soundings submitted as Dangers to Navigation (DTON) for the 2007 survey (Appendix I). ***Data attached to the Descriptive Report.***

This survey was compared to the following ENC(s):

Cell Name	Chart	Scale	Edition Number	Issue Date
US5AL13M	11377	1:40,000	13	04/18/2007
US4AL11M	11376	1:80,000	13	03/30/2007
US5AL12M	11378	1:40,000	10	02/21/2007

All charted features were investigated using side scan and multibeam sonar. The 2007 survey generally agrees with the largest scale electronic navigational charts. Figure 3 shows the survey limits and the intersection between ENC US5AL13M, 13th Edition; ENC US4AL11M, 13th Edition; and US5AL12M, 10th Edition.

The following pages detail discrepancies between charted features and the 2007 survey data. The hydrographer recommends that* thirty uncharted features be added and *three charted features be removed, and*three soundings are recommended for update based on the 2007 survey data. Additionally,*one charted feature, a large fish haven, can be replaced with three smaller fish havens.

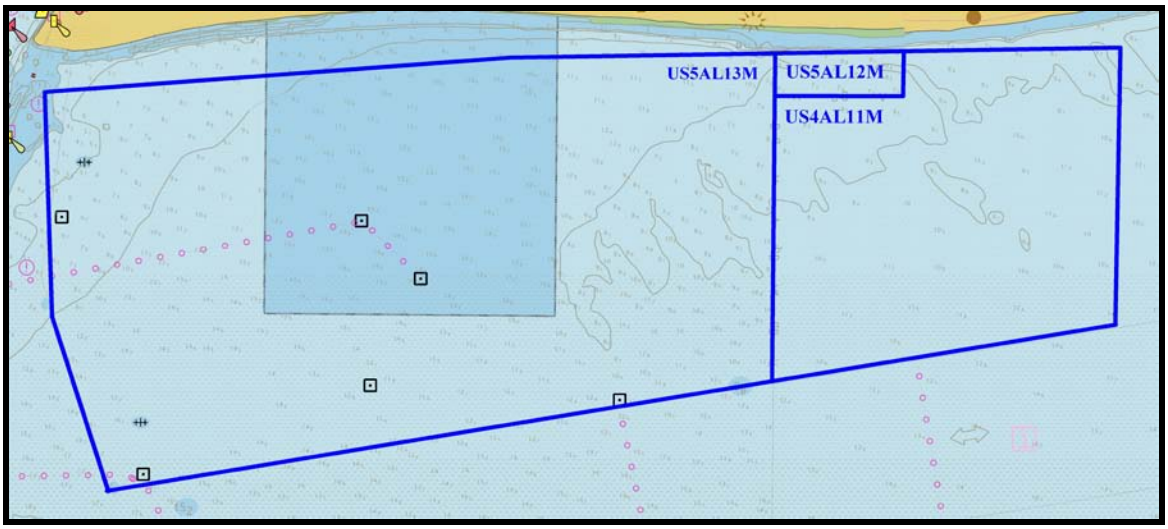


Figure 3 - Survey limits of H-11626 shown with ENC US5AL13M, 13th Edition; ENC US4AL11M, 13th Edition; and ENC US5AL12M, 10th Edition.

New Features: Survey Area H-11626

The 2007 survey identified*thirty features which are not currently charted. A detailed description of the feature is contained in Table 1 and Figures 4-5. The hydrographer recommends updating the ENC's with data from the 2007 survey. *

See the following pages for final charting recommendations.

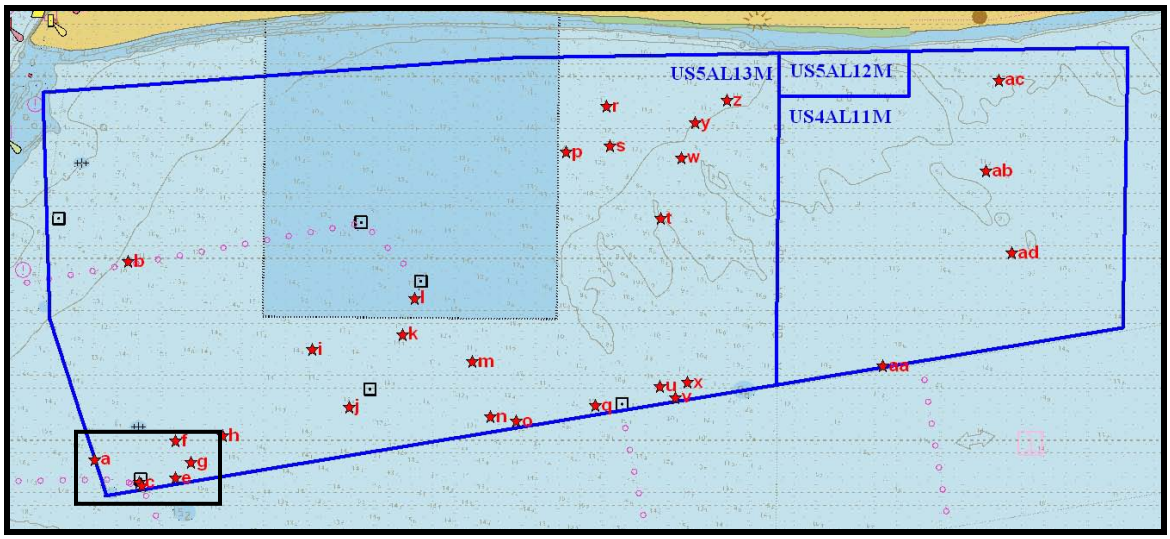


Figure 4 - Survey limits of H-11626 showing the uncharted features identified by the 2007 survey. The black box is the southwest corner of the map is the limits of Figure 5. ENC's US5AL13M, 13th Edition, US4AL11M, 13th Edition, US5AL12M, 10th Edition.

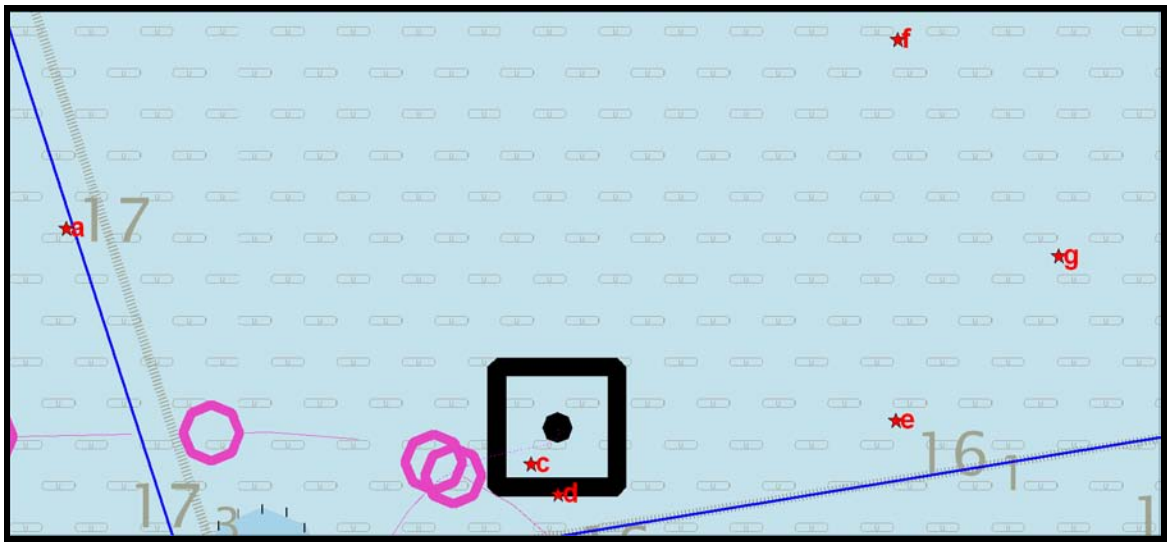


Figure 5 – Uncharted features identified by the 2007 survey that fall in the southwest corner of the H-11626 survey limits (Figure 4). ENC US5AL13M, 13th Edition.

Table 1 – Uncharted features in H-11626 identified by the 2007 survey. The feature letters correspond to the red stars on Figures 4-5.

Feature Letter	Latitude N	Longitude W	Sounding Value (m)	ENC	Recommendation
a	30.1417687 *30-08-30.37*	88.0135935 *88-00-48.94*	16.2 *53.15*	US5AL13M, 13th Edition	Add OBSTN *See D.R. H11547 for charting recommendation.*
b	30.1808177 *30-10-50.94*	88.0063353 *88-00-22.81*	9.34	US5AL13M, 13th Edition	Add OBSTN*
c	30.1373013 *30-08-14.28*	88.0032226 *88-00-11.60*	16.3	US5AL13M, 13th Edition	Add OBSTN*
d	30.1367273 *30-08-12.22*	88.0026177 *88-00-09.42*	16.4	US5AL13M, 13th Edition	Add OBSTN*
e	30.1381993 *30-08-17.52*	87.9951371 *87-59-42.49*	15.4 *50.52*	US5AL13M, 13th Edition	Add OBSTN *Chart 50 Obstn*
f	30.14557 *30-08-44.05*	87.9951598 *87-59-42.56*	14.06	US5AL13M, 13th Edition	Add OBSTN*
g	30.141408 *30-08-29.07*	87.9915446 *87-59-29.56*	14.4	US5AL13M, 13th Edition	Add OBSTN*
h	30.14667 *30-08-48.01*	87.9844123 *87-59-03-88*	12.62 *41.40*	US5AL13M, 13th Edition	Add OBSTN *Chart 41 Obstn Rep 2007*
i	30.1638085 *30-09-49.71*	87.9642635 *87-57-51.35*	13.3 *43.63*	US5AL13M, 13th Edition	Add OBSTN *Chart 43 Obstn*
j	30.1525127 *30-09-09-05*	87.9557029 *87-57-20.53*	11.92	US5AL13M, 13th Edition	Add OBSTN*

**Item determined insignificant during office processing.*
***Item determined insignificant during office processing . Chart survey depth.*

Feature Letter	Latitude N	Longitude W	Sounding Value (m)	ENC	Recommendation
k	30.1669494 *30-10-01.02*	87.9437749 *87-56-37.60*	13.7 *44.93*	US5AL13M, 13th Edition	Add OBSTN**
l	30.1740768 *30-10-26.98*	87.9411463 *87-56-28.13*	13.9	US5AL13M, 13th Edition	Add OBSTN*
m	30.1616959 *30-09-42.11*	87.9278043 *87-55-40.09*	9.85 *32.31*	US5AL13M, 13th Edition	Add OBSTN *Chart 32 Obstn Rep 2007*
n	30.1508388 *30-09-03.02*	87.923673 *87-55-25.22*	11.21 *36.78*	US5AL13M, 13th Edition	Add OBSTN *Chart 37 Obstn Rep 2007*
o	30.1500275 *30-09-00.10*	87.9178097 *87-55-04.12*	12.6	US5AL13M, 13th Edition	Add OBSTN*
p	30.2031148 *30-12-11.21*	87.9069289 *87-54-24.94*	11.76 *38.58*	US5AL13M, 13th Edition	Add OBSTN *Chart 38 Obstn Rep 2007*
q	30.1532022 *30-09-11.53*	87.8998653 *87-53-59.51*	11.25 *36.91*	US5AL13M, 13th Edition	Add OBSTN *Chart 37 Obstn Rep 2007*
r	30.2122152 *30-12-43.97*	87.8977769 *87-53-52.00*	11.2 *36.76*	US5AL13M, 13th Edition	Add OBSTN *Chart 37 Obstn*
s	30.2043586 *30-12-15.69*	87.8969063 *87-53-48.86*	11.8 *38.71*	US5AL13M, 13th Edition	Add OBSTN *Chart 38 Obstn*
t	30.1902163 *30-11-24.78*	87.8851739 *87-53-06.63*	8.5	US5AL13M, 13th Edition	Add OBSTN*
u	30.1571325 *30-09-25.68*	87.8851374 *87-53-06.49*	10.61 *34.81*	US5AL13M, 13th Edition	Add OBSTN *Chart 35 Obstn Rep 2007*
v	30.1549777 *30-09-17.92*	87.8816765 *87-52-54.04*	9.91 *32.51*	US5AL13M, 13th Edition	Add OBSTN *Chart 32 Obstn Rep 2007*
w	30.2022345 *30-12-08.05*	87.8807183 *87-52-50.59*	7.5 *24.58*	US5AL13M, 13th Edition	Add OBSTN**
x	30.1579229 *30-09-28.52*	87.8788606 *87-52-43.90*	10.32	US5AL13M, 13th Edition	Add OBSTN*
y	30.2091494 *30-12-32.94*	87.8775871 *87-52-39.31*	9.9	US5AL13M, 13th Edition	Add OBSTN*
z	30.2135981 *30-12-48.95*	87.8704569 *87-52-13.65*	10.2 *33.46*	US5AL13M, 13th Edition	Add OBSTN *Chart 33 Obstn*
aa	30.1614806 *30-09-41.33*	87.8344203 *87-50-03.91*	11.1	US4AL11M, 13th Edition	Add OBSTN*
ab	30.2000446 *30-12-00.16*	87.8113271 *87-48-40.78*	9.8 *32.15*	US4AL11M, 13th Edition	Add OBSTN*
ac	30.2180118 *30-13-04.84*	87.8084983 *87-48-30.59*	7.88	US4AL11M, 13th Edition	Add OBSTN*
ad	30.183869 *30-11-01.93*	87.8053941 *87-48-19.42*	9.3 *30.51*	US4AL11M, 13th Edition	Add OBSTN *Chart 30 Obstn*

Item determined insignificant during office processing.

****Item determined insignificant during office processing . Chart survey depth.***

Changed Features: Survey Area H-11626

Within the survey limits of H-11626, there is a large fish haven charted on ENC US5AL13M, 13th Edition. Within the boundaries of the fish haven, the 2007 survey identified only three features which rise one meter or more above the seafloor. Therefore, the hydrographer recommends removing the large fish haven from the current ENC and replacing it with three smaller fish havens. ***Do not concur -- Retain charted Fish Haven.***

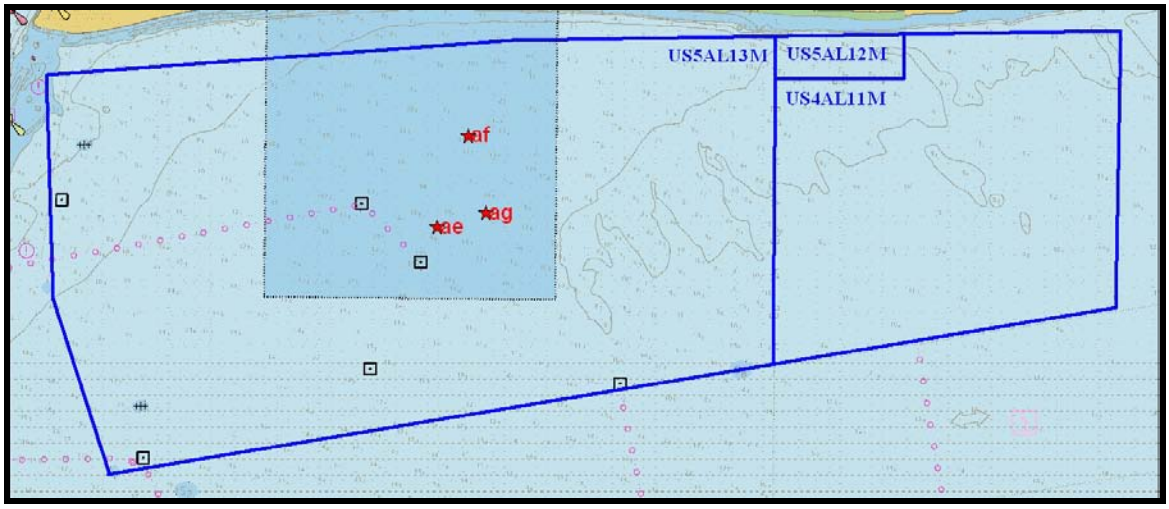


Figure 6 – Survey limits of H-11626 where the 2007 survey identified three features associated with the fish haven. The hydrographer recommends removing the large fish haven and replacing it with three smaller fish havens. ENC US5AL13M, 13th Edition; ENC US4AL11M, 13th Edition; and ENC US5AL12M, 10th Edition.

Table 2 – Features identified by the 2007 survey associated with the currently charted fish haven.

Feature Letter	Latitude	Longitude	Sounding Value (m)	ENC	Recommendation
ae	30.1844457 ***30-11-04.01***	-87.9360755 ***87-56-09.87***	13.9	US5AL13M, 13th Edition	Add FISH HAVEN*
af	30.2027047 ***30-12-09.74***	-87.9290495 ***87-55-44.58***	12	US5AL13M, 13th Edition	Add FISH HAVEN*
ag	30.1874067 ***30-11-14.67***	-87.9247356 ***87-55-29.05***	13.3	US5AL13M, 13th Edition	Add FISH HAVEN*

Do not chart -- Retain charted Fish Haven.

Disproved Features: Survey Area H-11626

There are three features recommended for removal from the H-11626 survey area. This recommendation is based on side-scan sonar and multibeam data analysis. The position and depth information for these features are shown in Figure 7 and Table 3.

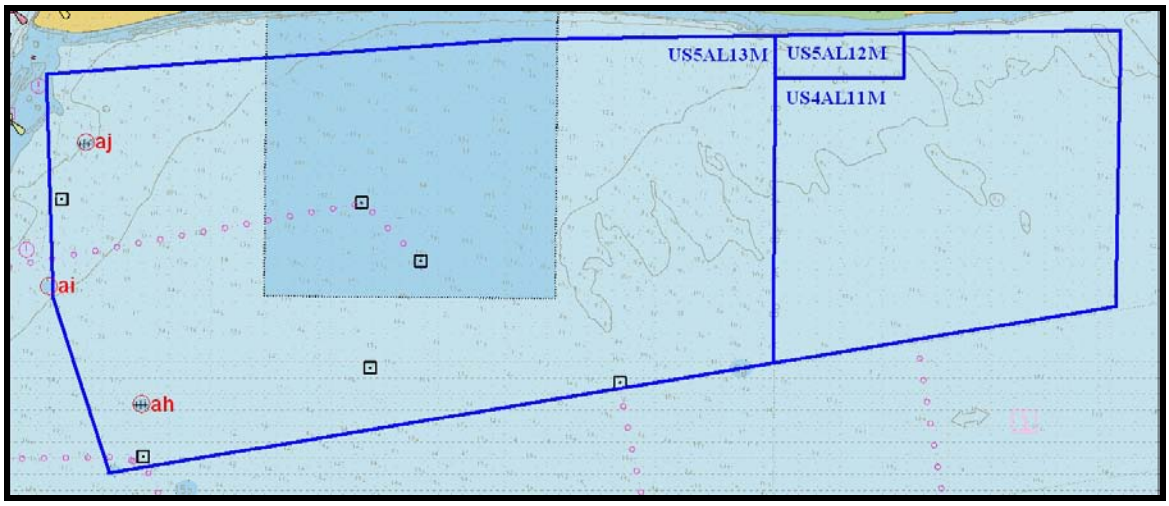


Figure 7 - Survey limits of H-11626, showing charted features which are unsupported by the 2007 survey data and are recommended for removal. ENC's US5AL13M, 13th Edition, US4AL11M, 13th Edition, and US5AL12M, 10th Edition.

