NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey *Multibeam and Sidescan Sonar*

Field No. *J*

Registry No. *H11874*

LOCALITY

State *Maryland*

General Locality *Atlantic Ocean*

Sublocality *East of Assateague Island*

2008

CHIEF OF PARTY

Deborah M. Smith

Science Applications International Corporation

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NOAA FORM 77-28 (11-72) U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

REGISTRY NO.

H11874

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.

J

State Maryland

General locality Atlantic Ocean

Sub-Locality East of Assateague Island

Scale 1:20,000 Date of survey 10 August 2008 – 18 December 2008

Instructions Dated 21 March 2008 Project No. OPR-D302-SA-08

Vessel *M/V Atlantic Surveyor* D582365

Chief of Party *Deborah M. Smith*

Surveyed by: *Alex Bernier, Brian Biggert, Dan Burgo, Jeff Burns, Gary Davis, Paul Donaldson, Chuck Holloway, Jason Infantino, Colette LeBeau, Gary Parker, Chris Pinero, Evan Robertson, Jeremy Shambaugh, Deb Smith, Jen Stone, and Tom Waddington.*

Soundings taken by (**echo sounder**) hand lead, pole MULTIBEAM RESON SEABAT 8101

Graphic record scaled by

Graphic record checked by

Protracted by Automated Plot

Verification by ***Atlantic Hydrographic Branch***

Soundings in fathoms, (**meters,**) feet at MLW, (**MLLW**)

H-cell Compilation units in: Feet at MLLW

REMARKS: **Contract:** DG-133C-05-CQ-1088
Contractor: Science Applications International Corp., 221 Third Street; Newport, RI 02840 USA
Subcontractors: Williamson & Associates, 1124 NW 53rd Street, Seattle WA 98107
Times: All times are recorded in UTC
UTM Zone: Zone 18
Purpose: To provide NOAA with modern, accurate hydrographic survey data with which to update the nautical charts of the assigned area: Sheet J (H11874) in Mid–Atlantic Corridor, Coast of Maryland. ***Red, Bold, Italic notes were made during office processing.***

NOAA FORM 77-28 SUPERSEDES FORM C&GS-537. ☆ U.S. GOVERNMENT PRINTING OFFICE: 1976—665-661/1222 REGION NO. 6

Science Applications International Corporation (SAIC) warrants only that the survey data acquired by SAIC and delivered to NOAA under Contract DG-133C-05-CQ-1088 reflects the state of the sea floor in existence on the day and at the time the survey was conducted.

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Descriptive Report to Accompany
Hydrographic Survey H11874
Scale 1:20,000, Surveyed 2008
M/V Atlantic Surveyor
Science Applications International Corporation (SAIC)
Deborah M. Smith, Lead Hydrographer

PROJECT
Project Number: OPR-D302-SA-08
Dates of Instructions: 21 March 2008 **Task Order#:** T0005

Dates of Supplemental Instructions: 31 July 2008, 22 May 2009, 26 May 2009, 22 September 2009, 08 December 2009, and 18 December 2009.
Sheet Letter: J
Registry Number: H11874
Purpose: To provide NOAA with modern, accurate hydrographic survey data with which to update the nautical charts of the assigned area.

A. AREA SURVEYED

The area surveyed was a section of the Atlantic Ocean off of Maryland, East of Assateague Island (Figure A-1). The line kilometers, bottom samples, item investigations and other survey statistics are listed in Table A-1. The area was surveyed at set line spacing with multibeam sonar and towed sidescan sonar from 10 August 2008 to 18 December 2008 (Table A-2). The depth range encountered in H11874 was from 3.93 meters (13 feet, 0.270 m uncertainty) to 22.84 meters (75 feet, 0.280 m uncertainty). ***Concur.***

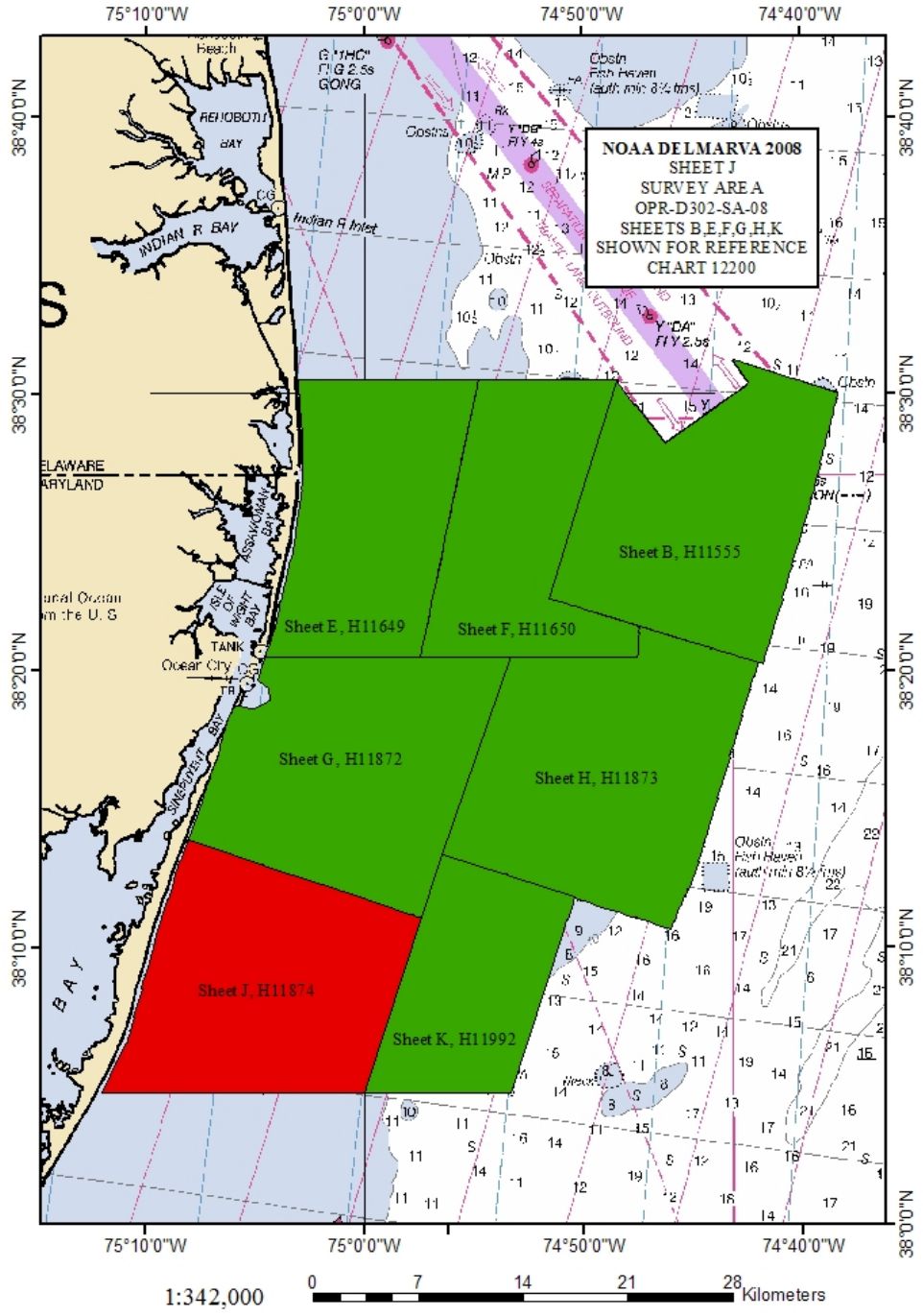

Figure A-1. H11874 Survey Bounds

Table A-1. Hydrographic Survey Statistics

***M/V Atlantic Surveyor*, Sheet J H11874**	**Value**
LNM Single beam only sounding lines (mainscheme only)	N/A
LNM Multibeam only sounding lines (mainscheme only)	23.4
LNM Lidar sounding lines (mainscheme only)	N/A
LNM Sidescan sonar only lines (mainscheme only)	N/A
LNM Mainscheme lines (multibeam and sidescan)	3412.3
LNM Crosslines from multibeam	179.3
LNM Lidar crosslines	N/A
LNM development lines non mainscheme	5.6
Shoreline/nearshore investigations	N/A
Number of Bottom Samples	13
Number of items investigated that required additional time/effort in the field beyond the above operations	0
Total number of square nautical miles	72.32

Table A-2. Dates of Multibeam Data Acquisition in Calendar and Julian Days

Calendar Date	Julian Day	Calendar Date	Julian Day
10 August 2008	223	30 August 2008	243
11 August 2008	224	31 August 2008	244
12 August 2008	225	01 September 2008	245
13 August 2008	226	02 September 2008	246
14 August 2008	227	03 September 2008	247
15 August 2008	228	07 September 2008	251
16 August 2008	229	08 September 2008	252
17 August 2008	230	09 September 2008	253
18 August 2008	231	11 September 2008	255
19 August 2008	232	12 September 2008	256
20 August 2008	233	13 September 2008	257
21 August 2008	234	14 September 2008	258
22 August 2008	235	15 September 2008	259
23 August 2008	236	16 September 2008	260
24 August 2008	237	29 September 2008	273
25 August 2008	238	30 September 2008	274
26 August 2008	239	18 December 2008	353
29 August 2008	242		

B. DATA ACQUISITION AND PROCESSING

B.1 EQUIPMENT

A detailed description of the systems used to acquire and process these data has been included in the separate Data Acquisition and Processing Report* for OPR-D302-SA-08, which was previously delivered with the Descriptive Report for H11872 on 30 October 2009. Any variations that have occurred since the delivery of the Data Acquisition and Processing Report (DAPR)* are addressed in the appropriate sections of this Descriptive Report. The information in Table B-1 below summarizes the systems listed in the report. ***Concur.***

Table B-1. Major Systems by Manufacturer and Model Number

System	Manufacturer / Model Number	Subsystem
Multibeam Sonar	RESON SeaBat 8101 ER	81P Sonar Processor
Sidescan Sonar	Klein 3000 Towfish	K-1 K-Wing Depressor, Transceiver/Processing Unit
Vessel Attitude System	TSS POS/MV Inertial Navigation System	
Positioning Systems	TSS POS/MV 320	
	Trimble 4000 GPS Receiver	
	Trimble Probeacon Differential Beacon Receiver	
Sound Speed Systems	Brooke Ocean Technology Ltd., Moving Vessel Profiler-30	Applied Microsystems Ltd. Smart SV and Pressure Sensor
	Sea-Bird Electronics, Inc. SBE 19 CTD Profiler	

Survey Vessel

The *M/V Atlantic Surveyor* was the platform used for multibeam sonar, sidescan sonar and sound speed data collection. Three 20-foot ISO containers were secured on the aft deck. One was used as the real-time data acquisition office, one as a data processing office, and the third for maintenance and repairs as well as spares storage. All data were shipped to the Data Processing Center in the SAIC Newport, RI, office for final data processing. The Position Orientation System/Marine Vessels (POS/MV) Inertial Measurement Unit (IMU) was mounted below the main deck of the vessel, 0.34 meters port of centerline and 0.34 meters forward, 0.12 meters starboard and 1.64 meters above the RESON 8101 transducer. The multibeam sounder transducer was mounted on the hull 0.46 meters port of centerline. A Brooke Ocean Technologies Moving Vessel Profiler 30 (MVP-30) was mounted to the starboard stern quarter. Table B-2 is a list of vessel characteristics for the *M/V Atlantic Surveyor*.

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Table B-2. Survey Vessel Characteristics

Vessel Name	LOA	Beam	Draft	Max Speed	Gross Tonnage	Power (Hp)	Registration Number
M/V Atlantic Surveyor	110’	26’	9’	14 knots	Displacement 68 Net Tons Deck Load 65 Long Tons	900	D582365

Major Systems

SAIC used their Integrated Survey System (**ISS-2000**) software on a Windows XP platform to acquire these survey data. Survey planning and data analysis were conducted using SAIC’s **SABER** software on Red Hat Enterprise 4 and 5 Linux platforms. In addition to the **SABER** versions reported in the DAPR, **SABER** version 4.3.0.13.0 was installed in the Data Processing Center on 13 January 2010 as well as three subsequent patches. The final SABER version (4.3.0.13.3) was used until delivery. Klein 3000 sidescan data were collected on a Windows XP platform using Klein’s **SonarPro** version 9.6 software. The Klein 3000 sidescan sonar data were collected in eXtended Triton Format (XTF) and maintained at full resolution, with no conversion or down sampling techniques applied. All sidescan data were reviewed using Triton **Isis** software, while coverage mosaics were produced and reviewed using **SABER** on a Linux platform.

B.2 QUALITY CONTROL

There were approximately 179 linear nautical miles of crosslines and 3412 linear nautical miles of mainscheme lines surveyed on this sheet. This resulted in crossline mileage that represented approximately five percent of the mainscheme mileage. The crosslines were oriented at 100°/280° and were spaced approximately 780 meters apart, while the mainscheme lines were oriented at 18.8°/198.8° and were spaced 40 meters apart. The sidescan sonar range scale was set to 50 meters for all mainscheme operations, providing a consistent 100-meter imagery swath. ***Concur.***

A Brooke Ocean Technology Moving Vessel Profiler (MVP) with an Applied Microsystems SV&P Smart Sensor or a Seabird Electronics SBE-19 CTD was used to collect sound speed profile (SSP) data. SSP data were obtained at intervals frequent enough to reduce sound speed errors. The frequency of casts was based on observed sound speed changes from previously collected profiles and time elapsed since the last cast. Multiple casts were taken along a survey line to identify the rate and location of sound speed changes. Subsequent casts were made based on the observed trend of sound speed changes. As the sound speed profiles changed, cast frequency and location were modified accordingly. Confidence checks of the sound speed profile casts were conducted periodically (6 to 13 days) by comparing two consecutive casts taken with different SV&P Smart Sensors or with a SV&P Smart Sensor and a Seabird SBE-19 CTD.

Static draft measurements were taken on each side of the vessel at each port call, both after arrival and before departure. These observed static draft measurements were used to compute and apply a prorated daily static draft during each survey leg to account for small changes in draft due to fuel and water consumption. A dynamic draft value was also applied to the data based on recorded input from the shaft RPM counters and the dynamic draft look-up table that was constructed from settlement and squat measurements determined during the pre-survey Sea Acceptance Trials.

Horizontal positioning of the multibeam transducer by the POS/MV was verified by frequent comparison checks against an independent Trimble DGPS system. During survey data acquisition, the **ISS-2000** real-time system provided a continuous view of the positioning comparison between the POS/MV and the Trimble DGPS. An alarm was triggered within **ISS-2000** if the comparisons were not within the acceptable range.

Multibeam confidence checks were conducted during port calls (approximately every 10-12 survey days) by lead line measurement. Table B-3 presents a summary of these comparisons showing all mean differences from individual comparisons of less than 0.075 meters between the lead line and the multibeam with an average difference for all comparisons of less than 0.044 meters.

Table B-3. Summary of Lead Line to Multibeam Comparisons

Julian Day	Calendar Date	Port Mean (Meters)	Port STDDEV (Meters)	Starboard Mean (Meters)	Starboard STDDEV (Meters)
217	04 Aug 2008	0.029	0.012	0.019	0.013
229	16 Aug 2008	0.061	0.028	-0.004	0.017
239	26 Aug 2008	0.054	0.012	0.027	0.021
250	06 Sep 2008	0.062	0.019	-0.010	0.024
263	19 Sep 2008	0.013	0.018	0.013	0.024
270	26 Sep 2008	0.017	0.015	-0.005	0.022
352	17 Dec 2008	0.075	0.022	0.071	0.047
MEAN OF SETS		0.044		0.016	

Survey Systems Uncertainty Model

The Total Propagated Uncertainty (TPU) model that SAIC has adopted has its genesis at the Naval Oceanographic Office (NAVOCEANO), and is based on the work by Rob Hare and others ("Error Budget Analysis for NAVOCEANO Hydrographic Survey Systems, Task 2 FY 01", 2001, *HSRC FY01 Task 2 Final Report*). The terminology Total Propagated Error (TPE) has been replaced by Total Propagated Uncertainty (TPU). This was adopted by the International Hydrographic Organization in Special Publication No. 44, "*IHO Standards for Hydrographic Surveys, 5th Edition, February 2008"*. The fidelity of any uncertainty model is coupled to the applicability of the equations that are used to estimate each of the components that contribute to the overall uncertainty that is inherent in each sounding. SAIC's approach to quantifying the TPU is to decompose the

cumulative uncertainty for each sounding into its individual components and then further decompose those into the horizontal and vertical components. The model then combines the horizontal and vertical uncertainty components to yield an estimate of the system uncertainty as a whole. This cumulative system uncertainty is the Total Propagated Uncertainty. By using this approach, SAIC can more easily incorporate future uncertainty information provided by sensor manufacturers into the model. This also allows SAIC to continuously improve the fidelity of the model as our understanding of the sensors increases or as more sophisticated sensors are added to a system.

The data needed to drive the uncertainty model were captured as parameters taken from the Error Parameter File (EPF), which is created during survey system installation and integration. Some of the required parameters are also obtained from values recorded in the GSF files during data acquisition and processing. While the input units vary, all uncertainty values that contribute to the cumulative TPU estimate are eventually converted to meters by **SABER's Errors** program. The cumulative TPU estimates are recorded as the Horizontal Uncertainty and Vertical Uncertainty at the 95% confidence level in the GSF file. These uncertainty estimates are then used to estimate the accuracy of each individual sounding's position and depth during both data acquisition and data processing. The Data Acquisition and Processing Report***** provides a more detailed discussion on development of the EPF and application of the TPU. One item of note is that subsequent to the delivery of the DAPR on 30 October 2009, a new SABER version was used for uncertainty attribution for H11874 (SABER version 4.3.0.13.3).

****Included with H-Cell survey deliverables.***

CUBE Uncertainty Analysis

The vertical and horizontal uncertainty values that were estimated by the TPU model for individual multibeam soundings varied little across the dataset, tending to be most affected by beam angle. All individual soundings used in development of the final CUBE depth surfaces had modeled vertical and horizontal uncertainty values at or below the allowable IHO S-44, Order 1 uncertainty. Depending on the depth, the allowable Order 1 uncertainty varied from approximately 0.50 to 0.58 meters. ***Concur.***

During the creation of the CUBE surface, two separate uncertainty surfaces are also calculated by the **SABER** software – CUBE Standard Deviation and Average Total Propagated Uncertainty (Average TPU). The CUBE standard deviation is a measure of the general agreement between all of the soundings that contributed to the best hypothesis for the node. The Average TPU is the average of the vertical uncertainty component for each sounding that contributed to the best hypothesis for the node. A third uncertainty surface is generated from the larger of these two uncertainties at each node and is referred to as the Final Uncertainty.

After creation of the initial one-meter PFM CUBE surface, the **SABER Check PFM Uncertainty** function was used to highlight all of the cases where computed final node uncertainties exceeded IHO Order 1. Appendix V references the attached text file that provides a listing of all the nodes from the one-meter BAG where the final uncertainties

exceeded IHO Order 1. An initial review of the areas with final uncertainties exceeding IHO Order 1 revealed that most of these areas were around wrecks or obstructions and on steeper slopes where there tended to be much greater variability in the soundings that contributed to a particular node. In a few cases higher uncertainty was found in areas where holiday lines were run up to a month later. The changes in the seafloor in these areas show higher uncertainty. In some cases, this uncertainty review led to the creation of additional designated soundings. In addition, the uncertainty review also highlighted some areas that required additional data cleaning.

Uncertainties exceeding the IHO Order 1 limit were observed only in a few areas with overlapping data. In the cases where the uncertainties did exceed the IHO Order 1 limit there was typically an observed vertical offset between the overlapping depths of 20 to 30 centimeters. This intermittent observed vertical offset between adjacent lines was likely due to minor tidal zoning impacts caused by somewhat differing environmental conditions between the survey area and the primary tide gauge location in Duck, NC (see Section C for further discussion). ***Concur.***

Junction and Crossing Analysis

Comparison of mainscheme to crossline near nadir data was performed daily during the survey operations to ensure that no systematic errors were introduced and to identify potential problems with the survey system.

After application of all correctors and completion of final processing, separate one-meter shoal biased grids were made from the mainscheme data and from the crossline data. Comparisons of all crossing data in H11874 showed that 98.02% of comparisons were within 25 centimeters and 99.48% of comparisons were within 30 centimeters. All of the comparisons larger than 45 centimeters were accounted for by normal small DGPS position variability around wrecks, obstructions and the steep slopes. Table B-4 shows the comparisons using all crossings in H11874.

Table B-4. Junction Analysis Mainscheme Lines vs. Near Nadir Crosslines, H11874

Depth Difference Range (cm)	All		Positive		Negative		Zero	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
0-5	303062	38.33	144710	18.30	129595	16.39	28757	3.64
5-10	219221	66.06	127548	34.43	91673	27.99		
10-15	144864	84.38	95910	46.56	48954	34.18		
15-20	76695	94.08	57816	53.88	18879	36.56		
20-25	31142	98.02	25474	57.10	5668	37.28		
25-30	11591	99.48	10113	58.38	1478	37.47		
30-35	3192	99.89	2907	58.75	285	37.50		
35-40	786	99.99	739	58.84	47	37.51		
40-45	99	100.00	92	58.85	7	37.51		

Depth Difference Range (cm)	All		Positive		Negative		Zero	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
45-50	7	100.00	7	58.85	0	37.51		
Totals	790659	100%	465316	58.85%	296586	37.51%	28757	3.64%

Table B-5 depicts the junction analysis between H11874 and H11872 (Sheet G, surveyed between 16 July and 19 December 2008). The junction analysis was conducted on the overlap area between these two sheets and was based on the final one-meter CUBE surfaces that were created for both sheets. This analysis showed that 98.30% of the comparisons were within 25 centimeters and 99.96% were within 35 centimeters.

Table B-5. Junction Analysis, H11874 vs. H11872

Depth Difference Range (cm)	All		Positive		Negative		Zero	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
0-5	305379	40.90	151887	20.34	123374	16.52	30118	4.03
5-10	209800	69.00	120047	36.42	89753	28.55		
10-15	121393	85.26	76665	46.69	44728	34.54		
15-20	67027	94.24	43584	52.53	23443	37.68		
20-25	30369	98.30	17303	54.84	13066	39.43		
25-30	10092	99.66	5270	55.55	4822	40.07		
30-35	2295	99.96	1433	55.74	862	40.19		
35-40	263	100	218	55.77	45	40.19		
40-45	10	100	10	55.77	0	40.19		
Totals	746628	100%	416417	55.77%	300093	40.19%	30118	4.03%

Table B-6 depicts the junction analysis between H11874 and H11992 (Sheet K, surveyed between 16 July 2008 and 19 December 2008). The junction analysis was conducted on the overlap area between these two sheets and was based on the final one-meter CUBE surfaces created for both sheets. This analysis showed that 97.87% of the comparisons were within 20 centimeters and 99.97% were within 30 centimeters. Negative differences make up more than 70% of all comparisons indicating the depths reported for H11874 are shoaler than those previously delivered for H11992. This discrepancy can be attributed to a large weather event that took place in mid-September just as survey work was beginning on H11992 and created anomalous water level differences between the tide station and the location of the survey area.

Table B-6. Junction Analysis, H11874 vs. H11992

Depth Difference Range (cm)	All		Positive		Negative		Zero	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
0-5	703553	47.38	279484	18.82	354755	23.89	69314	4.67

Depth Difference Range (cm)	All		Positive		Negative		Zero	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
5-10	416879	75.45	81193	24.29	335686	46.5		
10-15	230000	90.94	10441	24.99	219559	61.28		
15-20	102864	97.87	1452	25.09	101412	68.11		
20-25	26630	99.66	214	25.1	26416	69.89		
25-30	4550	99.97	50	25.11	4500	70.19		
30-35	462	100	20	25.11	442	70.22		
35-40	18	100	0	25.11	18	70.22		
40-45	3	100	0	25.11	3	70.22		
Totals	1484959	100%	372854	25.11%	1042791	70.22%	69314	4.67%

Details of beam by beam comparison of 25 selected crossings in different areas of H11874 are presented in Separates IV* of this report. The crossings for detailed comparisons were randomly selected for spatial and temporal distribution over the entire survey.

Multibeam Coverage Analysis

These survey operations were conducted at a consistent 40-meter line spacing optimized to achieve 200% sidescan sonar coverage at the 50-meter range scale setting. Based on the 60° beam angle used as the cutoff for acceptable mainscheme, crossline and item multibeam data; the effective swath width for the multibeam coverage was approximately 3.5 times the water depth. Though full bottom coverage multibeam was not required, in depths greater than approximately 13 meters there was sufficient outer beam overlap to provide 100% multibeam bottom coverage.

Ten one-meter node BAGs (H11874_1_of_10.bag to H11874_10_of_10.bag), were made from the one-meter node PFM CUBE surface. This CUBE surface was used to assess and document survey coverage. The **SABER Gapchecker** routine flagged multibeam data gaps exceeding the allowable limit of three contiguous nodes. In addition, the entire surface was visually scanned for holidays at various points during the data processing effort. Additional survey lines were run to fill any holidays that were detected while the survey operations were still underway. An additional half-meter node BAG (AWOIS_14228.bag) covering AWOIS 14228 is included in this delivery. For further information see the AWOIS Item Investigations discussion within Section D1. Chart Comparisons.

A final review of the coverage shows a number of areas flagged as having four or more contiguous nodes without data located in the outer beams of the multibeam swath. SAIC has recently expanded its acceptable beam angles for multibeam acquisition in order to gain more coverage on resulting multibeam surveys. These expanded areas in the outer

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edges of the multibeam swath are characterized by a lower density of soundings and, therefore, are more susceptible to producing empty nodes after final data cleaning. The majority of the flagged holiday areas observed in the outer beams of the swath of this survey are attributed to fish or noise resulting from bubble sweep along the hull during rougher sea conditions and occur in shallow depths where there is no overlap between adjacent swaths. Due to the nature of the survey (set line spacing) and location of these coverage gaps, SAIC chose not to go back and fill all of them. In all cases there was 200% sidescan coverage of the areas with no contacts detected. The final CUBE Surface had valid depths in more than 99.99% of the nodes. ***Concur.***

B.3 CORRECTIONS TO ECHO SOUNDINGS

Please refer to the Data Acquisition and Processing Report***** for a description of all corrections applied to echo soundings. There were no deviations from the corrections described therein. Please note that the delivered GSF multibeam files are in version 3.01 GSF. This new version of GSF is compatible with Caris version 6.1.2.8 using the Hotfix delivered to the Atlantic Hydrographic Branch on 18 December 2009 (see Appendix V for additional information). The Caris version 6.1.2.8 Hotfix has also been included with this delivery. In addition, Caris version 7.0 is compatible with this new version of GSF with HotFix 5.

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B.4 DATA PROCESSING

Please refer to the Data Acquisition and Processing Report***** for a description of all data processing steps performed.

Ten BAGs at one-meter grid resolution are submitted for the entire H11874 area. The BAG file named H11874_1_of_10.bag is the southern-most 1.0-meter BAG, while the BAG named H11874_10_of_10.bag is the northern-most 1.0-meter BAG.

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C. HORIZONTAL AND VERTICAL CONTROL

NOAA tide station 8651370 Duck, NC was the source of verified water level heights for determining correctors to soundings. The primary means for analyzing the adequacy of zoning was observing zone boundary crossings in the navigated swath editor, SAIC's **Multi View Editor (MVE)**. Comparisons between overlapping crossline data and outer swath data (in deeper water) were also used to assess potential tidal zoning impacts. As addressed in the CUBE Uncertainty Analysis discussion (Section B.2), there were a few instances where overlapping data had an observed vertical offset of 20 to 30 centimeters. This observed vertical offset between adjacent lines was likely due to minor tidal zoning impacts caused by differing environmental conditions between the survey area and the

primary tide gauge location in Duck, NC. The water level zoning parameters provided by NOS, Table C-1, were adequate for application of the observed verified water levels.

Table C-1. Water Level Zoning Parameters Applied on Sheet H11874

Zone	Time Corrector (minutes)	Range Ratio	Reference Station
SA45	0	1.05	8651370
SA46A	0	1.08	8651370

The survey data for sheet H11874 were collected in horizontal datum NAD-83, using geodetic coordinates, while data display and products used the UTM Zone 18 projection. The following equipment was used for positioning on the *M/V Atlantic Surveyor*:

- TSS POS/MV, Serial Number 2575 with a Trimble Probeacon Differential Receiver (primary sensor)
- Trimble 4000 DSi GPS Receiver, Serial Number 3504A09516 with a Trimble Probeacon Differential Receiver (secondary sensor)

Differential correctors used for online data were from the U.S. Coast Guard Stations at Driver, VA, Annapolis, MD, and Reedy Point, DE. The differential receiver was programmed to only receive differential corrector data from these three stations.

Daily position confidence checks were conducted using an independent Trimble DGPS. A real-time **ISS-2000** survey monitor also raised an alarm to alert the survey watch if the position differences exceeded the maximum allowable distance. All positioning confidence checks were within an inverse distance of five meters.

Please refer to the Horizontal and Vertical Control Report***** for detailed descriptions of the procedures and systems used to attain hydrographic positioning. This report has been delivered with this Descriptive Report as H11874 is the last sheet to be delivered for this task order.

****Included with H-Cell survey deliverables***

D. RESULTS AND RECOMMENDATIONS

D.1 CHART COMPARISON

H11874 was covered in the following charts:

- **Chart 12211,** 1/80,000 scale, 43rd Edition 10/01/2007 corrected by NTM through 12/19/2009
- **Chart 12200,** 1/419,706 scale 49th Edition 06/01/2007 corrected by NTM through 12/19/2009
- **Chart 13003**, 1:1,200,000 scale 49th Edition 04/01/2007 corrected by NTM through 12/19/2009
- **ENC US4VA50M**, 1:80,000 compilation scale**,** 14th Edition Issued 10/22/2009

- **ENC US3DE01M,** 1:419,706 compilation scale, 9th Edition Issued 10/22/2009

The survey data from H11874 was compared to the largest scale chart 12211 and ENC US4VA50M. The results from the comparisons should be applied to the smaller scale charts 12200 and 13003 and ENC US3DE01M where applicable. ***Concur with clarification. This survey achieved adequate bathymetric coverage to supersede all charted soundings. Recommend all charted soundings and contours be superseded by this survey. Where duplicate chart comparisons were made, they were only addressed for the largest scale chart (12211) and were stricken-out for smaller scale charts.***

The chart comparisons were conducted using SAIC's **SABER** software to view the BSB raster charts with overlaid layers of H11874 data such as the CUBE gridded surface, selected soundings, and features. For ENC comparisons a combination of HydroService's **dKart Inspector** and 7C's **SeeMyDENC** were used in conjunction with **SABER**. Results from the comparisons are described below.

Recommend reconstruction of the common areas of all charts using data from this survey.

Chart 12211 Fenwick Island to Chincoteague Inlet (1:80,000)

Sheet H11874 is covered by chart 12211 in its entirety. For safety reasons the survey did not cover depths less than 18 feet in the following areas:

- 38° 10' 28.93"N 075° 09' 32.56"W to 38° 10' 24.58"N 075° 09' 34.04"W
- 38° 08' 30.01"N 075° 10' 13.78"W to 38° 08' 12.20"N 075° 10' 19.00"W
- 38° 08' 10.27"N 075° 10' 19.86"W to 38° 07' 52.52"N 075° 10' 28.18"W
- 38° 07' 16.77"N 075° 10' 36.85"W to 38° 07' 10.81"N 075° 10' 38.49"W
- 38° 07' 07.71"N 075° 10' 39.97"W to 38° 06' 36.05"N 075° 10' 53.16"W
- 38° 06' 24.43"N 075° 11' 00.20"W to 38° 06' 19.47"N 075° 11' 03.64"W

Listed below are the details of the comparison between the survey data and the charted information:

The charted 18-foot depth curve that runs parallel to the shoreline from approximately 38° 13' 53.82"N 075° 08' 03.37"W to 38° 04' 46.45"N 075° 11' 58.80"W was found within a 100 meters of its charted position in areas where sufficient coverage allowed development of the 18-foot depth curve. The charted 18-foot depth curve from approximately 38° 07' 49.55"N 075° 10' 19.34"W to 38° 07' 22.05"N 075° 10' 33.17"W was found 100 to 125 meters east of its charted position. ***Concur.***

The 30-foot depth curve in approximately 38° 13' 49.17"N 075° 07' 45.90"W to 38° 04' 45.52"N 075° 11' 48.17"W was found to be in general agreement with the depths from this survey with the following exceptions:

The 30-foot depth curve from approximately 38° 13' 45.40"N 075° 07' 49.94"W to 38° 12' 53.02"N 075° 08' 15.05"W was found approximately 100 to 175 meters east of its charted position. ***Concur.***

The 30-foot depth curve from approximately 38° 11’ 50.79”N 075° 08’ 46.65”W 38° 11’ 24.76”N 075° 08’ 56.97”W was found approximately 100 to 185 meters west of its charted position. ***Concur.***

The small finger shoal defined by the 30-foot depth curve from approximately 38° 11’ 22.52”N 075° 08’ 57.52”W to 38° 11’ 32.86”N 075° 08’ 24.68”W to 38° 11’ 11.80”N 075° 08’ 47.51”W has changed shape and areal extent. It was found to start approximately 575 meters south southwest in 38° 11’ 03.96”N 075° 09’ 06.67”W and extends approximately 1000 meters further north northeast to 38° 12’ 04.69”N 075° 08’ 12.09”W. This finger shoal now encompasses the charted 30-foot sounding in 38° 11’ 41.97”N 075° 08’ 30.44”W and the 27-foot sounding in 38° 12’ 07.80”N 075° 08’ 09.58”W and their 30-foot depth curves. ***Concur.***

The charted 30-foot depth curve from approximately 38° 10’ 39.03”N 075° 08’ 56.09”W to 38° 10’ 28.86”N 075° 09’ 03.33”W was found to be approximately 275 meters west. ***Concur.***

A finger shoal with CUBE depths of 30 feet and less was found from approximately 38° 10’ 27.10”N 075° 09’ 11.15”W and extends approximately 550 meters northeast to 38° 10’ 34.57”N 075° 08’ 49.48”W. ***Concur.***

The charted 30-foot depth curve from approximately 38° 09’ 47.25”N 075° 09’ 28.75”W to 38° 09’ 21.18”N 075° 09’ 40.55”W was found approximately 100 to 185 meters east of its charted position. ***Concur.***

The charted 30-foot depth curve from approximately 38° 09’ 13.24”N 075° 09’ 40.54”W to 38° 08’ 43.11”N 075° 09’ 30.58”W was found to have a different shape and areal extent. The survey results show that from approximately 38° 09’ 13.24”N 075° 09’ 40.54”W the 30-foot depth curve continues south southwest to 38° 08’ 26.45”N 075° 10’ 00.86”W where it bends back toward the north northeast to define a finger shoal that extends approximately 2400 meters to 38° 09’ 24.96”N 075° 08’ 59.40”W before bending back to the south southwest to agree with the charted position in 38° 08’ 42.62”N 075° 09’ 32.15”W. This finger shoal now includes the 26-foot sounding in approximately 38° 09’ 13.48”N 075° 09’ 16.73”W and its associated 30-foot depth curve. ***Concur.***

The charted 30-foot depth curve outlining a small finger shoal from approximately 38° 08’ 00.86”N 075° 09’ 54.43”W to 38° 08’ 09.27”N 075° 09’ 26.70”W to 38° 07’ 19.59”N 075° 10’ 04.68”W has changed shape and areal extent. Results from the survey show the 30-foot depth curve to continue approximately 1500 meters to the south southwest to 38° 07’ 17.69”N 075° 10’ 21.59”W where it turns to the north northeast and extends approximately 1075 meters to 38° 07’ 45.77”N 075° 09’ 46.16”W. The depth curve then turns back to the south southwest where it agrees with the charted 30-foot depth curve in approximately 38° 07’ 19.59”N 075° 10’ 04.68”W. ***Concur.***

The 30-foot depth curve and 29-foot sounding centered in 38° 04’ 48.69”N 075° 08’ 25.75”W extending north to approximately 38° 05’ 14.48”N 075° 08’ 07.83”W has changed in shape and areal extent. ***Concur.***

The charted 29-foot sounding and 30-foot depth curve in 38° 10’ 08.06”N 075° 08’ 47.67”W was found approximately 300 meters south southwest of its charted position. ***Concur.***

The charted 30-foot sounding in 38° 09’ 13.67”N 075° 08’ 50.48”W and charted 25-foot sounding in 38° 08’ 49.27”N 075° 09’ 05.92”W with charted 30-foot depth curve extending around both soundings, was found to have three separate areas with CUBE depths of 30 feet or less. Recommend breaking up this depth curve into a 29-foot sounding and 30-foot depth curve centered in 38° 09’ 19.29”N 075° 08’ 47.96”W, a 28-foot sounding and 30-foot depth curve centered in 38° 08’ 59.83”N 075° 08’ 56.79”W, and a 23-foot sounding and 30-foot depth curve centered in 38° 08’ 38.81”N 075° 09’ 04.87”W and extending north to 38° 08’ 49.31”N 075° 09’ 05.95”W and south to 38° 08’ 29.79”N 075° 09’ 18.15”W. ***Concur.***

The charted 27-foot sounding in 38° 06’ 51.35”N 075° 06’ 13.50”W and 29-foot soundings in 38° 07’ 08.59”N 075° 06’ 08.39”W and 38° 07’ 14.11”N 075° 05’ 53.26”W surrounded by a charted 30-foot depth curve were found to have changed in shape and areal extents. ***Concur.***

The charted 30-foot depth curve located at the southeast extents of the survey bounds in 38° 04’ 46.84”N 075° 01’ 17.13”W northeast to 38° 05’ 02.10”N 075° 00’ 47.67”W and south to the extents of the survey in 38° 04’ 46.56”N 075° 00’ 52.57”W was found to have reduced in size compared to the charted depth curve. ***Concur.***

The charted 60-foot depth curves throughout the survey area generally agree with the CUBE depths collected during this survey with the following exceptions:

The 60-foot depth curve in approximately 38° 11’ 00.54”N 075° 03’ 20.22”W was found approximately 460 meters southwest. ***Concur.***

The charted 60-foot depth curve in approximately 38° 07’ 50.21”N 075° 02’ 59.48”W was found approximately 300 meters west of its charted position. The charted 60-foot depth curve in approximately 38° 07’ 19.61”N 075° 03’ 18.39”W was found to be approximately 200 meters east of its charted position. ***Concur.***

The 60-foot depth curve and 61-foot sounding centered in 38° 05’ 12.11”N 075° 03’ 17.86”W and extending south to the 61-foot sounding in 38° 04’ 33.50”N 075° 03’ 36.81”W was found to be two separate areas with CUBE depths of 61 to 62 feet. The first area is centered in 38° 05’ 05.39”N 075° 03’ 22.82”W and extends out approximately 130 meters in all directions. The second area is centered in 38° 04’ 49.49”N 075° 03’ 28.93”W and extends south to the edge of survey coverage. ***Concur.***

The charted soundings throughout the survey area agree with the CUBE depths from this survey from one to three feet. There were a few soundings which varied by four to seven feet. Examples of the larger variation are described below.

The charted 25-foot sounding in 38° 11’ 30.94”N 075° 08’ 30.40”W was found in CUBE depths of 28 to 36 feet. ***Concur.***

The charted 35-foot sounding in 38° 10’ 47.21”N 075° 07’ 48.38”W was found in CUBE depths of 32 to 40 feet. A 30-foot sounding was found approximately 130 meters to the east. Recommend removing the 35-foot sounding in 38° 10’ 47.21”N 075° 07’ 48.38”W and charting a 30-foot sounding in 38° 10’ 46.54”N 075° 07’ 42.92”W with a 30-foot depth curve and blue tint. ***Concur.***

The charted 24-foot sounding in 38° 11’ 03.53”N 075° 08’ 59.27”W was found in CUBE depths of 29 to 30 feet. ***Concur.***

The charted 62-foot sounding in 38° 08’ 36.01”N 074° 59’ 40.08”W was found in CUBE depths of 65 to 69 feet. ***Concur.***

The charted submerged wreck danger circle and blue tint in 38° 05’ 11.92”N 075° 03’ 26.59”W labeled PA was not found in its charted position. An obstruction with a least depth of 53 feet (16.33 meters, 0.28 meters uncertainty; feature 9) was found 290 meters to the northeast in 38° 05’ 19.91”N 075° 03’ 20.07”W. Feature nine was submitted as Danger to Navigation #6 as a wreck, however the data does not support a wreck classification and therefore the feature has been classified as an obstruction. Recommend removing the charted wreck symbol, danger circle, blue tint, and label PA in 38° 05’ 11.92”N 075° 03’ 26.59”W and charting a 53-foot sounding, blue tint, danger circle and label Obstn in 38° 05’ 19.91”N 075° 03’ 20.07”W (feature 9). ***See Appendix I Dangers to Navigation DToN#6 for charting recommendation.***

The charted 25-foot dangerous wreck in 38° 08’ 35.52”N 075° 09’ 57.79”W labeled Wk was found in its charted location with a least depth of 27 feet (8.34 meters, 0.27 meters uncertainty, feature 18) and was submitted as Danger to Navigation #2. After collection of additional item data and application of verified tides the least depth was determined to be 27 feet. Recommend updating the charted 25-foot sounding with a 27-foot sounding. ***See Appendix I Dangers to Navigation DToN#2 for charting recommendation.***

The charted 52-foot dangerous wreck in 38° 08’ 57.84”N 075° 04’ 52.54”W labeled Wk was found in its charted location with a least depth of 52 feet (15.8 meters, 0.28 meters uncertainty, feature 22) and was submitted as Danger to Navigation #3. There are no recommended changes to the charted dangerous wreck. ***See Appendix I Dangers to Navigation DToN#3 for charting recommendation.***

The dangerous wreck with a least depth of 48 feet in 38° 11’ 16.32”N 075° 00’ 22.79”W with label Wk was found in its charted location with a least depth of 47 feet (14.47 meters, 0.28 meters uncertainty, feature 2) and was submitted as Danger to Navigation

#1. After application of verified tides the least depth was found to be 47 feet. This wreck, as well as two obstructions found to the north and northeast (features 3 and 4), falls within AWOIS 1029. Recommend removing the 48-foot sounding and charting a 47-foot sounding. ***See Appendix I Dangers to Navigation DToN#1 for charting recommendation.***

Table D-1. Additional Features to be Considered for Charting on Chart 12211
Concur with clarification. This survey achieved adequate bathymetric coverage to supersede all charted soundings. Recommend all charted soundings and contours be superseded by this survey. Where duplicate chart comparisons were made, they were only addressed for the largest scale chart (12211) and were stricken-out for smaller scale charts.