Table 3– Charted features which are unsupported by 2007 survey data and recommended for removal. Feature letters keyed to areas indicated in Figure 7.

Feature Letter	Feature Category	Latitude N	Longitude W	Sounding Value (m) on Chart	ENC
ah*	Wreck	30.148349 ***30-08-54.06***	88.0033526 ***88-00-12.07***	15.4	US5AL13M, 13th Edition
ai*	Wellhead	30.171800 ***30-10-18.48***	88.0249493 ***88-01-29.82***	7.6	US5AL13M, 13th Edition
aj*	Wreck	30.200528 ***30-12-01.90***	88.0167599 ***88-01-00.34***	5.3	US5AL13M, 13th Edition

****See Evaluation Report for final charting recommendations.***

Figures 8-10 on the following pages include images from CARIS HIPS & SIPS Subset Editor 3D View of the features recommended for removal from ENC US5AL13M, 13th Edition. Each image is keyed to Table 3.

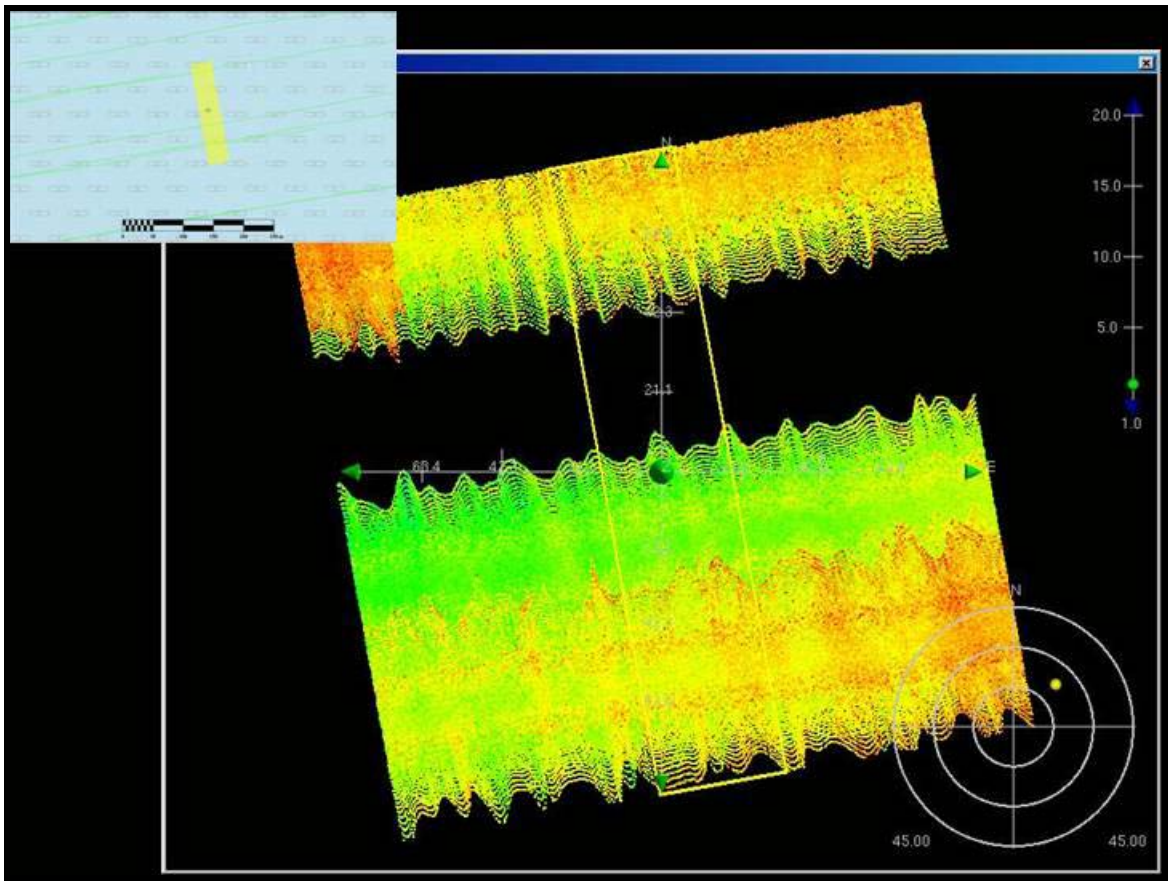


Figure 8 - CARIS HIPS & SIPS Subset Editor 3D view of feature "ah" from Figure 7. The color scale represents depth. The consistency of color and lack of anomalous data in the figure indicate the charted feature is no longer present.

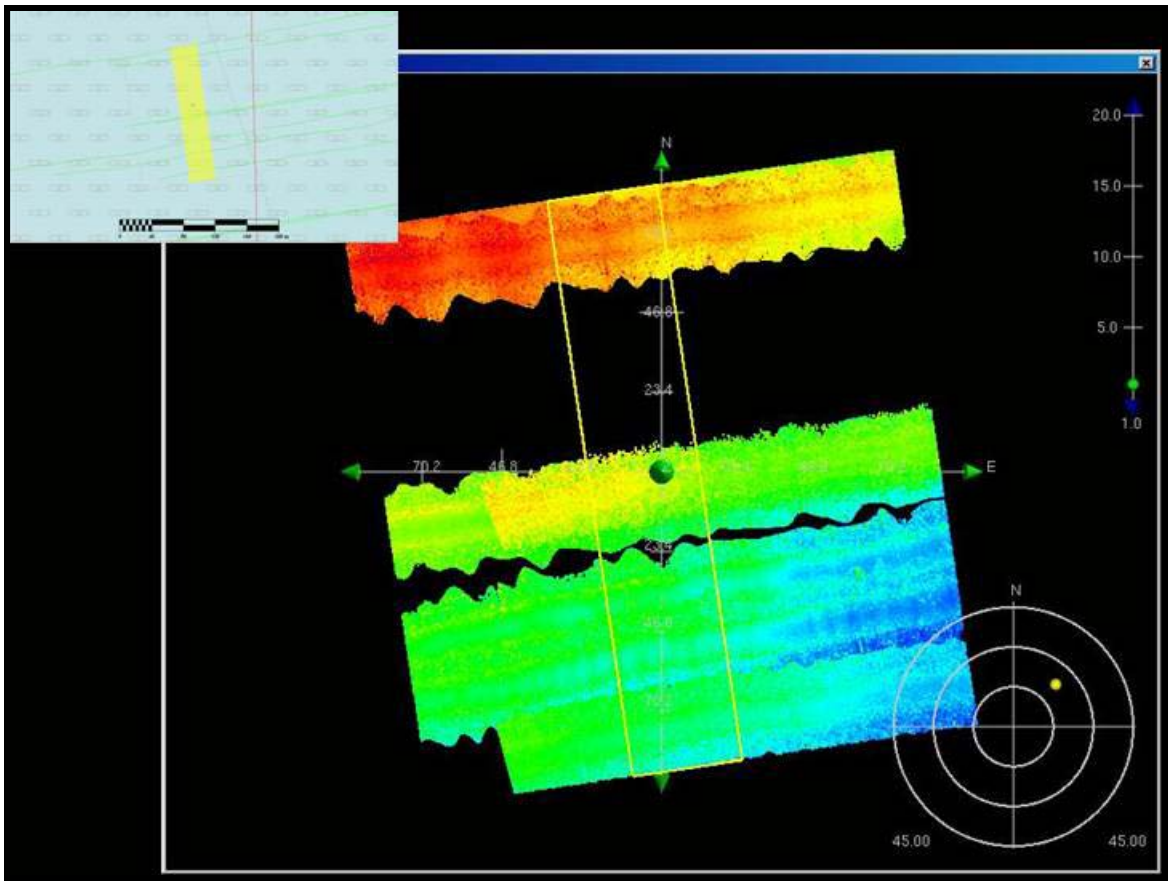


Figure 9 - CARIS HIPS & SIPS Subset Editor 3D view of feature "ai" from Figure 7. The color scale represents depth. The consistency of color and lack of anomalous data in the figure indicate the charted feature is no longer present.

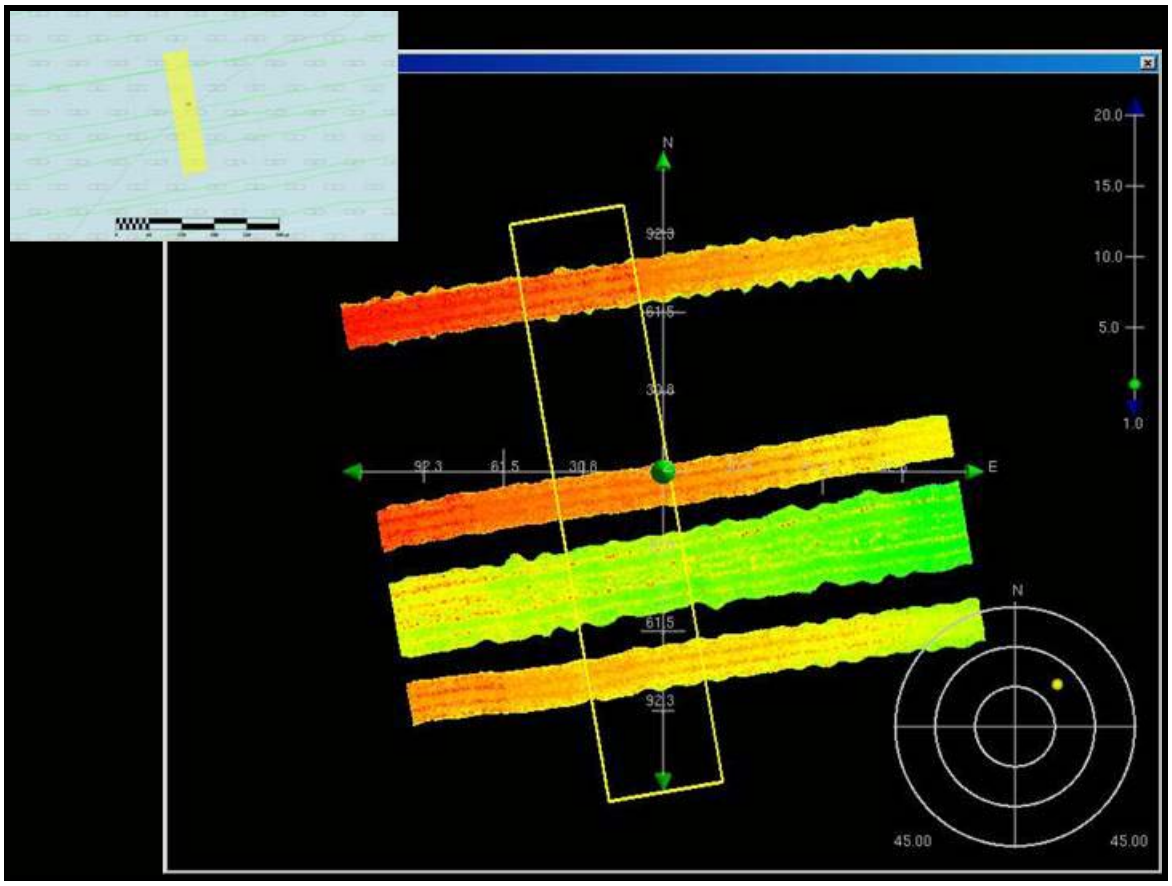


Figure 10 - CARIS HIPS & SIPS Subset Editor 3D view of feature "aj" from Figure 7. The color scale represents depth. The consistency of color and lack of anomalous data in the figure indicate the charted feature is no longer present.

Soundings: Survey Area H-11626

Survey depths are in general agreement with the charted depths for the largest scale ENC covering H-11626. Table 4 and Figures 11-13 describe areas in which the 2007 survey soundings are significantly shoaler than the charted soundings. The hydrographer recommends updating the ENC to reflect the 2007 survey data. ***Concur***

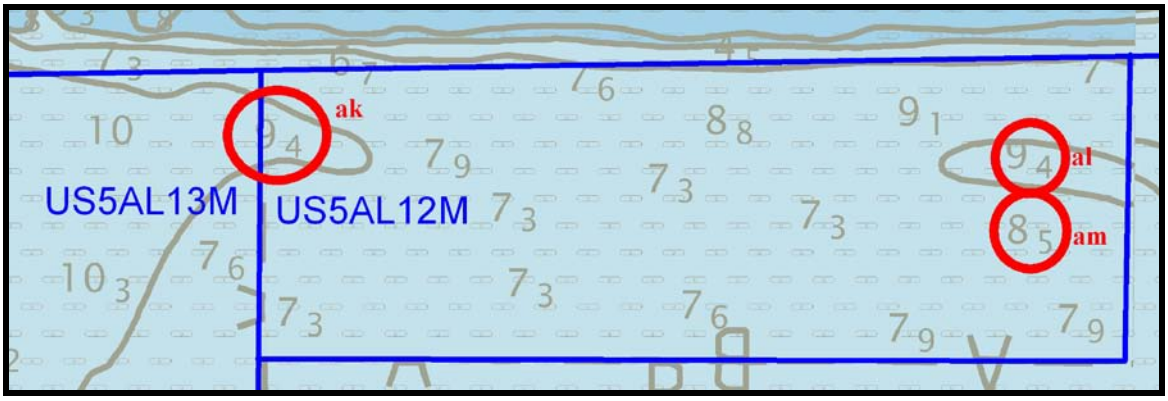


Figure 11– Survey limits of H-11626, showing where 2007 survey soundings are significantly shoaler than charted soundings. ENC's US5AL13M, 13th Edition, and US5AL12M, 10th Edition.

Table 4 – 2007 survey soundings which are significantly shoaler than the corresponding charted soundings. ***Concur -- Chart present survey depths.***

Feature Letter	ENC Sounding (m)	Survey Sounding (m)	Difference (m)	Latitude N	Longitude W	ENC
ak*	9.4	7.6	1.8	30.2208534 *30-13-15.07*	87.8579983 *87-51-28.79*	US5AL13M, 13th Edition; US5AL12M, 10th Edition
al*	9.4	8.4	1.0	30.2204346 *30-13-13.57*	87.8324177 *87-49-56.71*	US5AL12M, 10th Edition
am*	8.5	7.8	0.7	30.2181827 *30-13-05.46*	87.8324308 *87-49-56.75*	US5AL12M, 10th Edition

Trends and Changeable Areas: Survey Area H-11626

The 2007 survey data were used to create depth contours for comparison with charted contours. The charted contours and the 2007 survey contours are in general agreement (Figure 12). The contours in the western region of H-11626 show a deepening of the seafloor, reflected by the shoreward shift of the contours (Figure 13). The contours in the eastern region of H-11626 reflect a general deepening of the area (Figure 14). ***Concur***

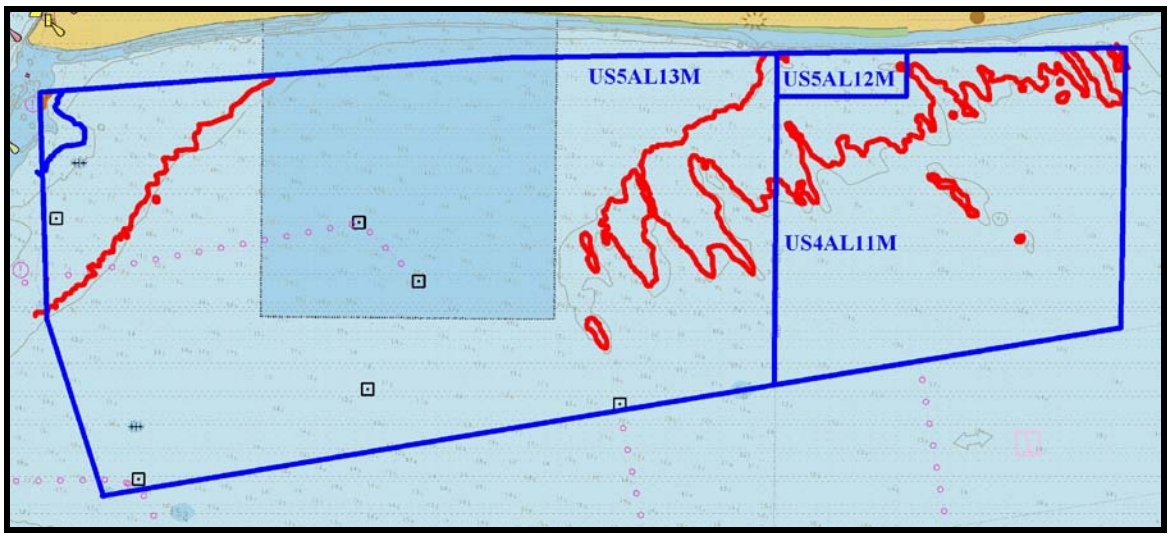


Figure 12- Survey limits of H-11626, showing the 3.6m (brown), 5.4m (blue), and the 9.1m (red) 2007 survey contours. ENC US5AL13M, 13th Edition; ENC US4AL11M, 13th Edition; and ENC US5AL12M, 10th Edition.

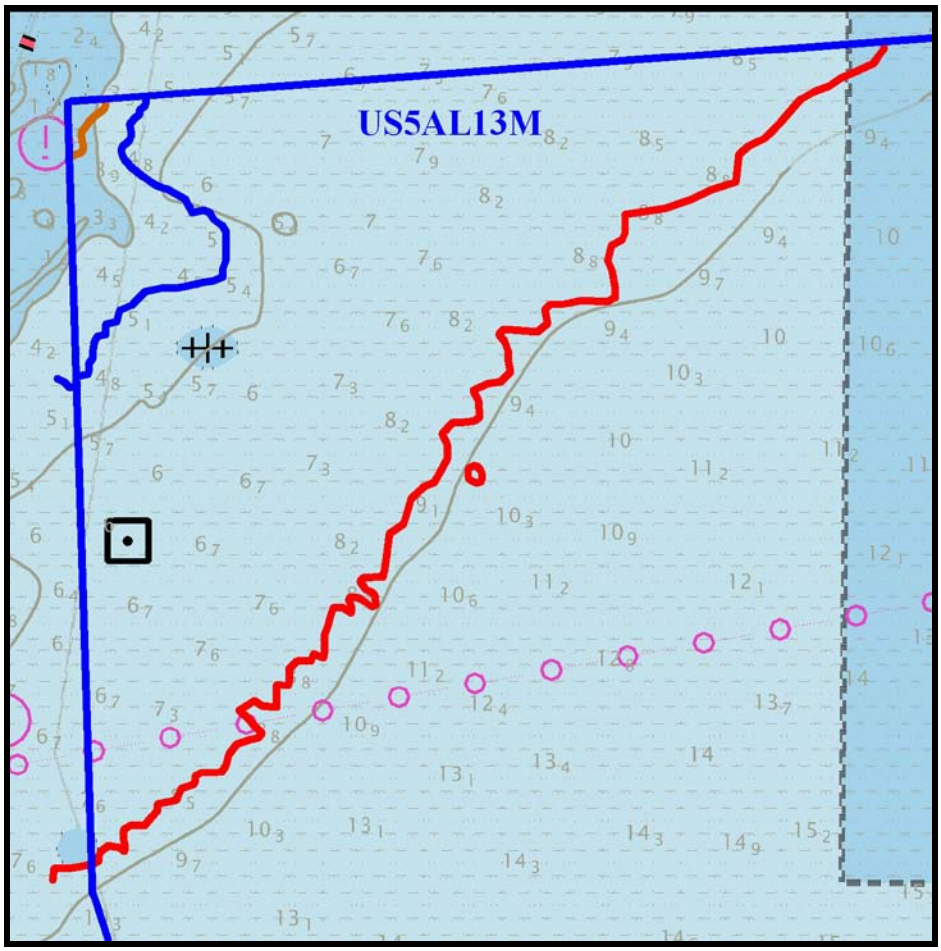


Figure 13 – The 3.6m (brown), 5.4m (blue), and 9.1m (red) 2007 survey contours and their corresponding contours from ENC US5AL13M, 13th Edition, located in the western region of survey area H-11626.

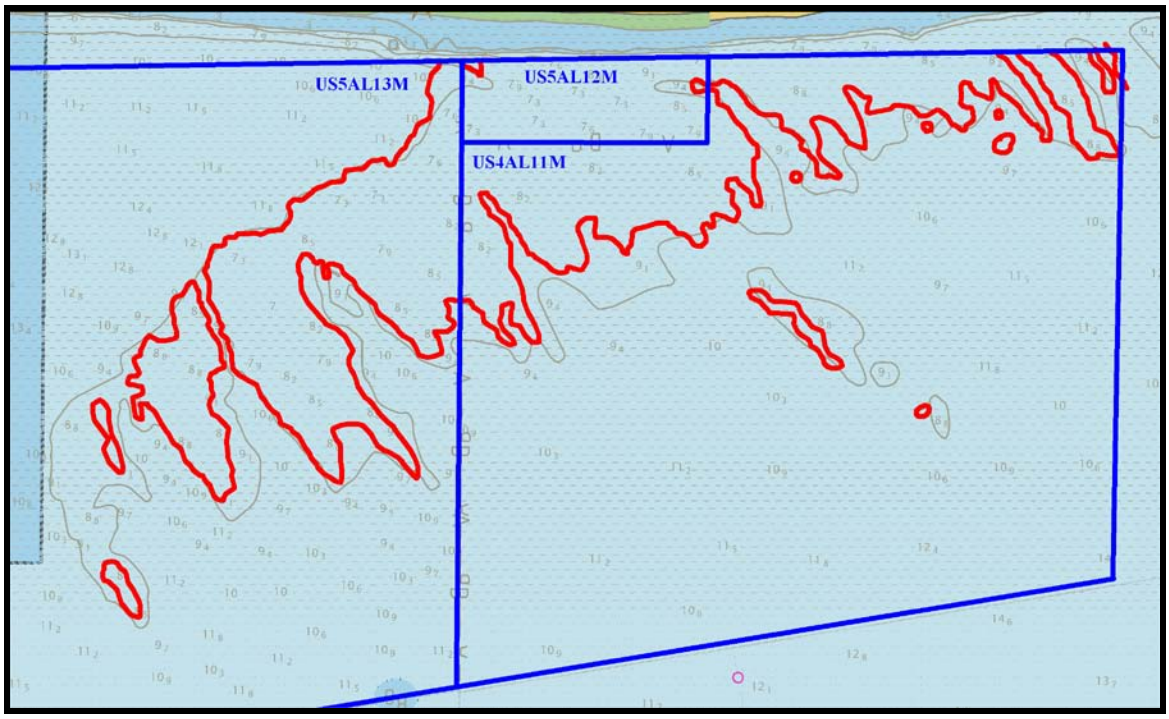


Figure 14- The 9.1m (red) 2007 survey contours and their corresponding contours from ENC US5AL13M, 13th Edition; US5AL12M, 10th Edition; and US4AL11M, 13th Edition; located in the eastern region of survey area H-11626.

AWOIS Items Summary

Investigation of Automated Wreck and Obstruction Information System (AWOIS) items was not required under this task order. ***Concur***

D2. Additional Results

Aids to Navigation

There are no floating aids to navigation in this survey area. ***Concur***

Drilling Structures

There are two wellheads and six oil rigs located within survey area H-11626. The oil rigs and one the tow wellheads match the previous survey locations as charted on ENC US5AL12M, 10th Edition. The second charted wellhead is unsupported by the 2007 survey data as discussed in the previous section (D1. Chart Comparison) as a disproved feature (Table 3, Figure 8 and Figure 10). ***Concur***

Comparison with Prior Surveys

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

Bottom Samples

52 bottom samples were collected in support of the 2007 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 obtained is included in Appendix V to this report. ***Data attached to the Descriptive Report.***

Bridges and Overhead Cables

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

Submarine Cables and Pipelines

There are three submarine pipelines charted on ENC US5AL13M, 13th Edition that fall within the limits of survey H-11626. The 2007 survey data does not support nor disprove the existence or location of these pipelines. ***Concur***

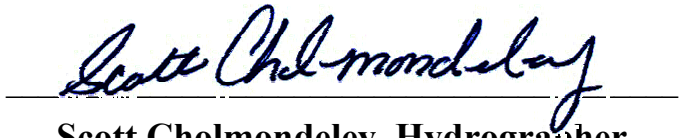
LETTER OF APPROVAL

REGISTRY NO. H-11626

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

Registry Number: H11626

State: Alabama

Locality: Alabama Fairways

Sub-locality: Mobile Point to Pine Beach

Project Number: OPR-S-J977-KR

Survey Date: 01/08/2007 - 03/25/2007

Charts Affected

Number	Version	Date	Scale
11377	5th Ed.	06/01/2003	1:40000
11378	34th Ed.	02/01/2006	1:40000
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 - a	GP	16.20 m	30° 08' 30.367" N	088° 00' 48.937" W	---
1.2	Obstruction - e	GP	15.08 m	30° 08' 17.660" N	087° 59' 41.040" W	---
1.3	Obstruction - h	GP	12.62 m	30° 08' 48.012" N	087° 59' 03.884" W	---
1.4	Obstruction - i	GP	13.30 m	30° 09' 49.711" N	087° 57' 51.349" W	---
1.5	Obstruction - m	GP	9.85 m	30° 09' 42.105" N	087° 55' 40.095" W	---
1.6	Obstruction - n	GP	11.21 m	30° 09' 03.020" N	087° 55' 25.223" W	---
1.7	Obstruction - p	GP	11.76 m	30° 12' 11.213" N	087° 54' 24.944" W	---
1.8	Obstruction - q	GP	11.25 m	30° 09' 11.528" N	087° 53' 59.515" W	---
1.9	Obstruction - r	GP	11.20 m	30° 12' 43.975" N	087° 53' 51.997" W	---
1.10	Obstruction - s	GP	11.80 m	30° 12' 15.691" N	087° 53' 48.863" W	---
1.11	Obstruction - u	GP	10.61 m	30° 09' 25.677" N	087° 53' 06.495" W	---
1.12	Obstruction - v	GP	9.91 m	30° 09' 17.920" N	087° 52' 54.035" W	---
1.13	Obstruction - z	GP	10.20 m	30° 12' 48.953" N	087° 52' 13.645" W	---

1.14	Obstruction - ab	GP	9.80 m	30° 12' 00.161" N	087° 48' 40.778" W	---
1.15	Obstruction - ad	GP	9.30 m	30° 11' 01.928" N	087° 48' 19.419" W	---

1 - DToNs

1.1) Obstruction - a

DANGER TO NAVIGATION

Survey Summary

Survey Position:	30° 08' 30.367" N, 088° 00' 48.937" W
Least Depth:	16.20 m
Timestamp:	2007-84.00:00:00.000 (03/25/2007)
GP Dataset:	H11626_dton_a-am_pydro.xls
GP No.:	1
Charts Affected:	11377_1, 11378_7, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

The DTONS in this report result from comparison of 2007 survey data to the largest scale charts covering the survey area. During office review, this feature was identified and recommended for addition.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11626_dton_a-am_pydro.xls	1	0.00	000.0	Primary

Hydrographer Recommendations

Chart a 53 ft obstruction at the given location

Cartographically-Rounded Depth (Affected Charts):

53ft (11377_1, 11378_7, 11376_1)

8 ¾fm (1115A_1, 11360_1, 11006_1, 411_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	QUASOU - 6:least depth known
	SORDAT - 20070325
	SORIND - US,US,surve,H11626
	TECSOU - 2,3:found by side scan sonar,found by multi-beam
	VALSOU - 16.2 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

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

Feature Images

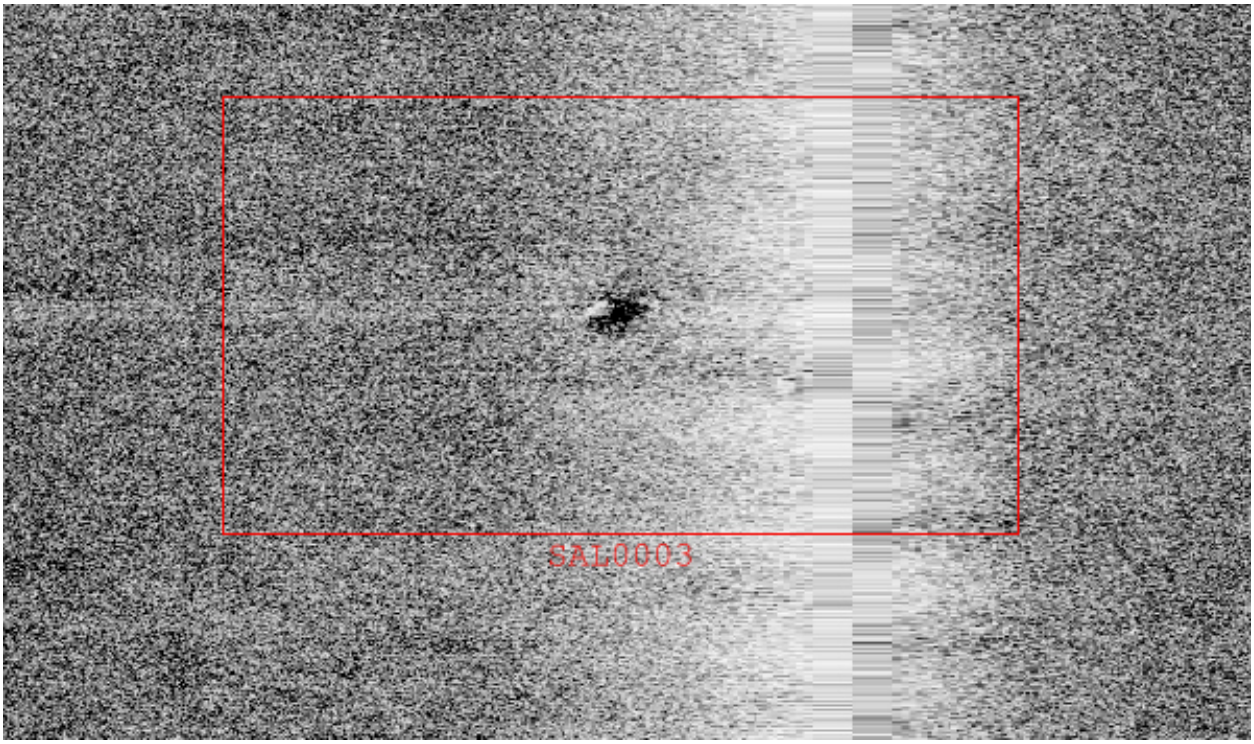


Figure 1.1.1

1.2) Obstruction - e

DANGER TO NAVIGATION

Survey Summary

Survey Position:	30° 08' 17.660" N, 087° 59' 41.040" W
Least Depth:	15.08 m
Timestamp:	2007-084.00:00:00.000 (03/25/2007)
GP Dataset:	H11626_dton_a-am_pydro.xls
GP No.:	5
Charts Affected:	11377_1, 11378_7, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

The DTONS in this report result from comparison of 2007 survey data to the largest scale charts covering the survey area. During office review, this feature was identified and recommended for addition.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11626_dton_a-am_pydro.xls	5	0.00	000.0	Primary

Hydrographer Recommendations

Chart a 49 ft obstruction at the given location

Cartographically-Rounded Depth (Affected Charts):

49ft (11377_1, 11378_7, 11376_1)

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

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	QUASOU - 6:least depth known
	SORDAT - 20070325
	SORIND - US,US,surve,H11626
	TECSOU - 2,3:found by side scan sonar,found by multi-beam
	VALSOU - 15.08 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

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

Feature Images

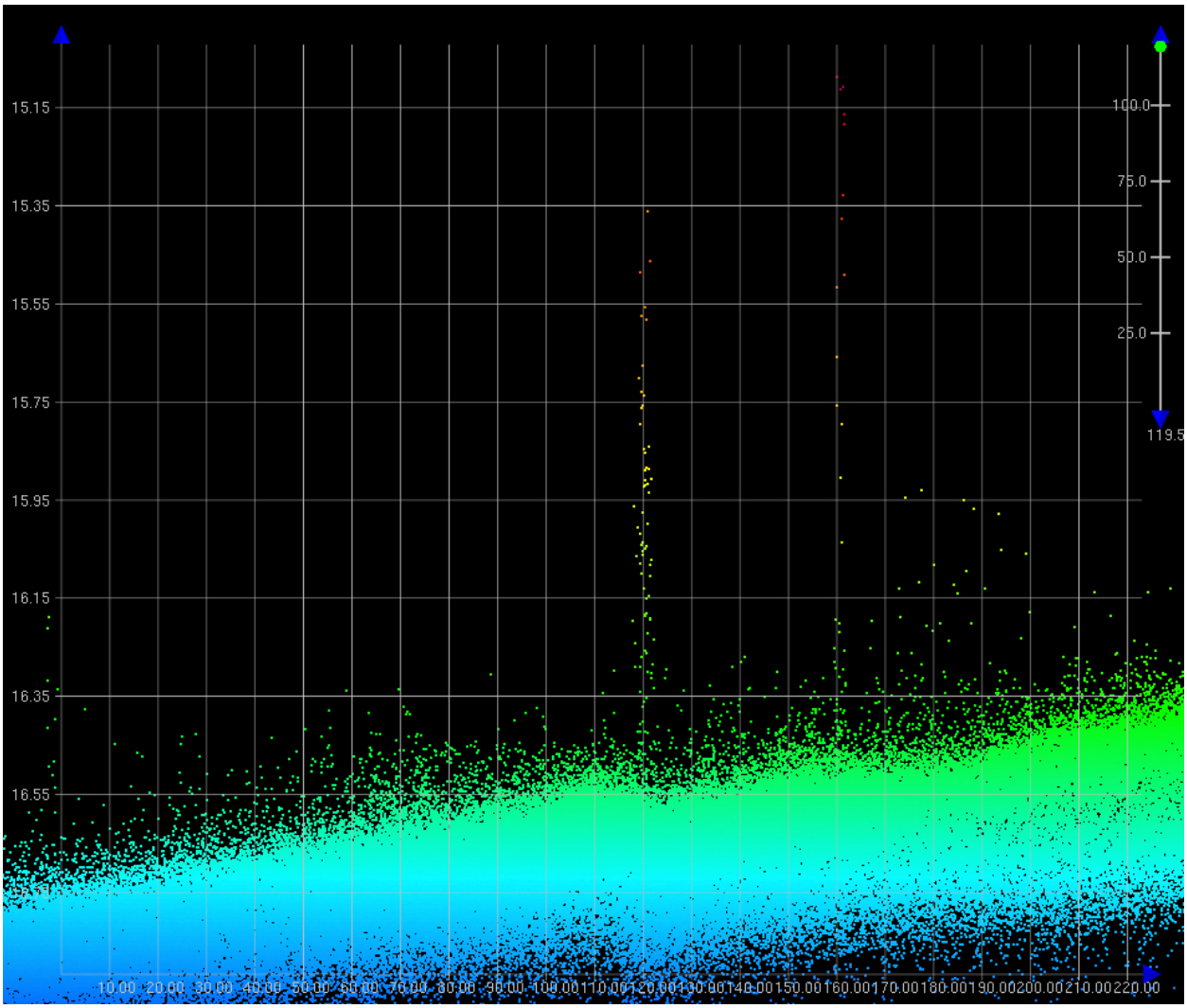


Figure 1.2.1

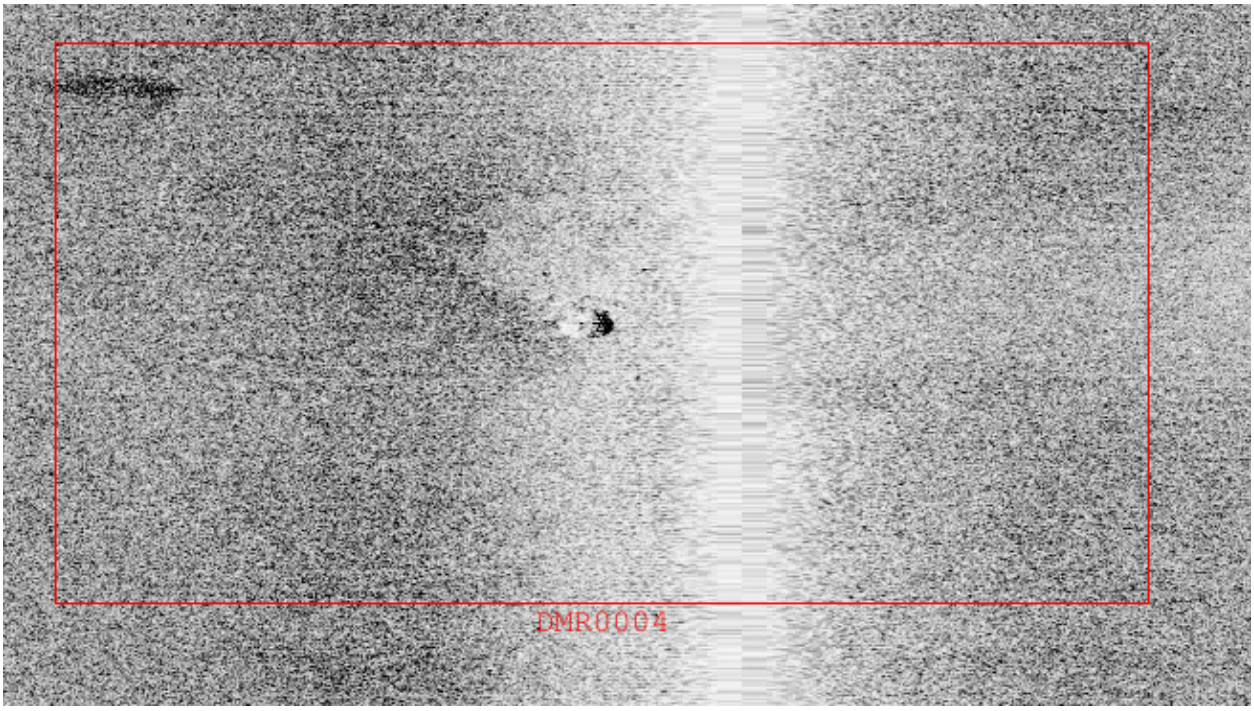


Figure 1.2.2

1.3) Obstruction - h

DANGER TO NAVIGATION

Survey Summary

Survey Position:	30° 08' 48.012" N, 087° 59' 03.884" W
Least Depth:	12.62 m
Timestamp:	2007-084.00:00:00.000 (03/25/2007)
GP Dataset:	H11626_dton_a-am_pydro.xls
GP No.:	8
Charts Affected:	11377_1, 11378_7, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

The DTONS in this report result from comparison of 2007 survey data to the largest scale charts covering the survey area. During office review, this feature was identified and recommended for addition.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11626_dton_a-am_pydro.xls	8	0.00	000.0	Primary

Hydrographer Recommendations

Chart a 41 ft obstruction at the given location.