Feature Number	Feature Position (NAD83)		Depth (Feet)	Depth (Meters)	Uncert. (Meters)	Description	Comments
	Latitude (N)	Longitude (W)					
1	38° 04' 56.60"	075° 02' 45.19"	50.656	15.44	0.28	WRECK	Chart sounding and danger circle with blue tint and label 'Wk'. Danger to Navigation #5. ***Do not concur. Least depth insignificant due to surrounding depths.***
7*	38° 06' 56.73"	075° 02' 49.87"	49.967	15.23	0.28	WRECK	Chart sounding and label 'Wks'. Danger to Navigation #4. See Feature 6. ***Concur. Chart 50ft WRECK at present survey location.***
23	38° 09' 12.36"	075° 05' 09.54"	55.938	17.05	0.28	OBSTR	Chart sounding and label 'Obstn'. ***Do not concur. Least depth insignificant due to surrounding depths.***
31	38° 11' 46.68"	075° 06' 22.22"	49.212	15.00	0.28	OBSTR	Chart sounding and label 'Obstn'. ***Do not concur. Least depth insignificant due to surrounding depths***

*Of particular note SAIC delivered features 6 and 7 to AHB as DTON #4 and AHB submitted DTON #4 on to MCD. Of the two near-by features, feature 7 is the shoalest object and therefore is the one recommended for charting. These features however, are not on the current edition of the chart. ***Concur.***

ENC US4VA50M Fenwick In to Chincoteague Inlet; Ocean City Inlet (1:80,000)

~~The charted 5.4-meter depth curve that runs parallel to the shoreline from 38° 13' 56.89"N 075° 08' 01.63"W south to 38° 04' 45.88"N 075° 11' 59.35"W was found to be within 100 meters of its charted location with the following exceptions. The 5.4-meter depth curve from approximately 38° 08' 29.54"N 075° 10' 12.67"W south to 38° 07' 51.35"N 075° 10' 26.64"W and 38° 07' 03.15"N 075° 03.15"W south to 38° 06' 37.55"N 075° 10' 52.18"W (was not developed due to safety reasons). The small finger shoal in 38° 07' 48.78"N 075° 10' 17.89"W was found approximately 160 meters southeast of its charted location.~~

The charted 9.1-meter depth curve in 38° 13' 48.84"N 075° 07' 47.34"W extending south to 38° 04' 47.40"N 075° 11' 47.00"W was found to be in general agreement with the depths from this survey with the following exceptions:

~~The charted 9.1-meter depth curve from 38° 13' 45.74"N 075° 07' 50.37"W south to 38° 13' 25.78"N 075° 08' 00.99"W was found approximately 100 to 200 meters east of its charted position.~~

~~The charted 9.1-meter depth curve from 38° 11' 41.16"N 075° 08' 46.51"W to 38° 11' 05.35"N 075° 08' 48.38"W including the finger shoal in 38° 11' 33.73"N 075° 08' 25.11"W has changed in shape and areal extents. In 38° 11' 41.16"N 075° 08' 46.51"W the 9.1-meter depth curve was found approximately 200 meters to the west of its charted position and continued south southwest approximately 1500 meters to approximately 38° 11' 02.15"N 075° 09' 06.36"W. The depth curve then turns to the north northeast to 38° 11' 25.53"N 075° 08' 27.54"W and then turns southwest to 38° 11' 05.35"N 075° 08' 48.38"W where it agrees with the charted position.~~

~~The charted 9.1-meter depth curve from 38° 10' 44.38"N 075° 08' 56.50"W to 38° 10' 27.84"N 075° 09' 04.44"W was found approximately 150 to 275 meters west of its charted location.~~

~~The charted 9.1-meter depth curve from 38° 09' 11.65"N 075° 09' 40.90"W to 38° 08' 29.38"N 075° 09' 43.03"W including the east ends of the two small finger shoals in 38° 09' 00.86"N 075° 09' 33.05"W and 38° 08' 42.27"N 075° 09' 28.17"W was found to have a different shape and areal extents. In 38° 09' 11.65"N 075° 09' 40.90"W the 9.1-meter depth curve was found approximately 100 meters west of its charted position and continued approximately 1200 meters south southwest to 38° 08' 28.37"N 075° 10' 01.84"W where it turned northeast for approximately 1500 meters to 38° 09' 14.40"N 075° 09' 16.63"W. From there it turned back to the south southwest to 38° 08' 29.38"N 075° 09' 43.03"W where it agreed with the charted position. This finger shoal now includes the charted 7.9-meter sounding and 9.1-meter depth curve in 38° 09' 14.40"N 075° 09' 16.63"W.~~

~~The finger shoal defined by the charted 9.1-meter depth curve starting in 38° 08' 02.02"N 075° 09' 54.67"W extending northeast to 38° 08' 09.54"N 075° 09' 26.25"W then southwest to 38° 07' 40.71"N 075° 09' 49.45"W changed in shape and areal extent.~~

~~Results from the survey show the 9.1-meter depth curve to continue approximately 1400 meters south southwest to 38° 07’ 16.98”N 075° 10’ 18.61”W where it turns to the north northeast and extends 1000 meters to approximately 38° 07’ 40.25”N 075° 09’ 50.11”W. The depth curve then turns back to the south southwest and agrees with the charted 9.1-meter depth curve in 38° 07’ 11.40”N 075° 10’ 08.36”W.~~

~~The charted 8.2-meter sounding and 9.1-meter depth curve in 38° 12’ 08.34”N 075° 08’ 09.77”W was found approximately 350 meters southwest of its charted position.~~

~~The charted 9.1-meter sounding and 9.1-meter depth curve in 38° 11’ 42.45”N 075° 08’ 30.58”W has changed in shape and areal extent.~~

~~The charted 8.8-meter sounding and 9.1-meter depth curve in 38° 10’ 08.96”N 075° 08’ 47.74”W has changed in shape and areal extent.~~

~~The charted 9.1-meter sounding in 38° 09’ 14.04”N 075° 08’ 50.29”W and charted 7.6-meter sounding in 38° 08’ 49.69”N 075° 09’ 06.03”W with charted 9.1-meter depth curve, extending around both soundings, was found to have changed in shape and areal extents. Recommend creating two separate areas with a 9-meter sounding and 9.1-meter depth curve centered in 38° 09’ 19.18”N 075° 08’ 47.97”W and charting a 7.0-meter sounding and 9.1-meter depth curve centered in 38° 08’ 38.61”N 075° 09’ 05.60”W.~~

~~The charted 9.1-meter depth curve and 8.8-meter sounding centered in 38° 04’ 48.95”N 075° 08’ 25.60”W and extending north to 38° 05’ 15.01”N 075° 08’ 07.96”W was found in CUBE depths between 9.3 and 10.4 meters. Recommend removing the 9.1-meter depth curve and 9.9-meter sounding centered in 38° 04’ 48.95”N 075° 08’ 25.60”W and extending north to 38° 05’ 15.01”N 075° 08’ 07.96”W based on the data from this survey.~~

~~The charted 8.2-meter sounding in 38° 06’ 51.99”N 075° 06’ 13.33”W and 8.8-meter soundings in 38° 07’ 09.14”N 075° 06’ 08.16”W and 38° 07’ 14.74”N 075° 05’ 52.04”W and surrounded by a charted 9.1-meter depth curve was found to have changed in shape and areal extents.~~

~~The charted 9.1-meter depth curve located in the southeast extents of the survey bounds in 38° 04’ 45.94”W 075° 01’ 20.63”W and north to 38° 05’ 02.82”N 075° 00’ 49.50”W and extending south to 38° 04’ 46.25”N 075° 00’ 53.17”W was found within the survey bounds to have reduced in size compared to the charted depth curve.~~

The charted 18.2-meter depth curves throughout the survey area generally fall within 150 meters of the 18.2 meter CUBE depths collected during this survey with the following exceptions:

~~The charted 18.2-meter depth curve in 38° 10’ 40.76”N 075° 03’ 50.80”W north to 38° 11’ 43.81”N 075° 03’ 11.09”W and continuing south to 38° 11’ 03.77”N 075° 03’ 10.23”W defines a finger shoal. Survey results show that the 18.2-meter depth curve~~

~~continues south southeast from 38° 11’ 03.77”N 075° 03’ 10.23”W to 38° 10’ 40.76”N 075° 03’ 50.80”W.~~

~~The charted 18.2-meter depth curve from 38° 09’ 48.98”N 075° 02’ 56.96”W to 38° 08’ 48.42”N 075° 03’ 45.57”W was found 150 to 500 meters east of its charted position.~~

~~The charted 18.2-meter depth curve in 38° 07’ 50.62”N 075° 02’ 59.59”W was found approximately 400 meters west of its charted position.~~

~~The charted 18.2-meter depth curve in 38° 07’ 20.86”N 075° 03’ 18.64”W was found approximately 350 meters east of its charted position.~~

~~The charted 18.2-meter depth curve in 38° 08’ 08.60”N 075° 02’ 54.99”W was found approximately 650 meters east of its charted position.~~

~~The charted 18.2-meter depth curve in 38° 10’ 32.55”N 075° 00’ 30.47”W was found approximately 200 meters south of its charted position.~~

~~The charted 18.2-meter depth curve in 38° 06’ 23.33”N 075° 00’ 58.27”W was found approximately 300 meters south of its charted position.~~

~~The charted soundings throughout the survey area agree closely with the CUBE depths from this survey. In general the charted soundings agreed or were within one to three meters of the observed CUBE depths. Examples of larger variations include the charted 9.7-meter sounding in 38° 05’ 13.44”N 075° 00’ 38.83”W was found in CUBE depth of 11.6 meters. The charted 7.3-meter sounding in 38° 11’ 04.01”N 075° 08’ 59.01”W was found in CUBE depths of 9.0 meters while the charted 9.4-meter sounding in 38° 05’ 17.16”N 075° 50’ 47.84”W was found in CUBE depths of 12.0 meters. The 12.4-meter sounding charted in 38° 08’ 26.14”N 075° 08’ 27.39”W was found in CUBE depths of 14.0 meters. The charted 15.2-meter sounding charted in 38° 07’ 39.59”N 074° 58’ 59.25”W was found in CUBE depths of 18.0 meters.~~

~~The charted submerged wreck danger circle and blue tint in 38° 05’ 12.23”N 075° 03’ 26.68”W labeled depth unknown was not found in its charted position. An obstruction with a least depth of 16.33 meters (0.28 meters uncertainty, feature 9) was found 290 meters to the northeast in 38° 05’ 19.91”N 075° 03’ 20.07”W. Feature nine was submitted as Danger to Navigation #6 as a wreck, however the data does not support a wreck classification and therefore the feature has been classified as an obstruction. Recommend removing the charted submerged dangerous wreck depth unknown object in 38° 05’ 12.23”N 075° 03’ 26.68”W and charting a 16.3-meter sounding and obstruction object in 38° 05’ 19.91”N 075° 03’ 20.07”W (feature 9).~~

~~The charted 7.6-meter submerged dangerous wreck in 38° 08’ 35.40”N 075° 09’ 57.70”W labeled Wk was found in 38° 08’ 35.52”N 075° 09’ 57.79”W with a least depth of 8.3 meters (0.27 meters uncertainty, feature 18) and was submitted as Danger to Navigation #2. After collection of additional item data and application of verified tides~~

~~the least depth was determined to be 8.3 meters. Recommend updating the charted 7.6-meter sounding with an 8.3 meter sounding and dangerous wreck object in 38° 08' 35.52"N 075° 09' 57.79"W.~~

~~The charted 15.8-meter submerged dangerous wreck depth known object in 38° 08' 57.80"N 075° 04' 52.50"W was found in 38° 08' 57.84"N 075° 04' 52.54"W very close to charted location with a least depth of 15.80 meters (0.28 meters uncertainty, feature 22) and was submitted as Danger to Navigation #3. Recommend updating the charted object position to 38° 08' 57.84"N 075° 04' 52.54"W.~~

~~The charted 14.6 meter submerged dangerous wreck depth known in 38° 11' 16.30"N 075° 00' 22.80"W was found very close to its charted location in 38° 11' 16.32"N 075° 00' 22.79"W with a least depth of 14.47 meters (0.28 meters uncertainty, feature 2) and was submitted as Danger to Navigation #1. This wreck, as well as two obstructions found to the north and north east (features 3 and 4), falls within AWOIS 1029. After application of verified tides the least depth was found to be 14.47 meters. Recommend updating 14.6 meter sounding and submerged dangerous wreck depth known in 38° 11' 16.30"N 075° 00' 22.80"W with a 14.4 meter sounding and dangerous wreck object in 38° 11' 16.32"N 075° 00' 22.79"W.~~

Table D-2 lists all features not previously discussed that are recommended to be considered for charting.

Table D-2. Additional Features to be Considered for Charting on ENC US4VA50M.
Concur with clarification. This survey achieved adequate bathymetric coverage to supersede all charted soundings. Recommend all charted soundings and contours be superseded by this survey. Where duplicate chart comparisons were made, they were only addressed for the largest scale chart (12211) and were stricken-out for smaller scale charts.

Feature Number	Feature Position (NAD83)		Depth (Meters)	Uncertainty (Meters)	Description
	Latitude (N)	Longitude (W)			
~~1~~	~~38° 04' 56.60"~~	~~075° 02' 45.19"~~	~~15.44~~	~~0.28~~	~~WRECK~~
~~3~~	~~38° 11' 19.97"~~	~~075° 00' 14.72"~~	~~18.60~~	~~0.28~~	~~OBSTR~~
~~4~~	~~38° 11' 22.51"~~	~~075° 00' 23.38"~~	~~18.04~~	~~0.28~~	~~OBSTR~~
5	38° 09' 54.35"	075° 01' 24.27"	18.80	0.28	OBSTR
~~6~~	~~38° 06' 55.55"~~	~~075° 02' 49.44"~~	~~15.79~~	~~0.28~~	~~WRECK~~
~~7~~	~~38° 06' 56.73"~~	~~075° 02' 49.87"~~	~~15.23~~	~~0.28~~	~~WRECK~~
8	38° 06' 45.48"	075° 02' 45.39"	14.63	0.28	OBSTR
10	38° 10' 08.76"	075° 01' 24.89"	19.85	0.30	OBSTR
11	38° 09' 31.45"	075° 09' 28.23"	09.67	0.28	OBSTR
12	38° 08' 35.41"	075° 02' 56.09"	19.83	0.28	OBSTR
13	38° 08' 57.72"	075° 02' 53.82"	20.15	0.28	OBSTR
14	38° 05' 49.82"	075° 02' 26.34"	15.81	0.28	OBSTR
15	38° 05' 04.06"	075° 01' 35.82"	11.60	0.27	OBSTR

Feature Number	Feature Position (NAD83)		Depth (Meters)	Uncertainty (Meters)	Description
	Latitude (N)	Longitude (W)			
16	38° 08’ 00.30”	075° 00’ 03.32”	19.15	0.28	OBSTR
17	38° 09’ 22.70”	074° 59’ 27.61”	20.76	0.28	OBSTR
19	38° 08’ 33.88”	075° 03’ 29.62”	19.13	0.29	OBSTR
20	38° 10’ 27.18”	075° 04’ 13.26”	19.84	0.28	OBSTR
21	38° 09’ 20.86”	075° 04’ 46.17”	18.76	0.28	OBSTR
~~23~~	~~38° 09’ 12.36”~~	~~075° 05’ 09.54”~~	~~17.05~~	~~0.28~~	~~OBSTR~~
24	38° 09’ 53.96”	075° 05’ 02.18”	17.43	0.28	OBSTR
25	38° 10’ 24.82”	075° 09’ 32.08”	06.42	0.28	OBSTR
26	38° 05’ 03.73”	075° 08’ 31.76”	14.92	0.28	OBSTR
27	38° 09’ 43.43”	075° 06’ 50.63”	17.15	0.28	OBSTR
28	38° 10’ 45.08”	075° 06’ 22.14”	16.83	0.28	OBSTR
29	38° 05’ 43.35”	075° 08’ 38.71”	15.73	0.28	OBSTR
30	38° 06’ 06.52”	075° 08’ 41.00”	16.52	0.28	OBSTR
~~31~~	~~38° 11’ 46.68”~~	~~075° 06’ 22.22”~~	~~15.00~~	~~0.28~~	~~OBSTR~~
32	38° 12’ 26.73”	075° 06’ 59.22”	13.65	0.28	OBSTR
33	38° 08’ 05.34”	075° 02’ 22.77”	16.99	0.28	OBSTR

All features within table have been considered for charting. Only features that were addressed in Section D. have charting recommendations.

AWOIS Item Investigations

A listing of all Full and Information Only AWOIS items that fall within H11874 are provided in Table D-3 and discussed below.

Table D-3. AWOIS Listing Received from NOAA for H11874

AWOIS Number	Investigation Type	Chart 12211	ENC US4VA50M
AWOIS 1028	Informational	X	X
AWOIS 1029	Informational	X	X

AWOIS 1028 (Informational):

Description: 24 no. 615; tug, sunk 1953 by marine casualty; pos. Accuracy within 1 mile.

Survey Results: A radius of 500 meters was covered with 200% sidescan and resulting multibeam around this AWOIS. No obstructions or wrecks were found within the covered area.

AWOIS 1029 (Informational):

Description: 19 fishing obstr. NAD-27 gp converted from original data using 1980 corrections.

Survey Results: Feature 2, 3, and 4 fall within a 500 meter radius of AWOIS 1029. Feature 2 is discussed previously in the chart comparisons section.

AWOIS 14228 (Full - assigned for H12003, OPR-D302-SA-09):

Subsequent to the award of H11874, SAIC was assigned an AWOIS full investigation (14228) with Sheet N (H12003, OPR-D302-SA-09). However, AWOIS 14228 falls entirely within H11874 (Sheet J). This AWOIS has been included with this data report along with an additional half-meter bag file (AWOIS_14228.bag) to support the object detection node spacing requirements for OPR-D302-SA-09. This half-meter resolution BAG covers H11874 feature 9 found within AWOIS 14228 and is described below.

Description: --NM50/67--CG Portsmouth 10/31/1967; F/V Hiwal reported sunk in 48ft of water PA 38/5.2N 75/3.5W. Wreck reported unmarked. See also LNM 45/67. (ETR 08/05/2008) --H09788/1978; NOS --Wreck existence neither disproved nor confirmed remained charted. No depths

Survey Results: AWOIS 14228 encompasses the charted wreck PA in 38° 05' 11.92"N 075° 03' 26.59"W. An obstruction (feature 9) was found 290 meters north east of the charted wreck PA. This feature is classified as an Obstruction as the nature of the object does not appear to be wreck like. There are no other objects found within the 500 meter radius of AWOIS 14228. See charting recommendations above. Also, this AWOIS falls on both Chart 12211 and ENC US4VA50M.

Designated Soundings

Designated soundings were set across this sheet to help better preserve the shallowest soundings relative to the computed depth surface. Designated soundings were used on many large features (e.g., wrecks, obstructions, etc.) to better define the extents of the feature and to help preserve important least depths on that feature. A separate designated sounding flag exists in the Generic Sensor Format (version 3.01), and all of the designated soundings in the final CUBE surface have also been flagged as designated soundings in the GSF files. There were 42 designated soundings set in H11874. All depths flagged as features or designated soundings will override the CUBE best estimate of the depth in the final BAG files. All of the features and designated soundings that have been set for this survey are listed within two files that are referenced within Appendix II.

Danger to Navigation Reports

Six Danger to Navigation Reports (DTONs) were submitted for this survey and copies have been included in Appendix V. The Atlantic Hydrographic Branch's (AHB) corresponding versions of the Danger to Navigation Reports as they were submitted to Marine Charting Division (MCD) are provided in Appendix I. The six Danger to Navigation Reports are also referenced in section D.1 Chart Comparison.
Concur with clarification. Five DtoNs were submitted.

Note: There was no DtoN 5 submitted. The submitted DtoNs include 1,2,3,4,6 with 4 and 6 submitted in the same DtoN Report.

Please note that DTON #6 (submitted by SAIC to AHB May 22, 2009) had incorrect side scan sonar images on page 4. The side scan images were updated in a revised DTON #6

attachment sent to AHB from SAIC on 26 May 2009. Unfortunately, AHB had already sent the original DTON including DTON #6 to MCD. As such, please note that the correct side scan sonar image for DTON #6 is found in Appendix V on page A-80 in the revised SAIC DTON #6 submission.

D.2 ADDITIONAL RESULTS

Shoreline verification was not required for this survey. Comparison with prior surveys was not required under this task order. **Concur**

Aids to Navigation

There were no aids to navigation within this survey coverage. **Concur**

Additional Factors

The inshore, near coastal areas of the mid-Atlantic are relatively dynamic, and finer-grained sediments (e.g., fine sands and silt) are routinely transported through normal coastal processes. In addition, periodic large storm events may be capable of re-suspending and transporting coarser-grained bottom sediments. Even over the five month period of these survey operations, small-scale changes in the bottom topography, likely due to normal migration of finer-grained sand waves, was evident. These differences were most noticeable during the holiday fill operations that were typically conducted up to several months after the mainscheme operations had already been completed. Some of the higher CUBE uncertainties observed across H11874 were due to relatively minor changes in the seafloor between the times that overlapping multibeam data were acquired. Though we did observe small-scale seafloor change over the course of this survey, based on comparisons with the charts, it appears the major shoal features throughout this area have remained relatively stable. These larger shoal areas are comprised of coarser-grained sediments that are much less impacted by coastal sediment transport processes. However, in the event of an unusually large coastal storm (e.g., hurricane or major nor'easter), the depths and extents of these relatively stable features may be greatly altered. **Concur**

E. APPROVAL SHEET

05 March 2010

LETTER OF APPROVAL

REGISTRY NUMBER: H11874

This report and the accompanying digital data for project OPR-D302-SA-08 Mid-Atlantic Corridor; Coast of Maryland Project is respectfully submitted.

Field operations and data processing contributing to the accomplishment of this survey, H11874, were conducted under supervision of myself and lead hydrographers Paul L. Donaldson, Jason M. Infantino, Gary R. Davis and Thomas R. Waddington with frequent personal checks of progress and adequacy. This report and accompanying deliverable data items have been closely reviewed and are considered complete and adequate as per the Statement of Work.

Reports previously submitted to NOAA for this project include:

Report	Submission Date
Data Acquisition and Processing Report, SAIC Doc 09-TR-034	30 October 2009
Descriptive Report H11872, SAIC Doc 09-TR-035	30 October 2009
Descriptive Report H11992, SAIC Doc 09-TR-045	22 January 2010
Descriptive Report H11873, SAIC Doc 09-TR-043	12 February 2010

Reports concurrently submitted to NOAA for this project include:

Report	Submission Date
Horizontal and Vertical Control Report, SAIC Doc 09-TR-046	05 March 2010

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

Deborah M. Smith

Digitally signed by Deborah M. Smith
DN: cn=Deborah M. Smith, o=MSTD, ou=SAIC, email=smithdebor@saic.com, c=US
Date: 2010.03.05 12:25:48 -05'00'

Deborah M. Smith
Lead Hydrographer
Science Applications International Corporation
05 March 2010

Appendix I
Danger to Navigation Report

APPENDIX I. DANGER TO NAVIGATION REPORTS (AHB SUBMISSION TO MCD)

The Atlantic Hydrographic Branch (AHB) forwarded the content from the SAIC Danger to Navigation Reports prepared for H11874 in four separate reports to the Marine Chart Division (MCD). This appendix provides copies of the four Danger to Navigation Reports as they were prepared by AHB and submitted to MCD; these reports were provided to SAIC by AHB as PDF documents and then exported to JPEG images for inclusion in this Appendix. The title for each of the reports listed below also indicates the corresponding SAIC Danger to Navigation Reports. The information provided in SAIC Danger to Navigation Reports 1, 2, 3, 4 and 6 submitted by AHB to MCD. SAIC Danger to Navigation Report 5 was not submitted by AHB to MCD. Copies of the email exchanges addressing these reports is provided in Appendix V. In addition, Appendix V also includes copies of the six Danger to Navigation Reports as originally prepared by SAIC and submitted to AHB. Please note that AHB to MCD Danger to Navigation Report 4 corresponds to information provided in SAIC Danger to Navigation Reports 4 and 6.

H11874 DToN#1

Registry Number: H11874
State: Maryland
Locality: Atlantic Ocean
Sub-locality: 13 NM ESE of Ocean City
Project Number: OPR-D302-SA-08
Survey Date: 08/11/2008

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
12211	43rd	10/01/2007	1:80,000 (12211_1)	USCG LNM: 05/20/2008 (05/20/2008) NGA NTM: 05/09/1992 (05/24/2008)
12200	49th	06/01/2007	1:419,706 (12200_1)	[L]NTM: ?
13003	49th	04/01/2007	1:1,200,000 (13003_1)	[L]NTM: ?

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

Features

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Wreck	GP	14.57 m	38° 11' 16.3" N	075° 00' 22.8" W	---

1.1) GP No. - 1 from H11874_DToN#1.xls

DANGER TO NAVIGATION

Survey Summary

Survey Position: 38° 11' 16.3" N, 075° 00' 22.8" W

Least Depth: 14.57 m (= 47.80 ft = 7.967 fm = 7 fm 5.80 ft)

TPU (±1.96σ): **THU (TPEh)** [None] ; **TVU (TPEv)** [None]

Timestamp: 2008-224.08:38:21.000 (08/11/2008)

GP Dataset: H11874_DToN#1.xls

GP No.: 1

Charts Affected: 12211_1, 12200_1, 13003_1

Remarks:

The deteriorated wreck is sitting upright, approximately 80 meters long by 15 meters wide. It lies in depths of 64 to 67 feet and has a least depth of ~~48~~ 47 feet near the west southwest end. A second high spot near the east northeast end has a least depth of ~~49~~ 47 feet. Depths are reduced to Mean Lower Low Water using predicted tides based on preliminary zoning. Positions are based on NAD-83. Positions were obtained using DGPS from a US Coast Guard Station.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11874_DToN#1.xls	1	0.00	000.0	Primary

Hydrographer Recommendations

The wreck is located approximately 130 meters south of a charted dangerous wreck in 38-11-20.45 N 075-00-23.26W labeled PA. Recommend removing the charted wreck, danger circle, blue tint and label PA in 38-11-20.45N 075-00-23.26W and charting a 48 foot sounding with danger circle, blue tint (K-28) and label Wk in
38-11-16.32 N 075-00-22.79W.

Cartographically-Rounded Depth (Affected Charts):

~~48ft~~ 47ft (12211_1)

8fm (12200_1, 13003_1)

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 2:dangerous wreck

SORDAT - 20080811

SORIND - US,US,SURVY,H11874

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

VALSOU - ~~14.57 m~~ 14.47 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. This is AWOIS #1029. Office processing determined that the position and least depth are different from the initial DToN submission to MCD. The feature is shown on chart 12211_1; 44th Ed., Feb 2011 and smaller scale charts as 48 foot wreck. Delete 48 foot wreck at 38° 11’ 16.32”N 075° 00’ 22.79”W. Chart 47 foot wreck at the present survey position. Update AWOIS database.

Feature Images

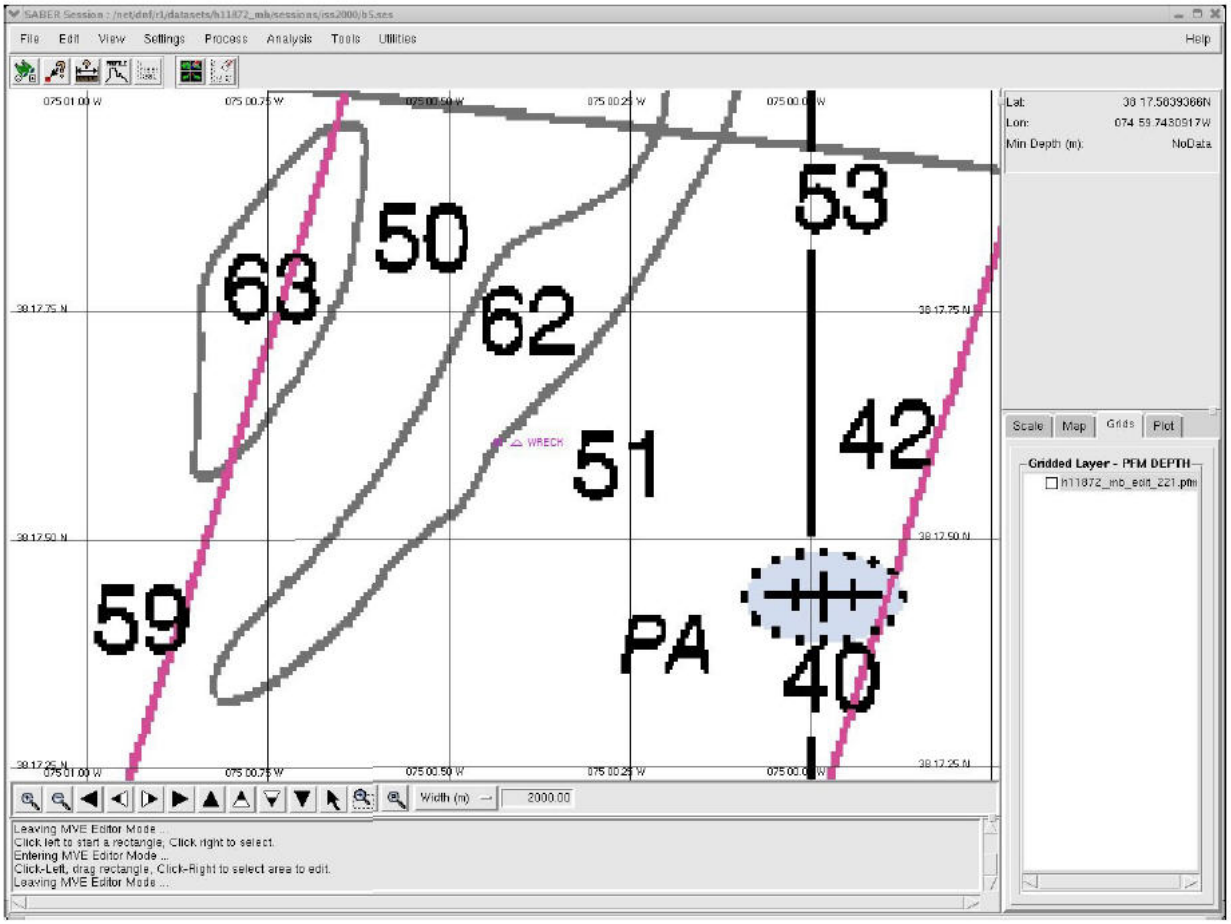


Figure 1.1.1

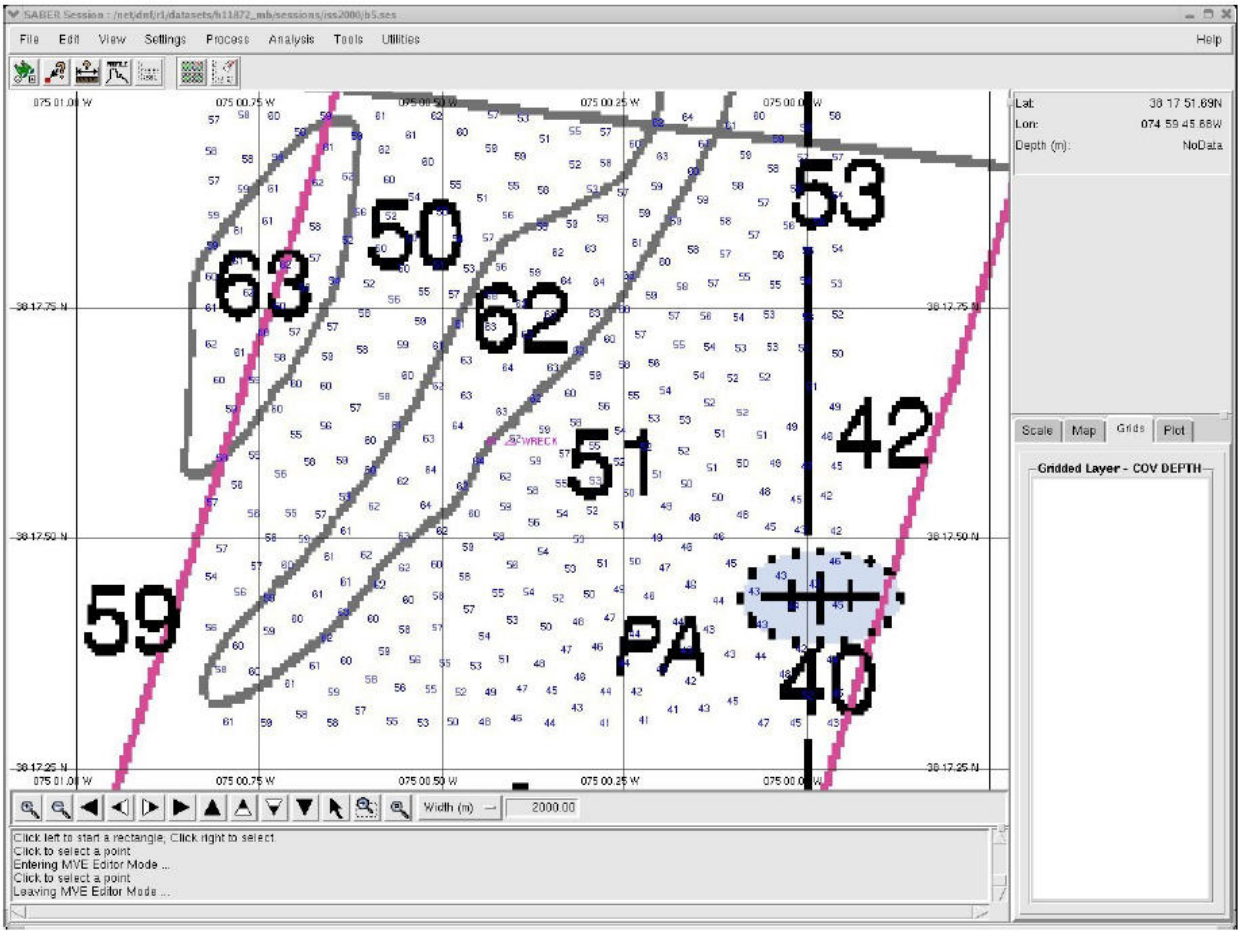

File Edit View Settings Process Analysis Tools Utilities Help
Lat: 38 17 51.69N
Lon: 074 59 45.68W
Depth (m): NoData
Scale Map Grids Plot
Gridded Layer - COV DEPTH
63
50
62
53
51
42
59
PA
40
Width (m)
2000.00
Click left to start a rectangle, Click right to select
Click to select a point
Entering MVE Editor Mode ...
Click to select a point
Leaving MVE Editor Mode ...