Cartographically-Rounded Depth (Affected Charts):

41ft (11377_1, 11378_7, 11376_1)

6 ¾fm (1115A_1, 11360_1, 11006_1, 411_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	QUASOU - 9:value reported (not confirmed)
	SORDAT - 20070325
	SORIND - US,US,surve,H11626
	TECSOU - 2:found by side scan sonar
	VALSOU - 12.62 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

This estimated least depth is based upon acquired side scan data. No bathymetric data provided. Concur with clarification -- See section D.1 of the Descriptive Report for final charting recommendation.

1.4) Obstruction - i

DANGER TO NAVIGATION

Survey Summary

Survey Position: 30° 09' 49.711" N, 087° 57' 51.349" W

Least Depth: 13.30 m

Timestamp: 2007-084.00:00:00.000 (03/25/2007)

GP Dataset: H11626_dton_a-am_pydro.xls

GP No.: 9

Charts Affected: 11377_1, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

The DTONS in this report result from comparison of 2007 survey data to the largest scale charts covering the survey area. During office review, this feature was identified and recommended for addition.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11626_dton_a-am_pydro.xls	9	0.00	000.0	Primary

Hydrographer Recommendations

Chart a 43 ft obstruction at the given location

Cartographically-Rounded Depth (Affected Charts):

43ft (11377_1, 11376_1)

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

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20070325

SORIND - US,US,surve,H11626

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

VALSOU - 13.3 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

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

Feature Images

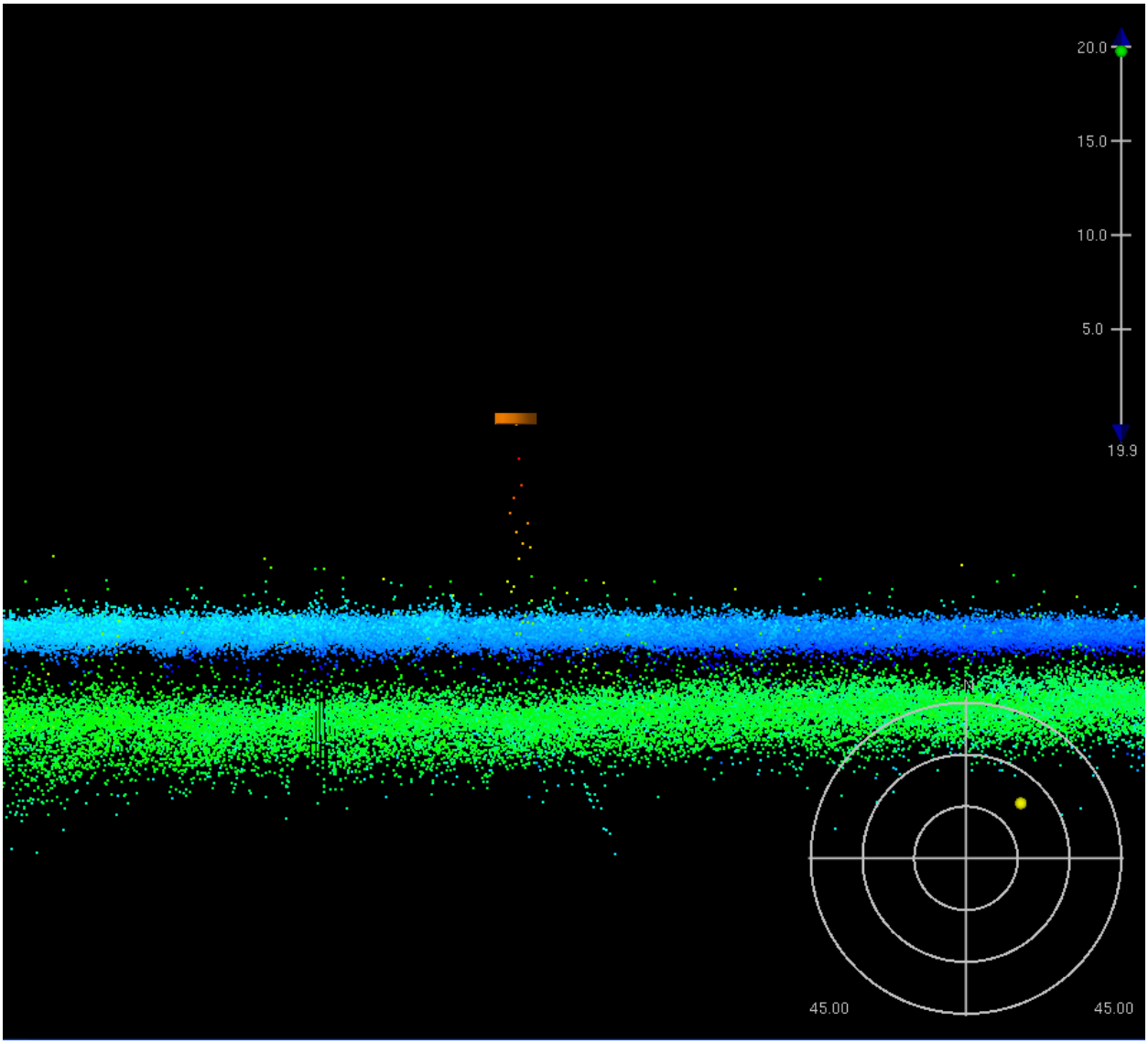


Figure 1.4.1

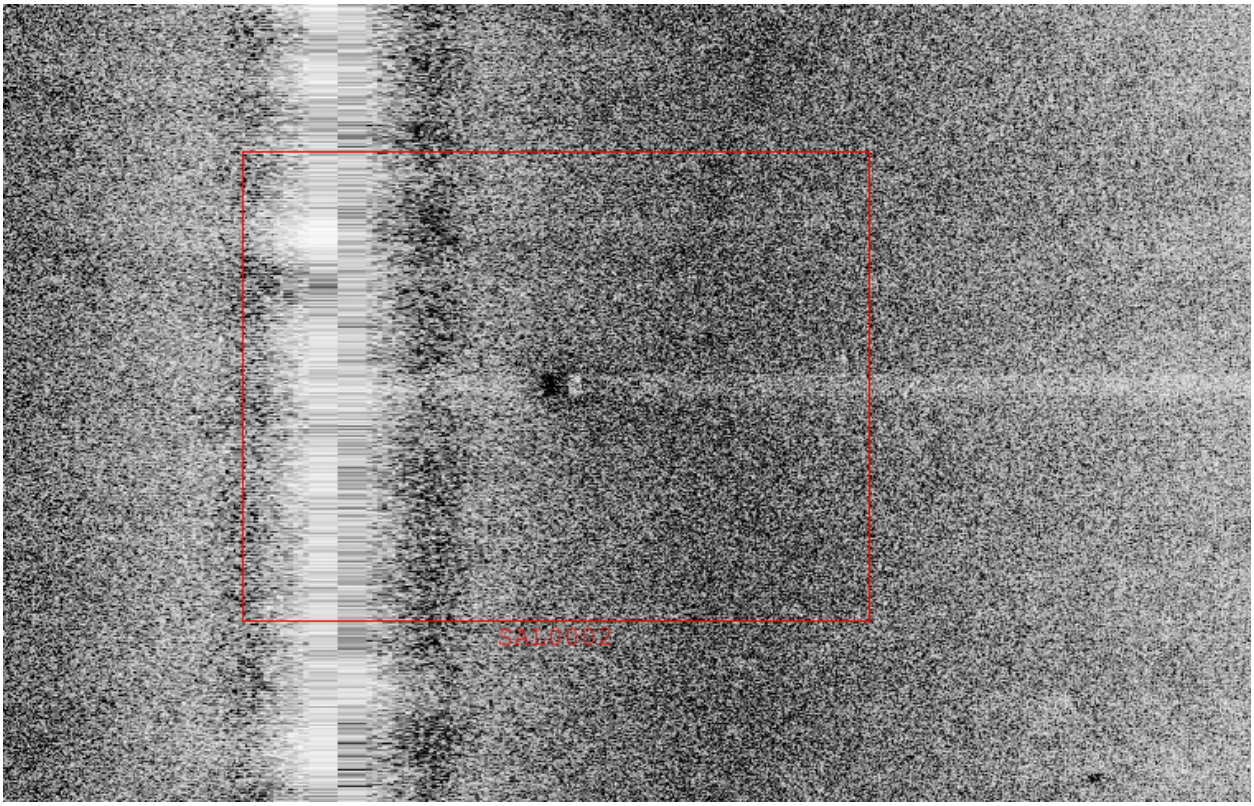


Figure 1.4.2

1.5) Obstruction - m

DANGER TO NAVIGATION

Survey Summary

Survey Position:	30° 09' 42.105" N, 087° 55' 40.095" W
Least Depth:	9.85 m
Timestamp:	2007-084.00:00:00.000 (03/25/2007)
GP Dataset:	H11626_dton_a-am_pydro.xls
GP No.:	13
Charts Affected:	11377_1, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

The DTONS in this report result from comparison of 2007 survey data to the largest scale charts covering the survey area. During office review, this feature was identified and recommended for addition.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11626_dton_a-am_pydro.xls	13	0.00	000.0	Primary

Hydrographer Recommendations

Chart a 32 ft obstruction at the given location

Cartographically-Rounded Depth (Affected Charts):

32ft (11377_1, 11376_1)

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

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	QUASOU - 9:value reported (not confirmed)
	SORDAT - 20070325
	SORIND - US,US,surve,H11626
	TECSOU - 2:found by side scan sonar
	VALSOU - 9.85 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

This estimated least depth is based upon acquired side scan data. No bathymetric data provided. Concur with clarification See section D.1 of the Descriptive Report for final charting recommendation.

Feature Images

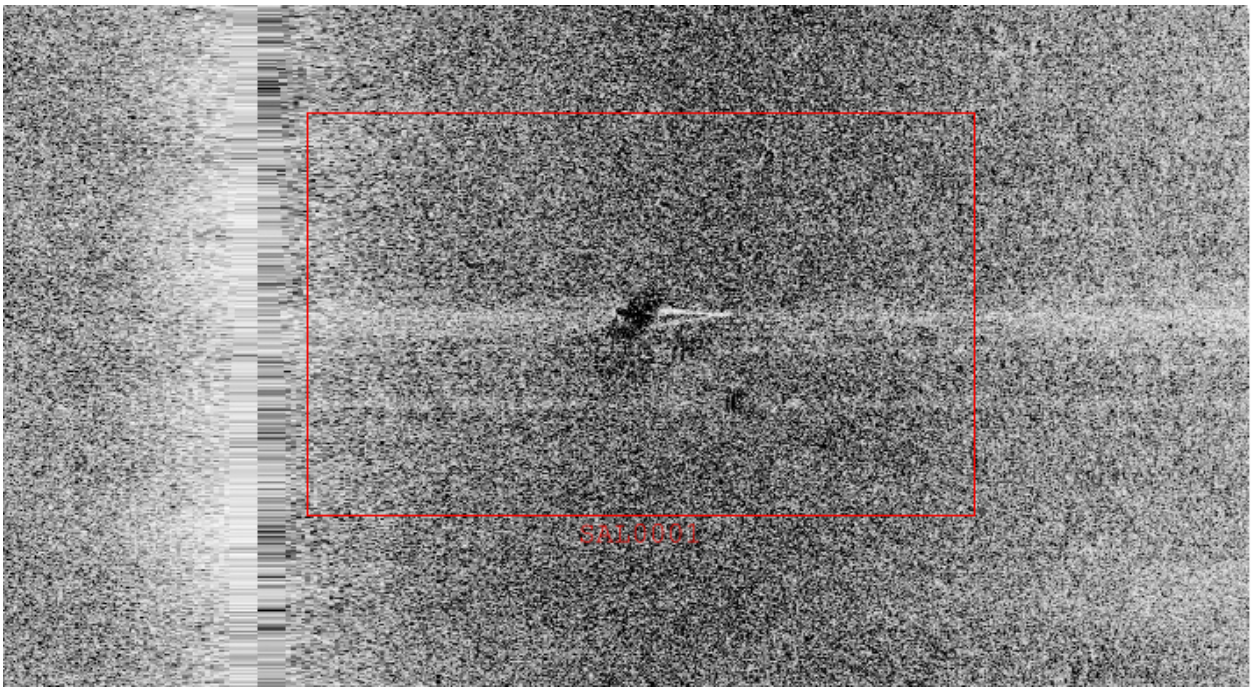


Figure 1.5.1

1.6) Obstruction - n

DANGER TO NAVIGATION

Survey Summary

Survey Position:	30° 09' 03.020" N, 087° 55' 25.223" W
Least Depth:	11.21 m
Timestamp:	2007-084.00:00:00.000 (03/25/2007)
GP Dataset:	H11626_dton_a-am_pydro.xls
GP No.:	14
Charts Affected:	11377_1, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

The DTONS in this report result from comparison of 2007 survey data to the largest scale charts covering the survey area. During office review, this feature was identified and recommended for addition.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11626_dton_a-am_pydro.xls	14	0.00	000.0	Primary

Hydrographer Recommendations

Chart a 37 ft obstruction at the given location

Cartographically-Rounded Depth (Affected Charts):

37ft (11377_1, 11376_1)

6fm (1115A_1, 11360_1, 11006_1, 411_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	QUASOU - 9:value reported (not confirmed)
	SORDAT - 20070325
	SORIND - US,US,surve,H11626
	TECSOU - 2:found by side scan sonar
	VALSOU - 11.21 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

This estimated least depth is based upon acquired side scan data. No bathymetric data provided.
Concur with clarification -- See section D.1 of the Descriptive Report for final charting recommendation.

Feature Images

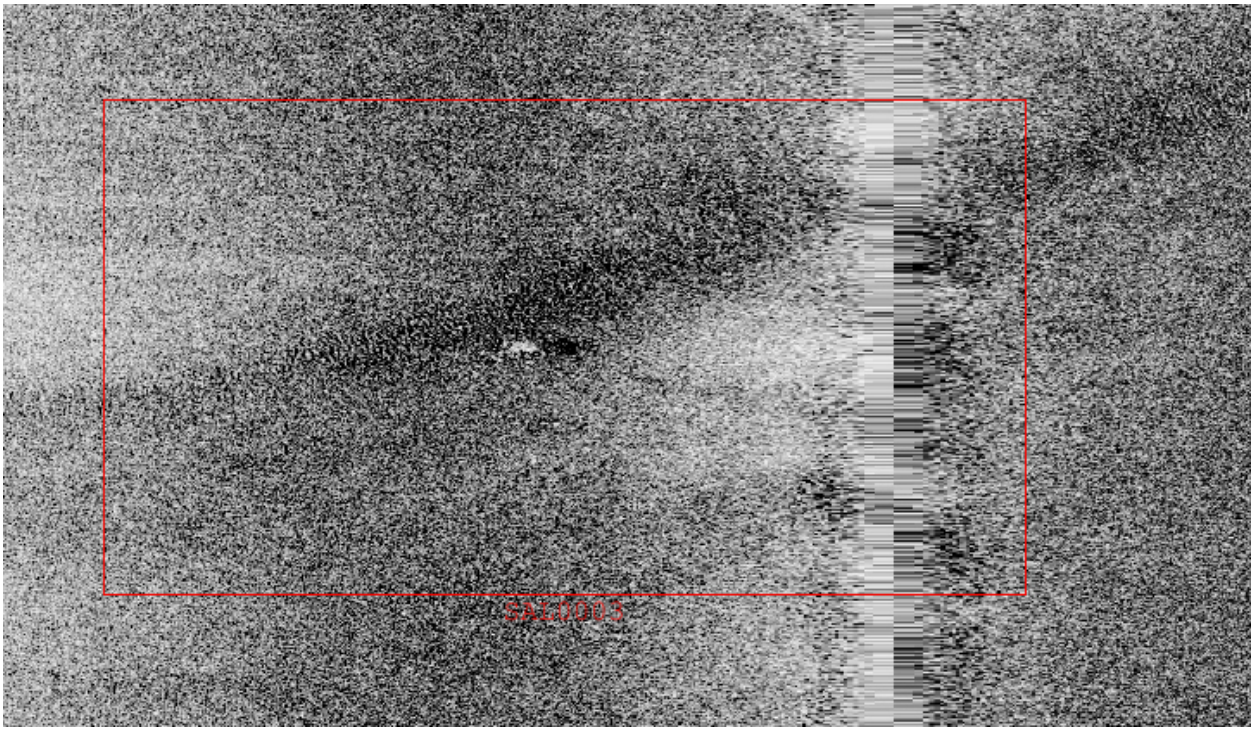


Figure 1.6.1

1.7) Obstruction - p

DANGER TO NAVIGATION

Survey Summary

Survey Position:	30° 12' 11.213" N, 087° 54' 24.944" W
Least Depth:	11.76 m
Timestamp:	2007-084.00:00:00.000 (03/25/2007)
GP Dataset:	H11626_dton_a-am_pydro.xls
GP No.:	16
Charts Affected:	11377_1, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

The DTONS in this report result from comparison of 2007 survey data to the largest scale charts covering the survey area. During office review, this feature was identified and recommended for addition.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11626_dton_a-am_pydro.xls	16	0.00	000.0	Primary

Hydrographer Recommendations

Chart a 38 ft obstruction at the given location

Cartographically-Rounded Depth (Affected Charts):

38ft (11377_1, 11376_1)

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

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	QUASOU - 9:value reported (not confirmed)
	SORDAT - 20070325
	SORIND - US,US,surve,H11626
	TECSOU - 2:found by side scan sonar
	VALSOU - 11.76 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

This estimated least depth is based upon acquired side scan data. No bathymetric data provided.
Concur with clarification -- See section D.1 of the Descriptive Report for final charting recommendation.

Feature Images

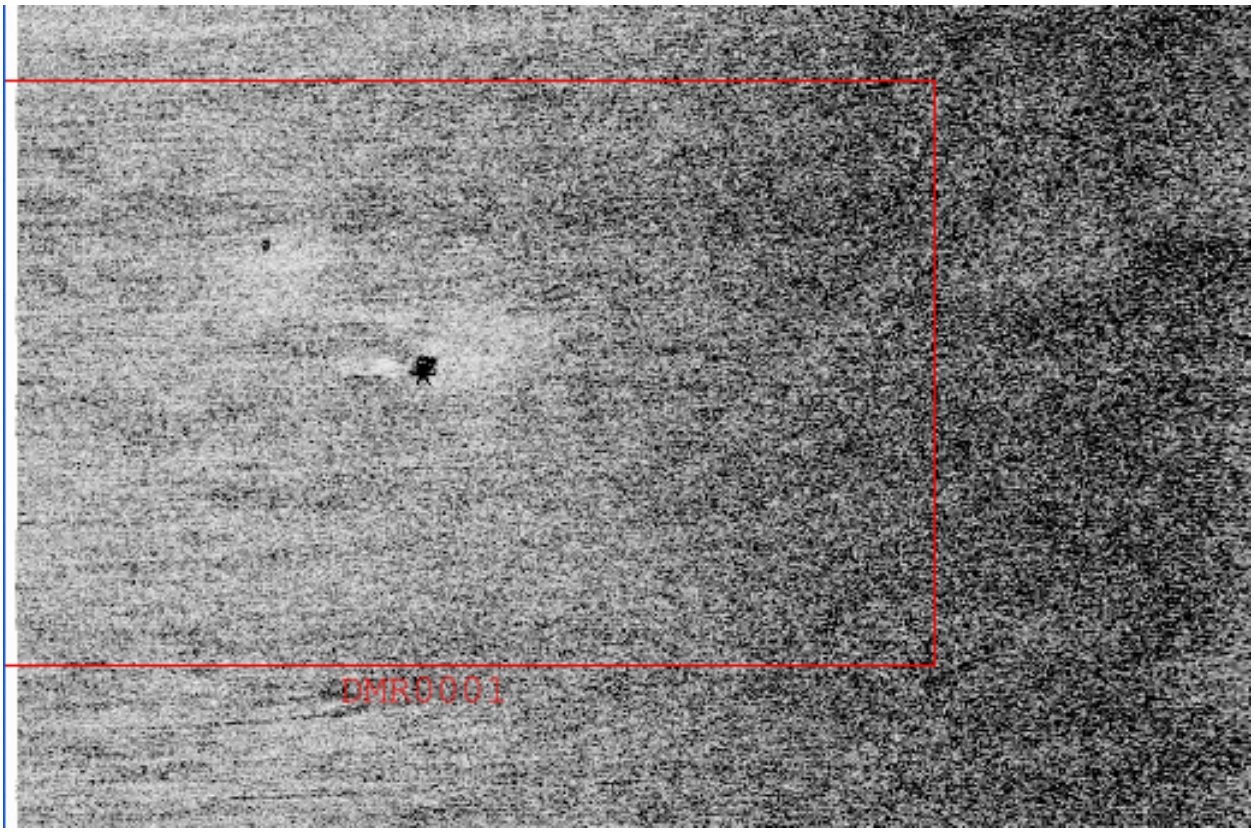


Figure 1.7.1

1.8) Obstruction - q

DANGER TO NAVIGATION

Survey Summary

Survey Position:	30° 09' 11.528" N, 087° 53' 59.515" W
Least Depth:	11.25 m
Timestamp:	2007-084.00:00:00.000 (03/25/2007)
GP Dataset:	H11626_dton_a-am_pydro.xls
GP No.:	17
Charts Affected:	11377_1, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

The DTONS in this report result from comparison of 2007 survey data to the largest scale charts covering the survey area. During office review, this feature was identified and recommended for addition.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11626_dton_a-am_pydro.xls	17	0.00	000.0	Primary

Hydrographer Recommendations

Chart a 37 ft obstruction at the given location

Cartographically-Rounded Depth (Affected Charts):

37ft (11377_1, 11376_1)

6fm (1115A_1, 11360_1, 11006_1, 411_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	QUASOU - 9:value reported (not confirmed)
	SORDAT - 20070325
	SORIND - US,US,surve,H11626
	TECSOU - 2:found by side scan sonar
	VALSOU - 11.25 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

This estimated least depth is based upon acquired side scan data. No bathymetric data provided.
Concur with clarification -- See section D.1 of the Descriptive Report for final charting recommendation.

Feature Images

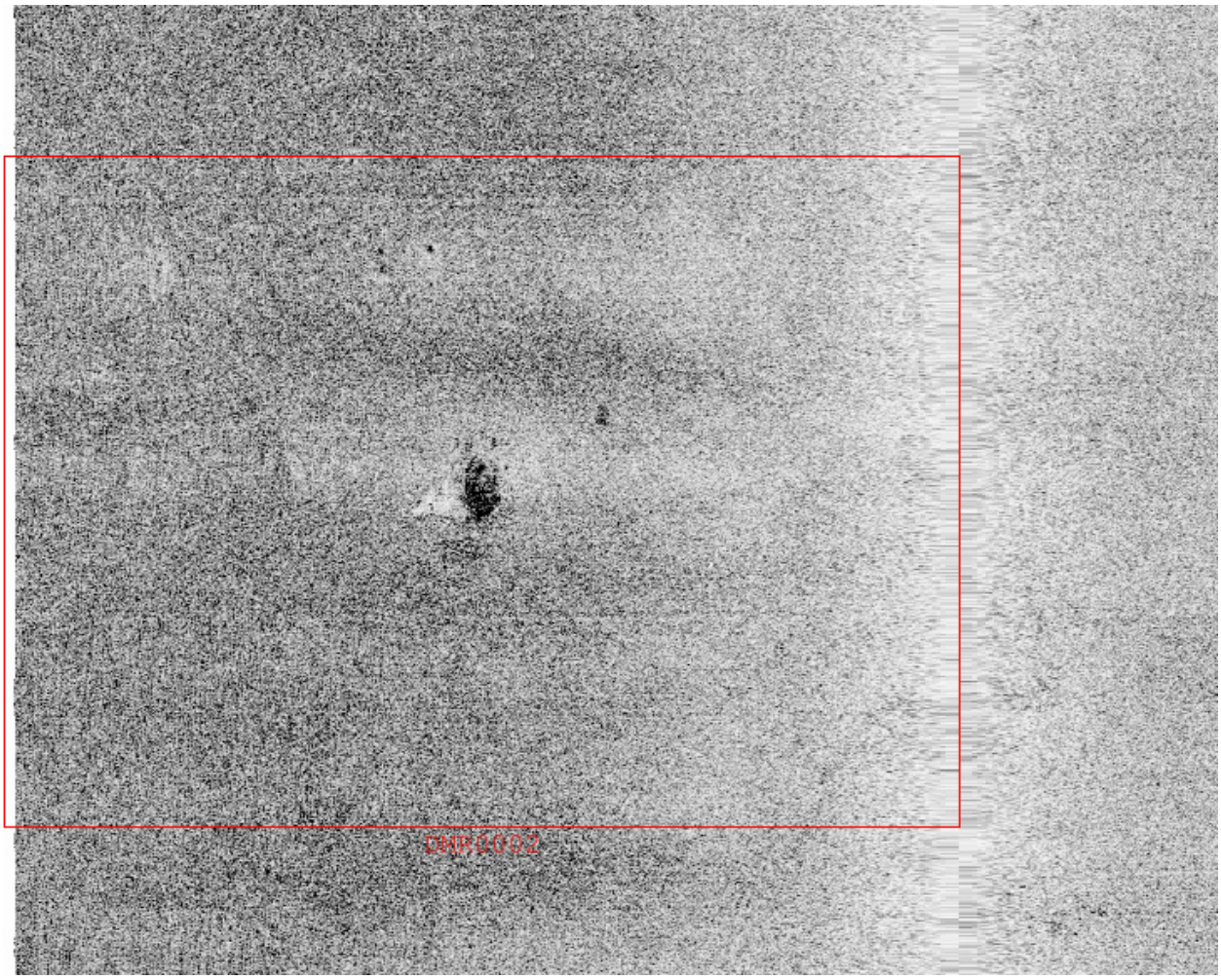


Figure 1.8.1

1.9) Obstruction - r

DANGER TO NAVIGATION

Survey Summary

Survey Position:	30° 12' 43.975" N, 087° 53' 51.997" W
Least Depth:	11.20 m
Timestamp:	2007-084.00:00:00.000 (03/25/2007)
GP Dataset:	H11626_dton_a-am_pydro.xls
GP No.:	18
Charts Affected:	11377_1, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

The DTONS in this report result from comparison of 2007 survey data to the largest scale charts covering the survey area. During office review, this feature was identified and recommended for addition.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11626_dton_a-am_pydro.xls	18	0.00	000.0	Primary

Hydrographer Recommendations

Chart a 36 ft obstruction at the given location

Cartographically-Rounded Depth (Affected Charts):

36ft (11377_1, 11376_1)

6fm (1115A_1, 11360_1, 11006_1, 411_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	QUASOU - 6:least depth known
	SORDAT - 20070325
	SORIND - US,US,surve,H11626
	TECSOU - 2,3:found by side scan sonar,found by multi-beam
	VALSOU - 11.2 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

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

Feature Images

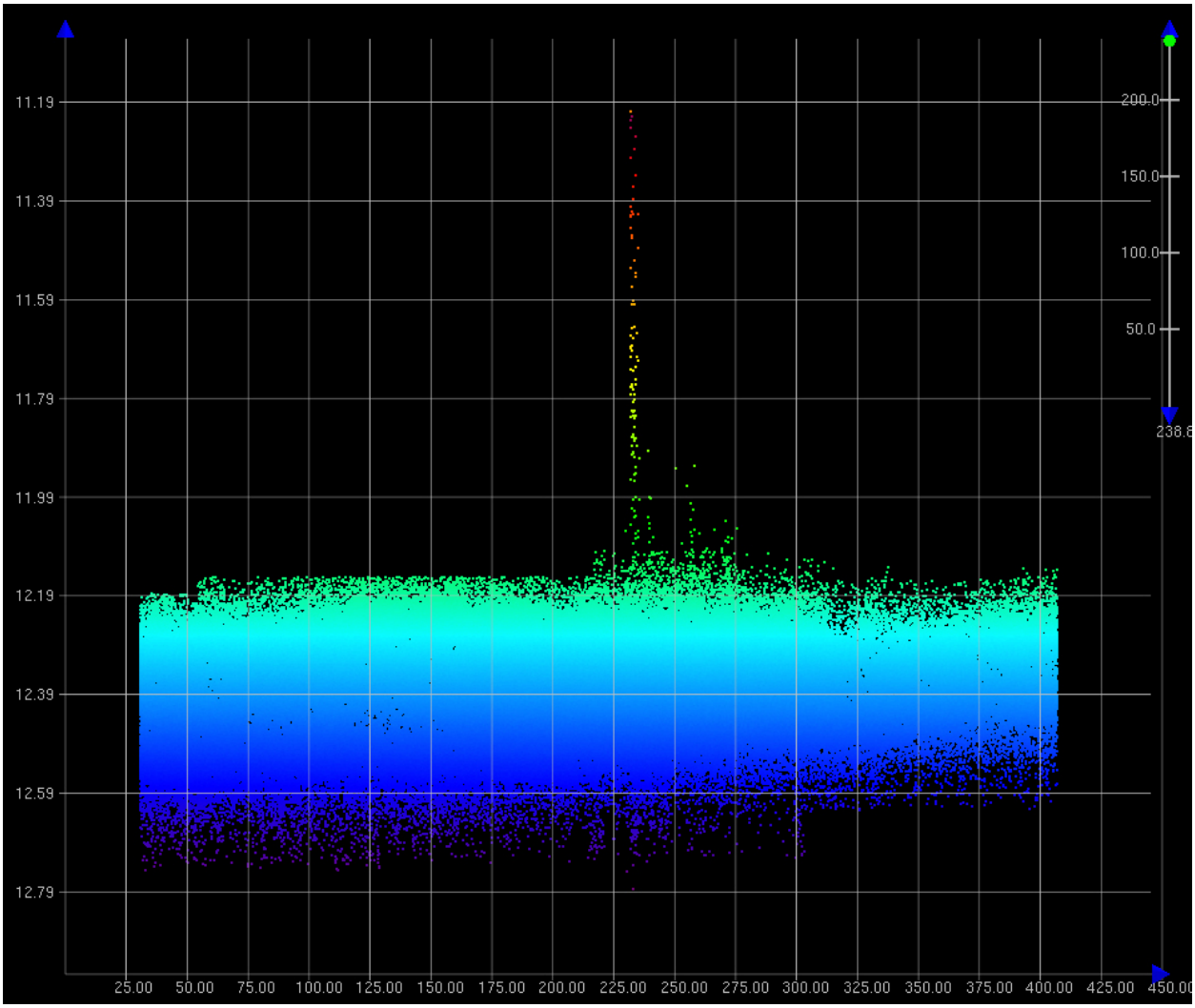


Figure 1.9.1

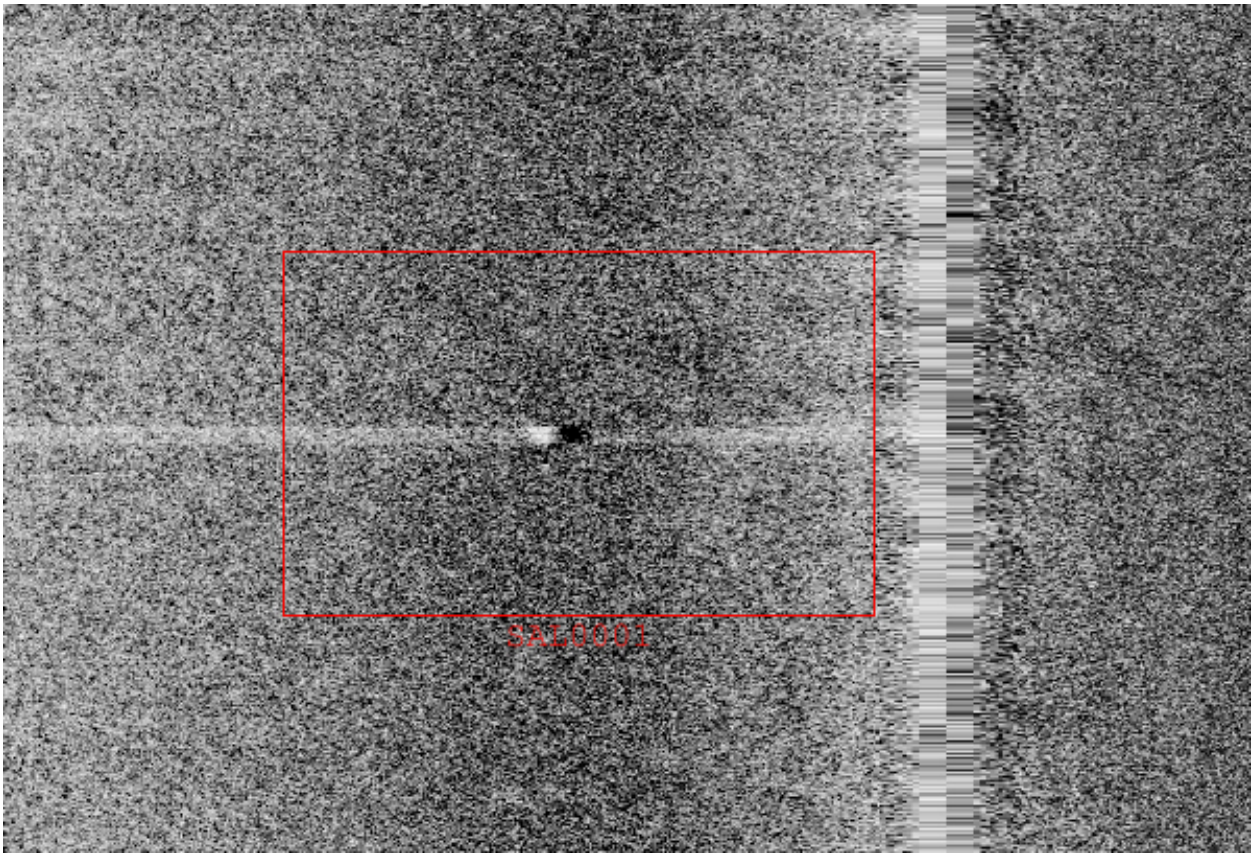


Figure 1.9.2

1.10) Obstruction - s

DANGER TO NAVIGATION

Survey Summary

Survey Position:	30° 12' 15.691" N, 087° 53' 48.863" W
Least Depth:	11.80 m
Timestamp:	2007-084.00:00:00.000 (03/25/2007)
GP Dataset:	H11626_dton_a-am_pydro.xls
GP No.:	19
Charts Affected:	11377_1, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

The DTONS in this report result from comparison of 2007 survey data to the largest scale charts covering the survey area. During office review, this feature was identified and recommended for addition.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11626_dton_a-am_pydro.xls	19	0.00	000.0	Primary

Hydrographer Recommendations

Chart a 38 ft obstruction at the given location

Cartographically-Rounded Depth (Affected Charts):

38ft (11377_1, 11376_1)

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

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	QUASOU - 6:least depth known
	SORDAT - 20070325
	SORIND - US,US,surve,H11626
	TECSOU - 2,3:found by side scan sonar,found by multi-beam
	VALSOU - 11.8 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