Figure 1.1.2

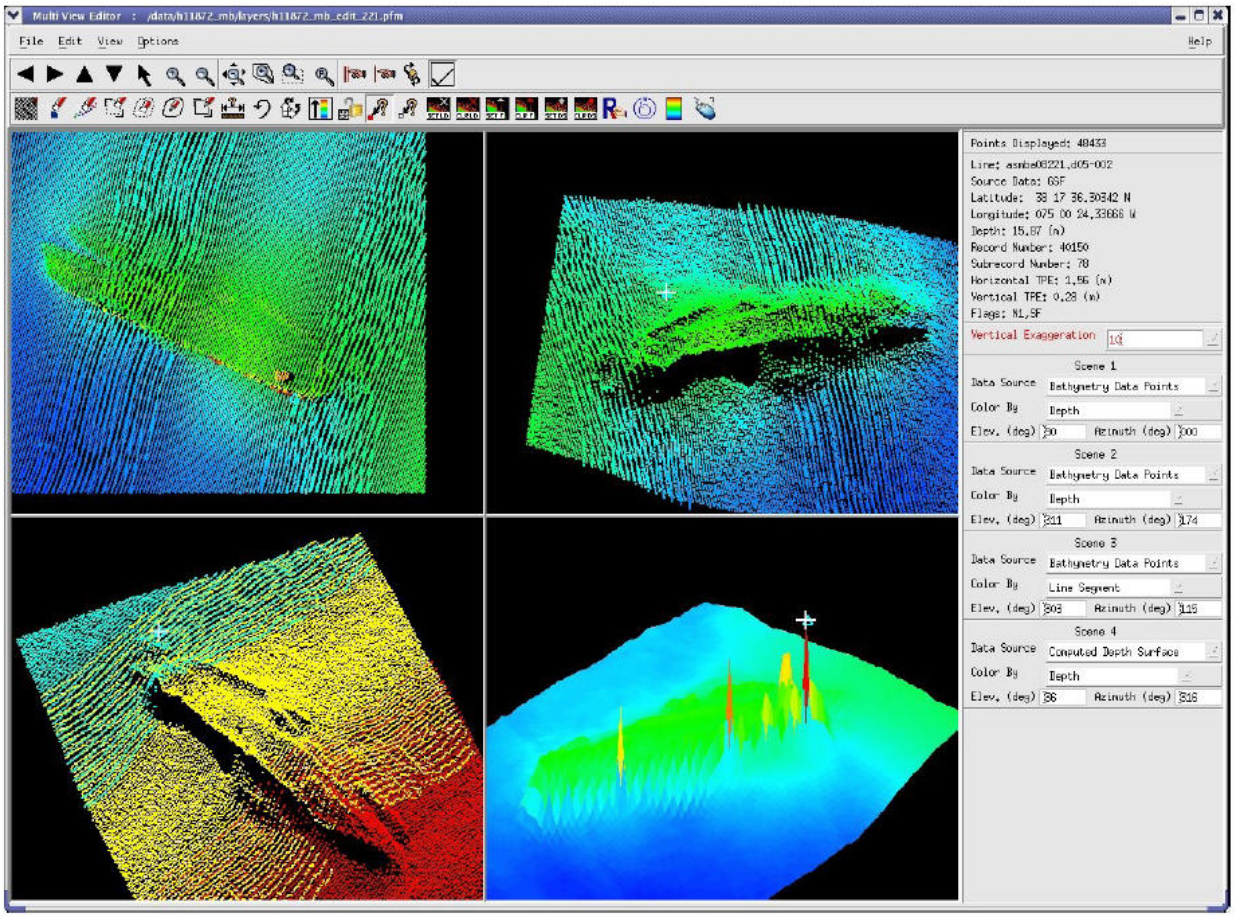

Multi View Editor : /data/h11872_mb/layers/h11872_mb_edit_221.pfm
File Edit View Options
Help
Points Displayed: 48433
Line: ashbe08221.d05-002
Source Data: GSF
Latitude: 38 17 36.30342 N
Longitude: 075 00 24.33868 W
Depth: 15.87 (m)
Record Number: 40150
Subrecord Number: 78
Horizontal TPE: 1.56 (m)
Vertical TPE: 0.28 (m)
Flags: N1,SF
Vertical Exaggeration 10
Scene 1
Data Source Bathymetry Data Points
Color By Depth
Elev. (deg) 30 Azimuth (deg) 300
Scene 2
Data Source Bathymetry Data Points
Color By Depth
Elev. (deg) 311 Azimuth (deg) 174
Scene 3
Data Source Bathymetry Data Points
Color By Line Segment
Elev. (deg) 303 Azimuth (deg) 119
Scene 4
Data Source Computed Depth Surface
Color By Depth
Elev. (deg) 86 Azimuth (deg) 316

Figure 1.1.3

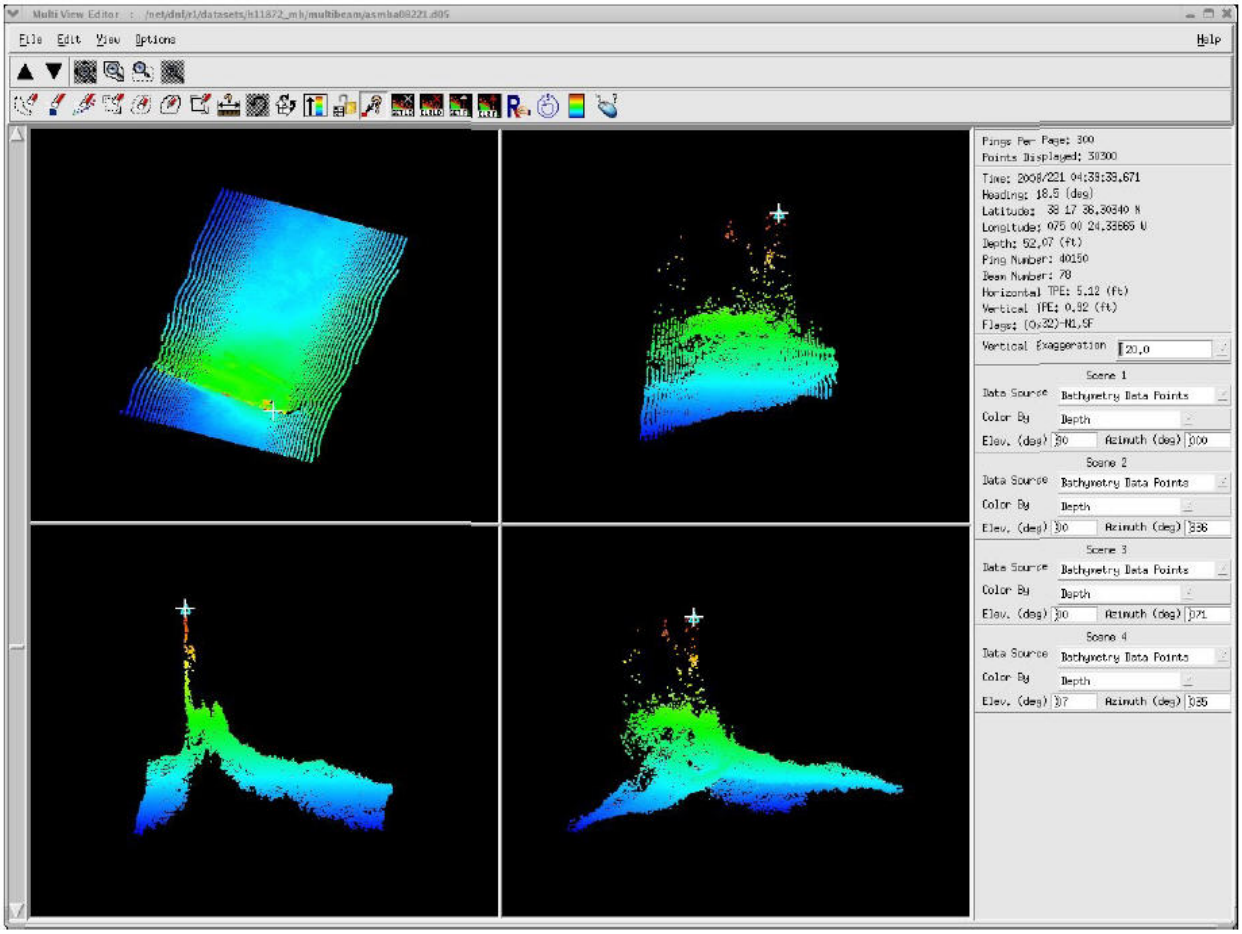

File Edit View Options Help
Pings Per Page: 300
Points Displayed: 30300
Time: 2008/221 04:33:33.671
Heading: 18.5 (deg)
Latitude: 38 17 38.30340 N
Longitude: 075 00 24.33869 W
Depth: 52.07 (ft)
Ping Number: 40150
Beam Number: 78
Horizontal TPE: 5.12 (ft)
Vertical TPE: 0.92 (ft)
Flags: (0x22)-N1,SF
Vertical Exaggeration 20.0
Scene 1
Data Source Bathymetry Data Points
Color By Depth
Elev. (deg) 90 Azimuth (deg) 000
Scene 2
Data Source Bathymetry Data Points
Color By Depth
Elev. (deg) 90 Azimuth (deg) 336
Scene 3
Data Source Bathymetry Data Points
Color By Depth
Elev. (deg) 90 Azimuth (deg) 071
Scene 4
Data Source Bathymetry Data Points
Color By Depth
Elev. (deg) 07 Azimuth (deg) 035

Figure 1.1.4

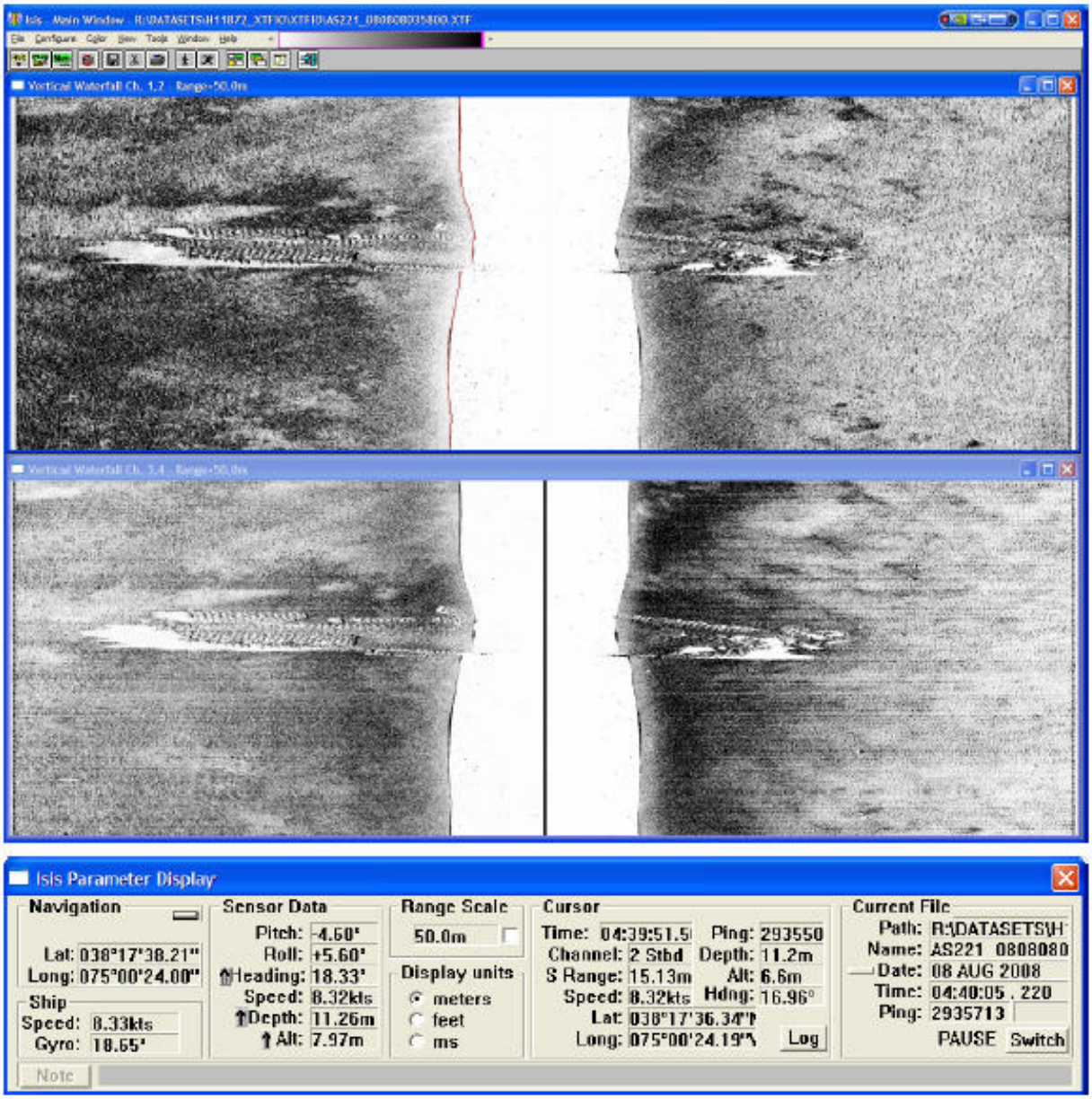

Isis Parameter Display
Navigation
Lat: 038°17'38.21"
Long: 075°00'24.00"
Ship
Speed: 8.33kts
Gyro: 18.65°
Sensor Data
Pitch: -4.60°
Roll: +5.60°
Heading: 18.33°
Speed: 8.32kts
Depth: 11.26m
Alt: 7.97m
Range Scale
50.0m
Display units
meters
feet
ms
Cursor
Time: 04:39:51.5
Ping: 293550
Channel: 2 Stbd
Depth: 11.2m
S Range: 15.13m
Alt: 6.6m
Speed: 8.32kts
Hdng: 16.96°
Lat: 038°17'36.34"N
Long: 075°00'24.19"W
Log
Current File
Path: R:\DATASETS\H
Name: AS221 0808080
Date: 08 AUG 2008
Time: 04:40:05 . 220
Ping: 2935713
PAUSE
Switch
Note

Figure 1.1.5

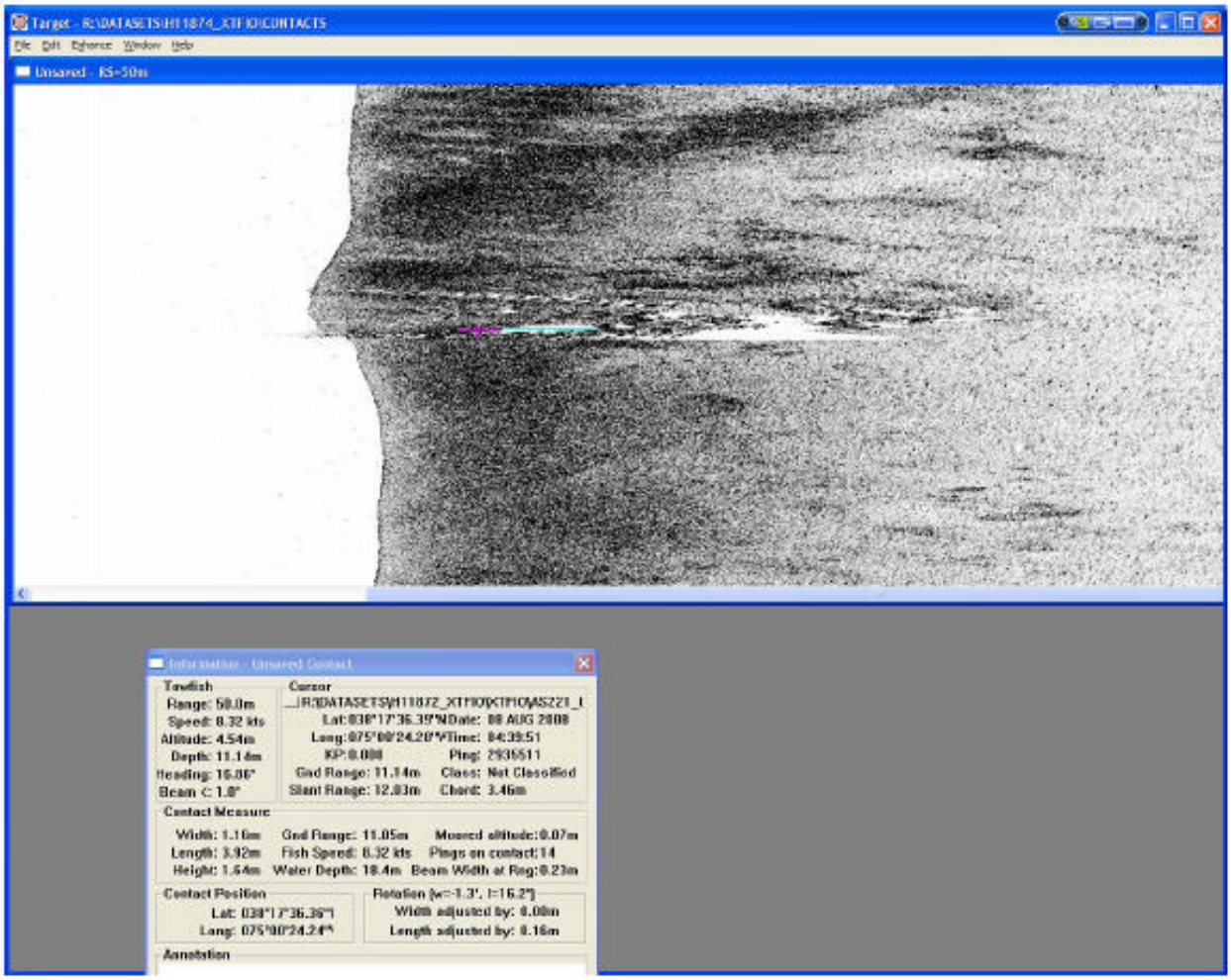

Unsaved - RS=50m
Towfish
Range: 50.0m
Speed: 8.32 kts
Altitude: 4.54m
Depth: 11.14m
Heading: 16.06°
Beam c: 1.0°
Cursor
Lat: 038°17'36.39"N Date: 08 AUG 2008
Long: 075°00'24.20"W Time: 04:39:51
KP: 0.000 Ping: 2936511
Grd Range: 11.14m Class: Not Classified
Slant Range: 12.83m Chord: 3.46m
Contact Measure
Width: 1.16m Grd Range: 11.05m Mosaic altitude: 0.07m
Length: 3.92m Fish Speed: 8.32 kts Pings on contact: 14
Height: 1.64m Water Depth: 18.4m Beam Width at Rng: 0.23m
Contact Position
Rotation (w=1.3°, l=16.2°)
Width adjusted by: 0.00m
Length adjusted by: 0.16m
Annotation

Figure 1.1.6

H11874_DToN#2

Registry Number: H11874
State: Maryland
Locality: Atlantic Ocean
Sub-locality: 13 NM ESE of Ocean City
Project Number: OPR-D302-SA-08
Survey Date: 08/21/2008

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
12211	43rd	10/01/2007	1:80,000 (12211_1)	USCG LNM: 05/20/2008 (05/20/2008) NGA NTM: 05/09/1992 (05/24/2008)
12200	49th	06/01/2007	1:419,706 (12200_1)	[L]NTM: ?
13003	49th	04/01/2007	1:1,200,000 (13003_1)	[L]NTM: ?

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

Features

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	wreck	GP	7.65 m	38° 08' 35.4" N	075° 09' 57.7" W	---

1.2) H11874_DToN#2.xls

DANGER TO NAVIGATION

Survey Summary

Survey Position: 38° 08' 35.4" N, 075° 09' 57.7" W

Least Depth: ~~7.65 m (= 25.10 ft = 4.183 fm = 4 fm 1.10 ft)~~ 8.34 m

TPU (±1.96σ): **THU (TPEh)** [None] ;**TVU (TPEv)** [None]

Timestamp: 2008-234.16:26:51.000 (08/21/2008)

GP Dataset: H11874_DToN#2.xls

GP No.: 1

Charts Affected: 12211_1, 12200_1, 13003_1

Remarks:

Depths are reduced to Mean Lower Low Water using predicted tides based on preliminary zoning. Positions are based on NAD-83. Positions were obtained using DGPS from a US Coast Guard Station.

The wreck is laying on its side , approximately 24 meters long by 4 meters wide, and oriented 315°/135°. It lies in depths of 28 to 31 feet and has a least depth of ~~25~~ 27 feet near the East end. There are multiple objects scattered about the wreck.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11874_DToN#2.xls	1	0.00	000.0	Primary

Hydrographer Recommendations

Recommend charting a 25 foot sounding with danger circle, blue tint (K-28) and label Wk in 38- 08-35.44 N 075-09-57.70 W.

Cartographically-Rounded Depth (Affected Charts):

~~25ft~~ 27ft (12211_1)

4fm (12200_1, 13003_1)

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 2:dangerous wreck

SORDAT - 20080821

SORIND - US,US,SURVY,H11874

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

VALSOU - ~~7.65 m~~ 8.34 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. Shown on chart 12211_1; 44th Ed., Feb 2011 and smaller scale charts as 25 foot wreck. Delete 25 foot wreck. Chart 27 foot wreck at the present survey position.

Feature Images

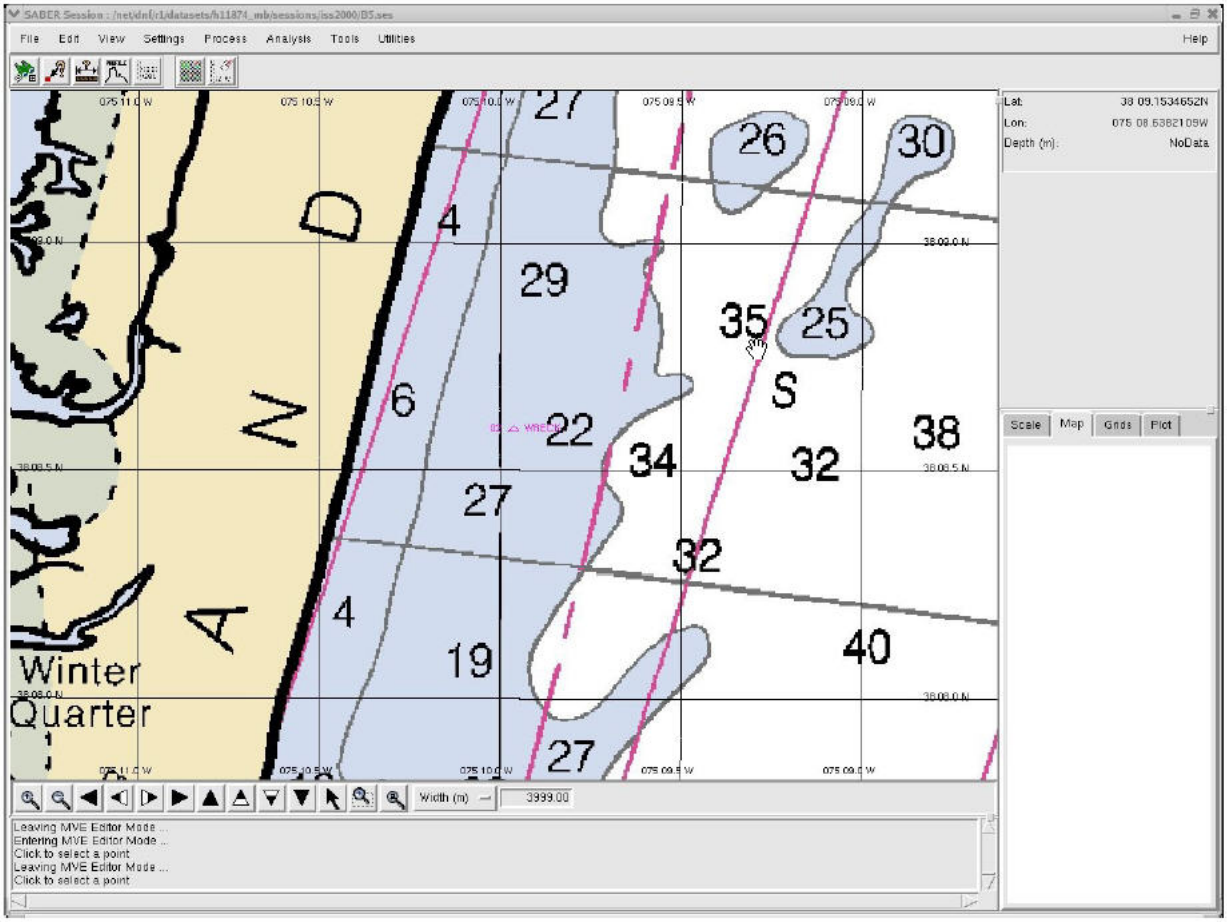


Figure 1.1.1

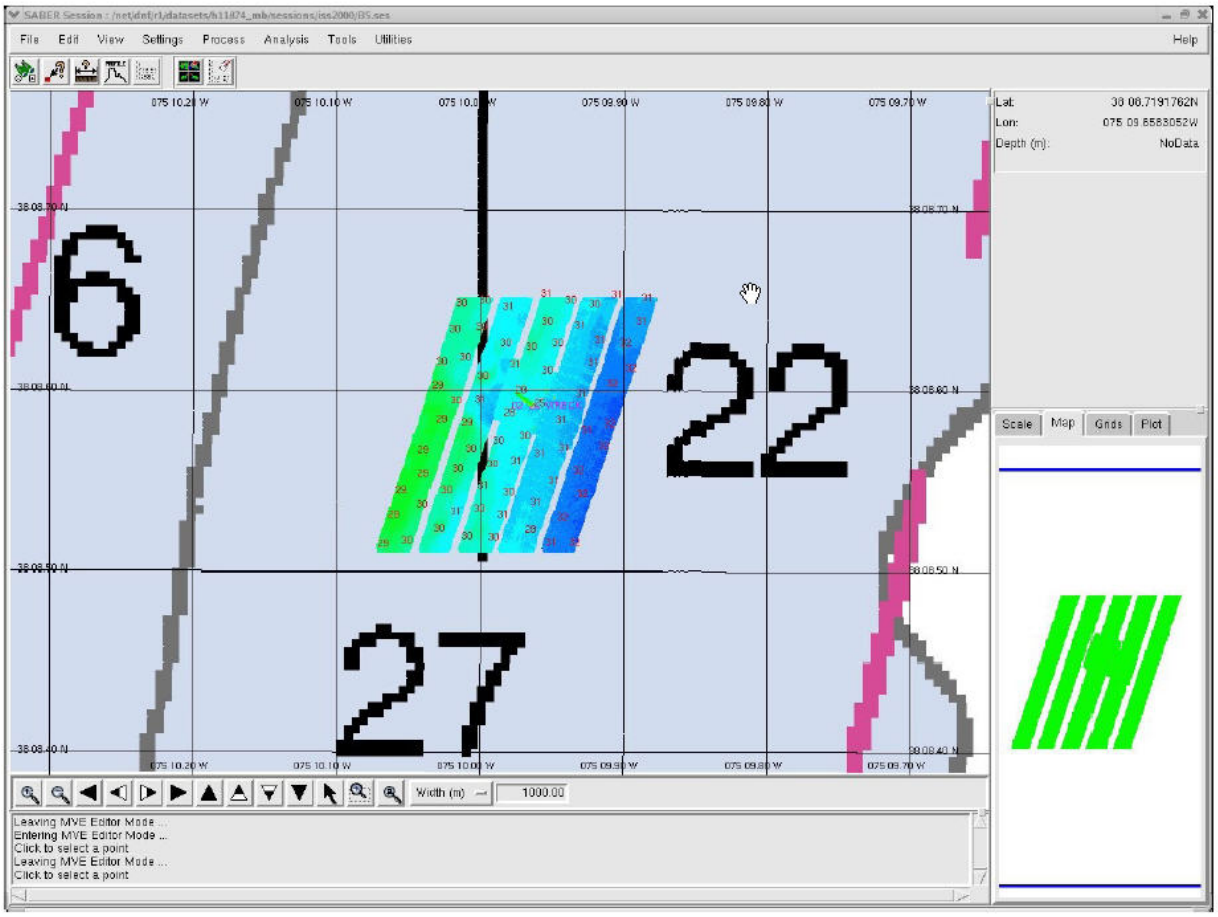

File Edit View Settings Process Analysis Tools Utilities Help
Lat: 38 08.7191762N
Lon: 075 09.8583052W
Depth (m): NoData
Scale Map Grids Plot
6
22
27
Width (m)
1000.00
Leaving MVE Editor Mode ...
Entering MVE Editor Mode ...
Click to select a point
Leaving MVE Editor Mode ...
Click to select a point

Figure 1.1.2

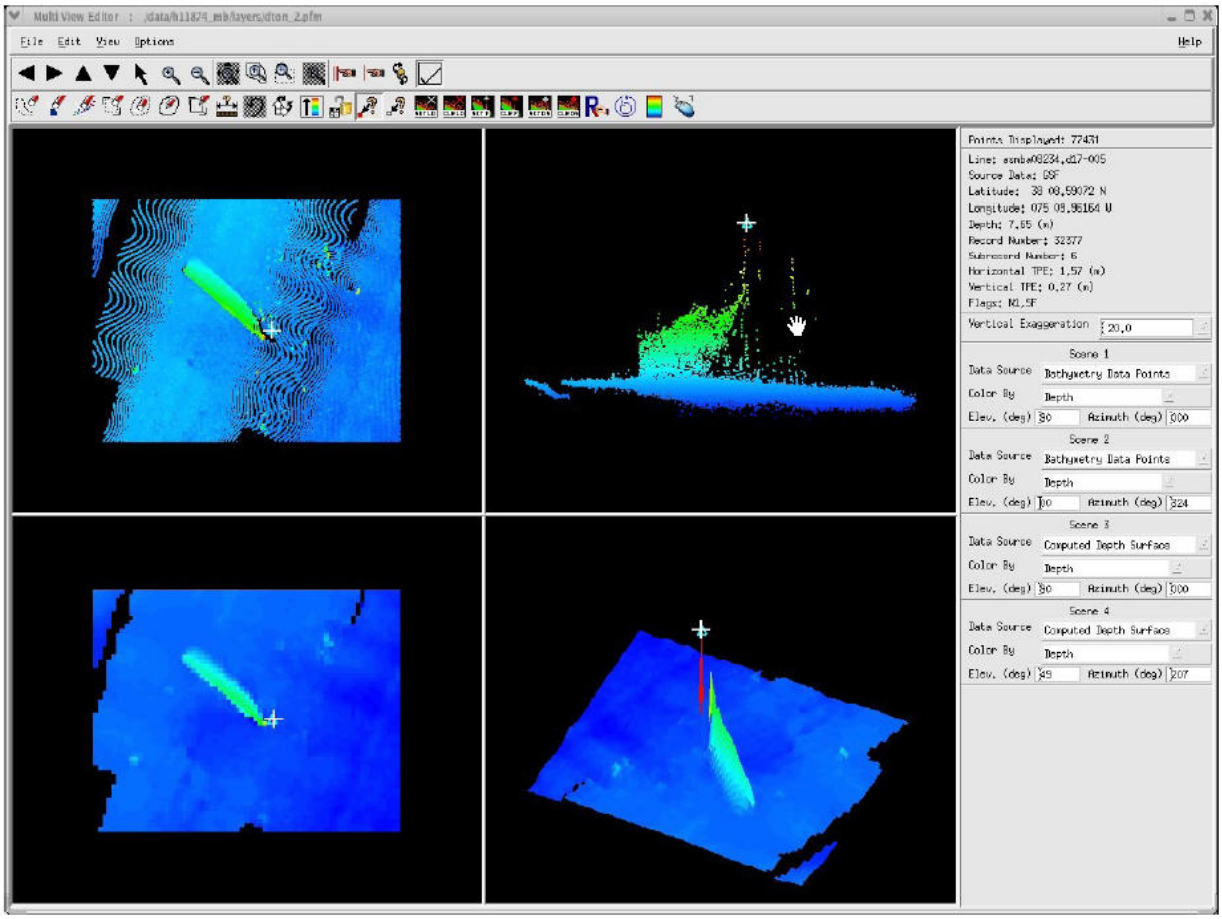

File Edit View Options Help
Points Displayed: 77431
Source Data: GSF
Depth: 7.65 (m)
Record Number: 32377
Horizontal TPE: 1.57 (m)
Vertical TPE: 0.27 (m)
Flags: N1,SF
Vertical Exaggeration 20.0
Scene 1
Data Source Bathymetry Data Points
Color By Depth
Elev. (deg) 90 Azimuth (deg) 000
Scene 2
Data Source Bathymetry Data Points
Color By Depth
Elev. (deg) 90 Azimuth (deg) 324
Scene 3
Data Source Computed Depth Surfaces
Color By Depth
Elev. (deg) 90 Azimuth (deg) 000
Scene 4
Data Source Computed Depth Surfaces
Color By Depth
Elev. (deg) 49 Azimuth (deg) 207

Figure 1.1.3

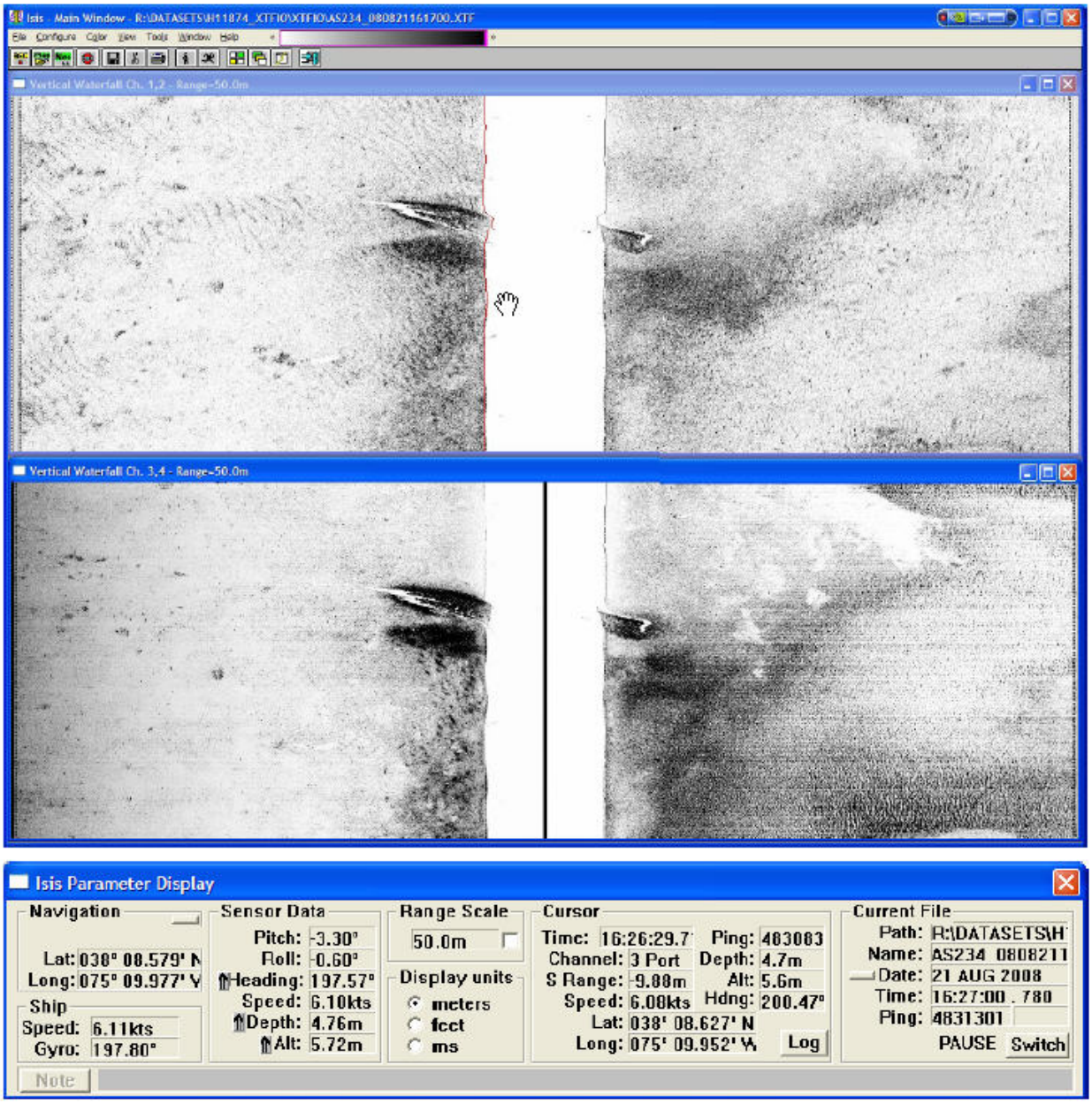

Isis - Main Window - R:\DATASETS\H11874_XTFIO\XTFIO\AS234_080821161700.XTF
Vertical Waterfall Ch. 1,2 - Range=50.0m
Vertical Waterfall Ch. 3,4 - Range=50.0m
Isis Parameter Display
Navigation
Lat: 038° 08.579' N
Long: 075° 09.977' W
Ship
Speed: 6.11kts
Gyro: 197.80°
Sensor Data
Pitch: -3.30°
Roll: -0.60°
Heading: 197.57°
Speed: 6.10kts
Depth: 4.76m
Alt: 5.72m
Range Scale
50.0m
Display units
meters
feet
ms
Cursor
Time: 16:26:29.7
Ping: 403083
Channel: 3 Port
Depth: 4.7m
S Range: -9.88m
Alt: 5.6m
Speed: 6.08kts
Hdng: 200.47°
Lat: 038° 08.627' N
Long: 075° 09.952' W
Log
Current File
Path: R:\DATASETS\H
Name: AS234_0808211
Date: 21 AUG 2008
Time: 16:27:00.780
Ping: 4831301
PAUSE
Switch
Note

Figure 1.1.4

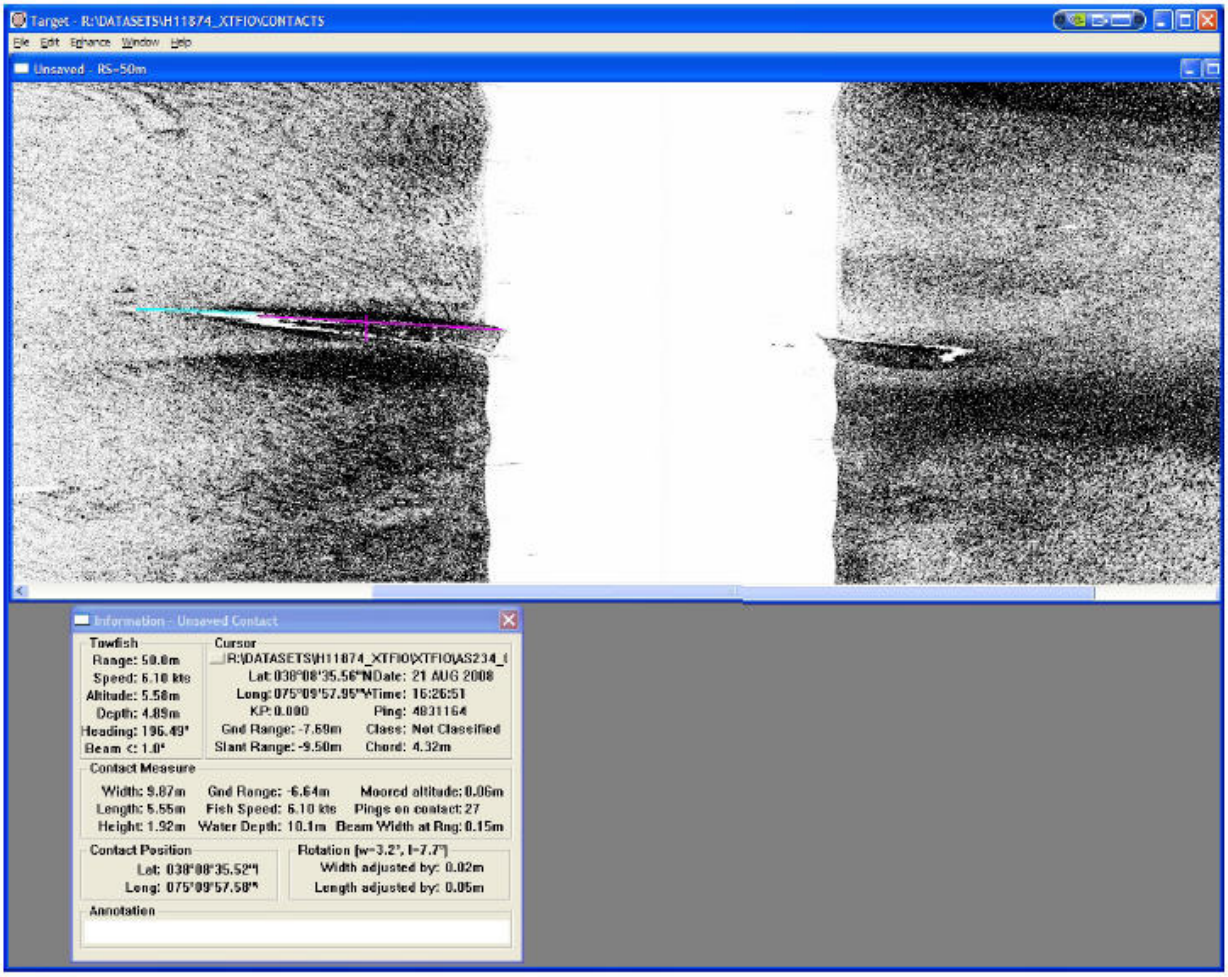

Target - R:\DATASETS\H11874_XTFIO\CONTACTS
File Edit Enhance Window Help
Unsaved - RS-50m
Information - Unsaved Contact
Towfish
Range: 50.0m
Speed: 6.10 kts
Altitude: 5.58m
Depth: 4.89m
Heading: 196.49°
Beam c: 1.0°
Cursor
R:\DATASETS\H11874_XTFIO\XTFIO\AS234_
Lat: 038°08'35.56"N Date: 21 AUG 2008
Long: 075°09'57.95"W Time: 16:26:51
KP: 0.000 Ping: 4831164
Gnd Range: -7.69m Class: Not Classified
Slant Range: -9.50m Chord: 4.32m
Contact Measure
Width: 9.87m Gnd Range: -6.64m Moored altitude: 0.06m
Length: 5.55m Fish Speed: 6.10 kts Pings on contact: 27
Height: 1.92m Water Depth: 10.1m Beam Width at Rng: 0.15m
Contact Position
Lat: 038°08'35.52"N
Long: 075°09'57.58"W
Rotation [w=3.2°, l=7.7°]
Width adjusted by: 0.02m
Length adjusted by: 0.05m
Annotation

Figure 1.1.5

H11874_DToN#3

Registry Number: H11874

State: Maryland

Locality: Atlantic Ocean

Sub-locality: East of Assateague Island

Project Number: OPR-D302-SA-08

Survey Date: 08/31/2008

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
12211	43rd	10/01/2007	1:80,000 (12211_1)	USCG LNM: 05/20/2008 (05/20/2008) NGA NTM: 05/09/1992 (05/24/2008)
12200	49th	06/01/2007	1:419,706 (12200_1)	[L]NTM: ?
13003	49th	04/01/2007	1:1,200,000 (13003_1)	[L]NTM: ?

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

Features

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Wreck	GP	15.82 m	38° 08' 57.8" N	075° 04' 52.5" W	---

1.3) H11874_DToN#3.xls

DANGER TO NAVIGATION

Survey Summary

Survey Position: 38° 08' 57.8" N, 075° 04' 52.5" W

Least Depth: 15.82 m (= 51.90 ft = 8.650 fm = 8 fm 3.90 ft)

TPU (±1.96σ): **THU (TPEh)** [None] ; **TVU (TPEv)** [None]

Timestamp: 2008-244.12:56:52.000 (08/31/2008)

GP Dataset: H11874_DToN#3.xls

GP No.: 1

Charts Affected: 12211_1, 12200_1, 13003_1

Remarks:

Depths are reduced to Mean Lower Low Water using predicted tides based on preliminary zoning. Positions are based on NAD-83. Positions were obtained using DGPS from a US Coast Guard Station.

The broken up wreck is lying on its side, approximately 45 meters long by 8 meters wide, and oriented 330°/150°. It lies in depths of 57 to 60 feet and has a least depth of 52 feet near the southeast end. There are multiple objects scattered about the wreck.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11874_DToN#3.xls	1	0.00	000.0	Primary

Hydrographer Recommendations

Recommend charting a 52 foot sounding with danger circle, blue tint (K-28) and label Wk in 38-08-57.84 N 075-04-52.54 W.

Cartographically-Rounded Depth (Affected Charts):

52ft (12211_1)

8 ½fm (12200_1, 13003_1)

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 2:dangerous wreck

SORDAT - 20080831

SORIND - US,US,survy,H11874

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

VALSOU - 15.82 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. Shown on chart 12211_1; 44th Ed., Feb 2011 and smaller scale charts as 52 foot wreck. Retain Charted 52 foot wreck at the present survey position.

Feature Images

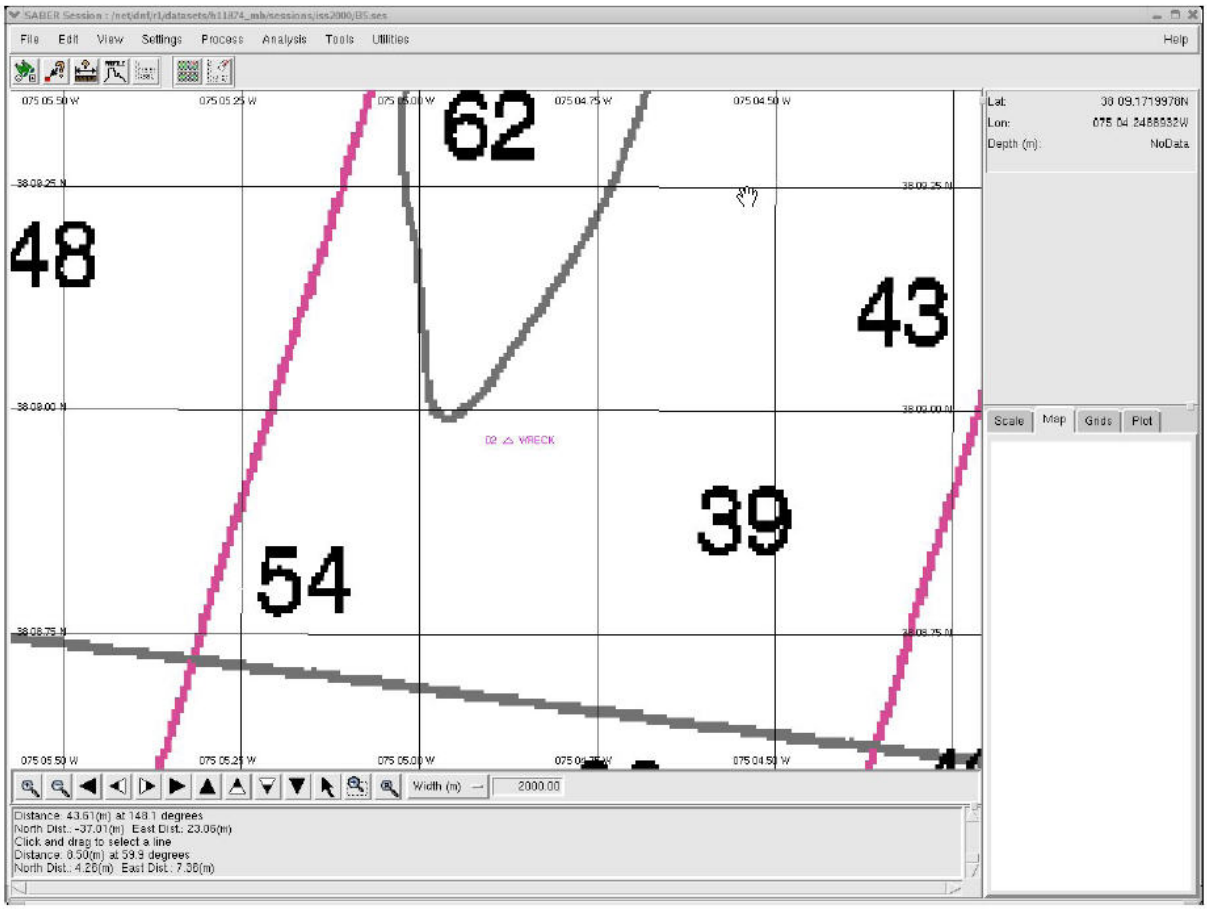


Figure 1. Chart 12211 Showing Location of Wreck with Least Depth of 52 Feet within H11874.

Figure 1.1.1

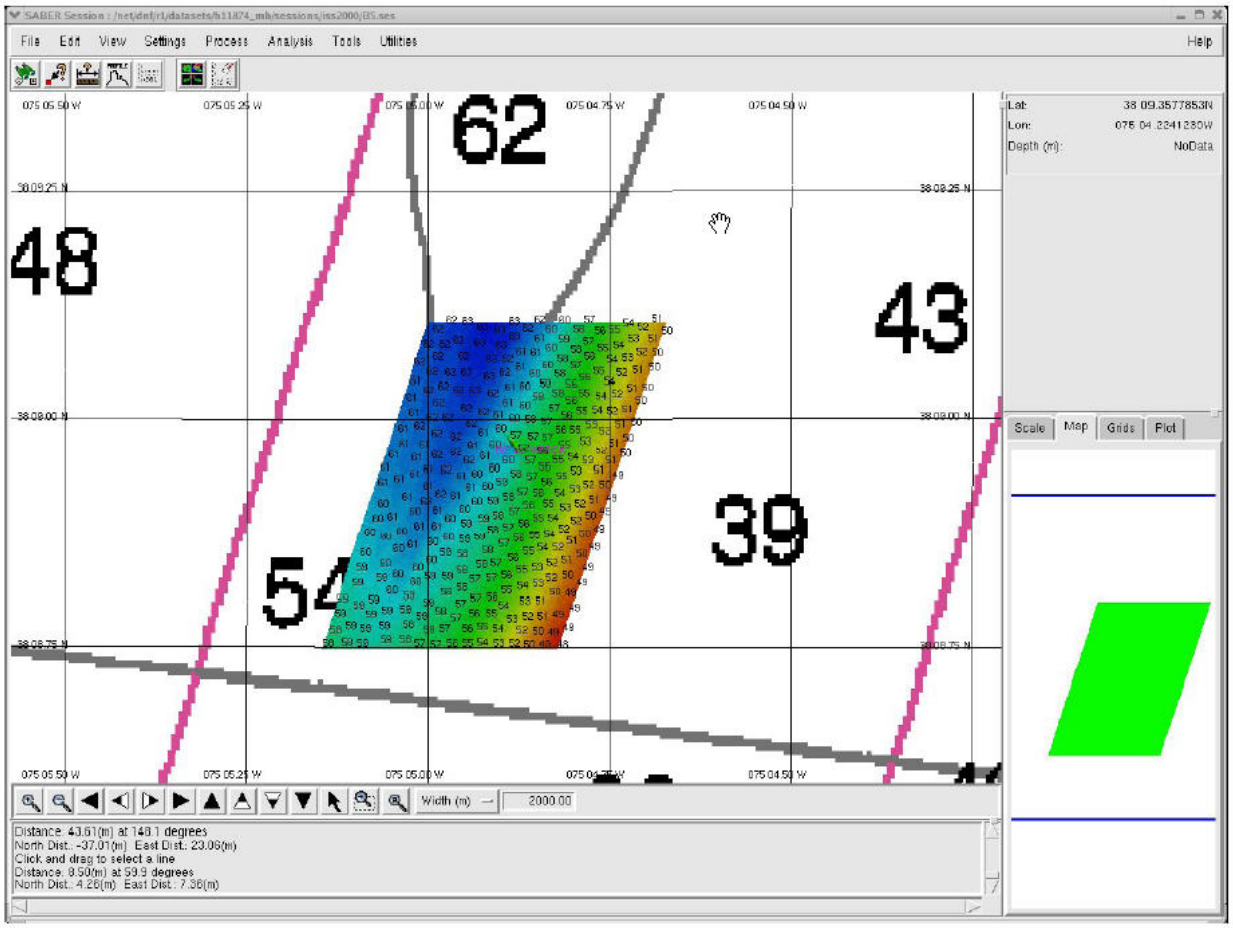


Figure 2. Chart 12211 Showing Selected Soundings and Coverage Grid around Wreck with Least Depth of 52 Feet within H11874.

Figure 1.1.2

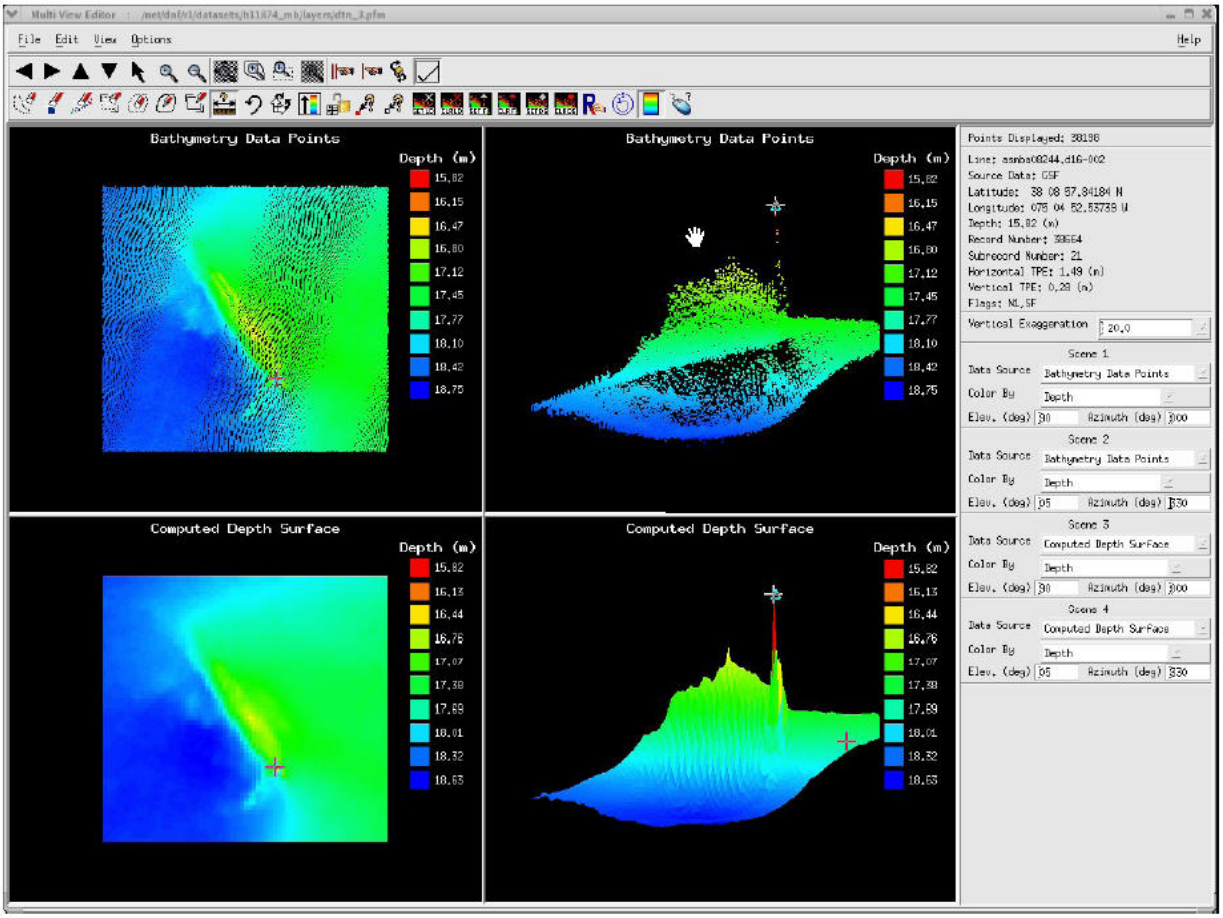


Figure 3. Multi-view Editor of PFM Grid Showing Wreck with Least Depth of 52 Feet within H11874.

Figure 1.1.3

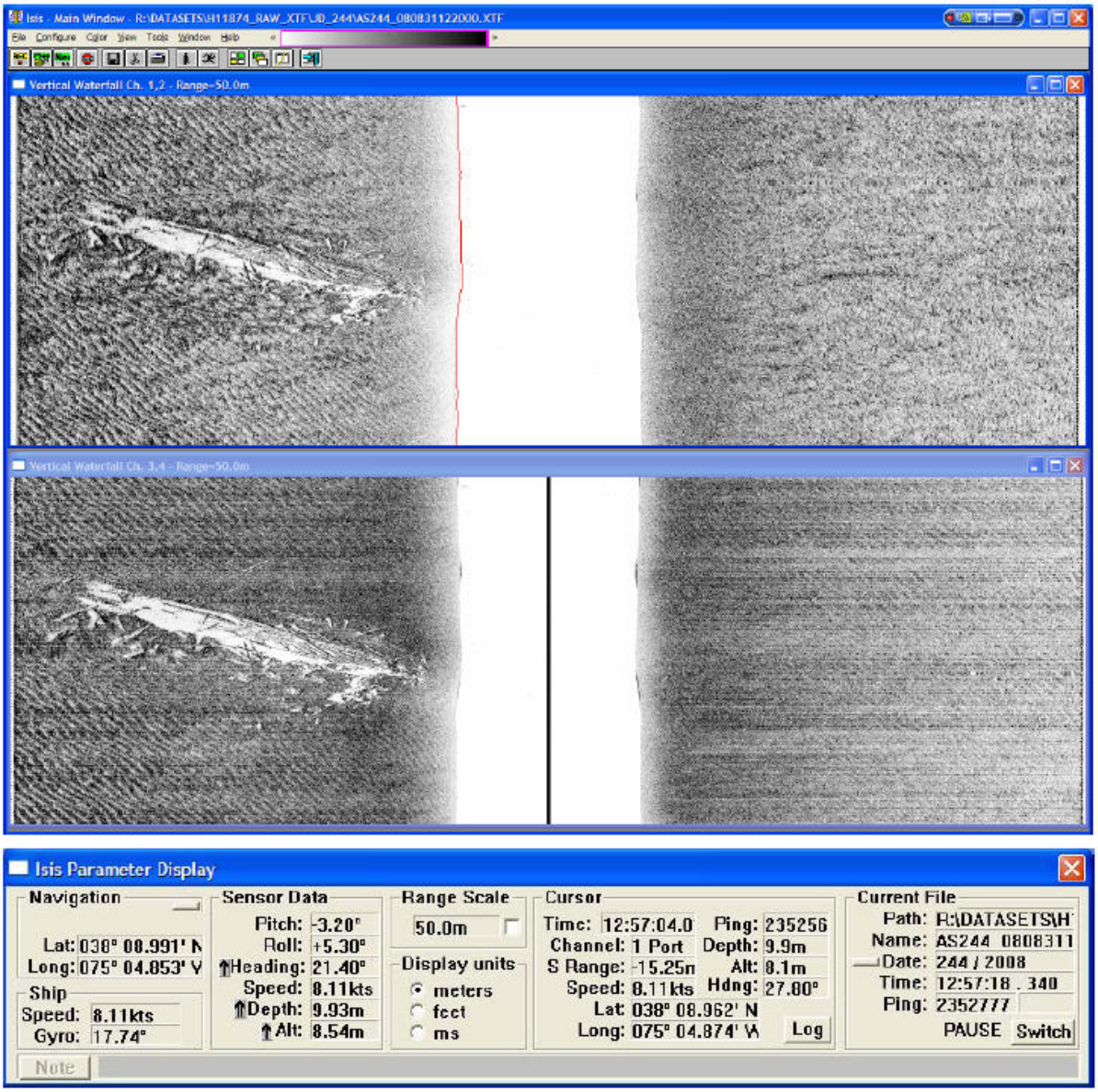

Isis - Main Window - R:\DATASETS\H11874_RAW_XTF\JD_244\AS244_0808311220000.XTF
File Configure Color View Tools Window Help
Vertical Waterfall Ch. 1,2 - Range=50.0m
Vertical Waterfall Ch. 3,4 - Range=50.0m
Isis Parameter Display
Navigation
Lat: 038° 08.991' N
Long: 075° 04.853' W
Ship
Speed: 8.11kts
Gyro: 17.74°
Sensor Data
Pitch: -3.20°
Roll: +5.30°
Heading: 21.40°
Speed: 8.11kts
Depth: 9.93m
Alt: 8.54m
Range Scale
50.0m
Display units
meters
feet
ms
Cursor
Time: 12:57:04.0
Ping: 235256
Channel: 1 Port
Depth: 9.9m
S Range: 15.25m
Alt: 8.1m
Speed: 8.11kts
Hdng: 27.80°
Lat: 038° 08.962' N
Long: 075° 04.874' W
Log
Current File
Path: R:\DATASETS\H
Name: AS244_0808311
Date: 244 / 2008
Time: 12:57:18 . 340
Ping: 2352777
PAUSE
Switch
Note

Figure 1.1.4

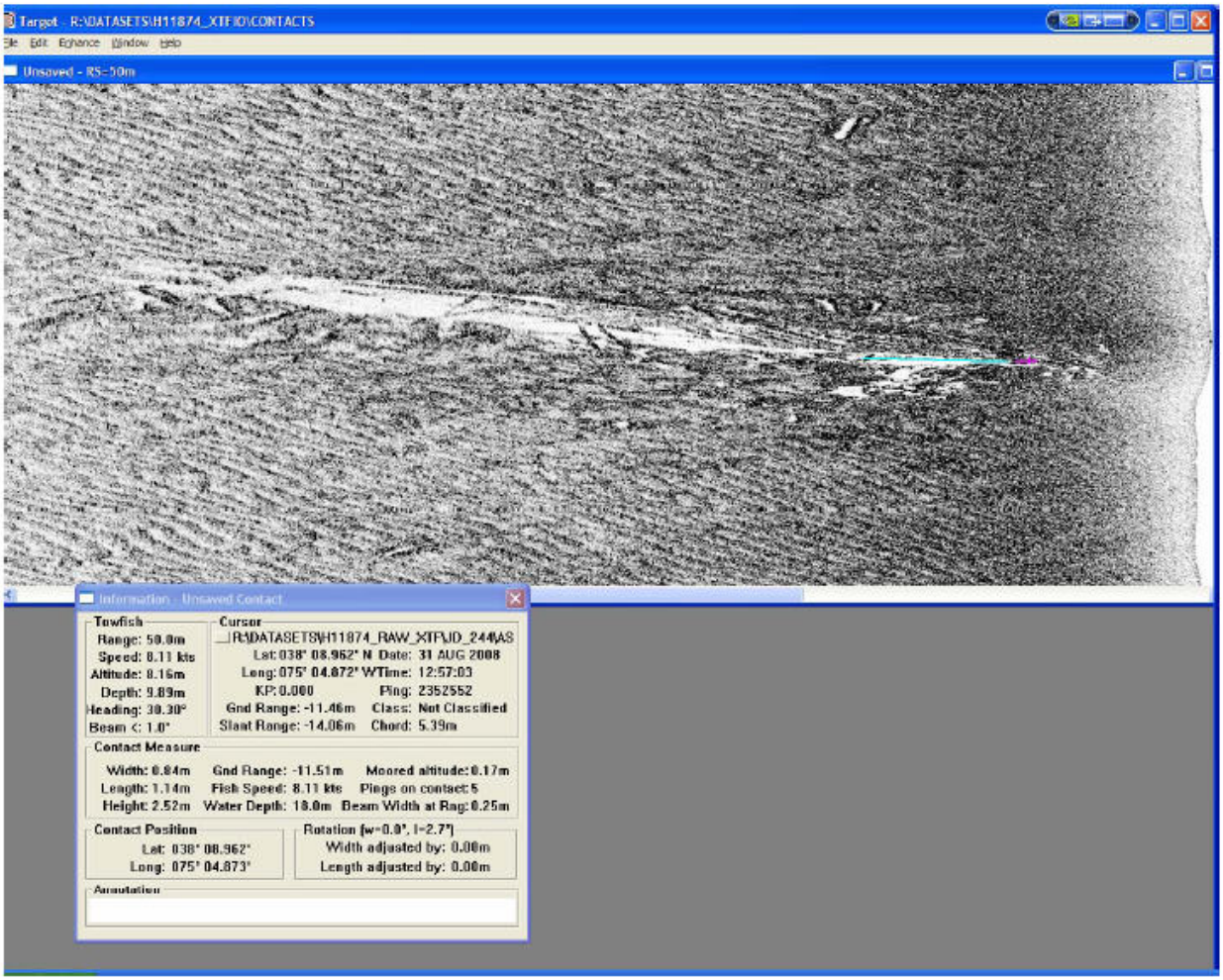


Figure 5. Sidescan Target Image of 52 Foot Wreck (100 kHz)

Figure 1.1.5

H11874_DtoN#4,6

Registry Number: H11874

State: Maryland

Locality: Atlantic Ocean

Sub-locality: East of Assateague Island

Project Number: OPR-D302-SA-08

Survey Dates: 08/12/2008 - 08/12/2009

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
12211	43rd	10/01/2007	1:80,000 (12211_1)	USCG LNM: 05/12/2009 (05/12/2009) NGA NTM: 05/09/1992 (05/16/2009)
12200	49th	06/01/2007	1:419,706 (12200_1)	[L]NTM: ?
13003	49th	04/01/2007	1:1,200,000 (13003_1)	[L]NTM: ?

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

Features

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	50ft Wreck	Wreck	15.23 m	38° 06' 56.7" N	075° 02' 49.9" W	---
1.2	53ft Wreck	Wreck	16.33 m	38° 05' 19.9" N	075° 03' 20.1" W	---

1.4) H11874_DtoN#4.xls

DANGER TO NAVIGATION

Survey Summary

Survey Position: 38° 06' 56.7" N, 075° 02' 49.9" W

Least Depth: 15.23 m (= 49.97 ft = 8.328 fm = 8 fm 1.97 ft)

TPU (±1.96σ): **THU (TPEh)** [None] ; **TVU (TPEv)** [None]

Timestamp: 2008-225.09:50:00.000 (08/12/2008)

GP Dataset: H11874_DtoN#4,6.xls

GP No.: 1

Charts Affected: 12211_1, 12200_1, 13003_1

Remarks:

Depths are reduced to Mean Lower Low Water using verified observed tides based on preliminary zoning. Positions are based on NAD-83. Positions were obtained using DGPS from a US Coast Guard Station.

The broken wreck is in two parts separated by approximately 30m. The northern section is lying upright, approximately 13 meters long by 16 meters wide, and oriented 340°/160°. It lies in depths of 53 to 54 feet and has a least depth of ~~50~~ 53 feet near the northwest end. The southern section is lying upside down, approximately 45 meters long by 11 meters wide, and oriented east/west. It lies in depths of 53 to 54 feet and has a least depth of ~~52~~ 54 feet near the center.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11874_DtoN#4,6.xls	1	0.00	000.0	Primary

Hydrographer Recommendations

Recommend charting a 50 foot sounding with danger circle, (K-28) and label Wk in 38-06-56.73N 075-02-49.87W.

Cartographically-Rounded Depth (Affected Charts):

~~50ft~~ 53ft (12211_1)

8 ¼fm (12200_1, 13003_1)

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 2:dangerous wreck

OBJNAM - 50ft Wreck

QUASOU - 6:least depth known

SORDAT - 20080812

SORIND - US,US,nsurf,H11874

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

VALSOU - ~~15.23 m~~ 16.33

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. This feature was submitted as a DTON to MCD, but was not applied to chart (12211_1; 44th Ed., Feb 2011, and smaller scale charts) Chart dangerous wreck at present survey position.

Feature Images

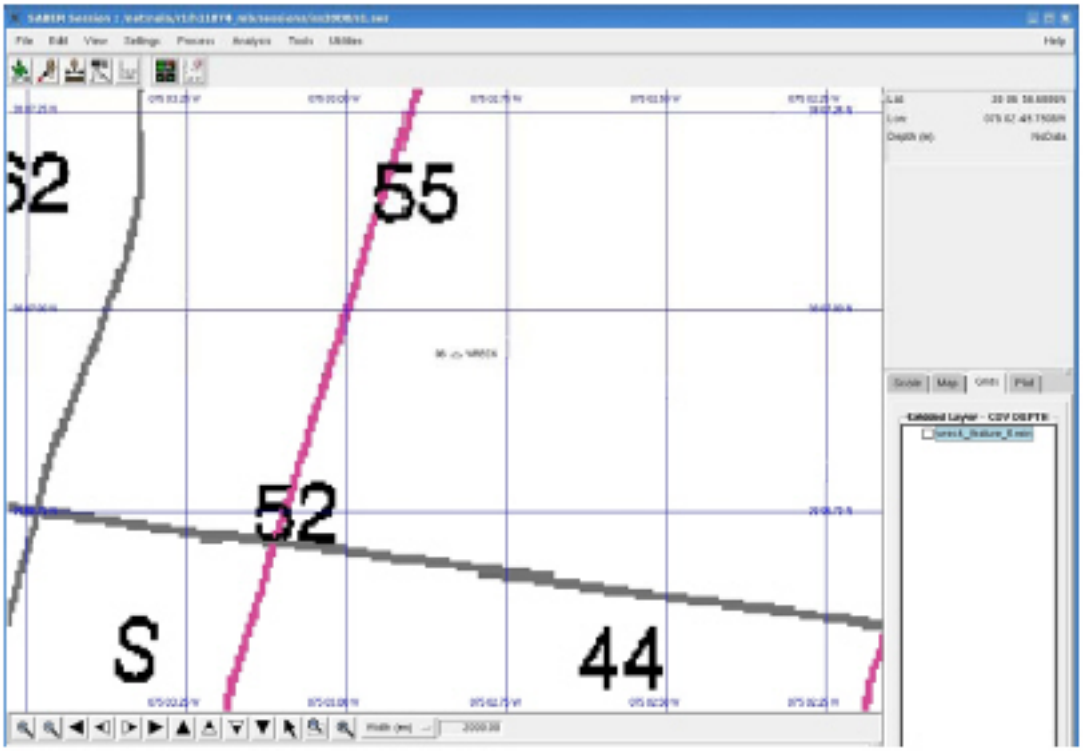


Figure 1. Chart 12211 showing Location of Wreck with Least Depth of 50 Feet within H11874.

Figure 1.1.1

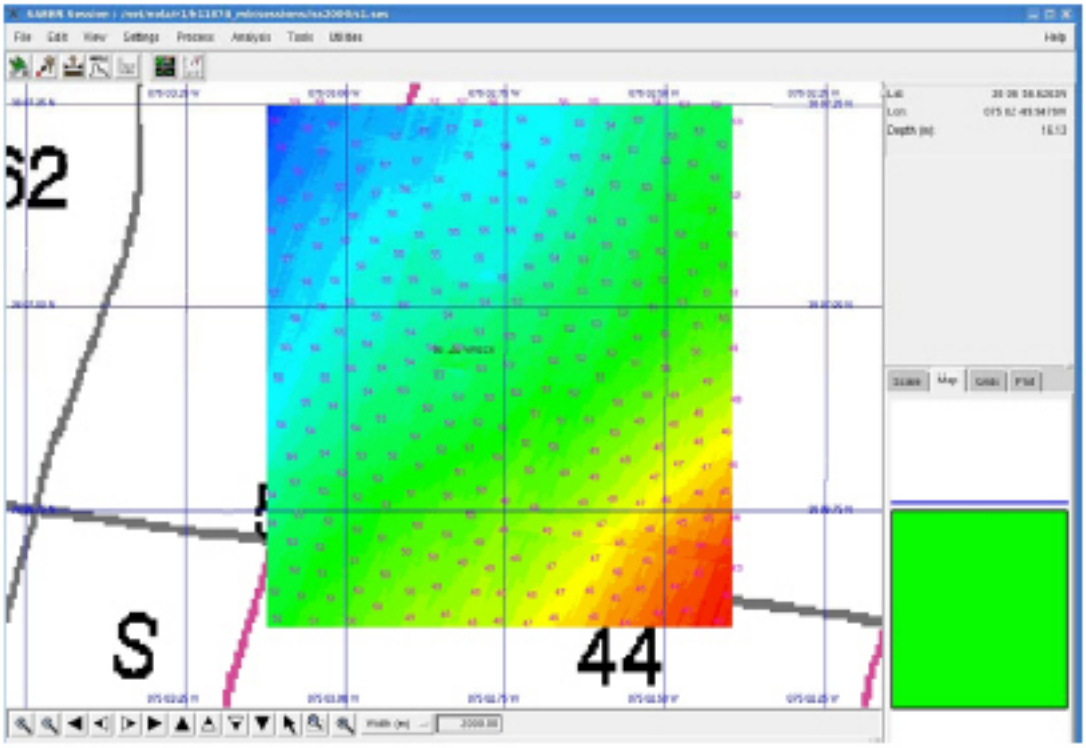


Figure 2. Chart 12211 Showing Selected Soundings and Coverage Grid around Wreck with Least Depth of 50 Feet within H11874.

Figure 1.1.2

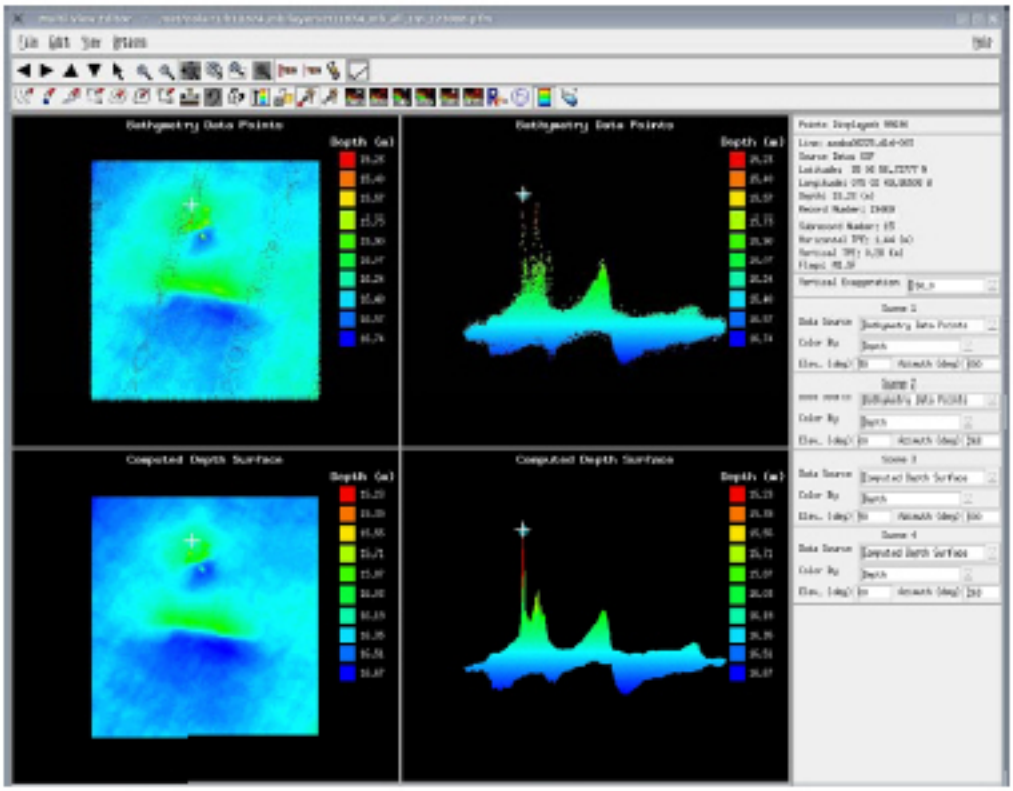


Figure 3. Multi-view Editor of PFM Grid Showing Wreck with Least Depth of 50 Feet within H11874.

Figure 1.1.3

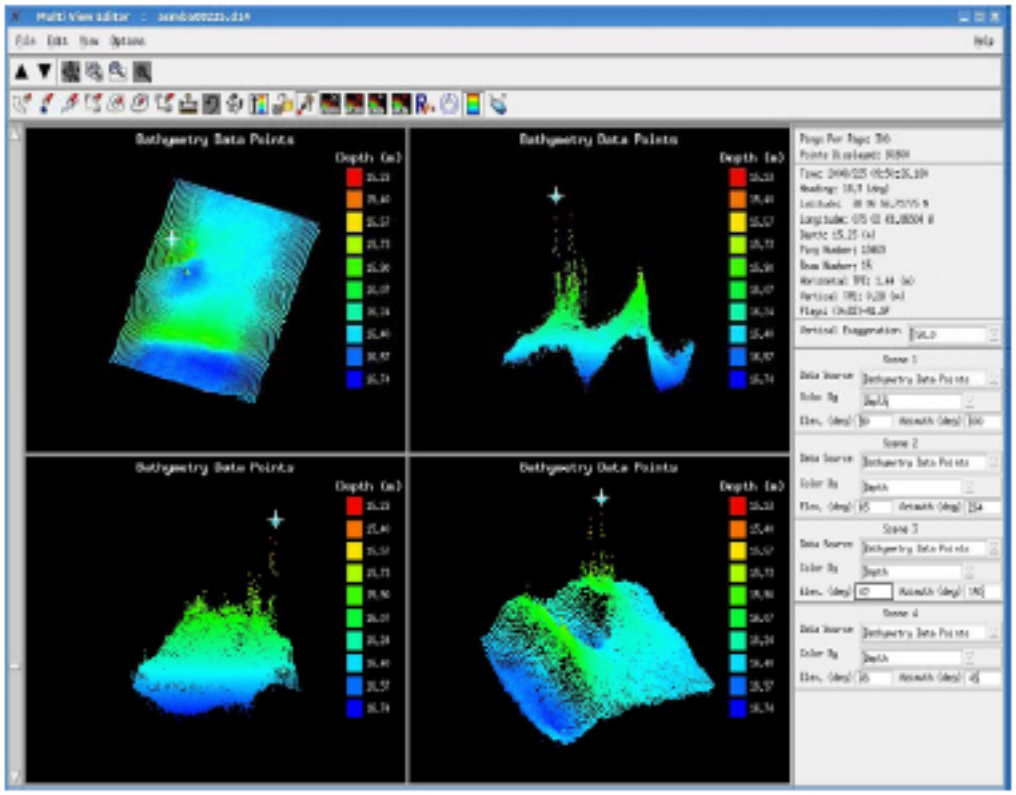


Figure 4. Multi-view Editor of GSF File asmba08225.d14 Showing Wreck with Least Depth of 50 Feet within H11874.

Figure 1.1.4

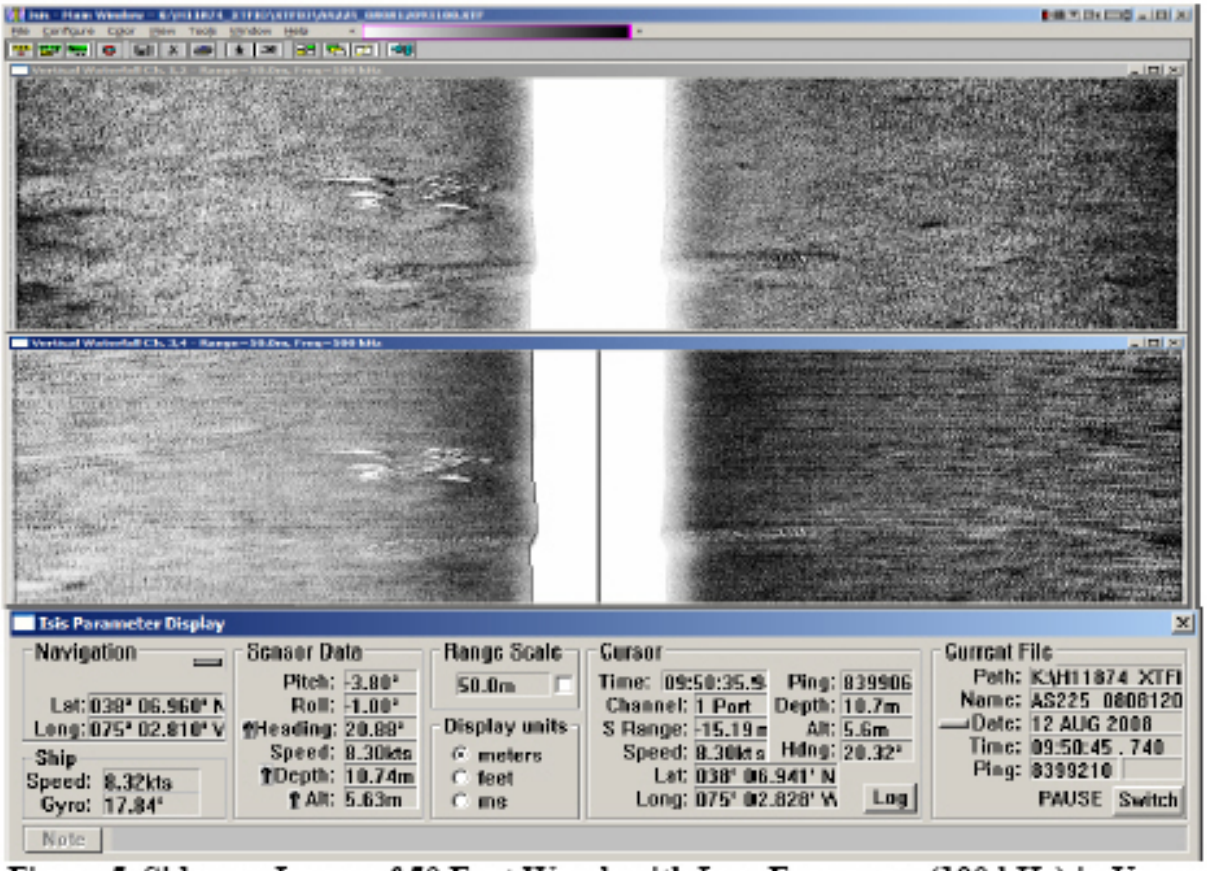


Figure 5. Sidescan Image of 50 Foot Wreck with Low Frequency (100 kHz) in Upper Pane and High Frequency (500 kHz) in Lower Pane within H11874.

Figure 1.1.5

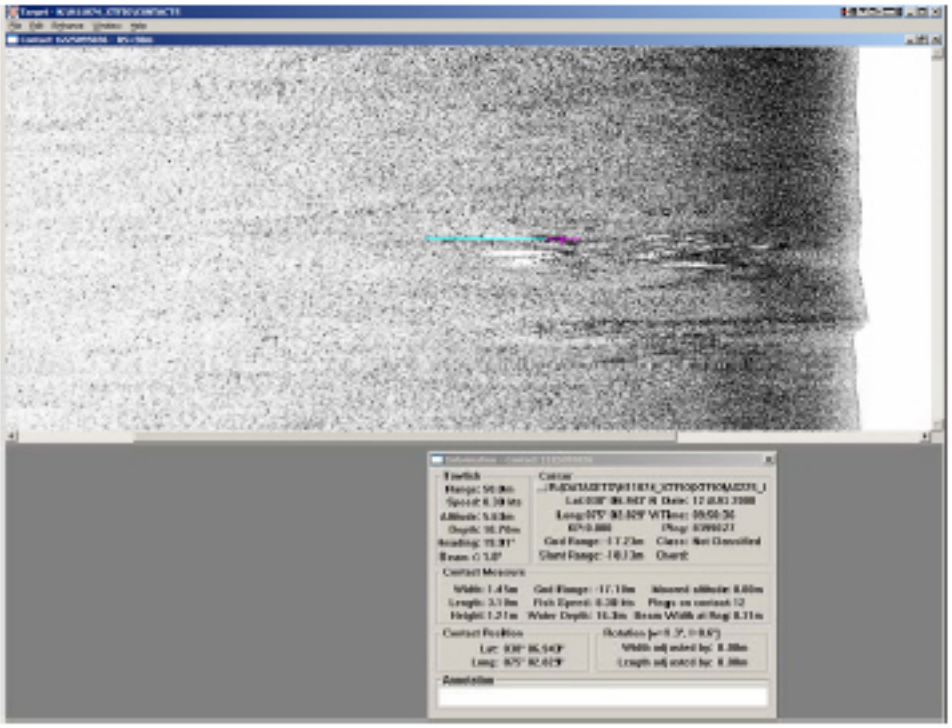


Figure 6. Sidescan Target Image of 50 Foot Wreck (100 kHz).

Figure 1.1.6

1.6) H11874_DtoN#6.xls

DANGER TO NAVIGATION

Survey Summary

Survey Position: 38° 05' 19.9" N, 075° 03' 20.1" W

Least Depth: 16.33 m (= 53.58 ft = 8.929 fm = 8 fm 5.58 ft)

TPU (±1.96σ): **THU (TPEh)** [None] ; **TVU (TPEv)** [None]

Timestamp: 2009-224.13:39:00.000 (08/12/2009)

GP Dataset: H11874_DtoN#4,6.xls

GP No.: 2

Charts Affected: 12211_1, 12200_1, 13003_1

Remarks:

Depths are reduced to Mean Lower Low Water using verified observed tides based on preliminary zoning. Positions are based on NAD-83. Positions were obtained using DGPS from a US Coast Guard Station.

The wreck is lying mostly buried, approximately 28 meters long by 9 meters wide, and oriented 50°/230°. It lies in depths of 55 to 58 feet and has a least depth of 53 feet near the center.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11874_DtoN#4,6.xls	2	0.00	000.0	Primary

Hydrographer Recommendations

The wreck is located approximately 300 meters northeast of a charted dangerous wreck in 38-05-11.82N, 075-03-26.75W labeled PA. Recommend removing the charted wreck, danger circle, blue tint and label PA in 38-05-11.82N, 075-03-26.75W and charting a 53 foot sounding with danger circle, blue tint (K-28) and label Wk in 38-05-19.91N, 075-03-20.07W.

Cartographically-Rounded Depth (Affected Charts):

53ft (12211_1)

8 ¾fm (12200_1, 13003_1)

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 2:dangerous wreck

OBJNAM - 53ft Wreck

QUASOU - 6:least depth known

SORDAT - 20080812

SORIND - US,US,nsurf,H11874

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

VALSOU - 16.33 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. This is AWOIS #14228, dangerous wreck PA, least depth unknown. The feature was submitted as DTON #6 to MCD, but was not charted on chart 12211_1; 44th Ed., Feb 2011, and smaller scale charts Office processing determined that the feature is a wreck and is in agreement with the description of the AWOIS as Fishing Vessel “Hiwal”, sunken in 1967. Delete dangerous wreck PA, least depth unknown. Chart dangerous wreck, least depth 53 feet at the present survey position. Update AWOIS database.