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

Feature Images

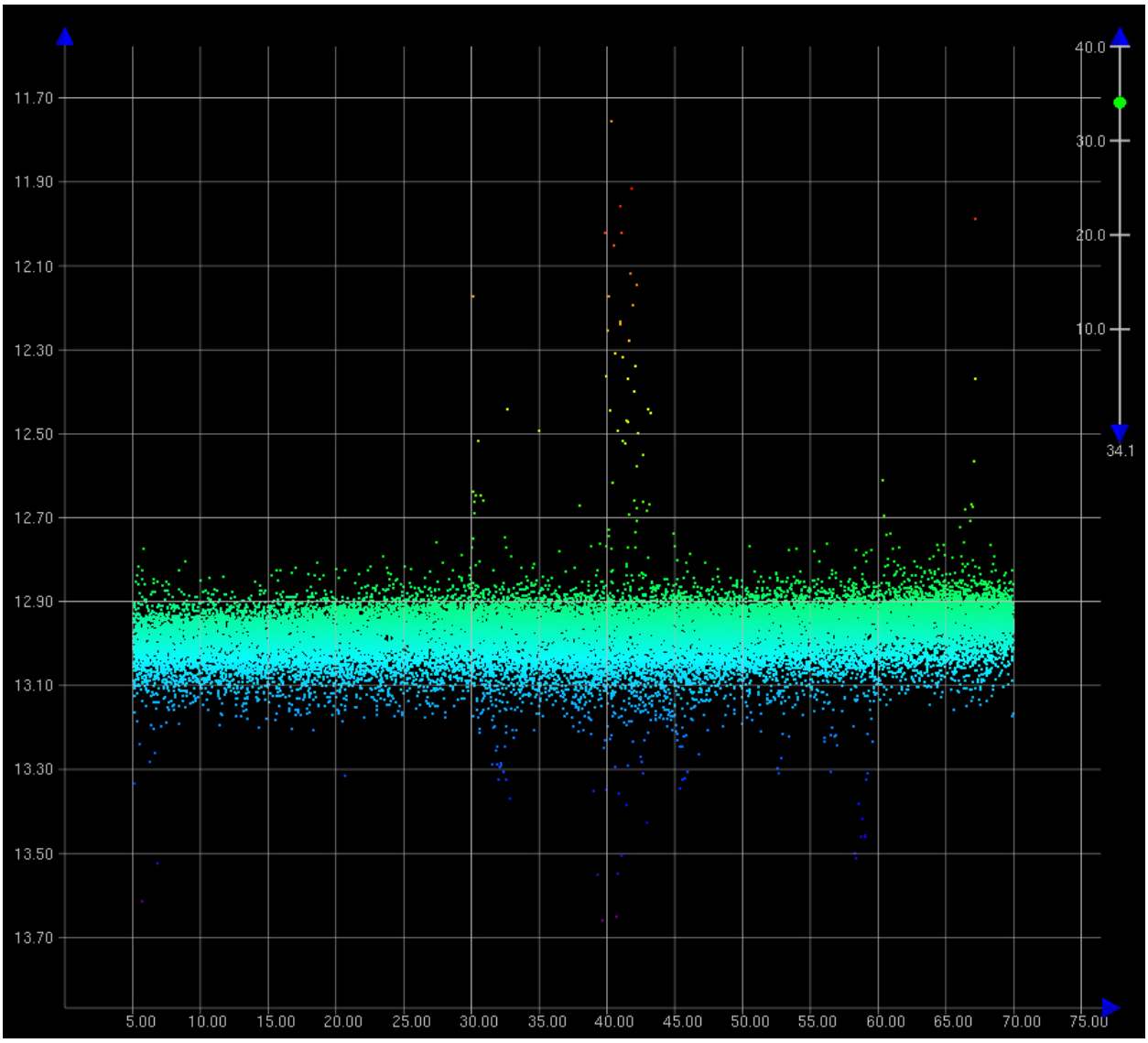


Figure 1.10.1

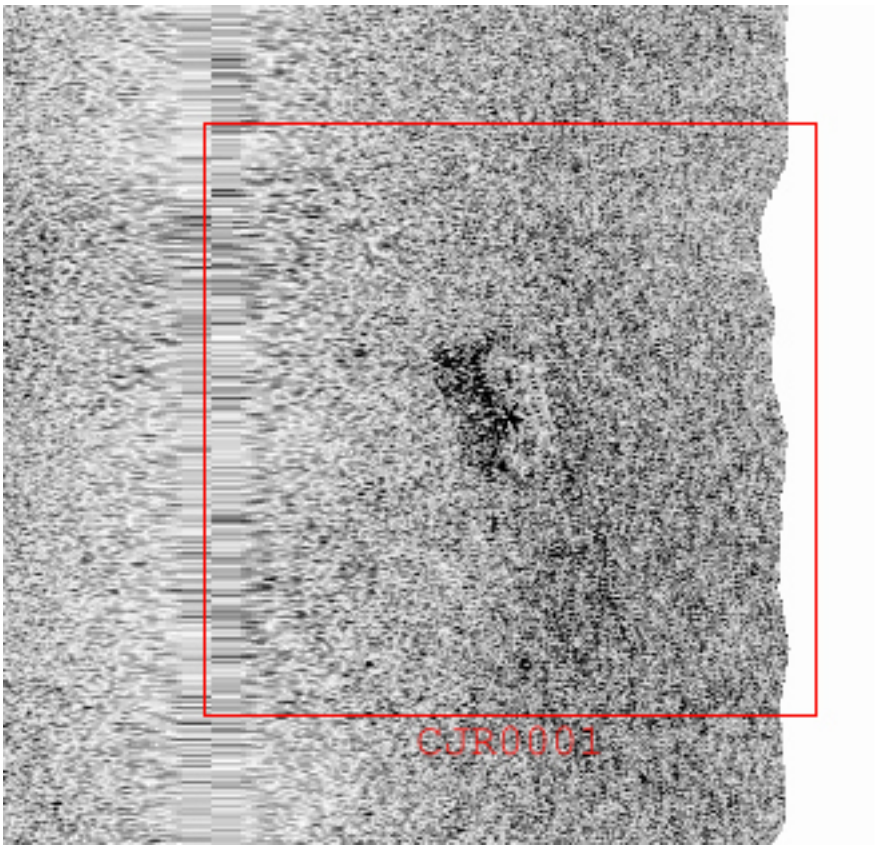


Figure 1.10.2

1.11) Obstruction - u

DANGER TO NAVIGATION

Survey Summary

Survey Position:	30° 09' 25.677" N, 087° 53' 06.495" W
Least Depth:	10.61 m
Timestamp:	2007-084.00:00:00.000 (03/25/2007)
GP Dataset:	H11626_dton_a-am_pydro.xls
GP No.:	21
Charts Affected:	11377_1, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

The DTONS in this report result from comparison of 2007 survey data to the largest scale charts covering the survey area. During office review, this feature was identified and recommended for addition.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11626_dton_a-am_pydro.xls	21	0.00	000.0	Primary

Hydrographer Recommendations

Chart a 35 ft obstruction at the given location

Cartographically-Rounded Depth (Affected Charts):

35ft (11377_1, 11376_1)

5 ¾fm (1115A_1, 11360_1, 11006_1, 411_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	QUASOU - 9:value reported (not confirmed)
	SORDAT - 20070325
	SORIND - US,US,surve,H11626
	TECSOU - 2:found by side scan sonar
	VALSOU - 10.61 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

This estimated least depth is based upon acquired side scan data. No bathymetric data provided.
Concur with clarification -- See section D.1 of the Descriptive Report for final charting recommendation.

Feature Images

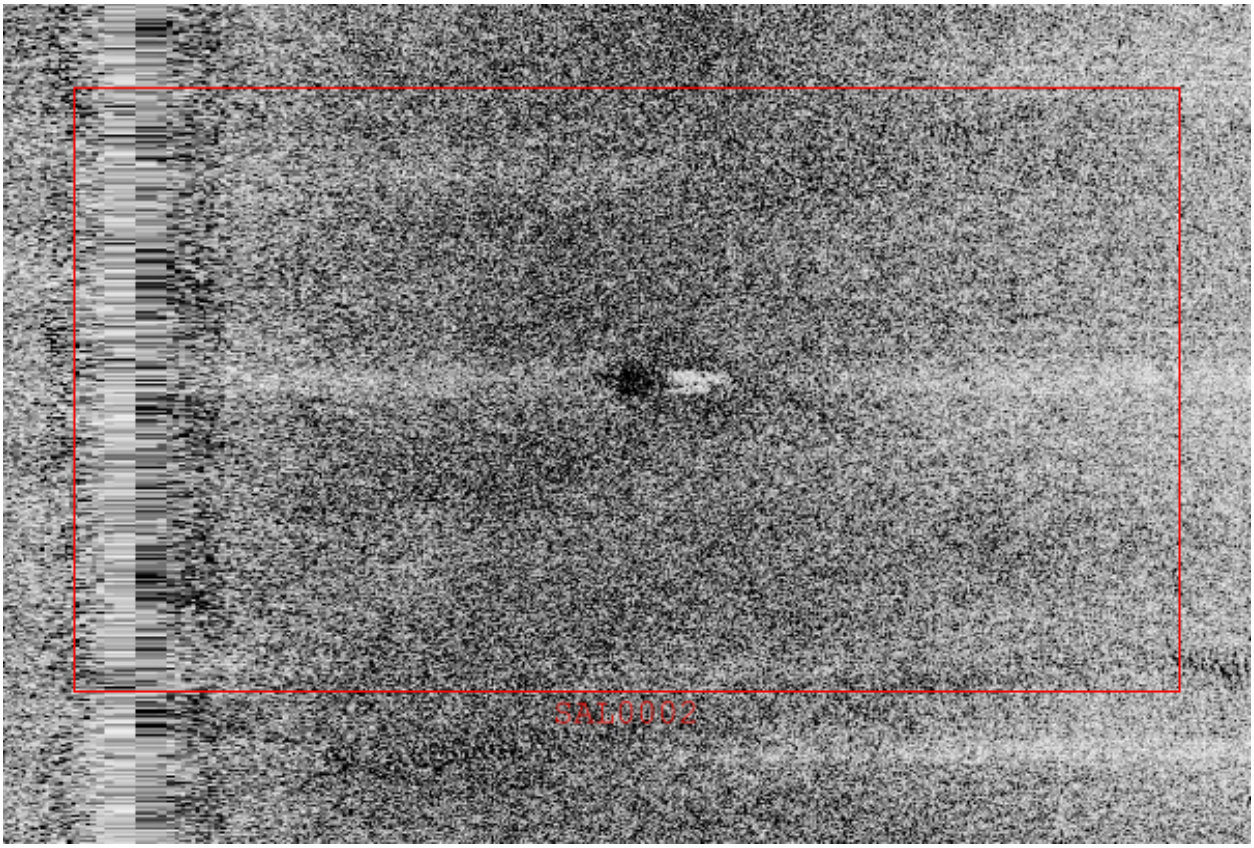


Figure 1.11.1

1.12) Obstruction - v

DANGER TO NAVIGATION

Survey Summary

Survey Position: 30° 09' 17.920" N, 087° 52' 54.035" W

Least Depth: 9.91 m

Timestamp: 2007-084.00:00:00.000 (03/25/2007)

GP Dataset: H11626_dton_a-am_pydro.xls

GP No.: 22

Charts Affected: 11377_1, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

The DTONS in this report result from comparison of 2007 survey data to the largest scale charts covering the survey area. During office review, this feature was identified and recommended for addition.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11626_dton_a-am_pydro.xls	22	0.00	000.0	Primary

Hydrographer Recommendations

Chart a 32 ft obstruction at the given location

Cartographically-Rounded Depth (Affected Charts):

32ft (11377_1, 11376_1)

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

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 9:value reported (not confirmed)

SORDAT - 20070325

SORIND - US,US,surve,H11626

TECSOU - 2:found by side scan sonar

VALSOU - 9.91 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

This estimated least depth is based upon acquired side scan data. No bathymetric data provided.
Concur with clarification -- See section D.1 of the Descriptive Report for final charting recommendation.

Feature Images

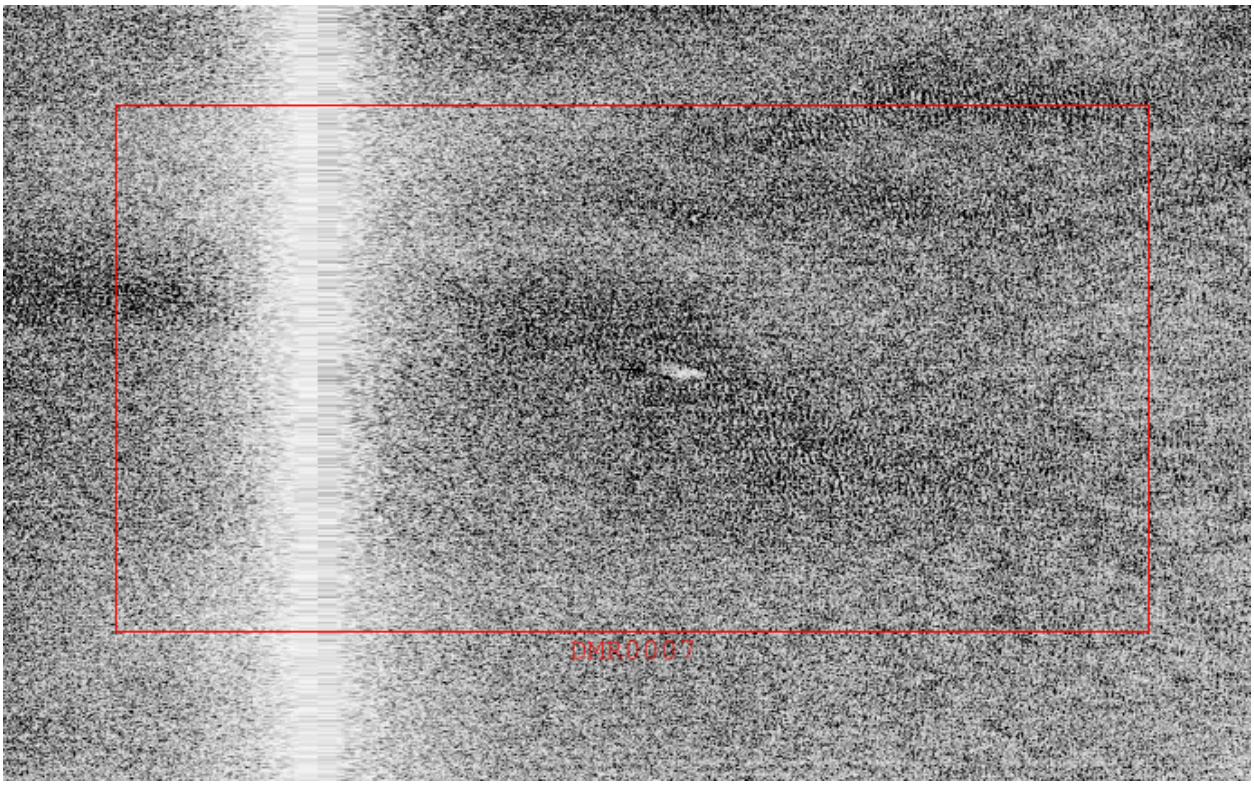


Figure 1.12.1

1.13) Obstruction - z

DANGER TO NAVIGATION

Survey Summary

Survey Position: 30° 12' 48.953" N, 087° 52' 13.645" W

Least Depth: 10.20 m

Timestamp: 2007-084.00:00:00.000 (03/25/2007)

GP Dataset: H11626_dton_a-am_pydro.xls

GP No.: 26

Charts Affected: 11377_1, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

The DTONS in this report result from comparison of 2007 survey data to the largest scale charts covering the survey area. During office review, this feature was identified and recommended for addition.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11626_dton_a-am_pydro.xls	26	0.00	000.0	Primary

Hydrographer Recommendations

Chart a 33 ft obstruction at the given location

Cartographically-Rounded Depth (Affected Charts):

33ft (11377_1, 11376_1)

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

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20070325

SORIND - US,US,surve,H11626

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

VALSOU - 10.2 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

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

Feature Images

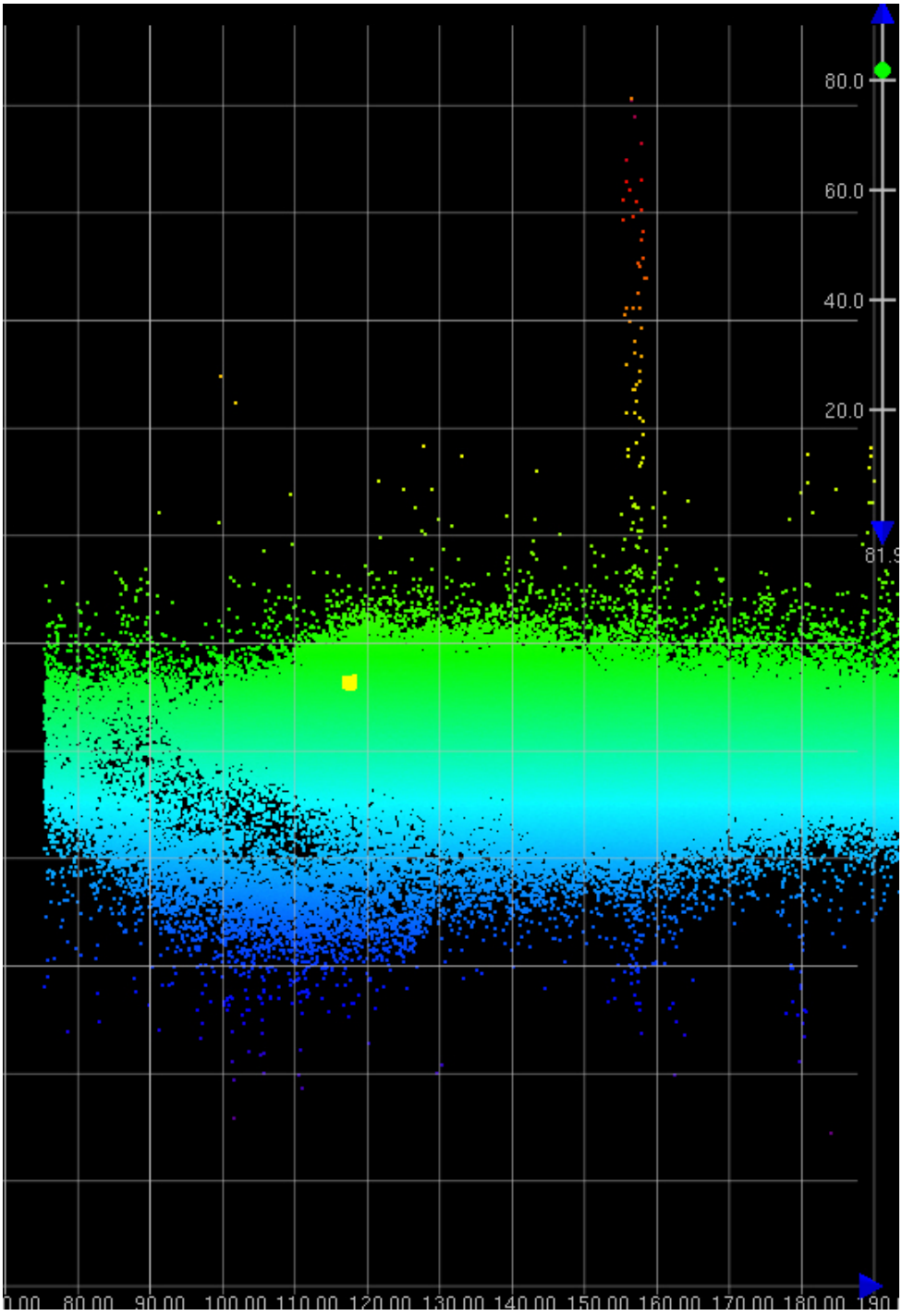


Figure 1.13.1

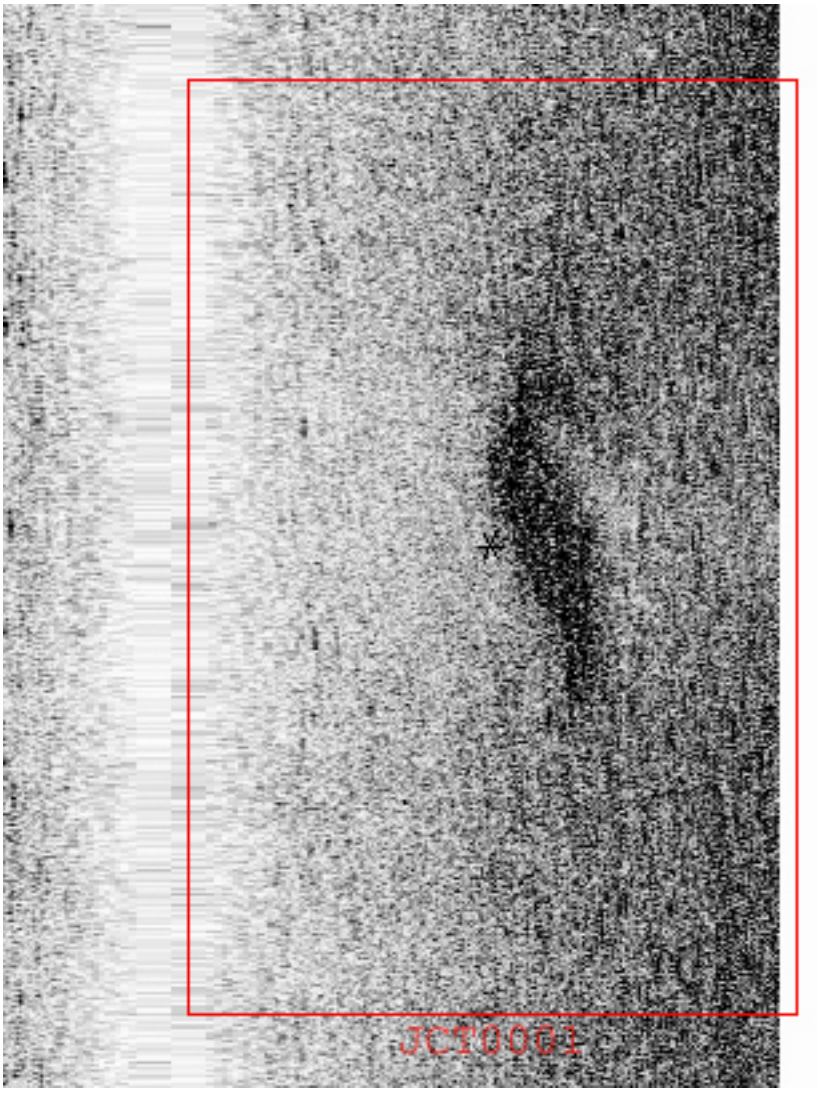


Figure 1.13.2

1.14) Obstruction - ab

DANGER TO NAVIGATION

Survey Summary

Survey Position: 30° 12' 00.161" N, 087° 48' 40.778" W

Least Depth: 9.80 m

Timestamp: 2007-084.00:00:00.000 (03/25/2007)