History:
--NM50/67--CG Portsmouth, 10/31/1967; F/V Hiwal reported sunk in 48ft of water PA 38/5.2N 75/3.5W. Wreck reported unmarked. See also LNM 45/67. (ETR 08/05/2008)
--H09788/1978; NOS --Wreck existence neither disproved or confirmed, remained charted. No depths shoaler than main scheme hydrography found. Position listed as 38/05.22N 75/3.45W (ETR 08/05/2008)

Feature Images

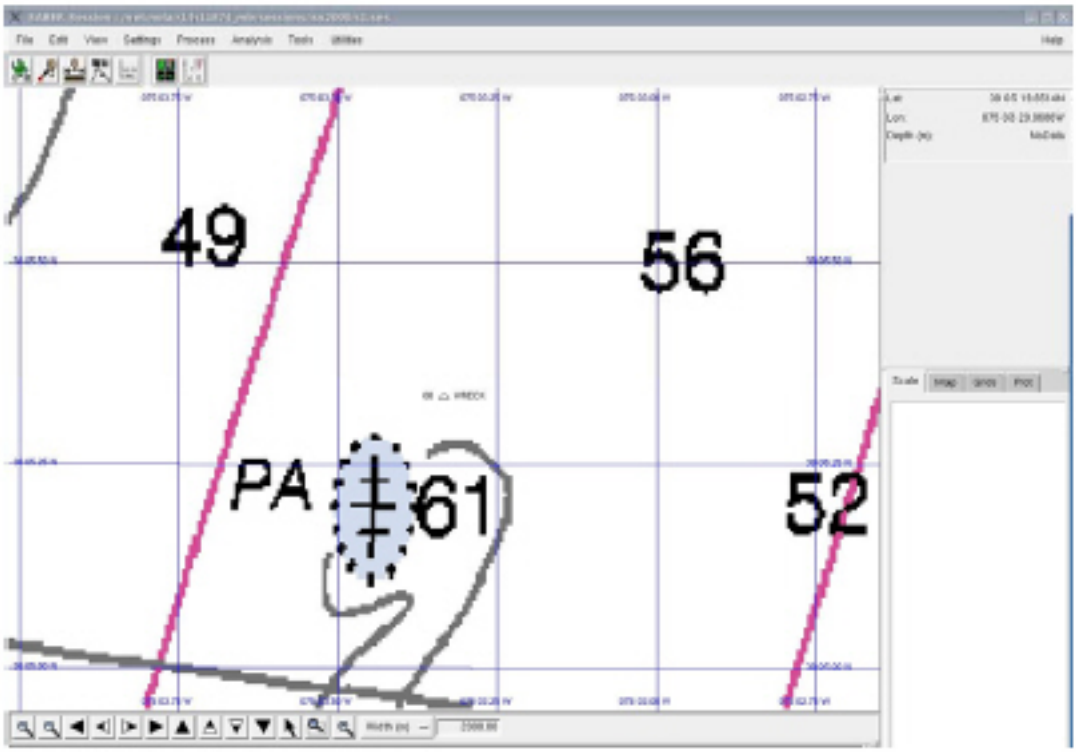


Figure 1. Chart 12211 showing Location of Wreck with Least Depth of 53 Feet within H11874.

Figure 1.2.1

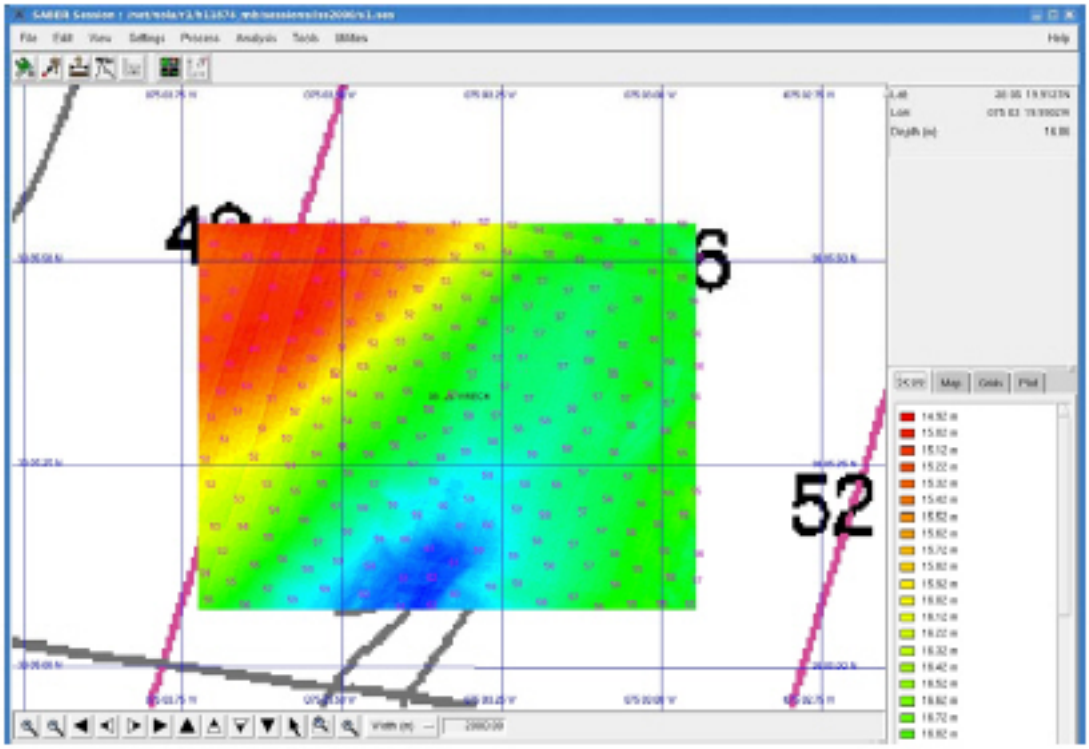


Figure 2. Chart 12211 Showing Selected Soundings and Coverage Grid around Wreck with Least Depth of 53 Feet within H11874.

Figure 1.2.2

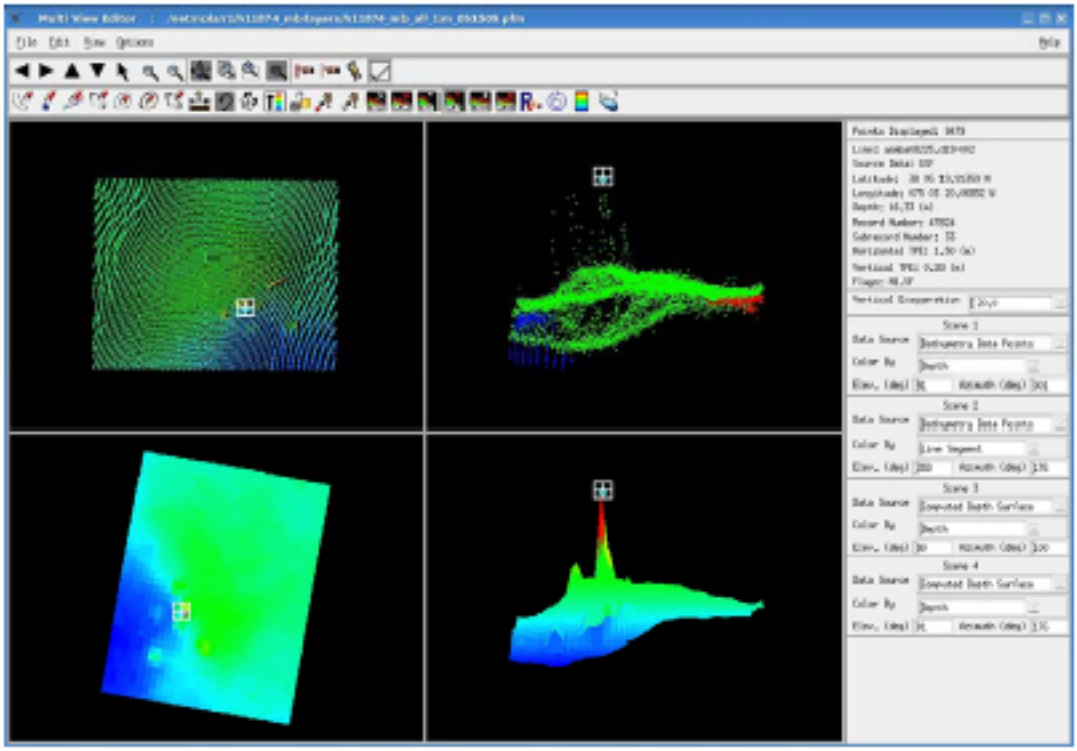


Figure 3. Multi-view Editor of PFM Grid Showing Wreck with Least Depth of 53 Feet within H11874.

Figure 1.2.3

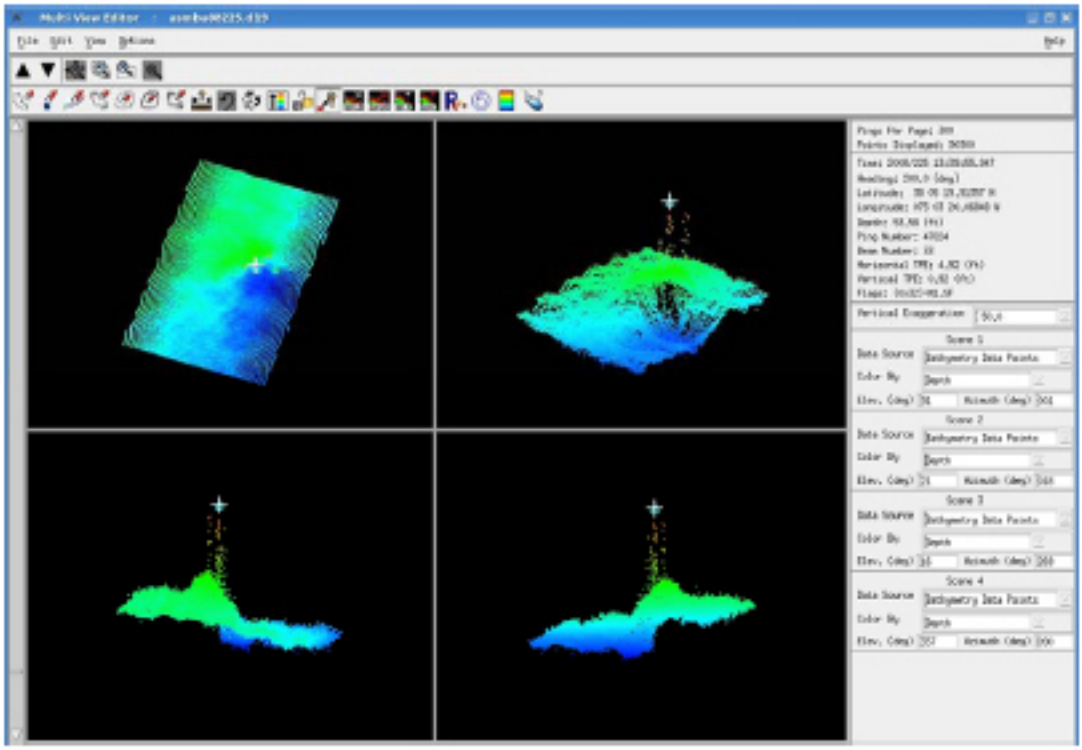


Figure 4. Multi-view Editor of GSF File asmba08225.d19 Showing Wreck with Least Depth of 53 Feet within H11874.

Figure 1.2.4

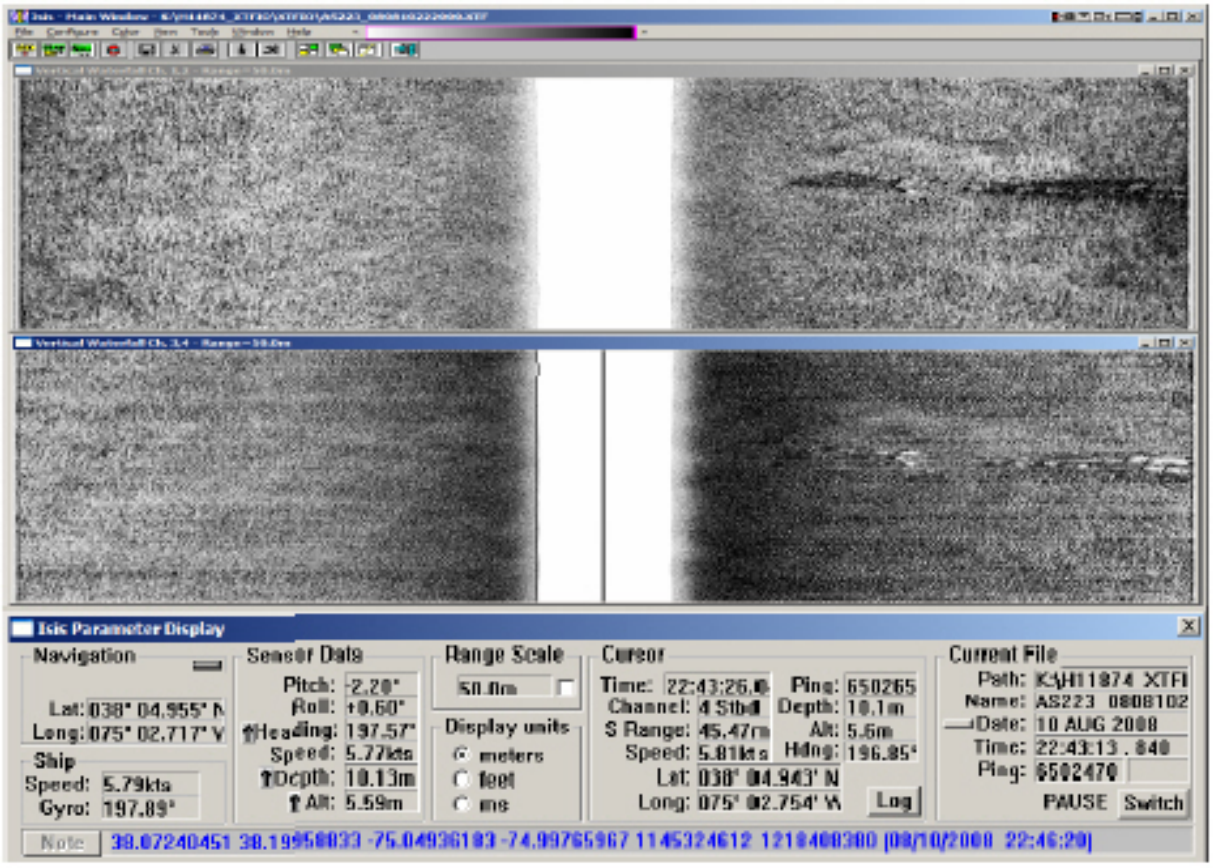


Figure 5. Sidescan Image of 53 Foot Wreck with Low Frequency (100 kHz) in Upper Pane and High Frequency (500 kHz) in Lower Pane within H11874.

Figure 1.2.5

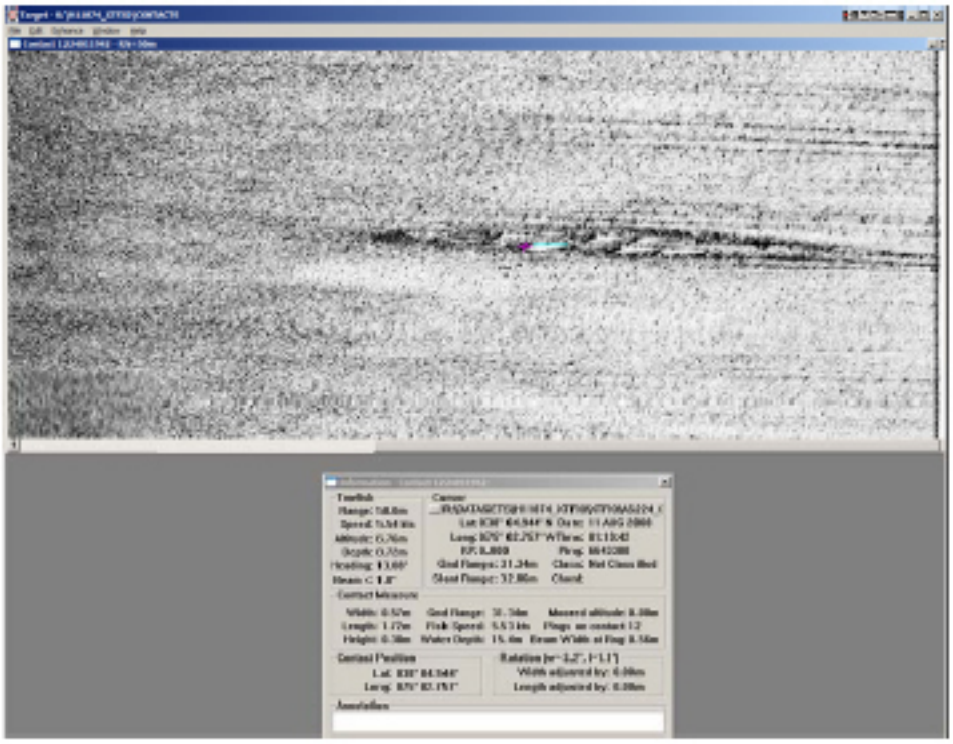


Figure 6. Sidescan Target Image of 53 Foot Wreck (100 kHz).

Figure 1.2.6

Appendix II
Survey Feature Report

APPENDIX II. SURVEY FEATURE REPORT

*See also Descriptive Report Section D for feature reports

This supporting survey feature report consists of the 39 attached files as described below:

- One Excel spreadsheet and one corresponding PDF file, titled *H11874_Multibeam_Features_List.xls*, listing all significant multibeam features that correspond to the objects in the S-57 feature file. Also, all of the features included in this table, with the exception of the buoys, will override the CUBE best estimate of the depth in the final BAG files.
- One Excel spreadsheet and one corresponding PDF file, titled *H11874_All_Designated_Soundings.xls*. There were 42 designated soundings set across this sheet to help better preserve the shallowest soundings relative to the computed depth surface in addition to the significant features that were set. All of the depths flagged as designated soundings presented in this table will override the CUBE best estimate of the depth in the final BAG files.
- One Excel spreadsheet and one corresponding PDF file, titled *H11874_Side_Scan_Contacts_List.xls*, listing all sidescan contacts identified on H11874.
- 33 PDF files containing feature correlator sheets, listed below:

H11874_Feature_01.PDF
H11874_Feature_02.PDF
H11874_Feature_03.PDF
H11874_Feature_04.PDF
H11874_Feature_05.PDF
H11874_Feature_06.PDF
H11874_Feature_07.PDF
H11874_Feature_08.PDF
H11874_Feature_09.PDF
H11874_Feature_10.PDF
H11874_Feature_11.PDF
H11874_Feature_12.PDF
H11874_Feature_13.PDF
H11874_Feature_14.PDF
H11874_Feature_15.PDF
H11874_Feature_16.PDF
H11874_Feature_17.PDF
H11874_Feature_18.PDF
H11874_Feature_19.PDF
H11874_Feature_20.PDF
H11874_Feature_21.PDF
H11874_Feature_22.PDF
H11874_Feature_23.PDF
H11874_Feature_24.PDF
H11874_Feature_25.PDF
H11874_Feature_26.PDF
H11874_Feature_27.PDF
H11874_Feature_28.PDF
H11874_Feature_29.PDF
H11874_Feature_30.PDF
H11874_Feature_31.PDF
H11874_Feature_32.PDF
H11874_Feature_33.PDF

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0001 Least Depth: 50(ft), 15.44(m) Lat: 38 04 56.60N Lon: 075 02 45.19W Ping: 3490 Beam: 42

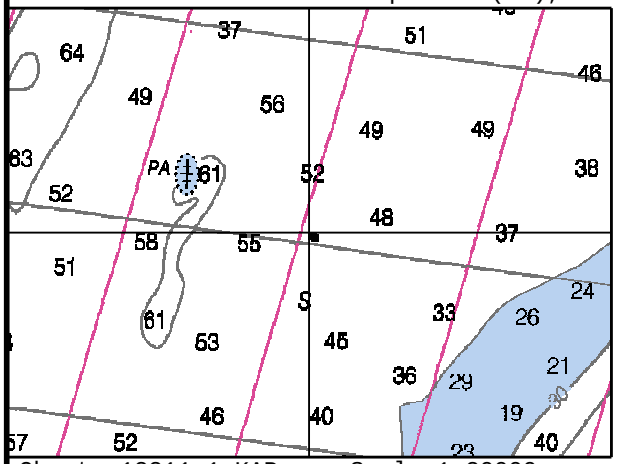


Chart: 12211_1.KAP Scale 1:20000

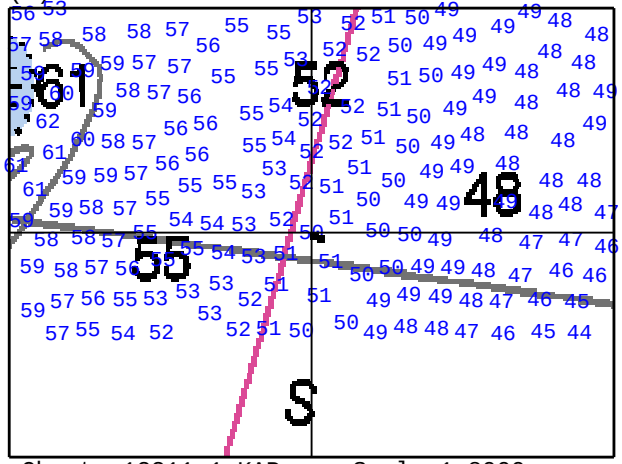
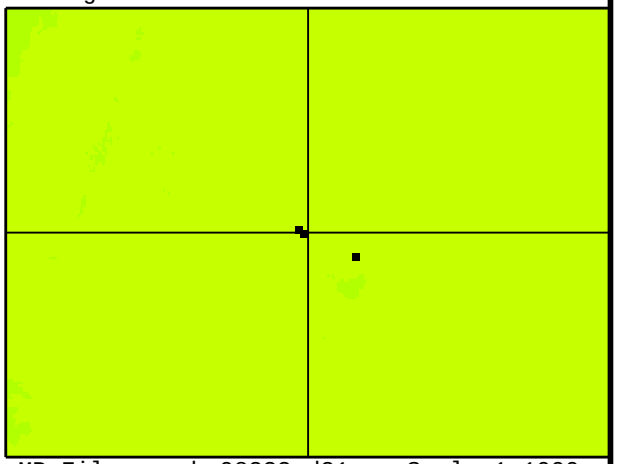
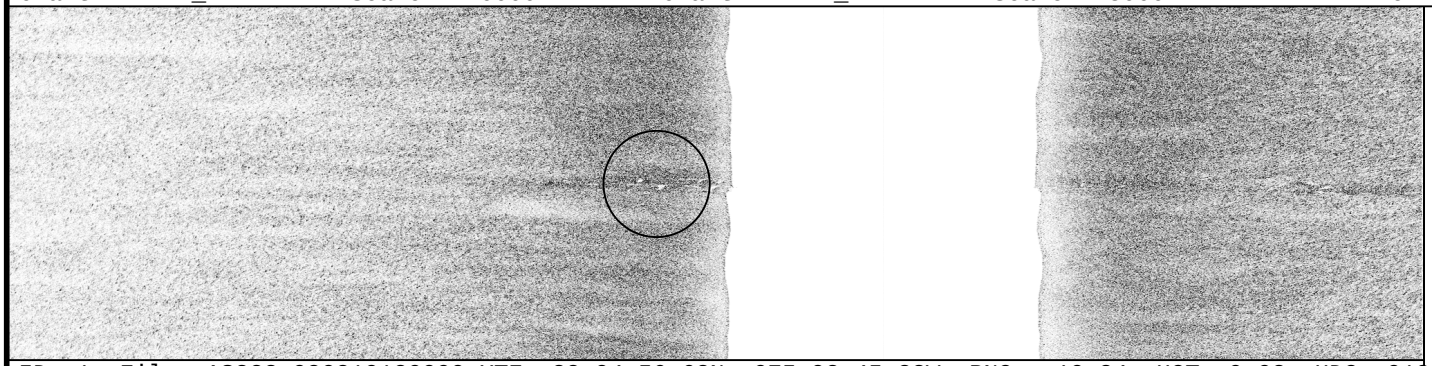


Chart: 12211_1.KAP Scale 1:8000

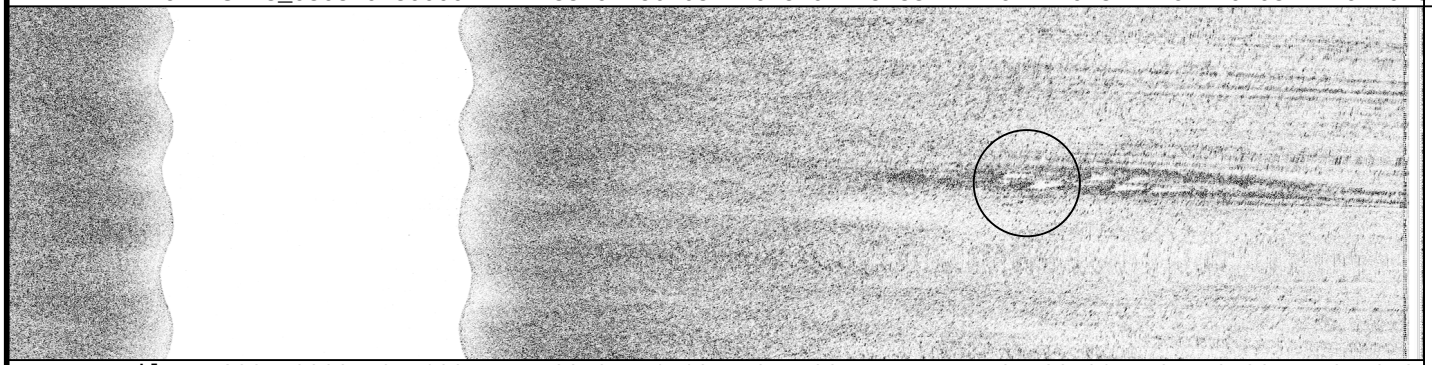


MB File: asmba08223.d21 Scale 1:1000



ID: 1 File: AS223_080810180000.XTF 38 04 56.63N 075 02 45.33W RNG: -10.34 HGT: 0.03 HDG: 018

COMMENT:
WRECK. Chart sounding and danger circle with blue tint and label 'Wk'. Danger to Navigation #5.



ID: 5 File: AS224_080811011600.XTF 38 04 56.68N 075 02 45.41W RNG: 32.06 HGT: 0.30 HDG: 013

CORRELATED SS CONTACTS:

Contact	Range/Height
1223180413	-10.34/0.03
1224011942	32.06/0.30
1223224326	24.75/0.33

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0002 Least Depth: 47(ft), 14.47(m) Lat: 38 11 16.32N Lon: 075 00 22.79W Ping: 15901 Beam: 14

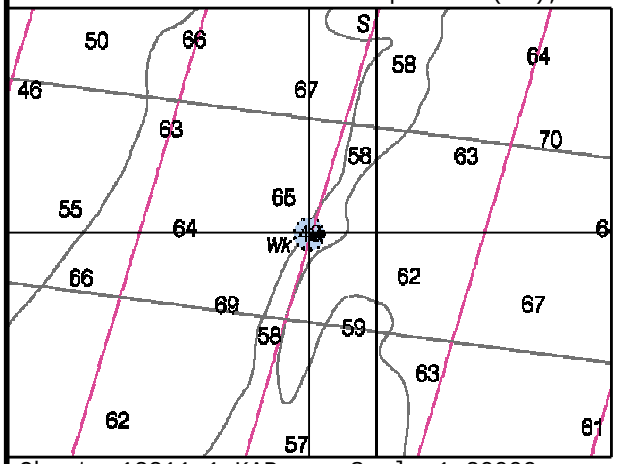


Chart: 12211_1.KAP Scale 1:20000

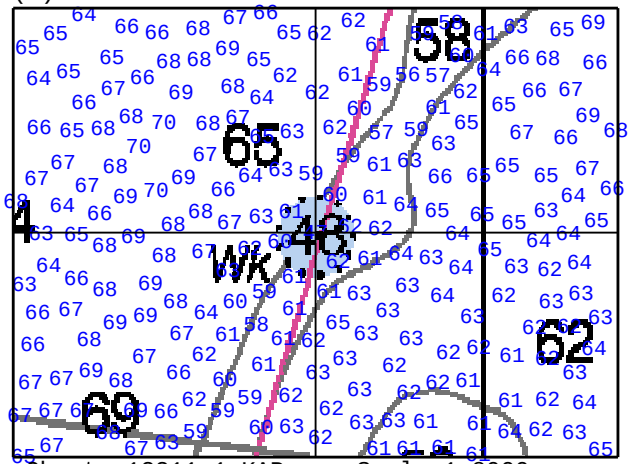
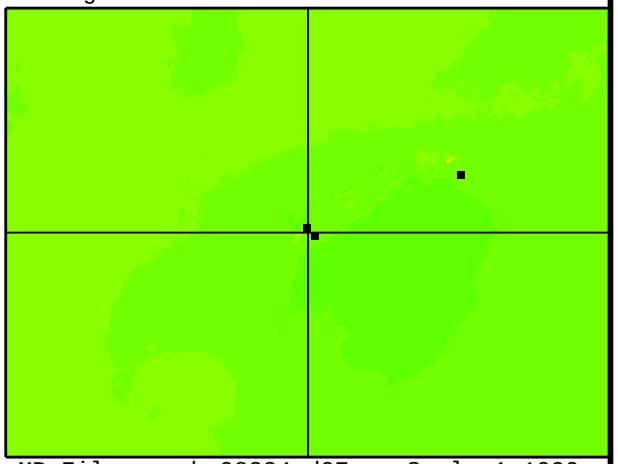
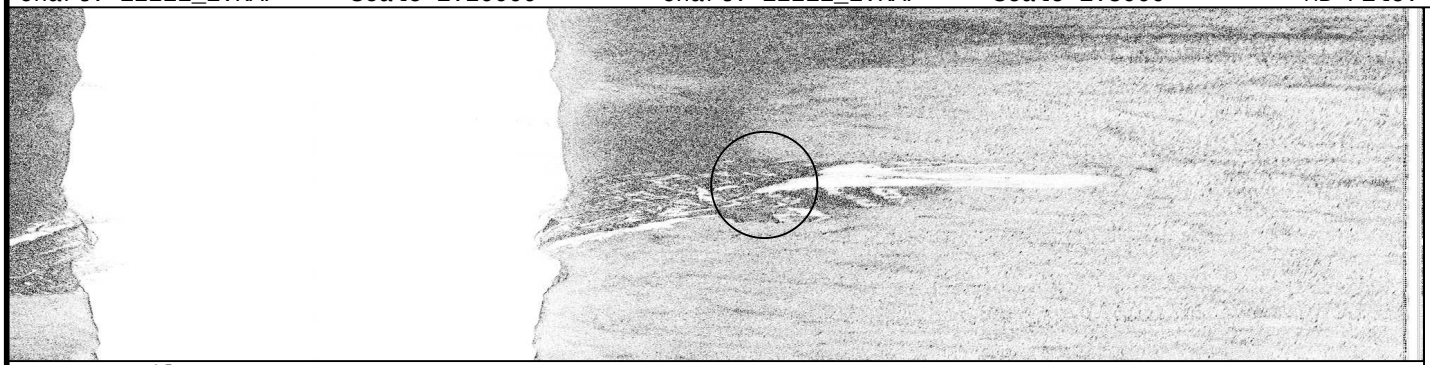


Chart: 12211_1.KAP Scale 1:8000

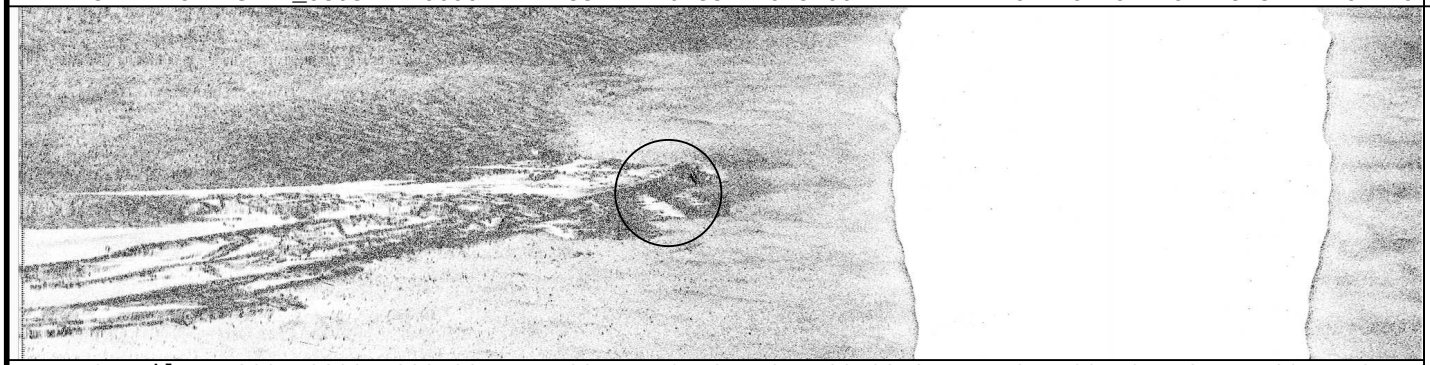


MB File: asmba08224.d07 Scale 1:1000



ID: 13 File: AS224_080811110600.XTF 38 11 16.33N 075 00 22.74W RNG: 20.19 HGT: 5.32 HDG: 197

COMMENT:
WRECK. Chart sounding and danger circle with blue tint and label 'Wk'. Danger to Navigation #1. AWOIS 1029.



ID: 10 File: AS224_080811083100.XTF 38 11 16.43N 075 00 22.87W RNG: -20.12 HGT: 5.89 HDG: 199

CORRELATED SS CONTACTS:

Contact	Range/Height
1224111319	20.19/5.32
1224083833	-20.12/5.89
1224053305	-13.28/3.81

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0003 Least Depth: 61(ft), 18.60(m) Lat: 38 11 19.97N Lon: 075 00 14.72W Ping: 20824 Beam: 74

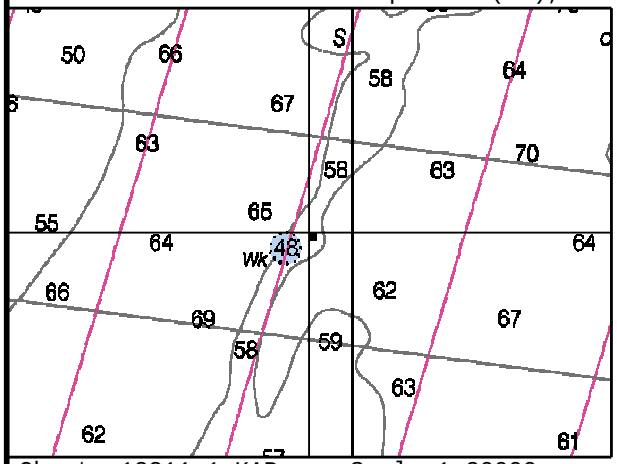


Chart: 12211_1.KAP Scale 1:20000

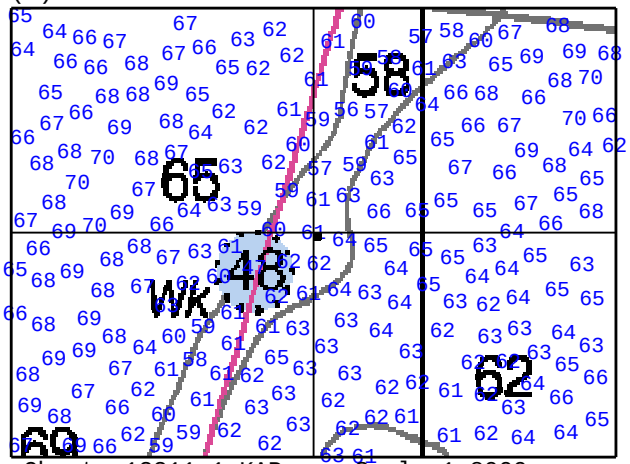
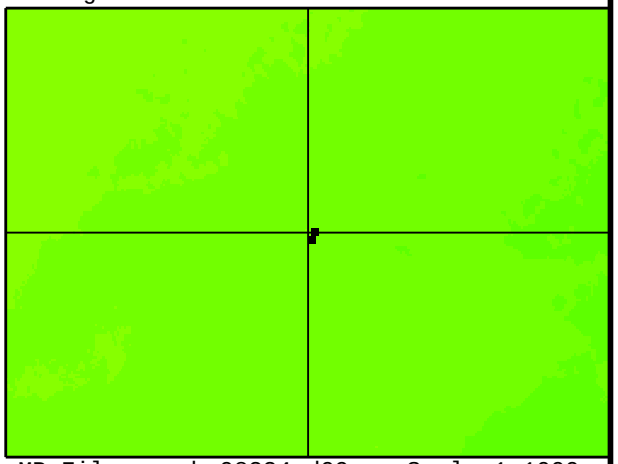
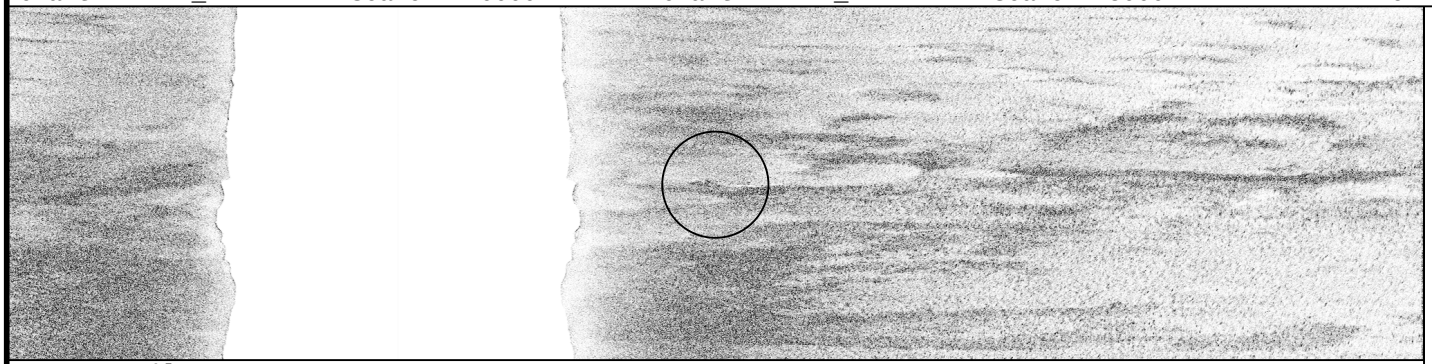


Chart: 12211_1.KAP Scale 1:8000

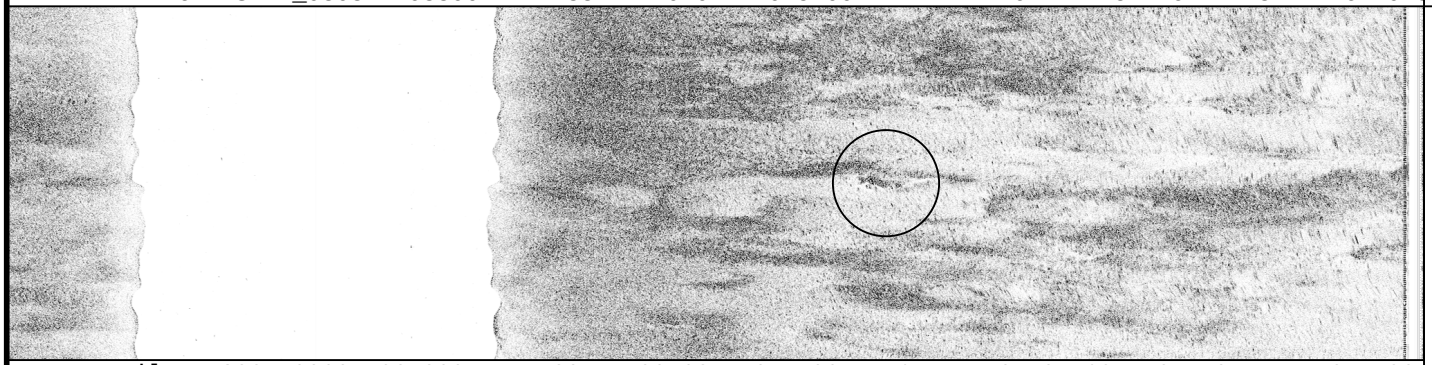


MB File: asmba08224.d09 Scale 1:1000



ID: 12 File: AS224_080811103800.XTF 38 11 19.92N 075 00 14.72W RNG: 14.25 HGT: 1.32 HDG: 015

COMMENT:
OBSTR. No chart. Feature 2 charting recommendation encompasses this feature.



ID: 7 File: AS224_080811024300.XTF 38 11 20.03N 075 00 14.67W RNG: 25.69 HGT: 0.55 HDG: 192

CORRELATED SS CONTACTS:

Contact	Range/Height
1224110139	14.25/1.32
1224024955	25.69/0.55

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0004 Least Depth: 59(ft), 18.04(m) Lat: 38 11 22.51N Lon: 075 00 23.38W Ping: 60005 Beam: 91

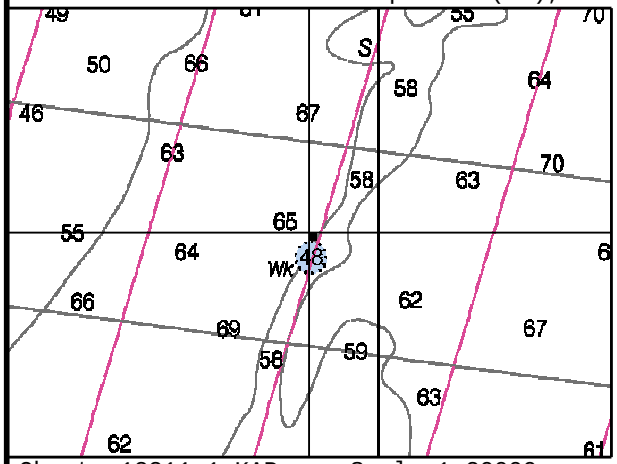


Chart: 12211_1.KAP Scale 1:20000

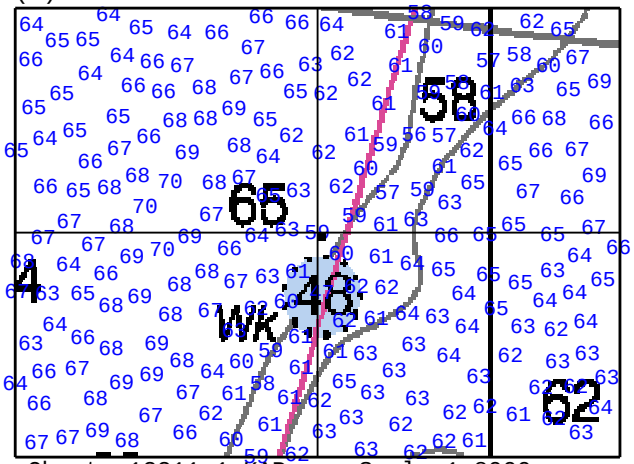
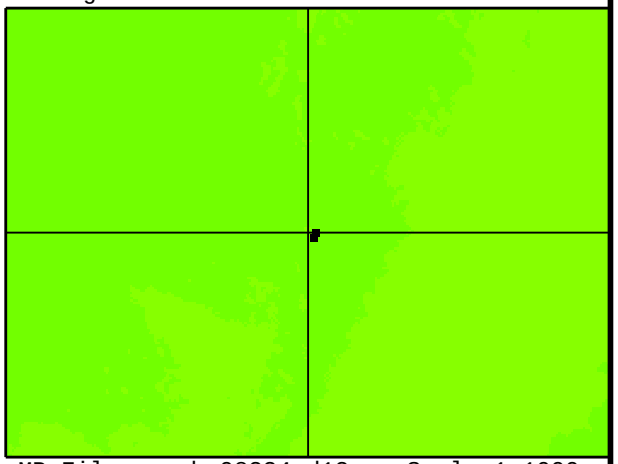
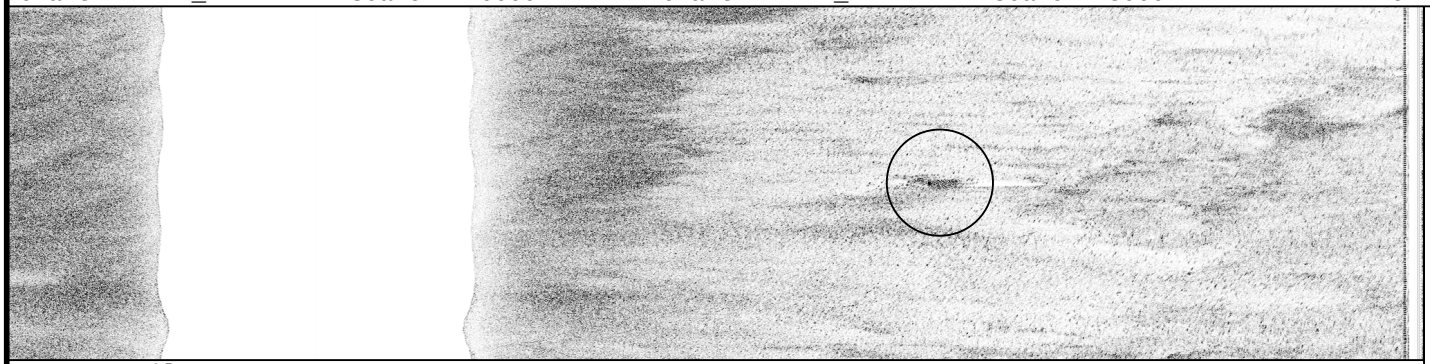


Chart: 12211_1.KAP Scale 1:8000

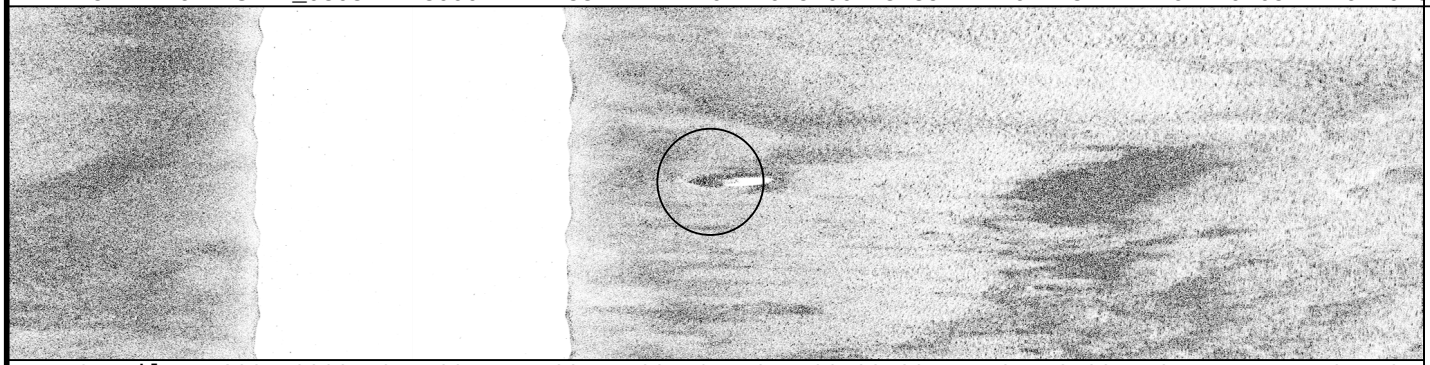


MB File: asmba08224.d12 Scale 1:1000



ID: 15 File: AS224_080811123000.XTF 38 11 22.49N 075 00 23.35W RNG: 28.12 HGT: 0.65 HDG: 018

COMMENT:
OBSTR. No chart. Feature 2 charting recommendation encompasses this feature.



ID: 9 File: AS224_080811055500.XTF 38 11 22.56N 075 00 23.32W RNG: 13.38 HGT: 1.11 HDG: 194

CORRELATED SS CONTACTS:

Contact	Range/Height
1224132536	28.12/0.65
1224060219	13.38/1.11

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0005 Least Depth: 61(ft), 18.80(m) Lat: 38 09 54.35N Lon: 075 01 24.27W Ping: 40820 Beam: 88

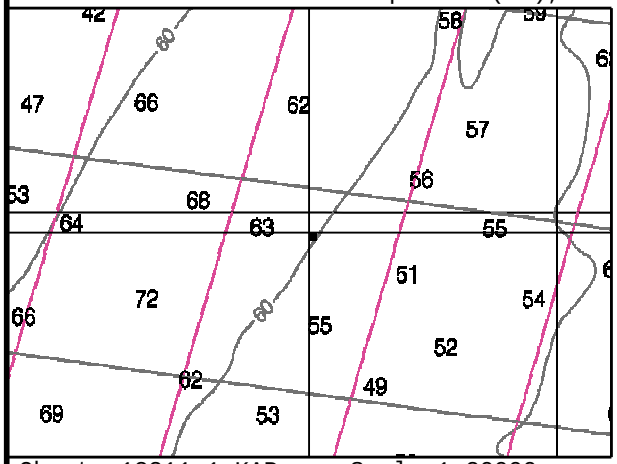


Chart: 12211_1.KAP Scale 1:20000

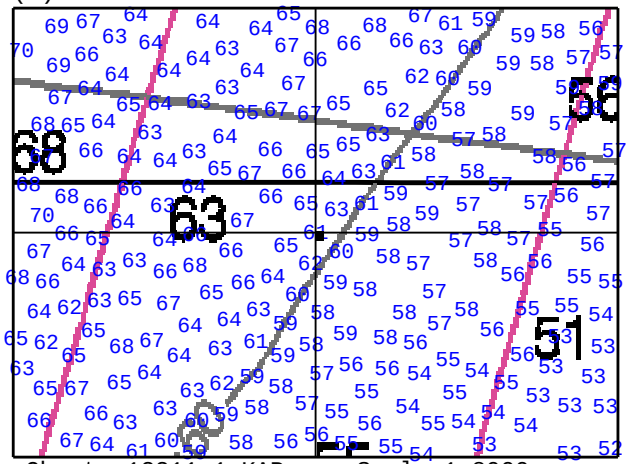
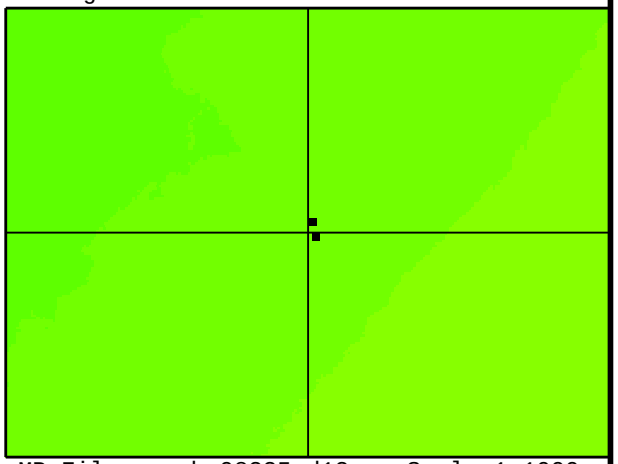
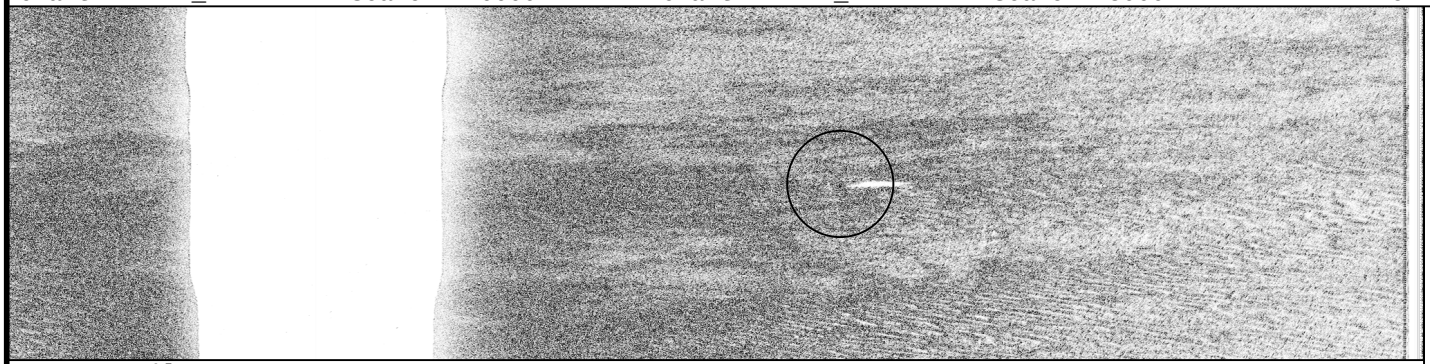


Chart: 12211_1.KAP Scale 1:8000

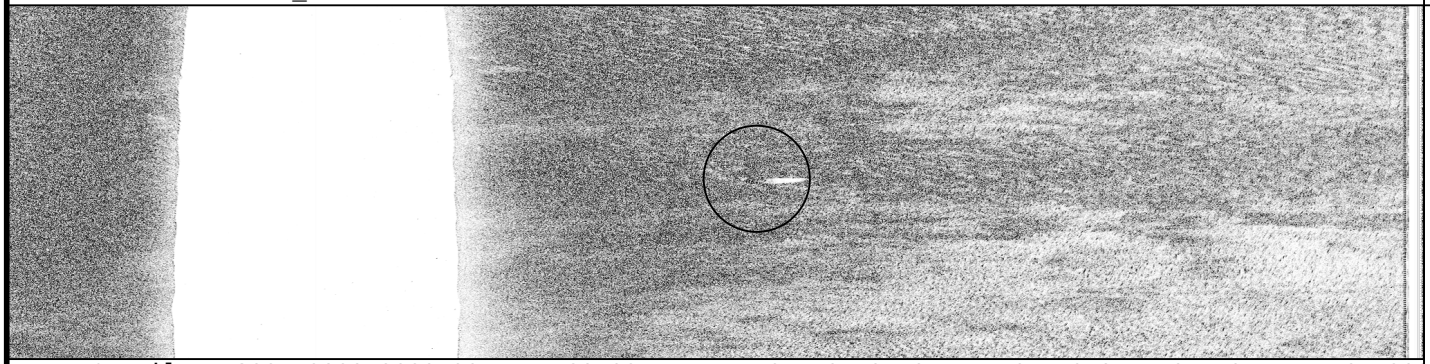


MB File: asmba08225.d12 Scale 1:1000



ID: 18 File: AS225_080812072900.XTF 38 09 54.34N 075 01 24.20W RNG: 23.62 HGT: 0.59 HDG: 018

COMMENT:
OBSTR. No chart. Nonsig relative to surrounding natural depths.



ID: 16 File: AS225_080812020100.XTF 38 09 54.54N 075 01 24.25W RNG: 19.84 HGT: 0.51 HDG: 200

CORRELATED SS CONTACTS:

Contact	Range/Height
1225080955	23.62/0.59
1225021821	19.84/0.51

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0006 Least Depth: 52(ft), 15.79(m) Lat: 38 06 55.55N Lon: 075 02 49.44W Ping: 19336 Beam: 55

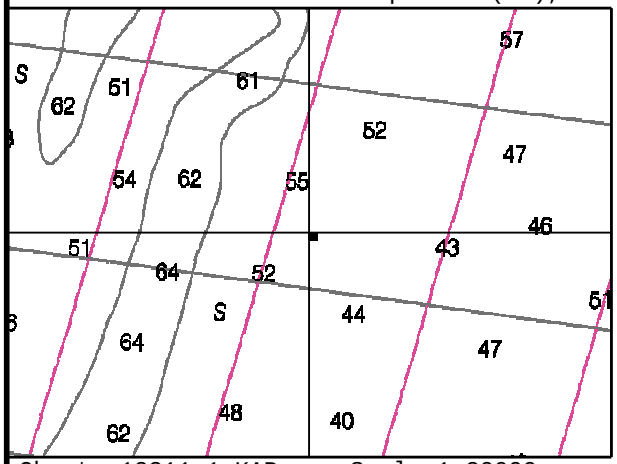


Chart: 12211_1.KAP Scale 1:20000

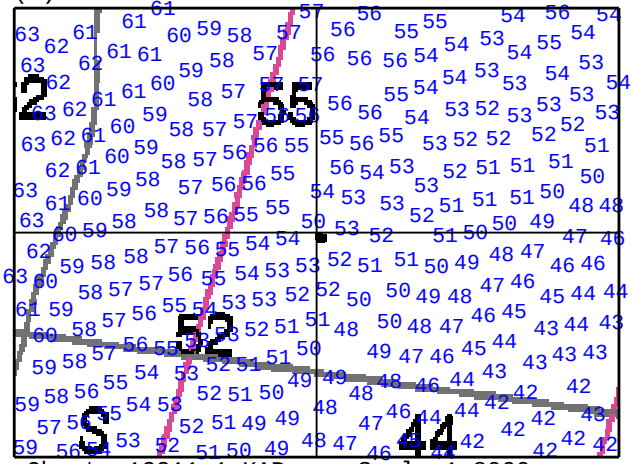
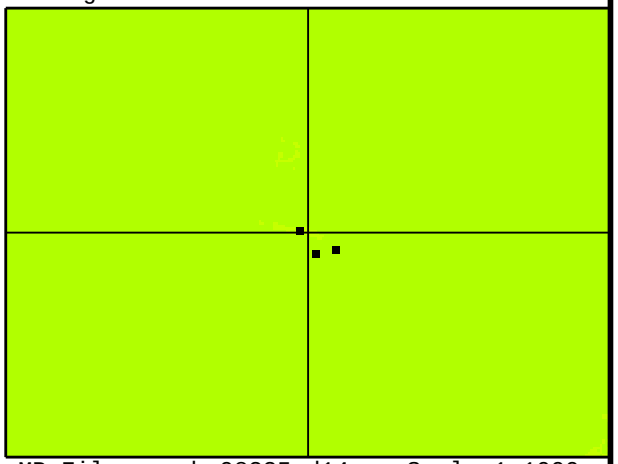


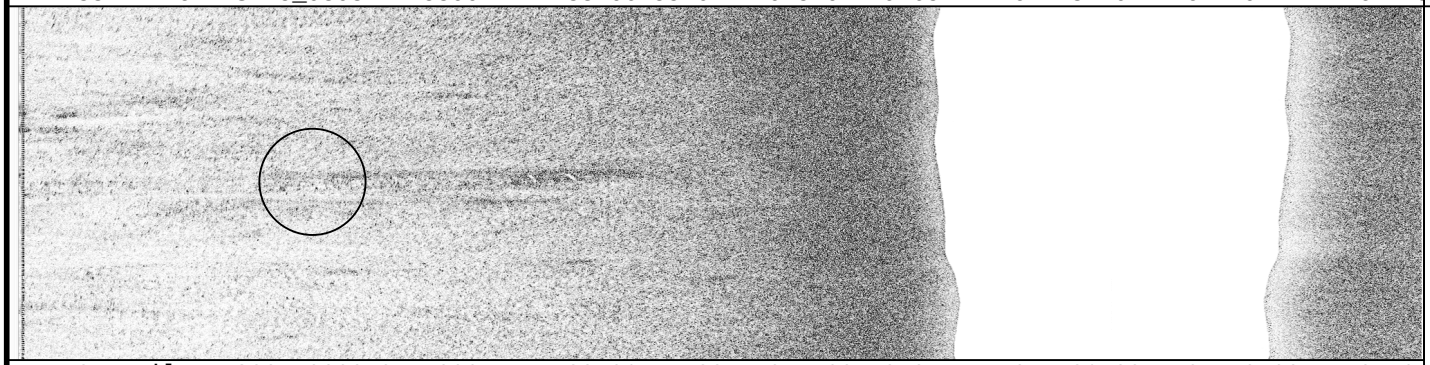
Chart: 12211_1.KAP Scale 1:8000



MB File: asmba08225.d14 Scale 1:1000

ID: 33 File: AS225_080812145800.XTF 38 06 55.62N 075 02 49.65W RNG: -37.62 HGT: 0.12 HDG: 197

COMMENT:
WRECK. No chart. See Feature 7. Danger to Navigation #4.



ID: 25 File: AS225_080812114000.XTF 38 06 55.33N 075 02 49.37W RNG: -36.22 HGT: 0.08 HDG: 018

CORRELATED SS CONTACTS:

Contact	Range/Height
1225154001	-37.62/0.12
1225115748	-36.22/0.08
1225095029	13.06/0.08

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0007 Least Depth: 50(ft), 15.23(m) Lat: 38 06 56.73N Lon: 075 02 49.87W Ping: 19469 Beam: 15

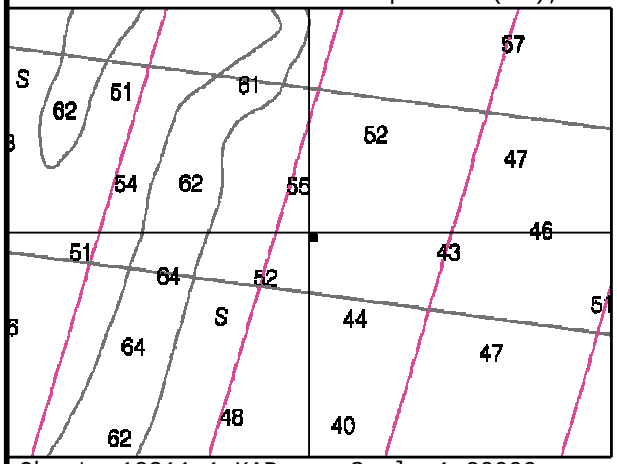


Chart: 12211_1.KAP Scale 1:20000

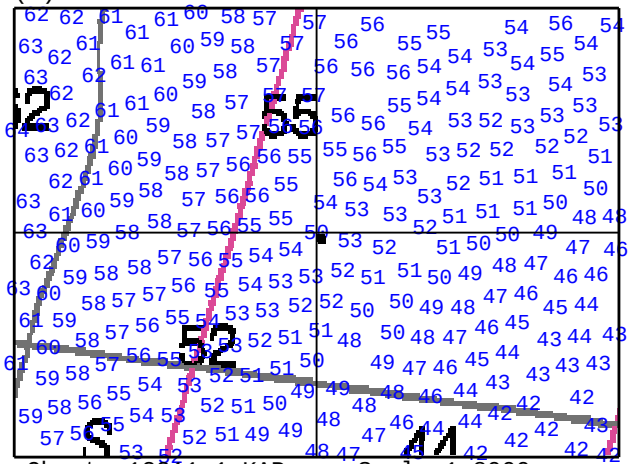
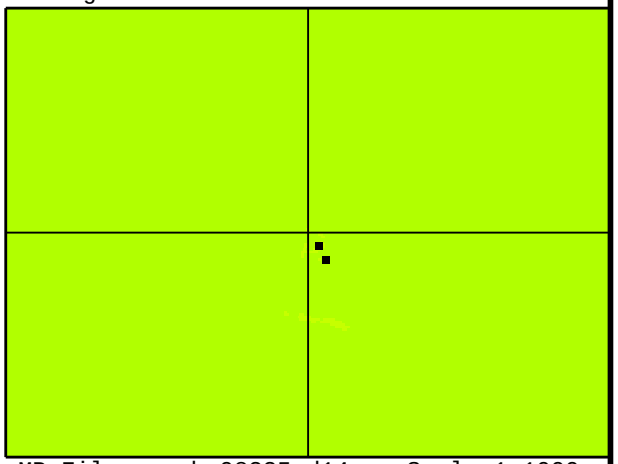
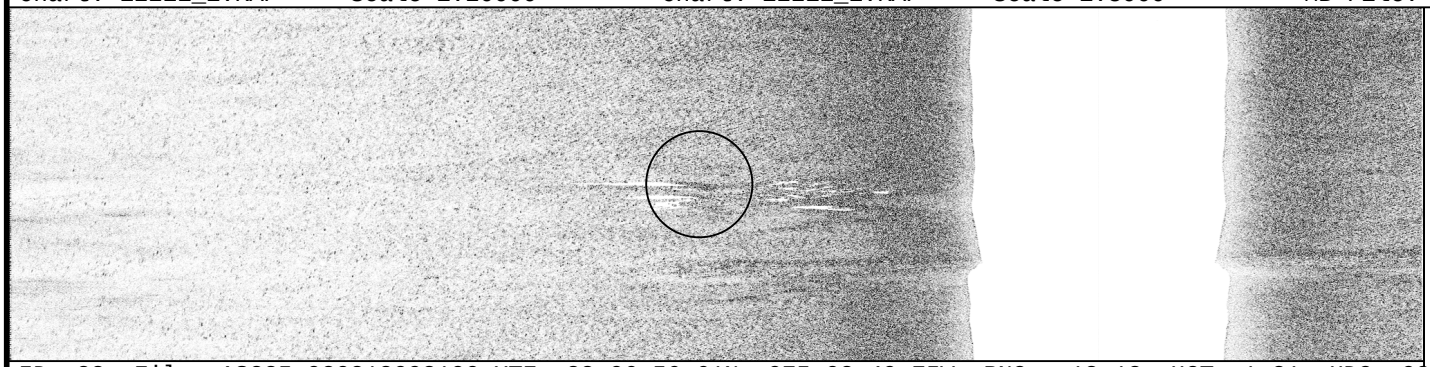


Chart: 12211_1.KAP Scale 1:8000

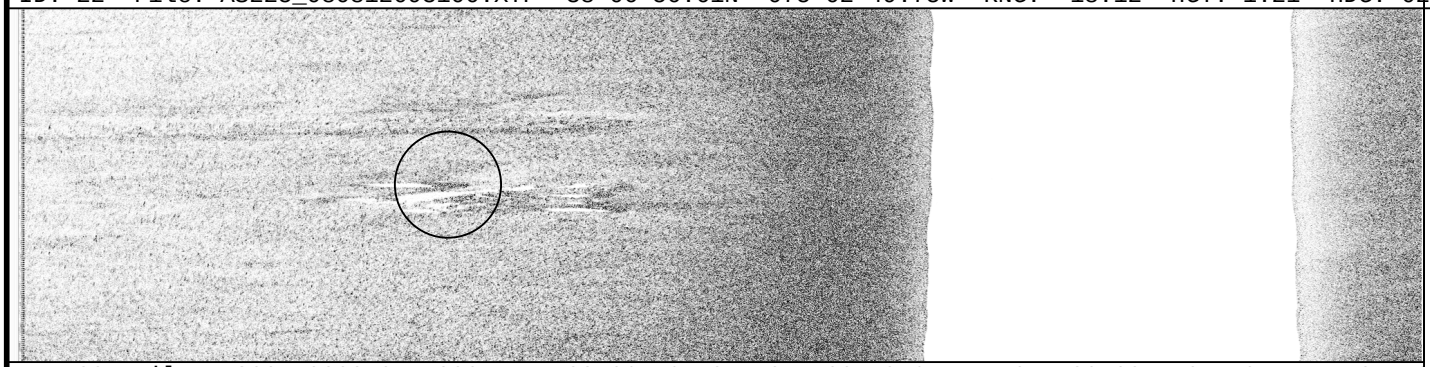


MB File: asmba08225.d14 Scale 1:1000



ID: 22 File: AS225_080812093100.XTF 38 06 56.61N 075 02 49.75W RNG: -18.12 HGT: 1.21 HDG: 020

COMMENT:
WRECK. Chart sounding and label 'Wks'. Danger to Navigation #4. See Feature 6.



ID: 32 File: AS225_080812145800.XTF 38 06 56.42N 075 02 49.64W RNG: -30.09 HGT: 0.75 HDG: 198

CORRELATED SS CONTACTS:

Contact	Range/Height
1225095036	-18.12/1.21
1225153955	-30.09/0.75

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0008 Least Depth: 48(ft), 14.63(m) Lat: 38 06 45.48N Lon: 075 02 45.39W Ping: 37761 Beam: 72

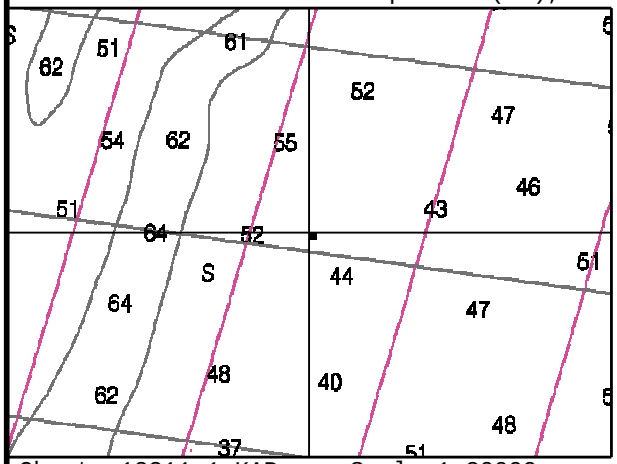


Chart: 12211_1.KAP Scale 1:20000

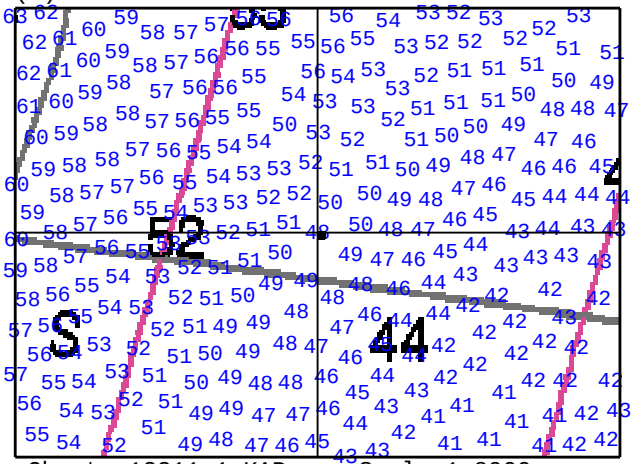
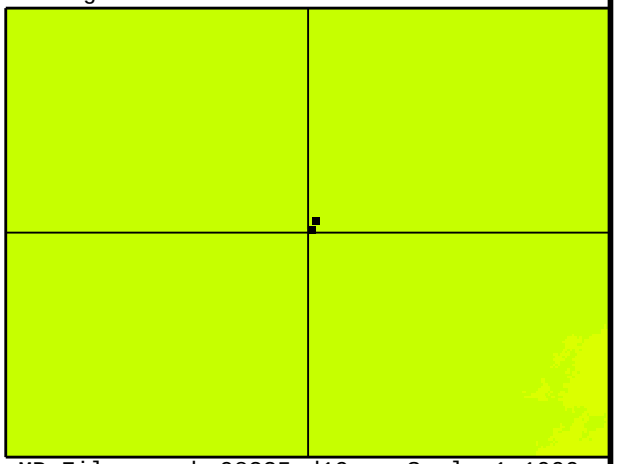
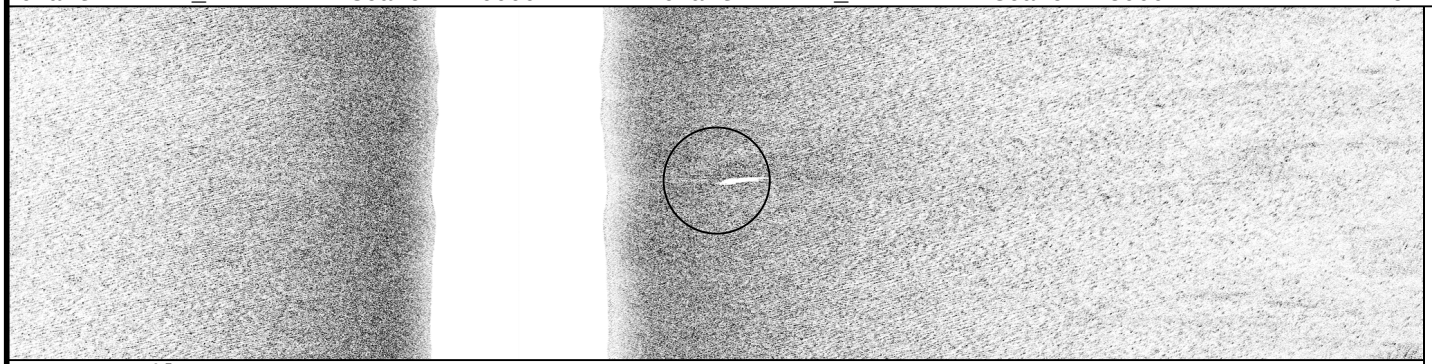


Chart: 12211_1.KAP Scale 1:8000

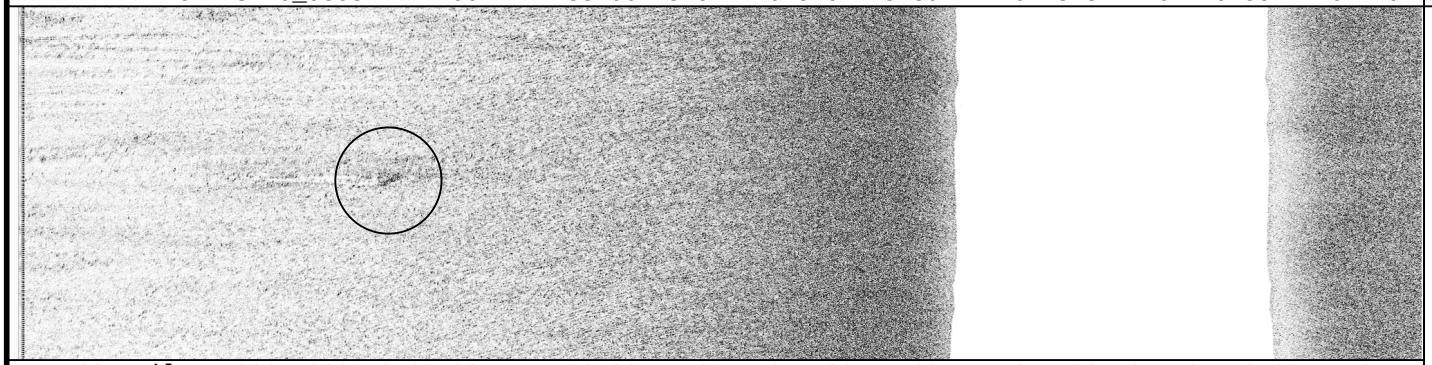


MB File: asmba08225.d19 Scale 1:1000



ID: 27 File: AS225_080812124400.XTF 38 06 45.57N 075 02 45.39W RNG: 8.84 HGT: 0.85 HDG: 197

COMMENT:
OBSTR. No chart. Nonsig relative to surrounding natural depths.



ID: 23 File: AS225_080812103700.XTF 38 06 45.68N 075 02 45.32W RNG: -32.78 HGT: 0.93 HDG: 194

CORRELATED SS CONTACTS:

Contact	Range/Height
1225132852	8.84/0.85
1225111934	-32.78/0.93

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0009 Least Depth: 53(ft), 16.33(m) Lat: 38 05 19.91N Lon: 075 03 20.07W Ping: 47824 Beam: 33

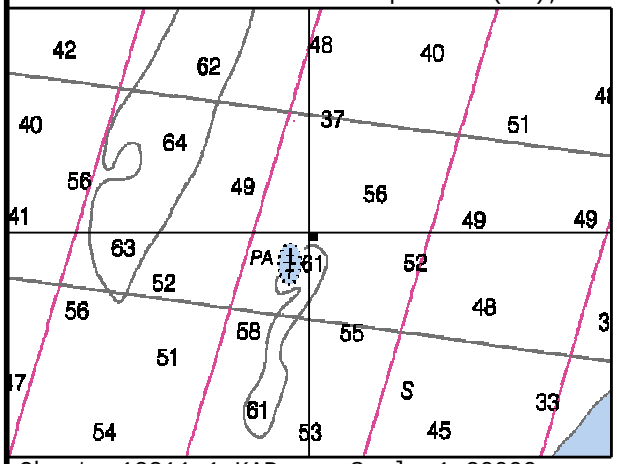


Chart: 12211_1.KAP Scale 1:20000

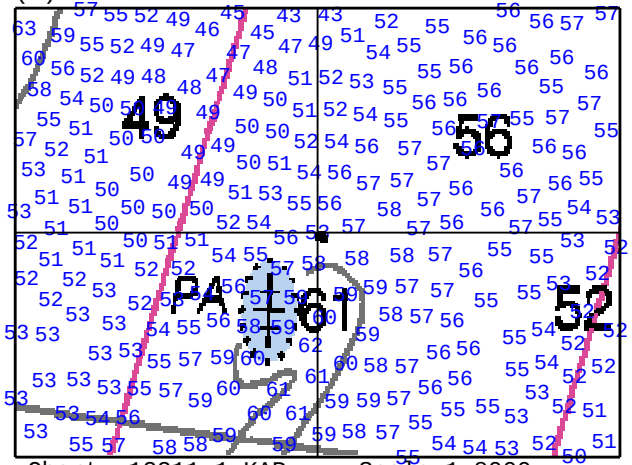
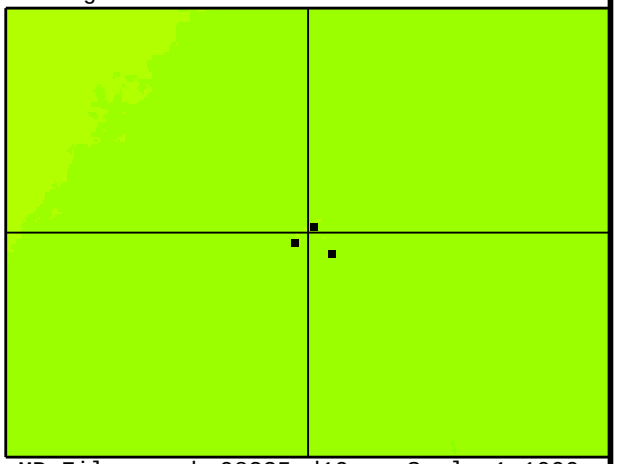
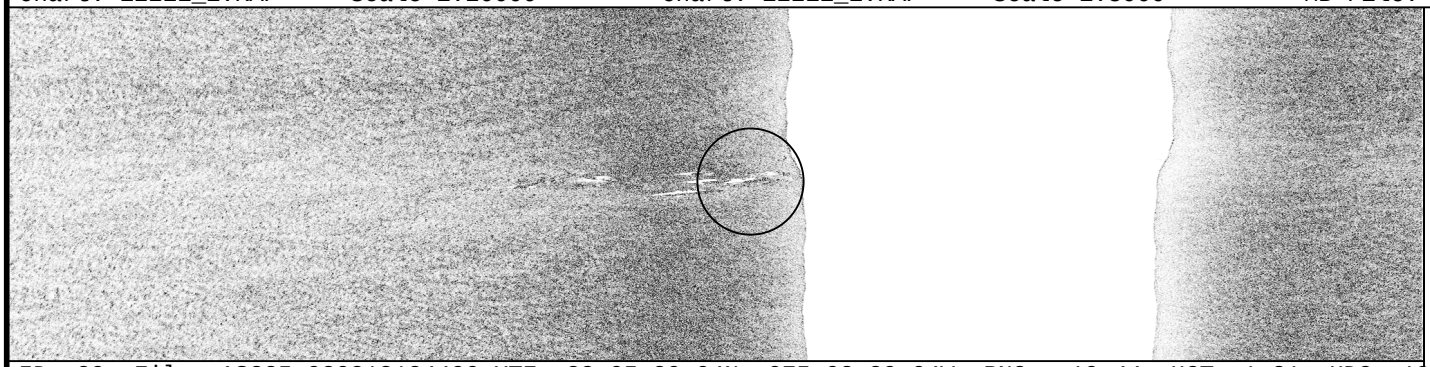


Chart: 12211_1.KAP Scale 1:8000

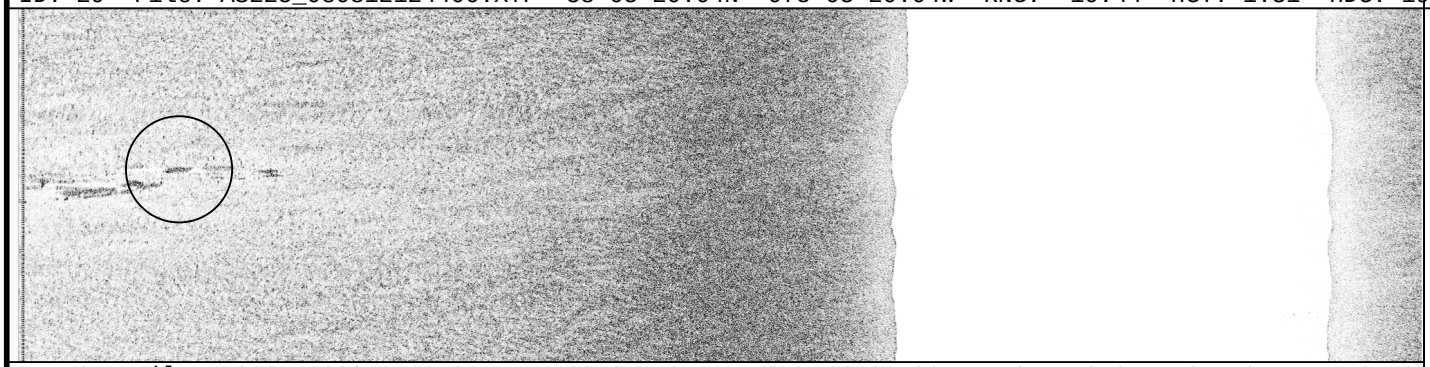


MB File: asmba08225.d19 Scale 1:1000



ID: 29 File: AS225_080812124400.XTF 38 05 20.04N 075 03 20.04W RNG: -10.44 HGT: 1.31 HDG: 197

COMMENT:
OBSTR. Chart sounding and danger circle with blue tint and label 'Obstn'. Danger to Navigation #6. AWOIS 14228.