GP Dataset: H11626_dton_a-am_pydro.xls

GP No.: 28

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

Remarks:

The DTONS in this report result from comparison of 2007 survey data to the largest scale charts covering the survey area. During office review, this feature was identified and recommended for addition.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11626_dton_a-am_pydro.xls	28	0.00	000.0	Primary

Hydrographer Recommendations

Chart a 32 ft obstruction at the given location

Cartographically-Rounded Depth (Affected Charts):

32ft (11376_1)

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

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20070325

SORIND - US,US,surve,H11626

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

VALSOU - 9.8 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

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

Feature Images

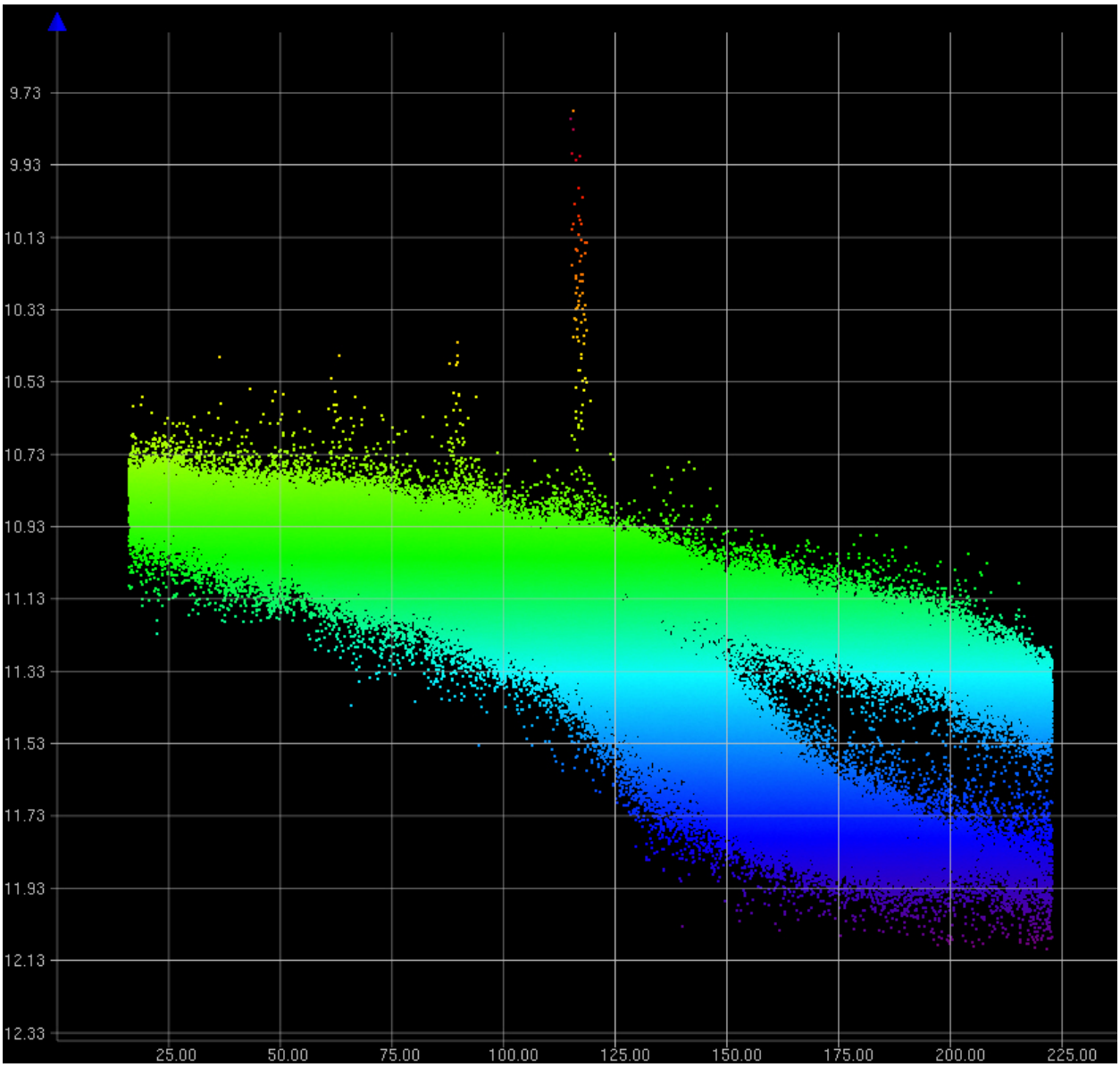


Figure 1.14.1

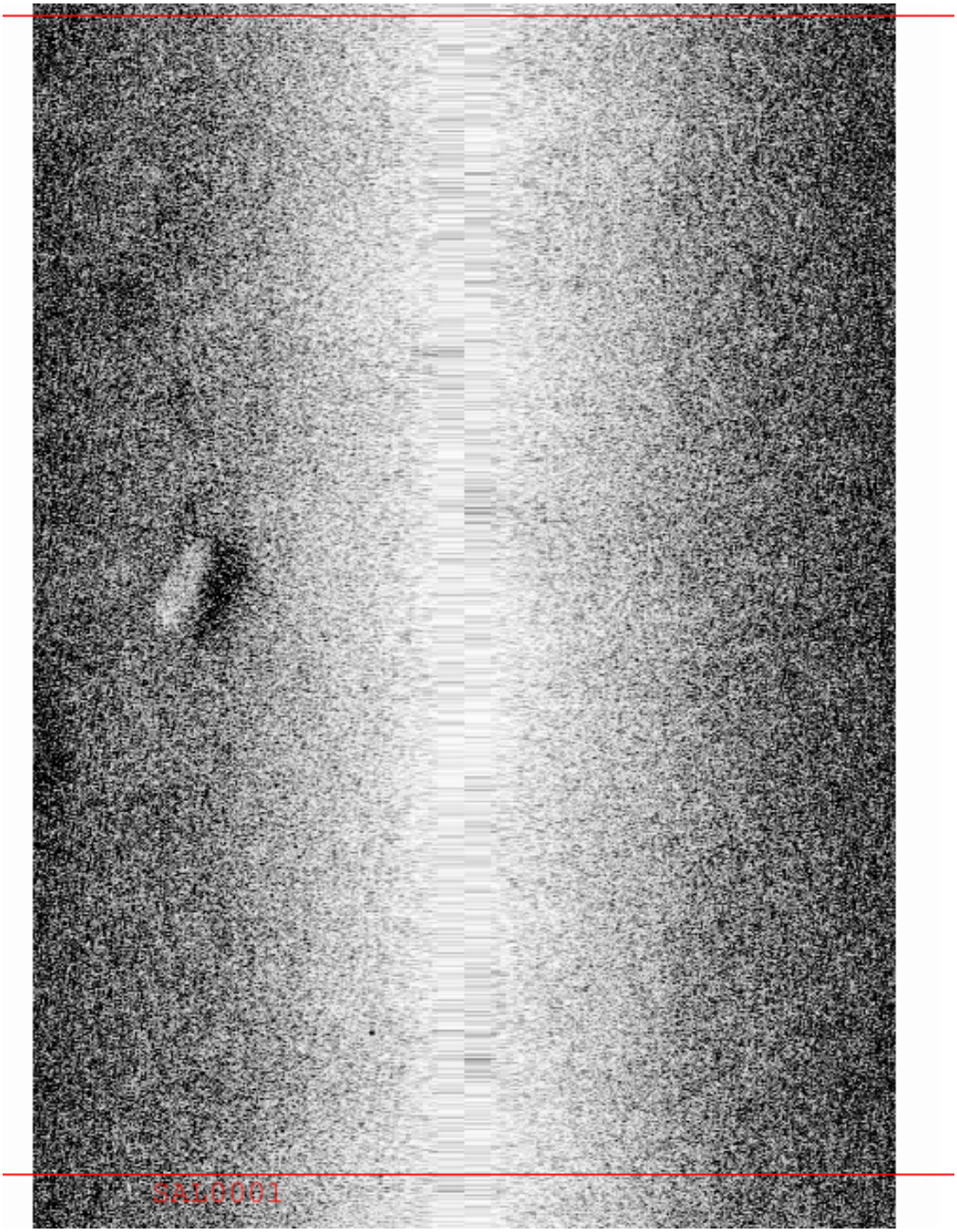


Figure 1.14.2

1.15) Obstruction - ad

DANGER TO NAVIGATION

Survey Summary

Survey Position: 30° 11' 01.928" N, 087° 48' 19.419" W

Least Depth: 9.30 m

Timestamp: 2007-084.00:00:00.000 (03/25/2007)

GP Dataset: H11626_dton_a-am_pydro.xls

GP No.: 30

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

Remarks:

The DTONS in this report result from comparison of 2007 survey data to the largest scale charts covering the survey area. During office review, this feature was identified and recommended for addition.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11626_dton_a-am_pydro.xls	30	0.00	000.0	Primary

Hydrographer Recommendations

Chart a 30 ft obstruction at the given location

Cartographically-Rounded Depth (Affected Charts):

30ft (11376_1)

5fm (1115A_1, 11360_1, 11006_1, 411_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20070325

SORIND - US,US,surve,H11626

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

VALSOU - 9.3 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

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

Feature Images

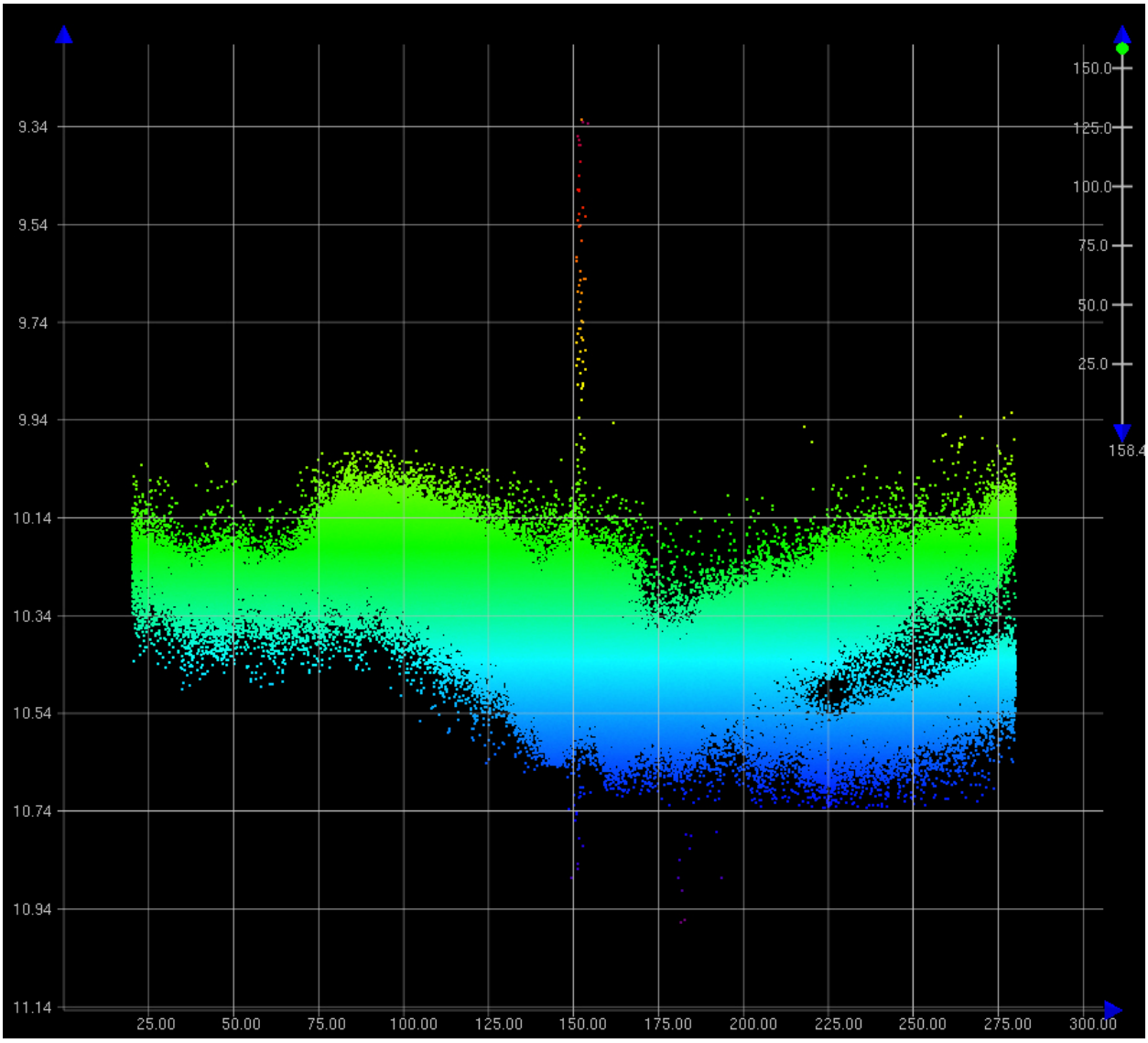


Figure 1.15.1

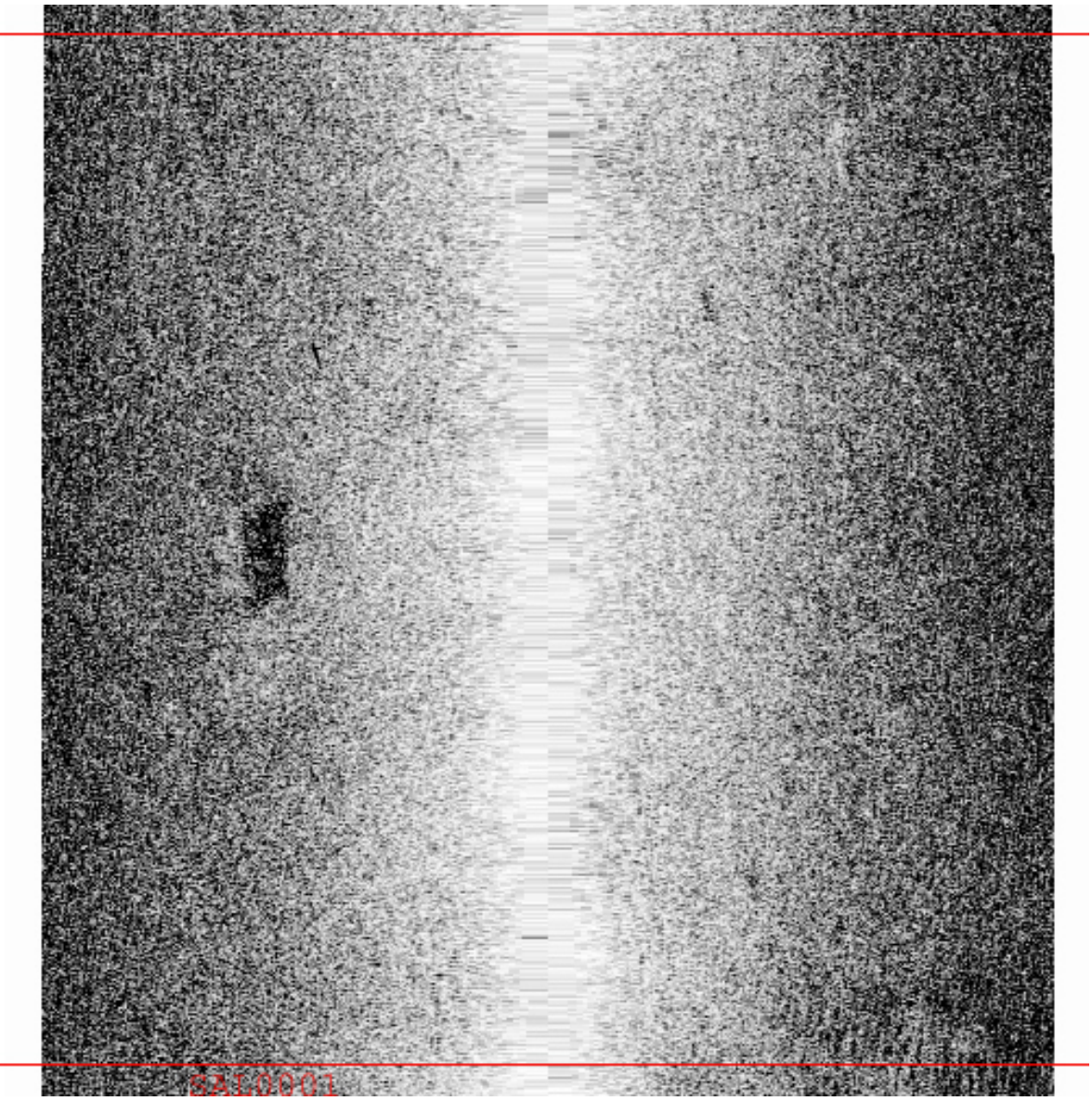


Figure 1.15.2

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APPENDIX II

Survey Feature Report

There were no AWOIS items for investigation in survey area H-11626.