ID: 24 File: AS225_080812103700.XTF 38 05 19.83N 075 03 20.36W RNG: -42.25 HGT: 0.47 HDG: 200

CORRELATED SS CONTACTS:

Contact	Range/Height
1225134005	-10.44/1.31
1225113033	-42.25/0.47
1225073508	-24.41/0.68

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0010 Least Depth: 65(ft), 19.85(m) Lat: 38 10 08.76N Lon: 075 01 24.89W Ping: 28702 Beam: 91

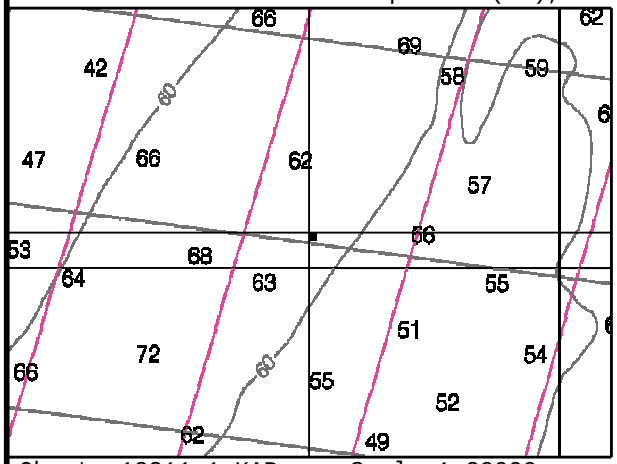


Chart: 12211_1.KAP Scale 1:20000

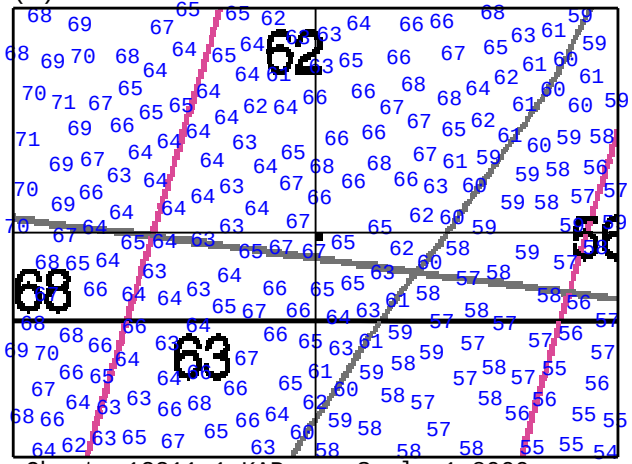
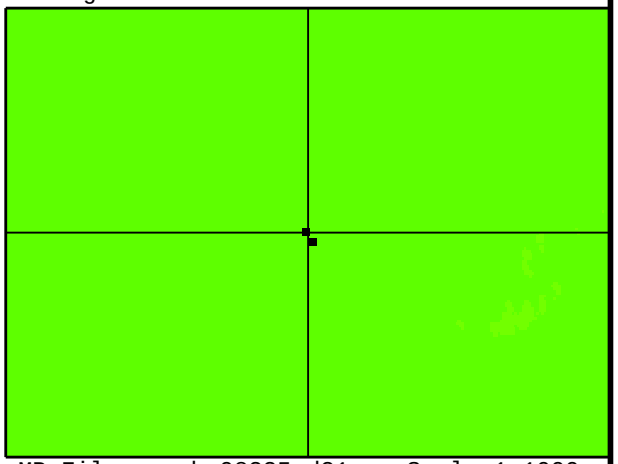


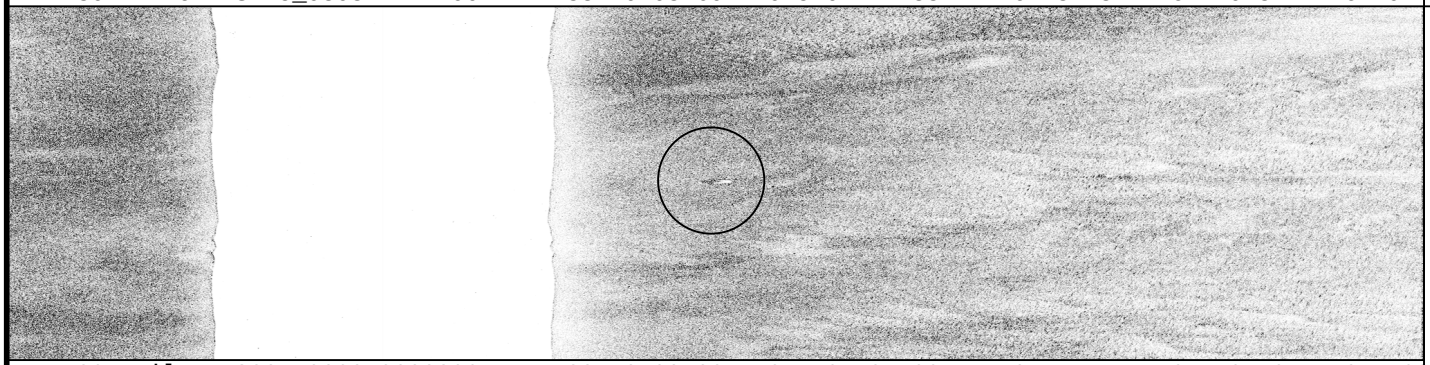
Chart: 12211_1.KAP Scale 1:8000



MB File: asmba08225.d21 Scale 1:1000

ID: 30 File: AS225_080812142100.XTF 38 10 08.69N 075 01 24.88W RNG: 31.31 HGT: 0.34 HDG: 017

COMMENT:
OBSTR. No chart. Nonsig relative to surrounding natural depths.



ID: 20 File: AS225_080812083300.XTF 38 10 08.82N 075 01 24.99W RNG: 14.75 HGT: 0.49 HDG: 198

CORRELATED SS CONTACTS:

Contact	Range/Height
1225144411	31.31/0.34
1225084908	14.75/0.49

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0011 Least Depth: 31(ft), 9.67(m) Lat: 38 09 31.45N Lon: 075 09 28.23W Ping: 49735 Beam: 38

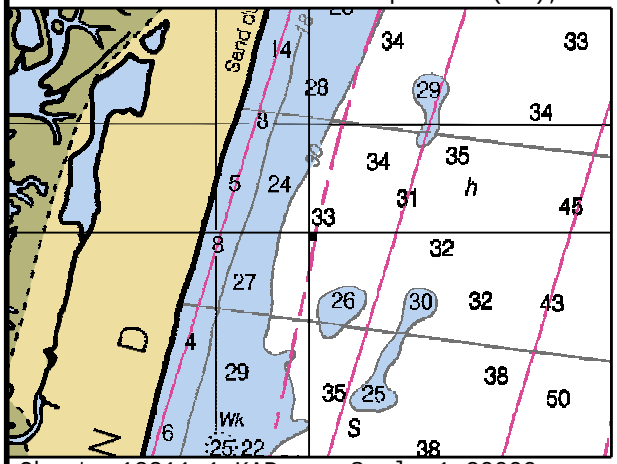


Chart: 12211_1.KAP Scale 1:20000

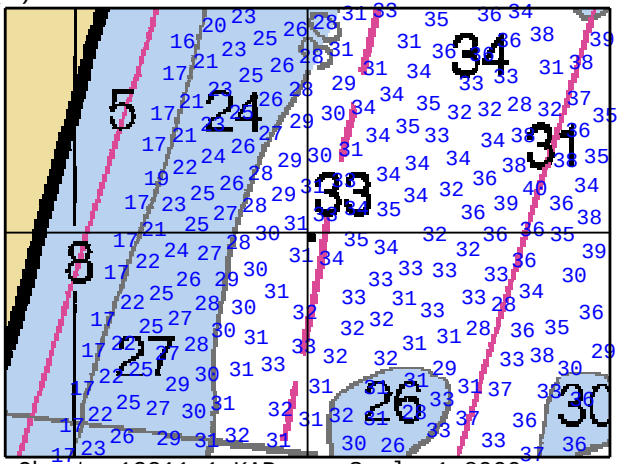
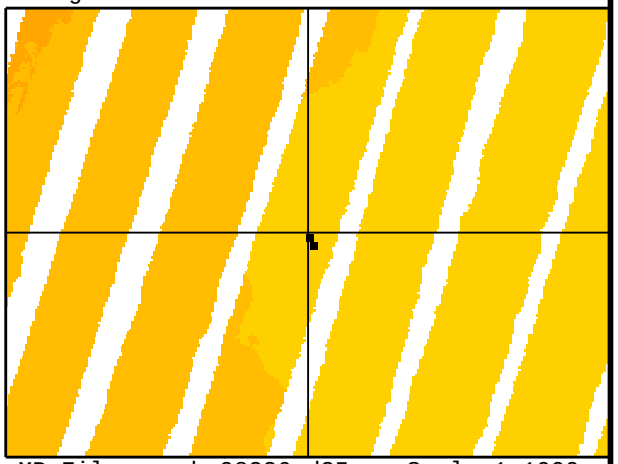
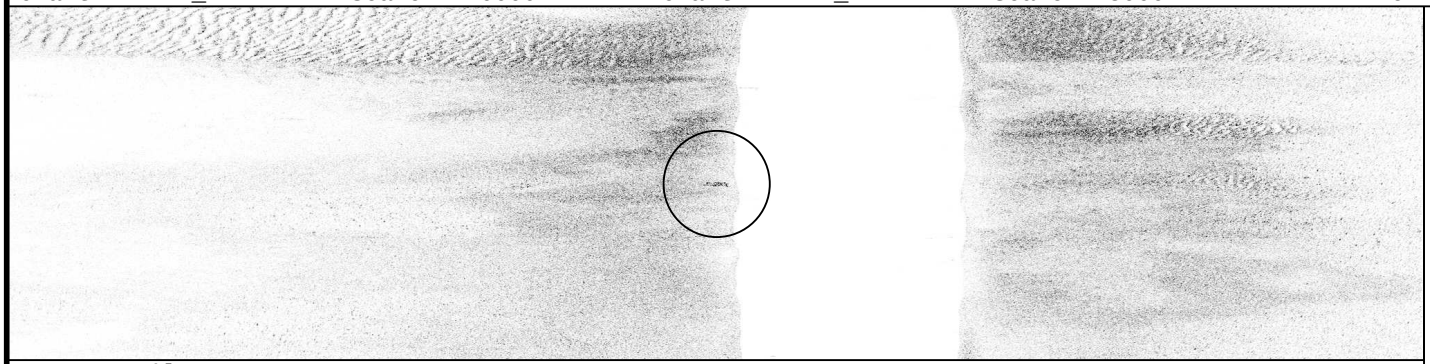


Chart: 12211_1.KAP Scale 1:8000



MB File: asmba08226.d35 Scale 1:1000



ID: 42 File: AS226_080813194900.XTF 38 09 31.43N 075 09 28.26W RNG: -6.09 HGT: 0.13 HDG: 197

COMMENT:
OBSTR. No chart. Nonsig relative to surrounding natural depths.

ID: 41 File: AS226_080813174400.XTF 38 09 31.33N 075 09 28.20W RNG: 35.34 HGT: 0.01 HDG: 195

CORRELATED SS CONTACTS:

Contact	Range/Height
1226202441	-6.09/0.13
1226174626	35.34/0.01

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0012 Least Depth: 65(ft), 19.83(m) Lat: 38 08 35.41N Lon: 075 02 56.09W Ping: 34657 Beam: 75

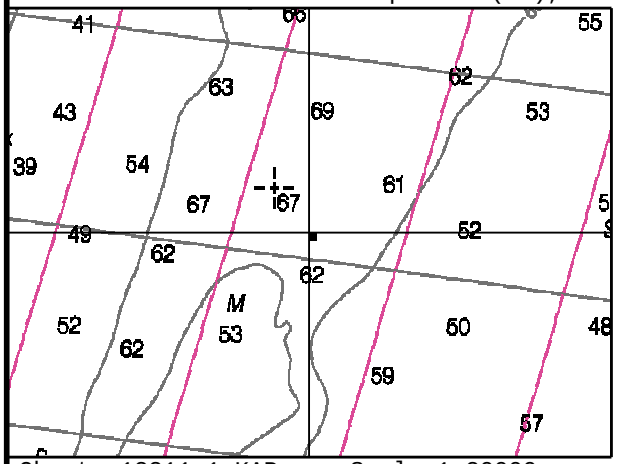


Chart: 12211_1.KAP Scale 1:20000

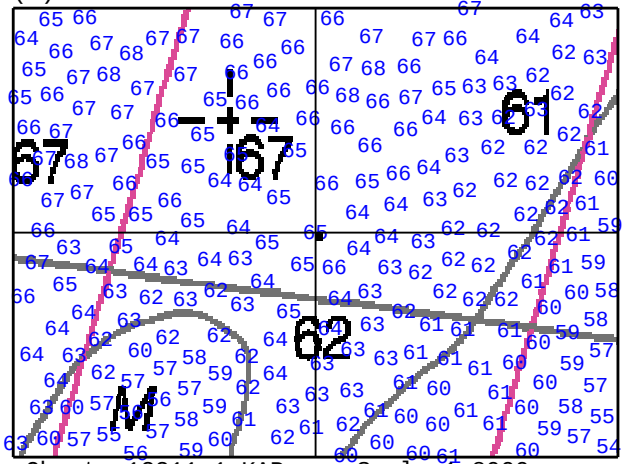
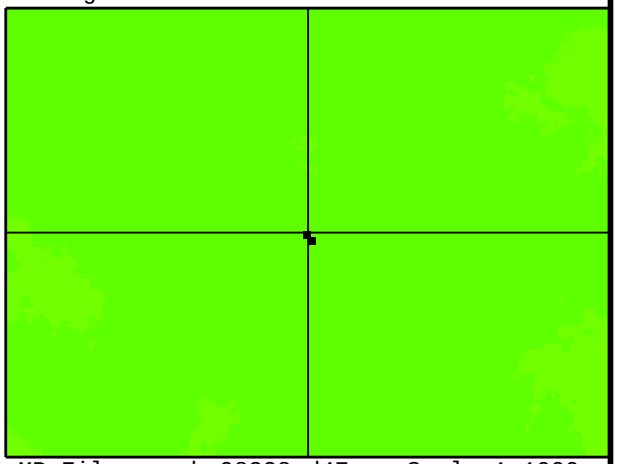
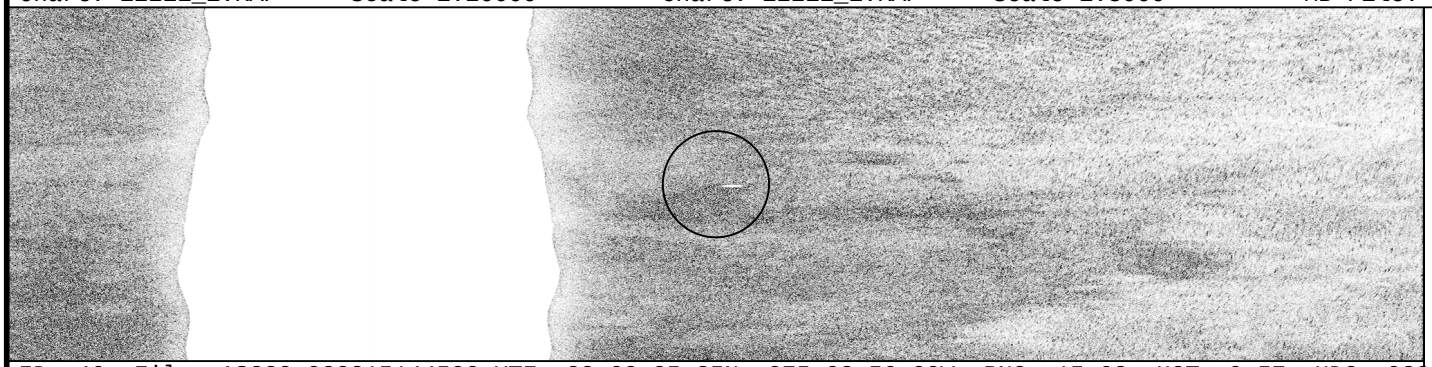


Chart: 12211_1.KAP Scale 1:8000



MB File: asmba08228.d47 Scale 1:1000



ID: 46 File: AS228_080815144500.XTF 38 08 35.35N 075 02 56.09W RNG: 15.62 HGT: 0.57 HDG: 020

COMMENT:
OBSTR. No chart. Nonsig relative to surrounding natural depths.

ID: 44 File: AS228_080815084400.XTF 38 08 35.43N 075 02 56.18W RNG: 29.94 HGT: 0.44 HDG: 196

CORRELATED SS CONTACTS:

Contact	Range/Height
1228150317	15.62/0.57
1228090427	29.94/0.44

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0013 Least Depth: 66(ft), 20.15(m) Lat: 38 08 57.72N Lon: 075 02 53.82W Ping: 24289 Beam: 89

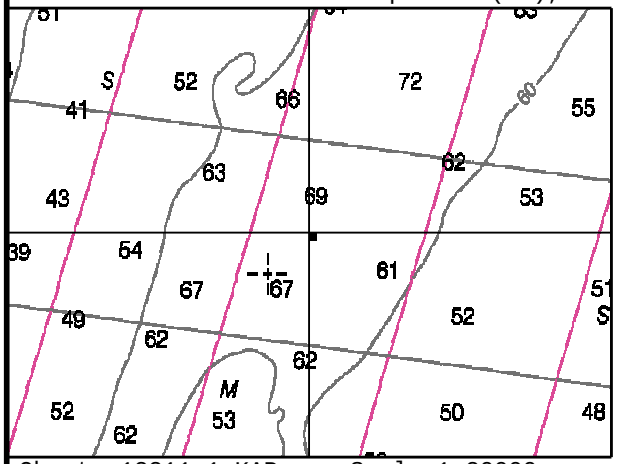


Chart: 12211_1.KAP Scale 1:20000

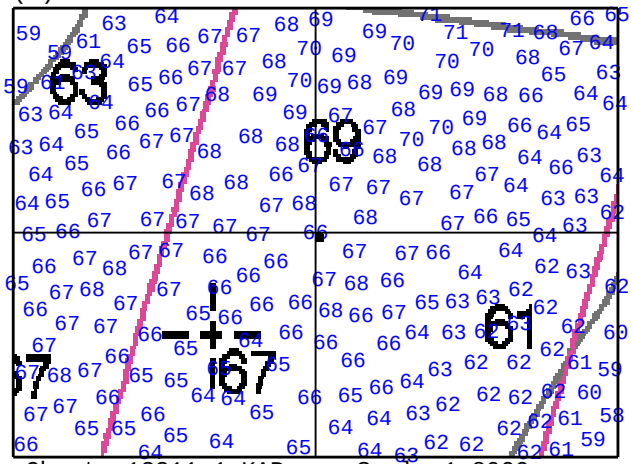
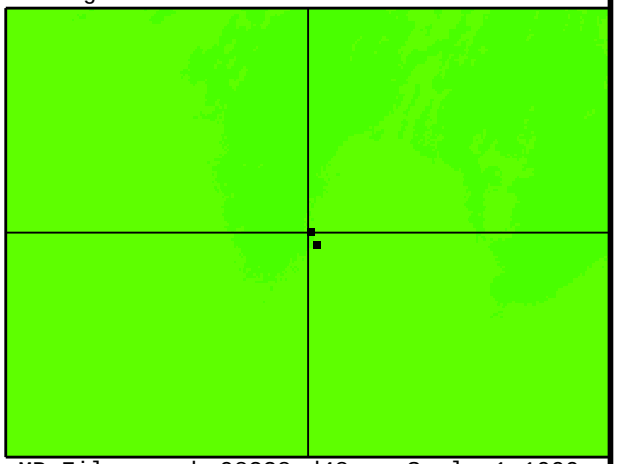


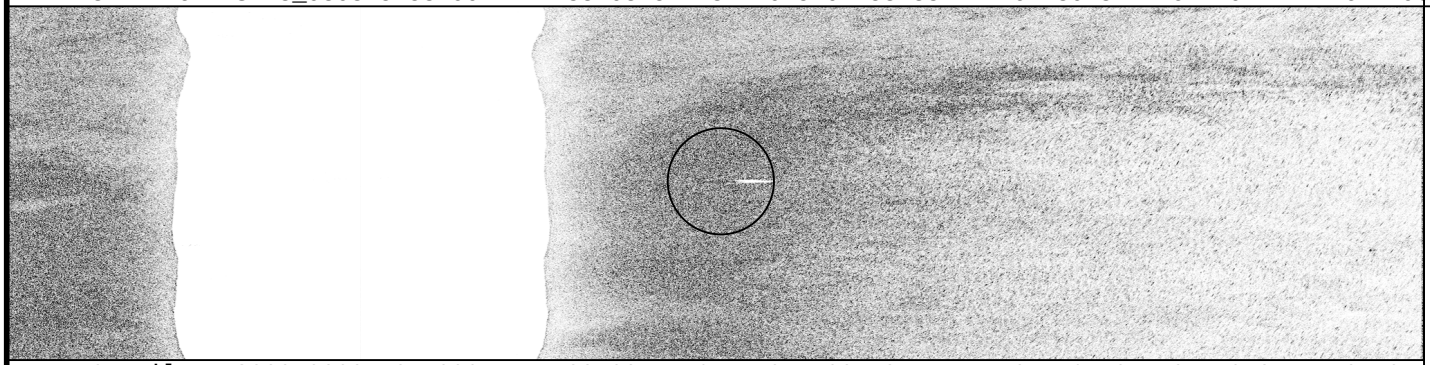
Chart: 12211_1.KAP Scale 1:8000



MB File: asmba08228.d48 Scale 1:1000

ID: 48 File: AS228_080815153100.XTF 38 08 57.78N 075 02 53.83W RNG: 30.31 HGT: 0.77 HDG: 196

COMMENT:
OBSTR. No chart. Nonsig relative to surrounding natural depths.



ID: 49 File: AS228_080815215000.XTF 38 08 57.61N 075 02 53.74W RNG: 16.19 HGT: 0.84 HDG: 014

CORRELATED SS CONTACTS:

Contact	Range/Height
1228155936	30.31/0.77
1228221603	16.19/0.84

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0014 Least Depth: 52(ft), 15.81(m) Lat: 38 05 49.82N Lon: 075 02 26.34W Ping: 15695 Beam: 15

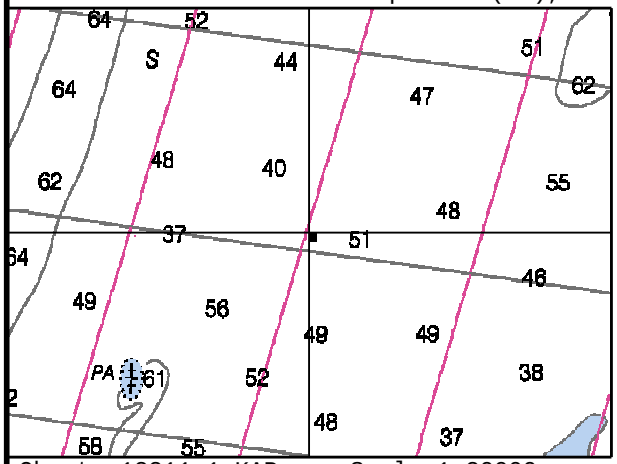


Chart: 12211_1.KAP Scale 1:20000

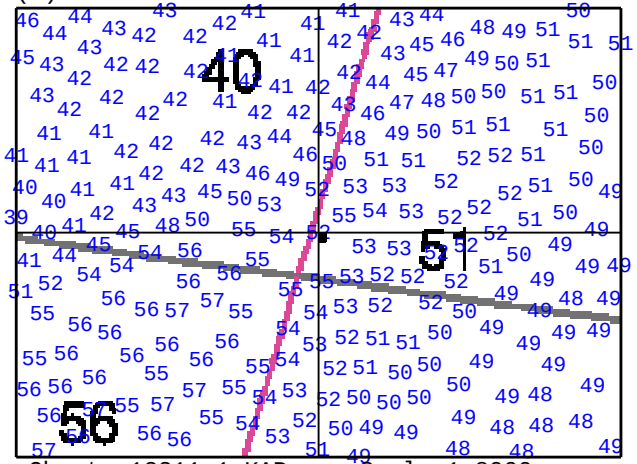
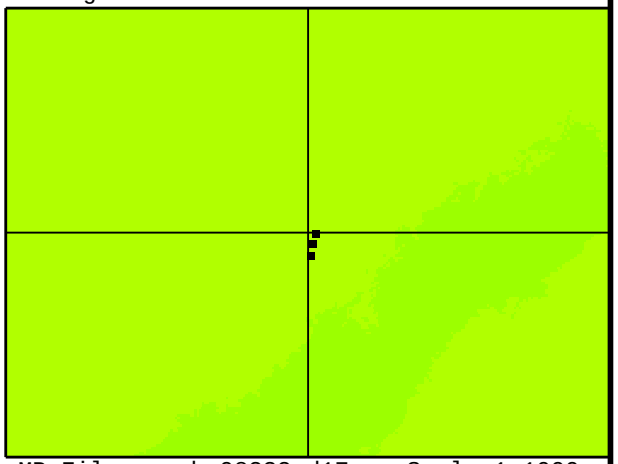
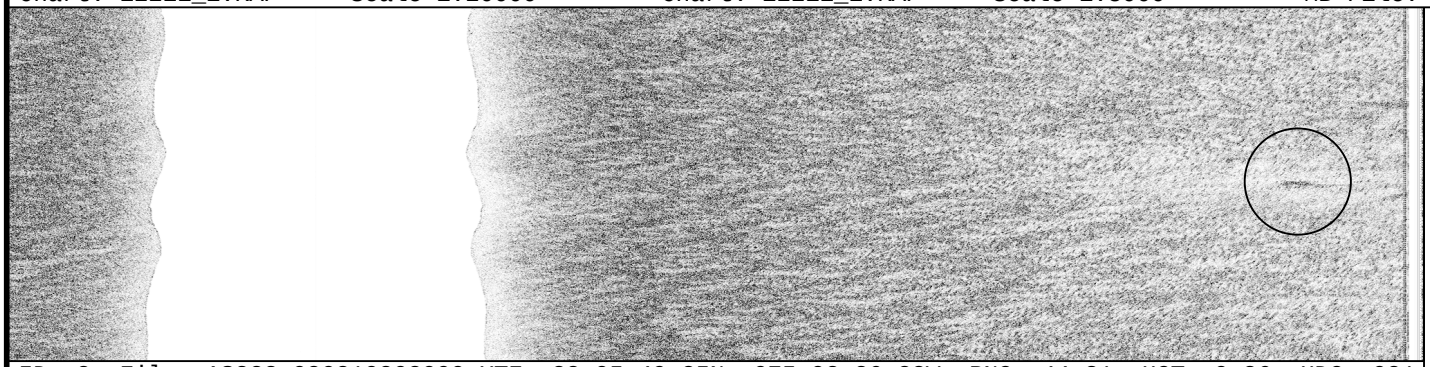


Chart: 12211_1.KAP Scale 1:8000

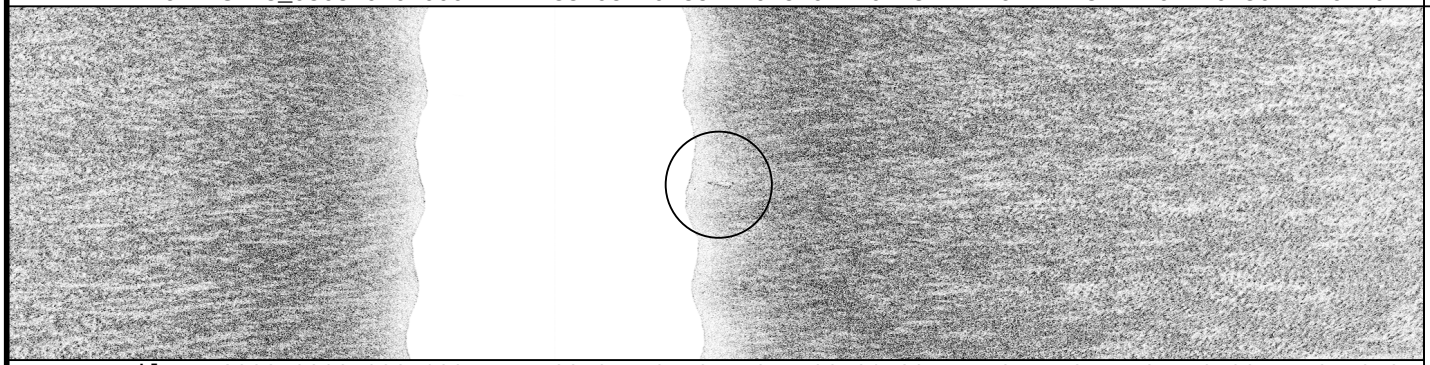


MB File: asmba08232.d17 Scale 1:1000



ID: 2 File: AS223_080810202000.XTF 38 05 49.85N 075 02 26.28W RNG: 44.31 HGT: 0.36 HDG: 021

COMMENT:
OBSTR. No chart. Nonsig relative to surrounding natural depths.



ID: 4 File: AS223_080810224600.XTF 38 05 49.72N 075 02 26.32W RNG: 7.31 HGT: 0.90 HDG: 012

CORRELATED SS CONTACTS:

Contact	Range/Height
1223203430	44.31/0.36
1223230006	7.31/0.90
1224012815	-35.84/0.54

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0015 Least Depth: 38(ft), 11.60(m) Lat: 38 05 04.06N Lon: 075 01 35.82W Ping: 7646 Beam: 85

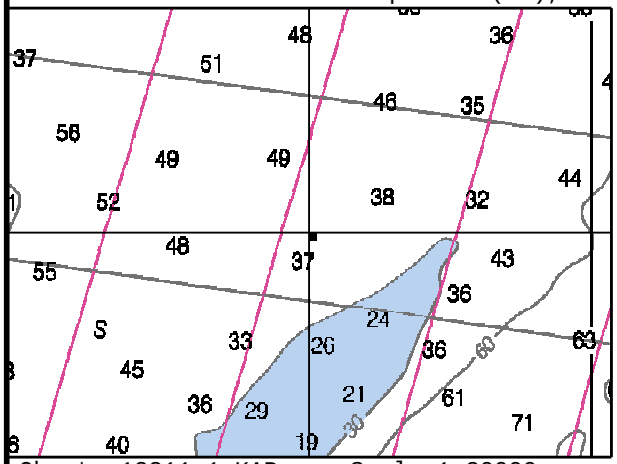


Chart: 12211_1.KAP Scale 1:20000

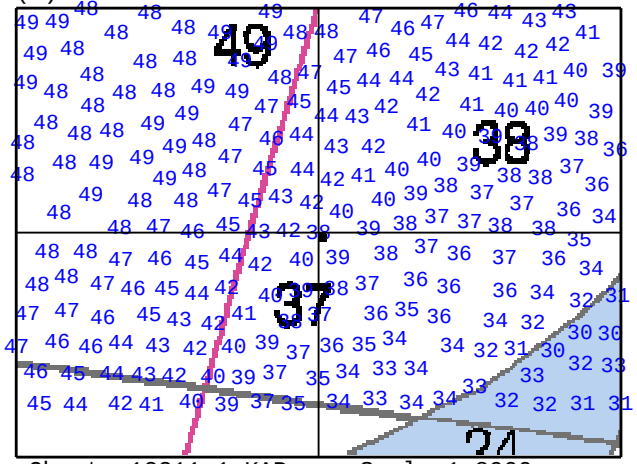
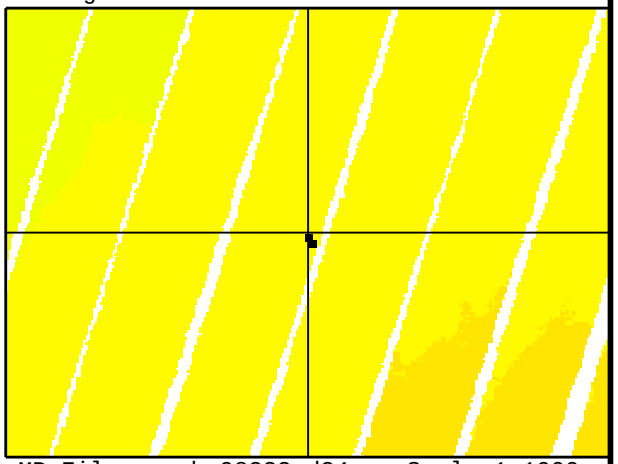
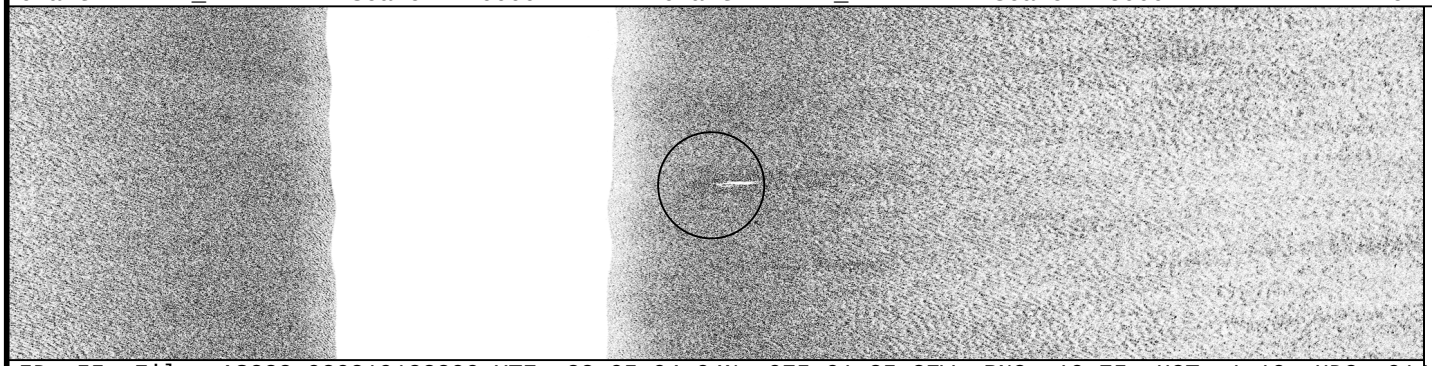


Chart: 12211_1.KAP Scale 1:8000

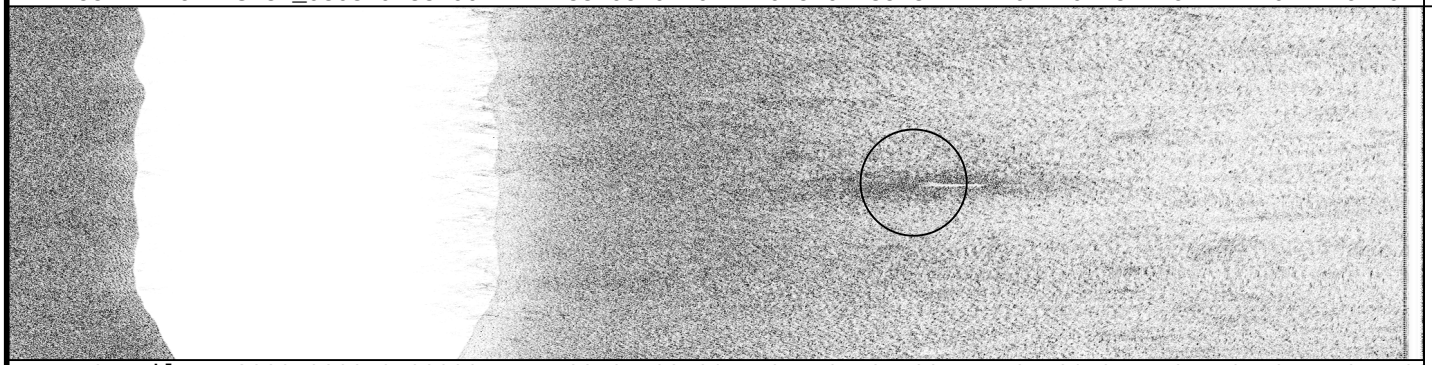


MB File: asmba08232.d24 Scale 1:1000



ID: 55 File: AS232_080819183200.XTF 38 05 04.04N 075 01 35.87W RNG: 10.75 HGT: 1.10 HDG: 014

COMMENT:
OBSTR. No chart. Nonsig relative to surrounding natural depths.



ID: 53 File: AS232_080819103900.XTF 38 05 03.96N 075 01 35.80W RNG: 26.94 HGT: 0.79 HDG: 198

CORRELATED SS CONTACTS:

Contact	Range/Height
1232183747	10.75/1.10
1232104905	26.94/0.79

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0016 Least Depth: 63(ft), 19.15(m) Lat: 38 08 00.30N Lon: 075 00 03.32W Ping: 29438 Beam: 25

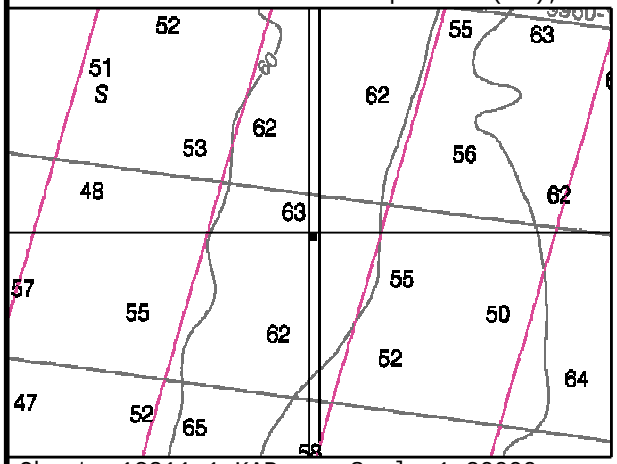


Chart: 12211_1.KAP Scale 1:20000

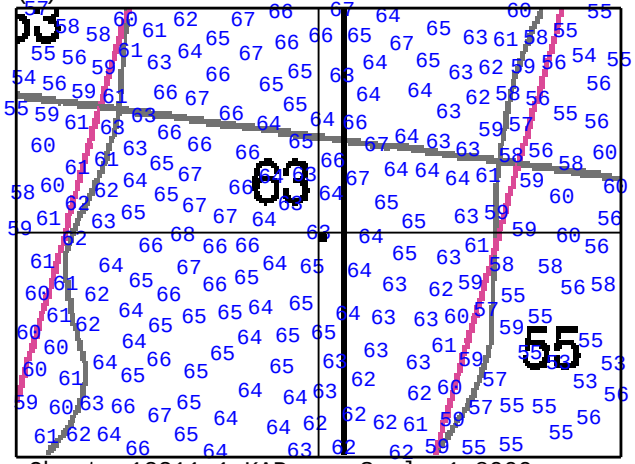
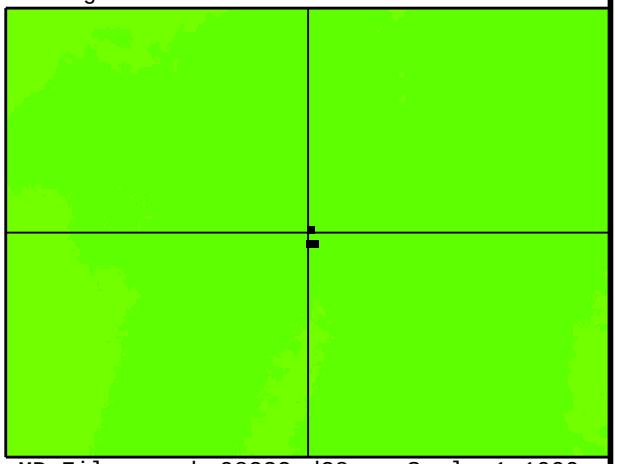
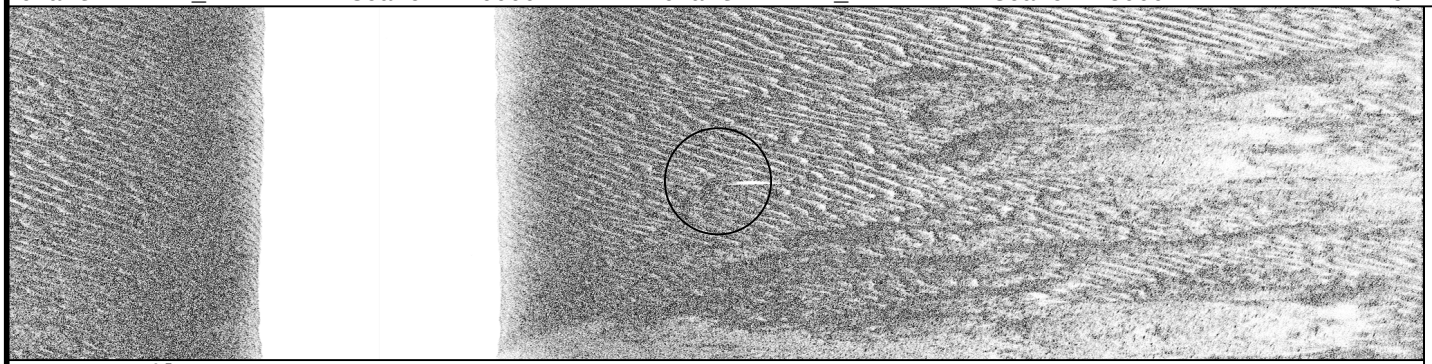


Chart: 12211_1.KAP Scale 1:8000

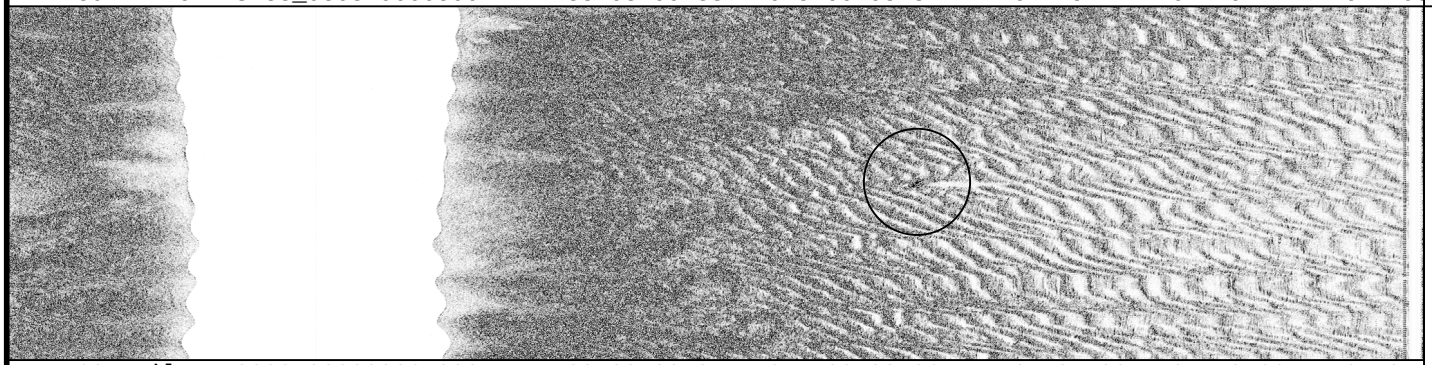


MB File: asmba08232.d28 Scale 1:1000



ID: 59 File: AS233_080820000500.XTF 38 08 00.38N 075 00 03.34W RNG: 15.22 HGT: 0.77 HDG: 199

COMMENT:
OBSTR. No chart. Nonsig relative to surrounding natural depths.