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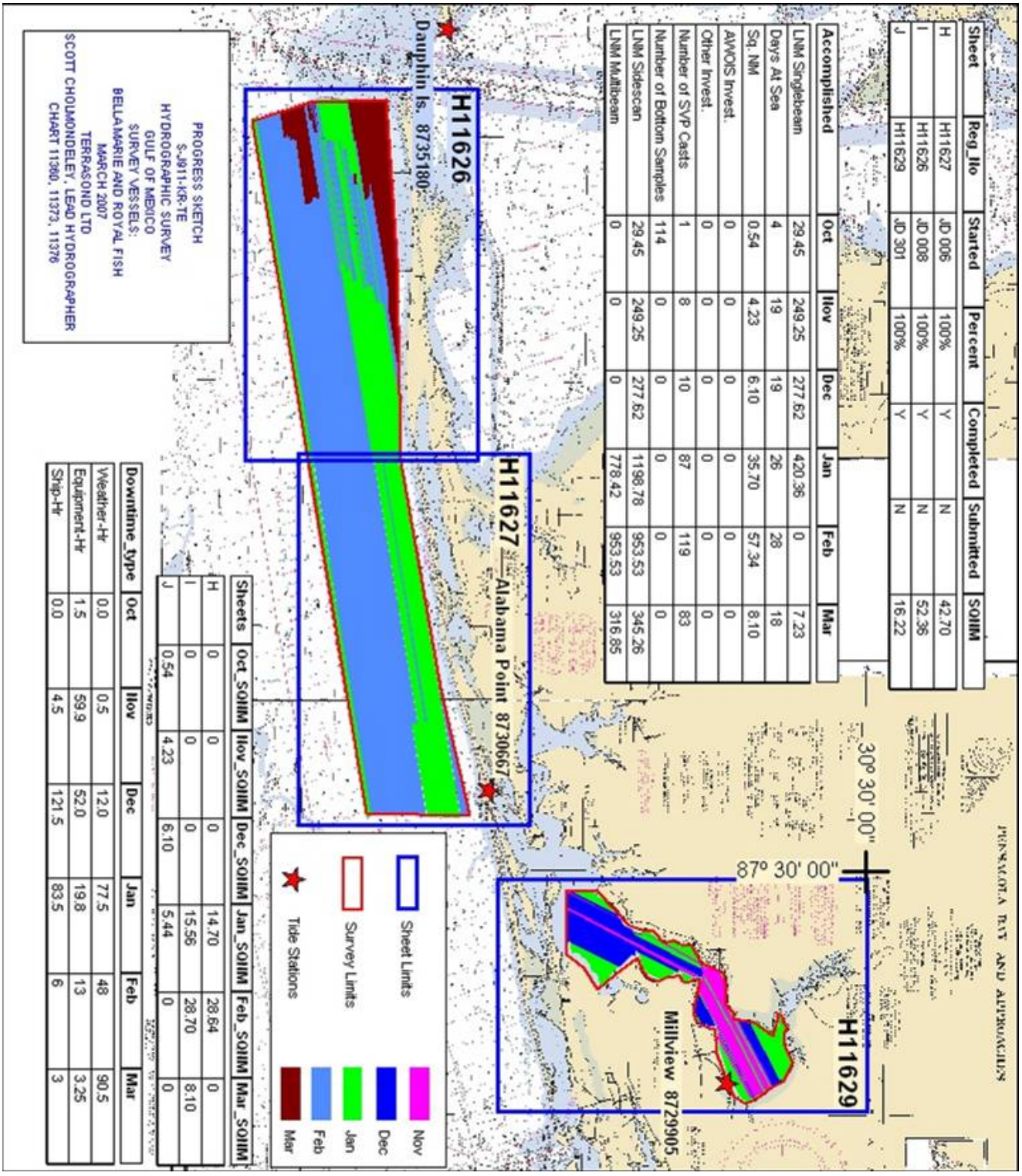
APPENDIX III

Progress Sketch



Sheet	Reg_No	Started	Percent	Completed	Submitted	SOIHM
H	H11627	JD 006	100%	Y	N	42.70
I	H11626	JD 008	100%	Y	N	52.36
J	H11629	JD 301	100%	Y	N	16.22

Accomplished	Oct	Nov	Dec	Jan	Feb	Mar
LNM Singlebeam	29.45	249.25	277.62	420.36	0	7.23
Days At Sea	4	19	19	26	28	18
Sq. NM	0.54	4.23	6.10	35.70	57.34	8.10
AWOIS Invest.	0	0	0	0	0	0
Other Invest.	0	0	0	0	0	0
Number of SVP Casts	1	8	10	87	119	83
Number of Bottom Samples	114	0	0	0	0	0
LNM Sidescan	29.45	249.25	277.62	1198.78	953.53	345.26
LNM Multibeam	0	0	0	778.42	953.53	316.85

Sheets	Oct_SOIHM	Nov_SOIHM	Dec_SOIHM	Jan_SOIHM	Feb_SOIHM	Mar_SOIHM
H	0	0	0	14.70	28.64	0
I	0	0	0	15.56	28.70	8.10
J	0.54	4.23	6.10	5.44	0	0

Downtime_type	Oct	Nov	Dec	Jan	Feb	Mar
Weather-Hr	0.0	0.5	12.0	77.5	48	90.5
Equipment-Hr	1.5	59.9	52.0	19.8	13	3.25
Ship-Hr	0.0	4.5	121.5	83.5	6	3

Figure 1: Final Progress Sketch for S-J977-KR-TE.

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APPENDIX IV

Tides and Water Levels

Abstract of Times of Hydrography

Project: S-J911-KR-TE

Registry No.: H-11626

Table 1 – Sheet I Times of Hydrography: Inclusive Dates: January 8th, 2007 – March 25th, 2007.

START		END	
Day (Julian)	Time (UTC)	Day (Julian)	Time (UTC)
008	1538	008	1735
009	2004	009	2018
010	1555	010	1835
014	1456	014	2022
015	1502	015	2101
016	1455	016	2045
017	1602	017	1741
018	1515	018	1703
020	1539	020	1722
022	1432	022	1554
026	1937	026	2110
027	1509	027	1658
028	1416	028	1935
029	1416	029	2036
030	1529	030	2107
031	1452	031	1657
033	1718	033	1819
034	1504	034	2058
035	1438	035	1759
036	1514	036	1634
037	1449	037	1549
038	1557	038	2101

START		END	
Day (Julian)	Time (UTC)	Day (Julian)	Time (UTC)
039	1453	039	1613
040	1554	040	2132
041	1705	041	2026
042	1508	042	1656
043	1512	043	1915
047	1723	047	2013
050	1524	050	1706
051	1751	051	2128
052	1555	052	2205
053	1532	053	2200
054	1637	054	1817
055	1631	055	1834
057	2007	057	2225
058	1353	058	1557
059	1716	059	1737
061	1326	061	2144
062	1508	062	2102
063	1337	063	1645
064	1847	064	2046
065	1309	065	2056
066	1329	066	2115
068	1630	068	2037
069	1338	069	1831
071	1531	071	1537
075	1241	075	1656
076	1626	076	2108
077	1226	077	1727

START		END	
Day (Julian)	Time (UTC)	Day (Julian)	Time (UTC)
079	1338	079	2104
080	1426	080	1943
083	1220	083	1859
084	1718	084	1914

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APPENDIX V

Supplemental Survey Records and Correspondence

Bottom Samples

52 bottom samples were collected in support of the 2007 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.

Table 1 – Bottom samples obtained in conjunction with survey H-11626 (2007).

Point Number	Date	Time (UTC)	Depth (m)	Latitude	Longitude	Color	Surface Description	Nature of Surface
I01	9/26/2006	15:20	5.7	30 12.715	88 01.103	black	coarse	silt
I02	9/26/2006	15:25	6.4	30 11.660	88 00.874	brown	fine	sand
I03	9/26/2006	15:30	9.5	30 10.631	88 00.657	brown	fine	sand
I04	9/26/2006	15:35	14	30 09.598	88 00.428	grey	soft	mud
I05	9/26/2006	15:45	16.2	30 08.553	88 00.207	grey	stiff	mud
I06	9/26/2006	15:10	7.2	30 12.890	87 59.900	grey	fine	sand
I07	9/26/2006	16:30	9	30 11.861	87 59.674	brown	fine	sand
I08	9/26/2006	16:25	12.5	30 10.829	87 59.466	grey	stiff	mud
I09	9/26/2006	16:15	13.7	30 09.788	87 59.230	grey	fine	sand
I10	9/26/2006	16:05	13.9	30 08.753	87 59.029	grey	fine	sand
I11	9/26/2006	16:35	10.1	30 12.060	87 58.483	brown	fine	sand
I12	9/26/2006	16:45	12.9	30 11.015	87 58.263	grey	fine	sand
I13	9/26/2006	16:50	14.8	30 09.976	87 58.048	grey	fine	sand
I14	9/26/2006	16:55	13.4	30 08.935	87 57.823	grey	fine	sand

Point Number	Date	Time (UTC)	Depth (m)	Latitude	Longitude	Color	Surface Description	Nature of Surface
I15	9/26/2006	17:45	11.3	30 12.250	87 57.280	grey	fine	sand
I16	9/26/2006	17:40	13.5	30 11.195	87 57.073	grey	fine	sand
I17	9/26/2006	17:20	14.5	30 10.179	87 56.845	grey	sticky	sand
I18	9/26/2006	17:10	12.1	30 09.132	87 56.617	brown	fine	sand
I19	9/26/2006	18:00	11.9	30 12.429	87 56.072	grey	stiff	mud
I20	9/26/2006	18:05	13.7	30 11.396	87 55.871	grey	medium	mud
I21	9/26/2006	18:20	12.4	30 10.363	87 55.649	grey	fine	sand
I22	9/26/2006	18:25	12.2	30 09.322	87 55.433	grey	fine	sand
I23	not used			30 09.3290298	87 55.4289396	grey	medium	sand
I24	9/26/2006	18:55	11.7	30 12.634	87 54.895	grey	stiff	sand
I25	9/26/2006	18:45	12.8	30 11.592	87 54.680	grey	medium	sand
I26	9/26/2006	18:40	9.6	30 10.557	87 54.460	brown	fine	sand
I27	9/26/2006	18:35	11.6	30 09.521	87 54.237	grey	fine	sand
I28	9/26/2006	19:05	11.5	30 12.811	87 53.678	grey	stiff	sand
I29	9/26/2006	19:10	8.2	30 11.791	87 53.487	brown	fine	sand
I30	9/26/2006	19:30	8.6	30 10.741	87 53.269	brown	fine	sand
I31	9/26/2006	19:35	11.4	30 09.700	87 53.042	grey	fine	sand
I32	9/26/2006	20:40	10.8	30 13.016	87 52.503	grey	sticky	sand

Point Number	Date	Time (UTC)	Depth (m)	Latitude	Longitude	Color	Surface Description	Nature of Surface
I33	9/26/2006	20:35	8.5	30 11.982	87 52.281	grey	fine	sand
I34	not used			30 11.9800432	87 52.2848213	grey	medium	sand
I35	9/26/2006	20:25	8.7	30 10.940	87 52.056	brown	fine	sand
I36	not used			30 09.9034558	87 51.8445677	grey	medium	sand
I37	not used			30 10.0221783	87 52.0441762	grey	medium	sand
I38	9/26/2006	20:15	10.5	30 09.890	87 51.862	grey	fine	sand
I39	9/26/2006	20:50	7.4	30 13.209	87 51.304	brown	fine	sand
I40	9/26/2006	21:00	8.8	30 12.168	87 51.101	brown	fine	sand
I41	9/26/2006	21:10	9.5	30 11.126	87 50.870	brown	fine	sand
I42	9/26/2006	21:20	10.5	30 10.084	87 50.649	brown	fine	sand
I43	9/26/2006	20:55	8.5	30 13.398	87 50.107	grey	stiff	sand
I001	9/21/2006	20:00	8.7	30 12.365	87 49.889	brown	medium	sand
I002	9/21/2006	20:25	10.1	30 11.318	87 49.680	brown	fine	sand
I003	9/27/2006	14:15	10.7	30 10.289	87 49.463	brown	fine	sand
I004	9/21/2006	19:50	9.0	30 12.554	87 48.704	grey	medium	sand
I005	9/21/2006	20:40	9.6	30 11.513	87 48.473	brown	fine	sand
I006	9/27/2006	14:25	8.3	30 10.469	87 48.252	grey	fine	sand

Point Number	Date	Time (UTC)	Depth (m)	Latitude	Longitude	Color	Surface Description	Nature of Surface
i007	9/21/2006	19:40	8.4	30 12.737	87 47.512	grey	coarse	sand
i008	9/21/2006	21:03	11.4	30 11.692	87 47.268	grey	medium	sand
i009	9/27/2006	14:35	12.4	30 10.660	87 47.048	grey	fine	sand

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT to Accompany
Surveys H11626 (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 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 H11626 CARIS H-Cell final deliverables include the following products:

H11626_CS.000	1:40,000 Scale	H11626 Selected Soundings (Chart Scale)
H11626_SS.000	1:20,000 Scale	H11626 Selected Soundings (Survey Scale)

JUNCTIONS

H11583 (2006-2007)	to the west-southwest
H11584 (2006)	to the southeast
H11627 (2007)	to the east

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

Survey H11584 (2006) junctions with the present survey to the east. Present survey soundings are 1 foot deeper than survey H11584 (2006).

Survey H11627 (2007) junctions with the present survey to the east. Present survey soundings are 1 foot shoaler than survey H11627 (2007).

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 H11626. 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 **11376 (53rd. Edition, Aug. /08**
Corrected through NM, Aug. 30/08
Corrected through LNM, Aug. 19/08
Scale 1:80,000

Chart Comparison **11377 (8th. Edition, Apr. /09**
Corrected through NM, Apr. 18/09
Corrected through LNM, Apr. 07/09
Scale 1:40,000

ENC Comparison **US4AL11M**
Mississippi Sound and Approaches
Edition 21
Update Application Date 2009-02-02
Issue Date 2009-04-16
References: Charts 11376

ENC Comparison **US5AL13M**
Pascagoula Harbor Mississippi
Edition 23
Update Application Date 2009-03-03
Issue Date 2009-04-24
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:

A charted ***dangerous sunken wreck*** in the vicinity of Latitude 30°08′54″N, Longitude 88°00′12″W was disproved by present survey multibeam and side scan sonar. It is recommended that the ***dangerous sunken wreck*** be deleted.

A charted ***Obstn PA, section D.1, item ai.*** of the Descriptive Report, in the vicinity of Latitude 30°10′18″N, Longitude 88°01′30″W was disproved by present survey multibeam and side scan sonar. It is recommended that the ***Obstn PA*** be deleted.

A charted ***dangerous sunken wreck*** in the vicinity of Latitude 30°12′01″N, Longitude 88°01′00″W was disproved by present survey multibeam and side scan sonar. It is recommended that the ***dangerous sunken wreck*** be deleted.

A charted notation ***Obstructions Fish Havens Depths from surveys of 1985 - 1987*** in the vicinity of Latitude 30°12′44″N, Longitude 87°56′29″W should be revised to ***Obstructions Fish Havens Depths from surveys of 1985 – 2007***.

A charted ***platform*** in the vicinity of Latitude 30°11′20″N, Longitude 87°57′11″W was located by the present survey in Latitude 30°118′21.72″N, Longitude 87°57′10.74″W. It is recommended that the charted ***platform*** be revised to present survey location.

A charted ***Well*** in the vicinity of Latitude 30°11′19.1″N, Longitude 87°57′13.6″W was neither verified nor disproved by the present survey. It is recommended that the charted ***Well*** be retained.

A charted ***platform*** in the vicinity of Latitude 30°09′13″N, Longitude 87°53′36″W was located by the present survey in Latitude 30°09′14.82″N, Longitude 87°53′37.32″W. It is recommended that the charted ***platform*** be revised to present survey location.

A charted ***platform*** in the vicinity of Latitude 30°10′38″N, Longitude 87°56′22″W was located by the present survey in Latitude 30°10′39.24″N, Longitude 87°56′21.42″W. It is recommended that the charted ***platform*** be revised to present survey location.

A charted ***Well*** in the vicinity of Latitude 30°10′37.0″N, Longitude 87°56′21.5″W was neither verified nor disproved by the present survey. It is recommended that the charted ***Well*** be retained.

A new ***platform*** was located by the present survey in Latitude 30°08′23.82″N, Longitude 87°59′39.36″W. It is recommended that the ***platform*** be charted.

A new ***platform*** was located by the present survey in Latitude 30°10’31.26”N, Longitude 87°57’54.18”W. It is recommended that the ***platform*** be charted.

A charted ***platform*** in the vicinity of Latitude 30°08’17”N, Longitude 88°00’09”W was located by the present survey in Latitude 30°08’16.19”N, Longitude 88°00’10.10”W. It is recommended that the charted ***platform*** be revised to present survey location.

A charted ***platform*** in the vicinity of Latitude 30°11’21”N, Longitude 88°01’18”W was located by the present survey in Latitude 30°11’20.78”N, Longitude 88°01’17.89”W. It is recommended that the charted ***platform*** be revised to present survey location.

A charted ***Obstn (Well)*** with a depth of ***46 ft*** in the vicinity of Latitude 30°08’06”N, Longitude 88°00’34”W was disproved by the present survey. It is recommended that the charted ***Obstn (Well)*** with a depth of ***46 ft (46 Obstn, Well)*** be deleted.

A new ***platform*** was located by the present survey in Latitude 30°08’07.20”N, Longitude 88°00’34.60”W. It is recommended that the ***platform*** be charted.

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.

AHB COMPILATION LOG

General Survey Information	
REGISTRY No.	H11626
PROJECT No.	OPR-J977-KR-TE-06
FIELD UNIT	TERRASOUND LTD.
DATE OF SURVEY	JANUARY 8, 2007 – MARCH 25, 2007
LARGEST SCALE CHART	***H11626, Chart 11377, edition#8, 20090401***

Surfaces	
Combined	**H11626_2M_Combined.hns**
Product Surface	**H11626_PS_2M.hns**
Final HOBs	
Survey Scale Soundings	**H11626_SS_Soundings.hob**
Chart Scale Soundings	**H11626_CS_Soundings.hob**
Contour Layer	**H11626_Contours.hob**
Feature Layer	**H11626_Features.hob**
Meta-Objects Layer	**H11626_MetaObjects.hob**
Blue Notes	**H11626_BlueNotes.hob**

Meta-Objects Attribution	
M_COVR	
SORDAT	20070325
SORIND	us,us,survy,H11626
M_QUAL	
CATZOC	U
INFORM	H11626, OPR-J977-KR-TE-06, BELLE MARIE
POSACC	10
SORDAT	20070325
SORIND	us,us,survy,H11626
SUREND	20070325
SURSTA	20070108
DEPARE	
DRVALV 1	7
DRVALV2	60
SORDAT	20070325
SORIND	US,US,nsurf,H11626
M_CSCL	
CSCALE	80000
SORDAT	20070325
SORIND	us,us,survy,H11626

APPROVAL SHEET
H11626

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.

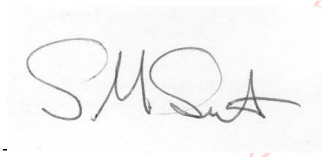
Norris Wike

Digitally signed by Norris Wike
DN: cn=Norris Wike, o=NOAA, ou=AHB, email=norris.a.wike@noaa.gov, c=US
Date: 2009.05.29 11:04:24 -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: 2009.05.29 11:11:32 -04'00'

Shep Smith
Commander, NOAA
Chief, Atlantic Hydrographic Branch

Mark Lathrop
AWOIS/Surf Check
2009.06.26
14:01:34 -04'00'