ID: 62 File: AS233_080820061900.XTF 38 08 00.21N 075 00 03.36W RNG: 27.09 HGT: 0.66 HDG: 015

CORRELATED SS CONTACTS:

Contact	Range/Height
1233004127	15.22/0.77
1233070231	27.09/0.66
1232233239	-15.75/1.03

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0017 Least Depth: 68(ft), 20.76(m) Lat: 38 09 22.70N Lon: 074 59 27.61W Ping: 39178 Beam: 86

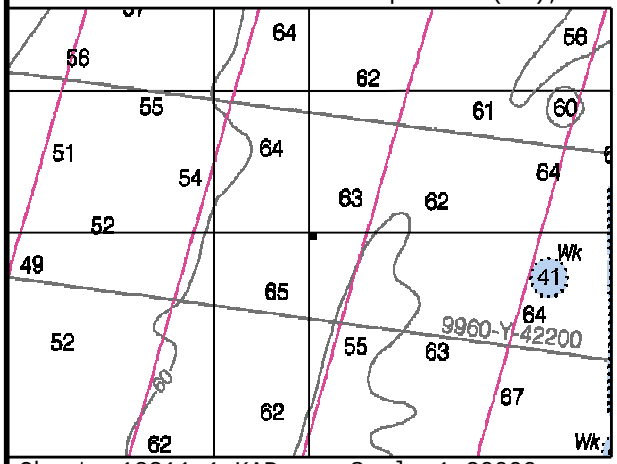


Chart: 12211_1.KAP Scale 1:20000

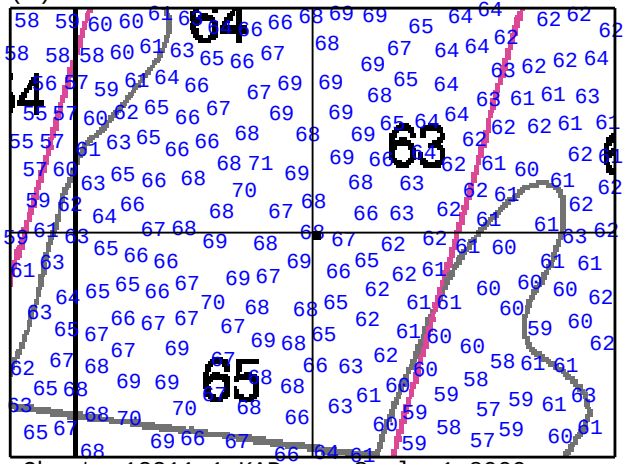
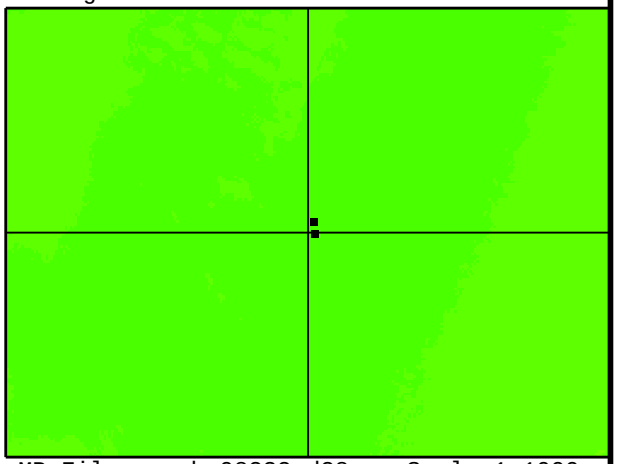
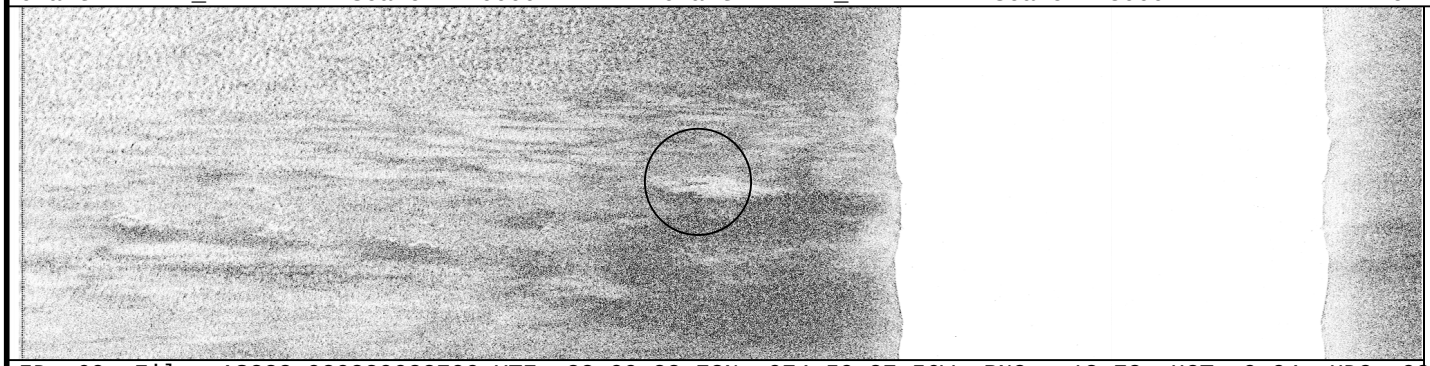


Chart: 12211_1.KAP Scale 1:8000

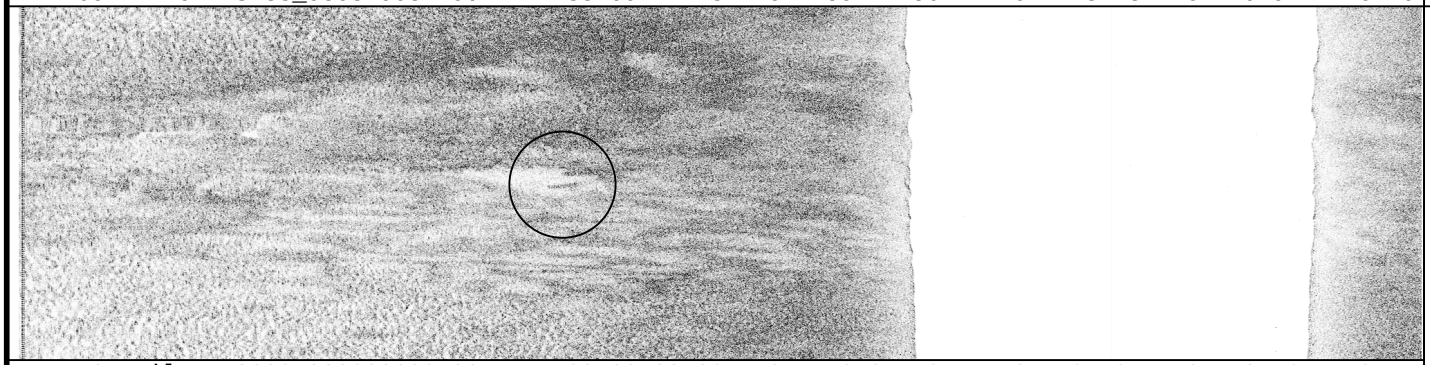


MB File: asmba08232.d28 Scale 1:1000



ID: 60 File: AS233_080820032700.XTF 38 09 22.73N 074 59 27.56W RNG: -18.78 HGT: 0.94 HDG: 021

COMMENT:
OBSTR. No chart. Nonsig relative to surrounding natural depths.



ID: 58 File: AS233_080820000500.XTF 38 09 22.89N 074 59 27.58W RNG: -24.91 HGT: 0.16 HDG: 196

CORRELATED SS CONTACTS:

Contact	Range/Height
1233040612	-18.78/0.94
1233002844	-24.91/0.16

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0018 Least Depth: 27(ft), 8.34(m) Lat: 38 08 35.52N Lon: 075 09 57.79W Ping: 32361 Beam: 10

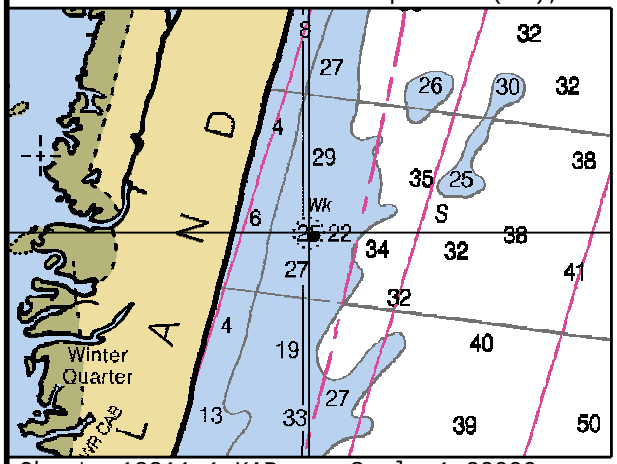


Chart: 12211_1.KAP Scale 1:20000

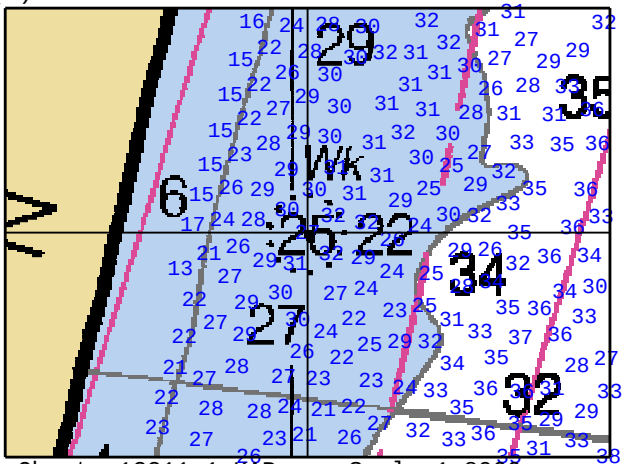
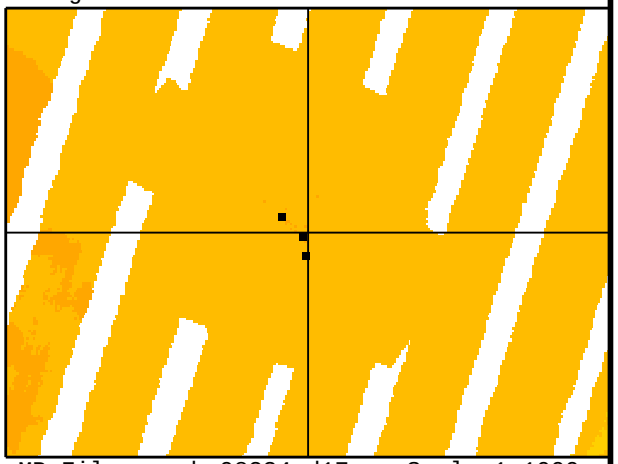
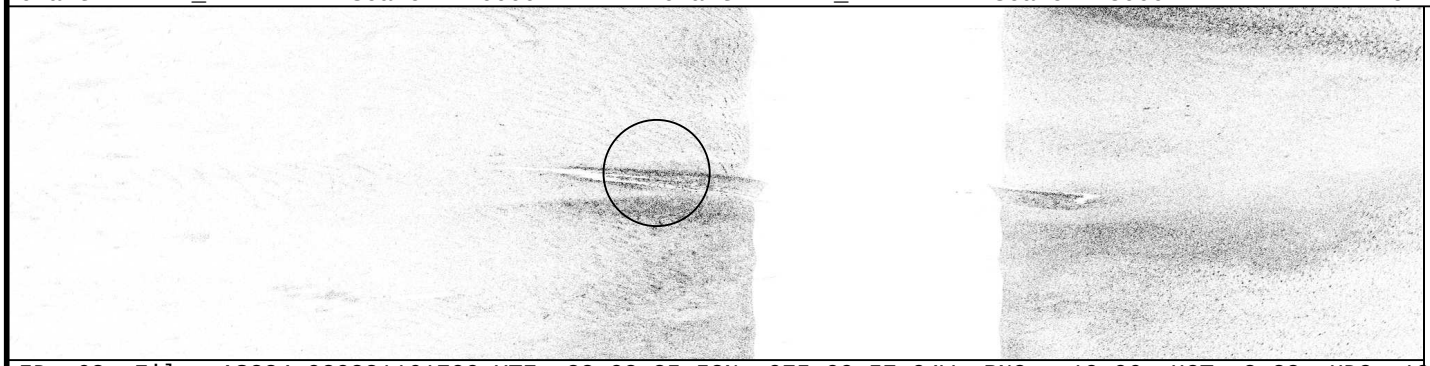


Chart: 12211_1.KAP Scale 1:8000



MB File: asmba08234.d17 Scale 1:1000



ID: 63 File: AS234_080821161700.XTF 38 08 35.52N 075 09 57.94W RNG: -10.06 HGT: 2.28 HDG: 197

COMMENT:
WRECK. Chart sounding and danger circle with blue tint and label 'Wk'. Danger to Navigation #2.

ID: 64 File: AS235_080822161000.XTF 38 08 35.27N 075 09 57.89W RNG: -29.41 HGT: 0.71 HDG: 017

CORRELATED SS CONTACTS:

Contact	Range/Height
1234162651	-10.06/2.28
1235165015	-29.41/0.71
1226145200	-38.66/0.03

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0019 Least Depth: 63(ft), 19.13(m) Lat: 38 08 33.88N Lon: 075 03 29.62W Ping: 34474 Beam: 10

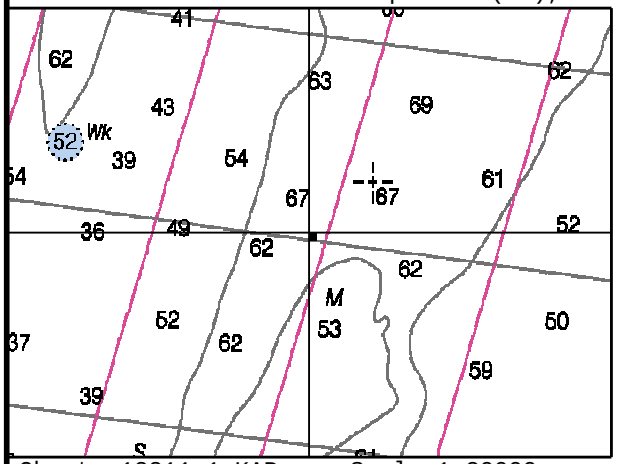


Chart: 12211_1.KAP Scale 1:20000

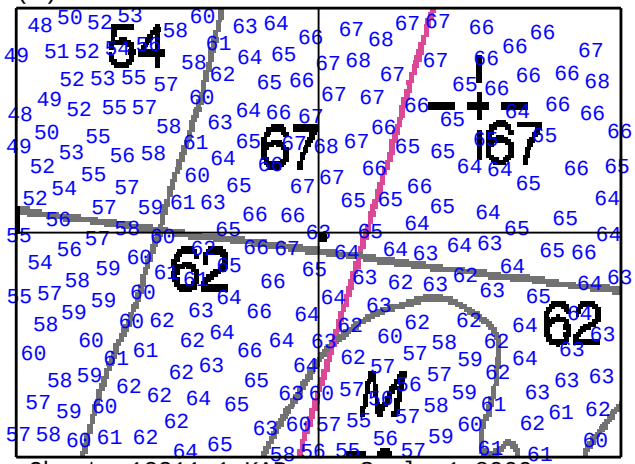
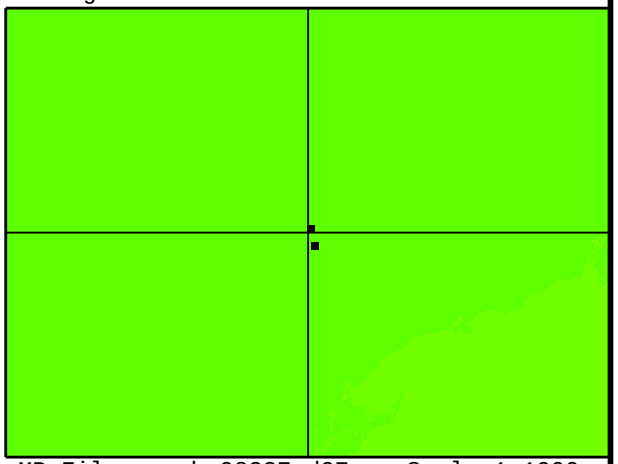


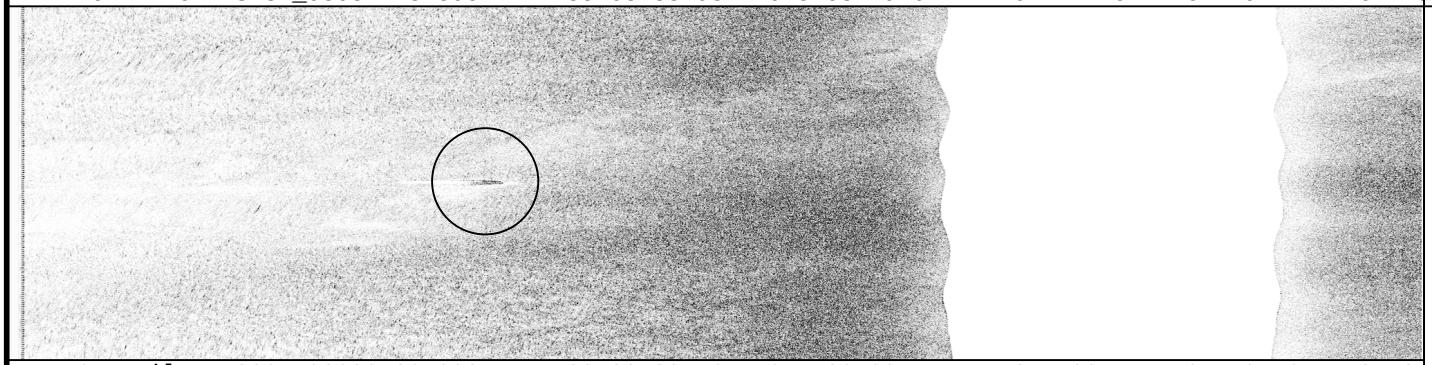
Chart: 12211_1.KAP Scale 1:8000



MB File: asmba08237.d07 Scale 1:1000

ID: 70 File: AS237_080824131300.XTF 38 08 33.98N 075 03 29.64W RNG: -12.94 HGT: 0.77 HDG: 200

COMMENT:
OBSTR. No chart. Nonsig relative to surrounding natural depths.



ID: 67 File: AS237_080824095000.XTF 38 08 33.76N 075 03 29.57W RNG: -28.41 HGT: 0.76 HDG: 019

CORRELATED SS CONTACTS:

Contact	Range/Height
1237134327	-12.94/0.77
1237102225	-28.41/0.76

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0020 Least Depth: 65(ft), 19.84(m) Lat: 38 10 27.18N Lon: 075 04 13.26W Ping: 16515 Beam: 53

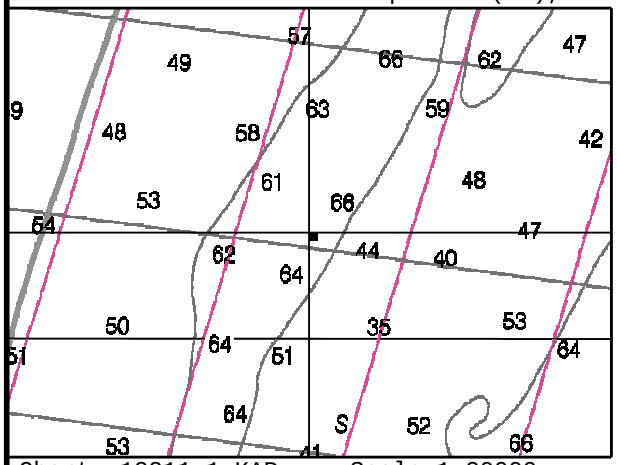


Chart: 12211_1.KAP Scale 1:20000

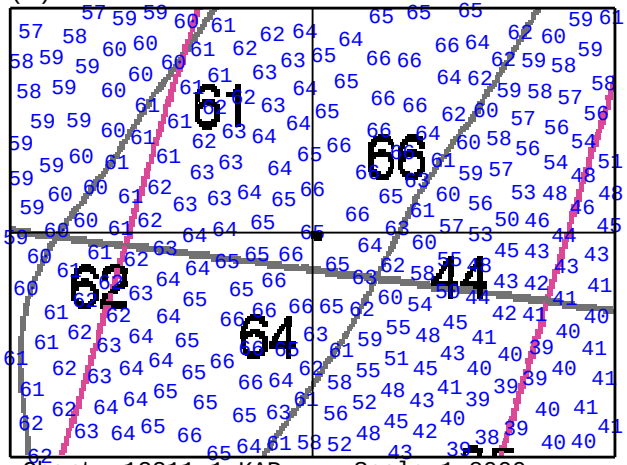
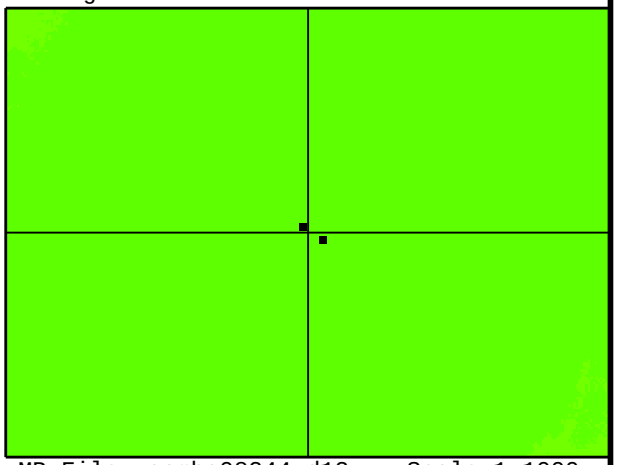
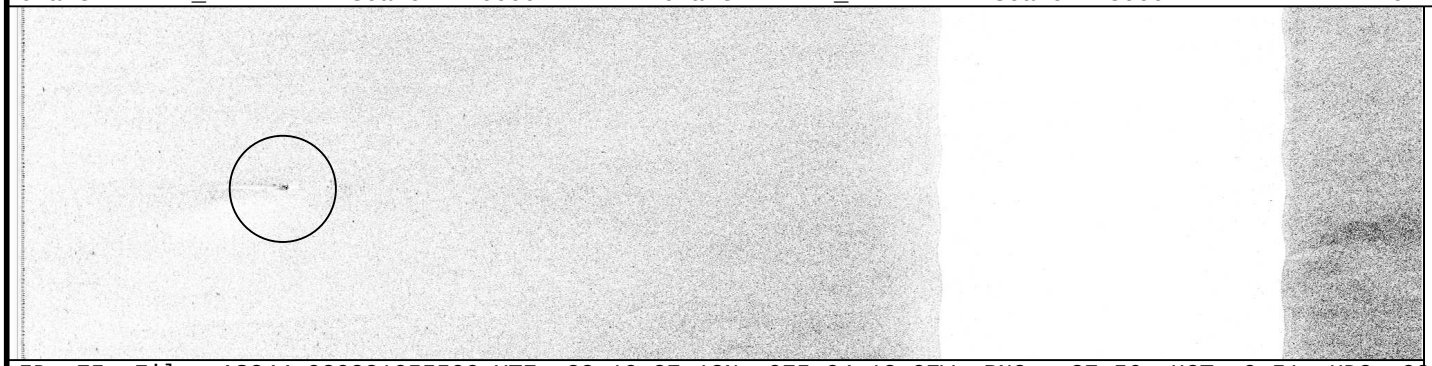


Chart: 12211_1.KAP Scale 1:8000

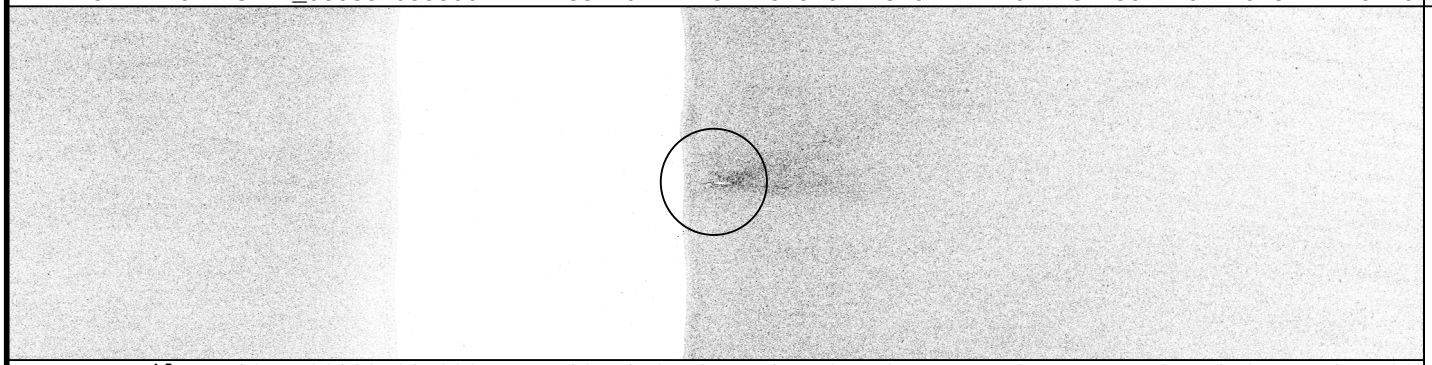


MB File: asmba08244.d12 Scale 1:1000



ID: 75 File: AS244_080831055500.XTF 38 10 27.13N 075 04 13.07W RNG: -37.56 HGT: 0.51 HDG: 020

COMMENT:
OBSTR. No chart. Nonsig relative to surrounding natural depths.



ID: 77 File: AS244_080831085800.XTF 38 10 27.31N 075 04 13.41W RNG: 7.75 HGT: 0.91 HDG: 199

CORRELATED SS CONTACTS:

Contact	Range/Height
1244061206	-37.56/0.51
1244091655	7.75/0.91

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0021 Least Depth: 61(ft), 18.76(m) Lat: 38 09 20.86N Lon: 075 04 46.17W Ping: 11270 Beam: 36

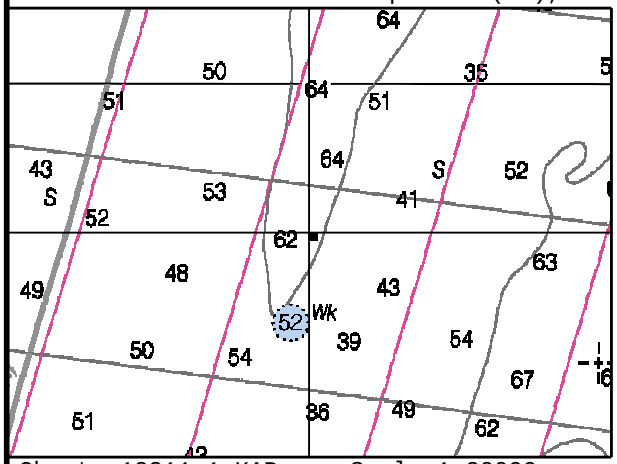


Chart: 12211_1.KAP Scale 1:20000

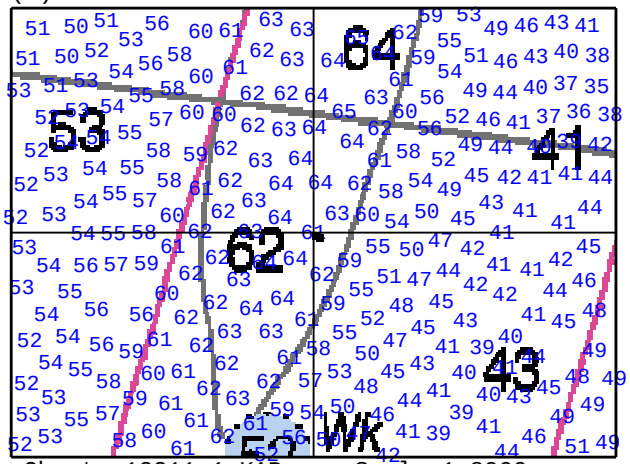
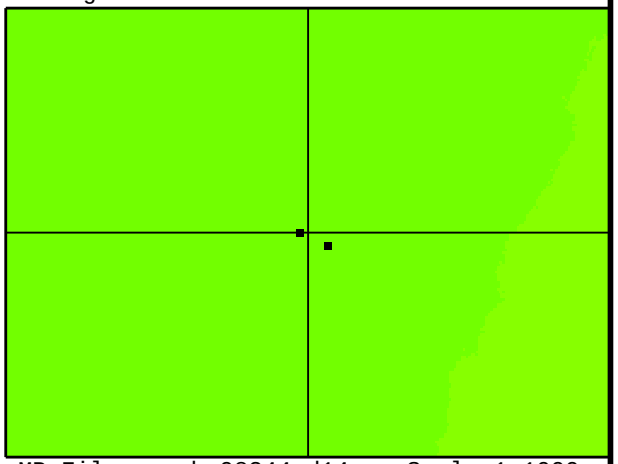
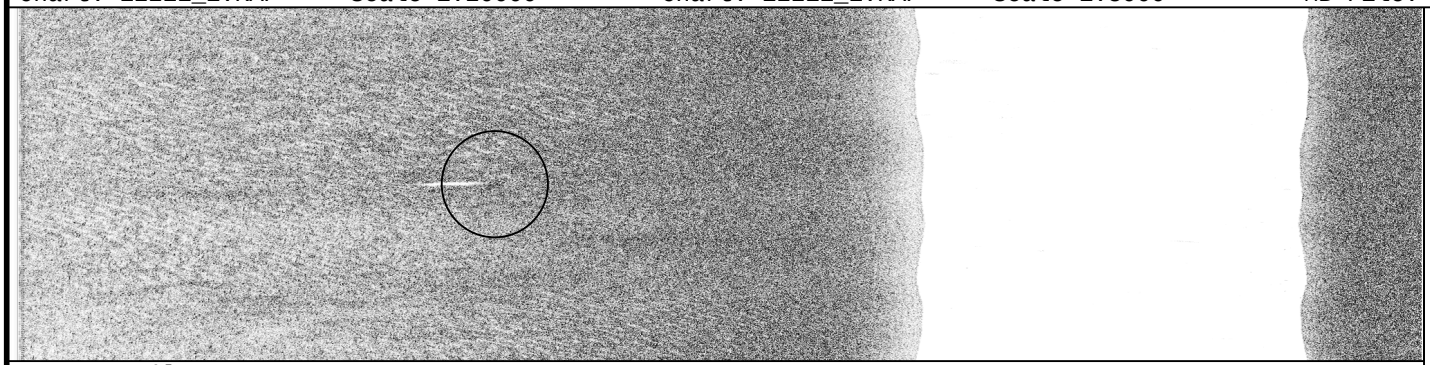


Chart: 12211_1.KAP Scale 1:8000

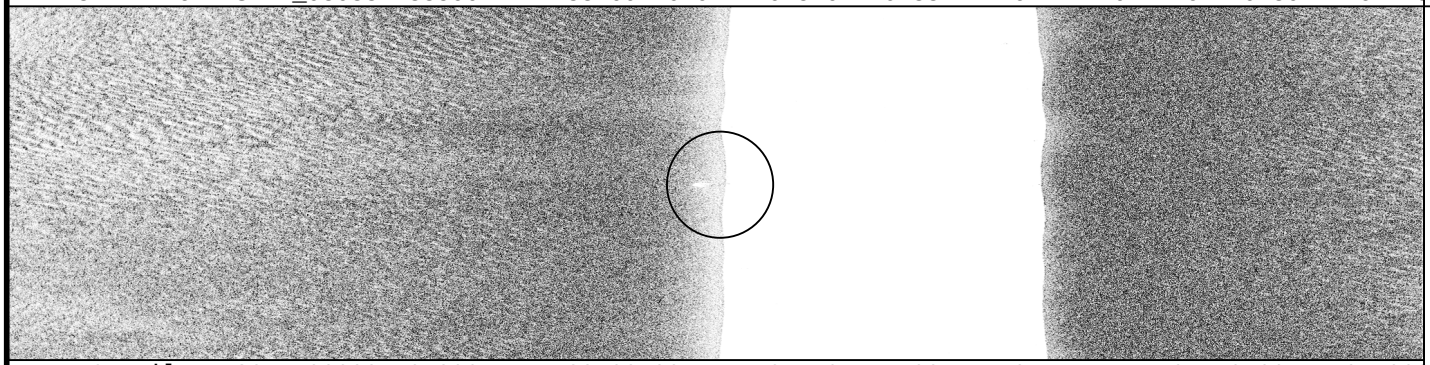


MB File: asmba08244.d14 Scale 1:1000



ID: 81 File: AS244_080831133500.XTF 38 09 20.91N 075 04 46.38W RNG: -27.97 HGT: 0.80 HDG: 199

COMMENT:
OBSTR. No chart. Nonsig relative to surrounding natural depths.



ID: 79 File: AS244_080831104200.XTF 38 09 20.74N 075 04 45.90W RNG: -7.47 HGT: 0.00 HDG: 020

CORRELATED SS CONTACTS:

Contact	Range/Height
1244140252	-27.97/0.80
1244105047	-7.47/0.00

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0022 Least Depth: 52(ft), 15.80(m) Lat: 38 08 57.84N Lon: 075 04 52.54W Ping: 38664 Beam: 21

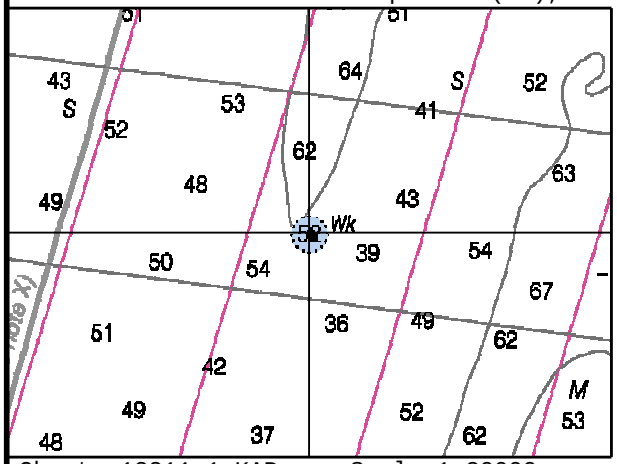


Chart: 12211_1.KAP Scale 1:20000

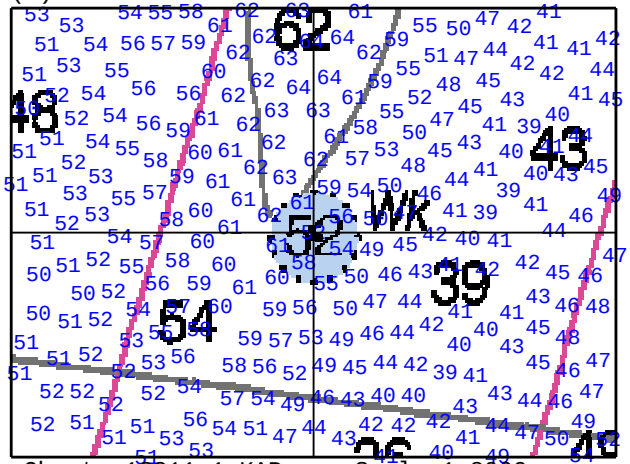
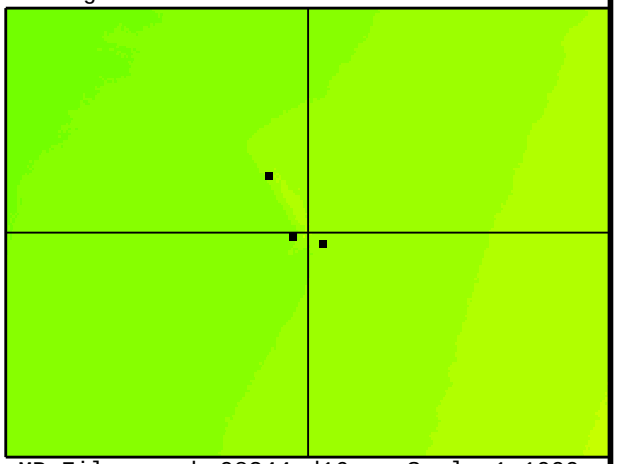
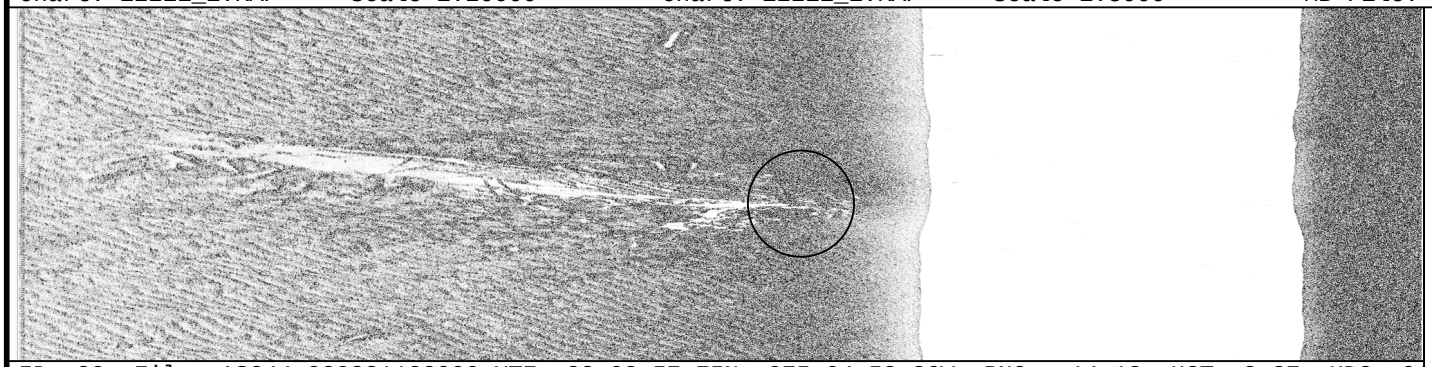


Chart: 12211_1.KAP Scale 1:8000

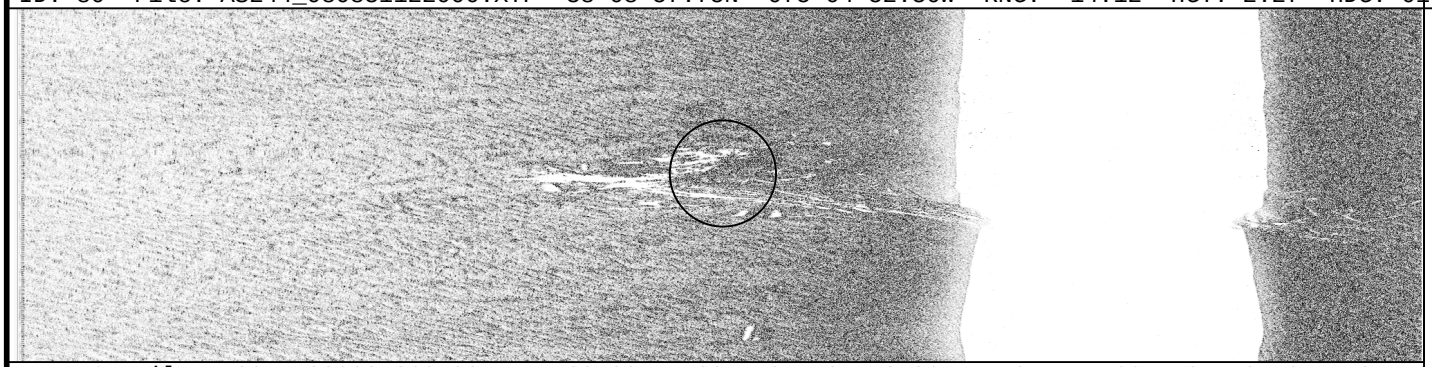


MB File: asmba08244.d16 Scale 1:1000



ID: 80 File: AS244_080831122000.XTF 38 08 57.75N 075 04 52.36W RNG: -14.12 HGT: 2.27 HDG: 019

COMMENT:
WRECK. Chart sounding and danger circle with blue tint and label 'Wk'. Danger to Navigation #3.



ID: 76 File: AS244_080831063100.XTF 38 08 57.83N 075 04 52.86W RNG: -17.66 HGT: 2.13 HDG: 197

CORRELATED SS CONTACTS:

Contact	Range/Height
1244125703	-14.12/2.27
1244070256	-17.66/2.13
1244104801	39.59/0.22

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0023 Least Depth: 56(ft), 17.05(m) Lat: 38 09 12.36N Lon: 075 05 09.54W Ping: 23332 Beam: 86

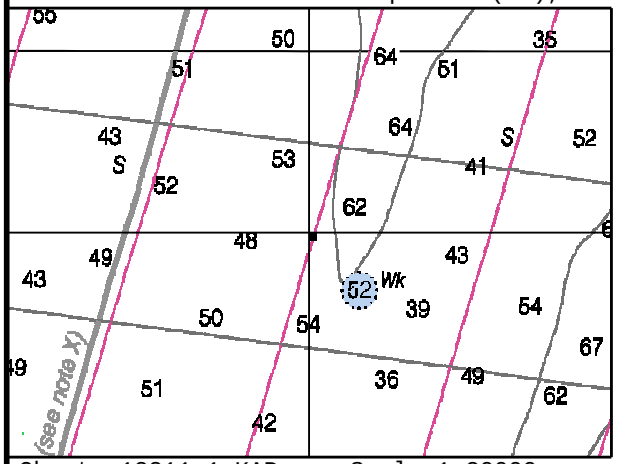


Chart: 12211_1.KAP Scale 1:20000

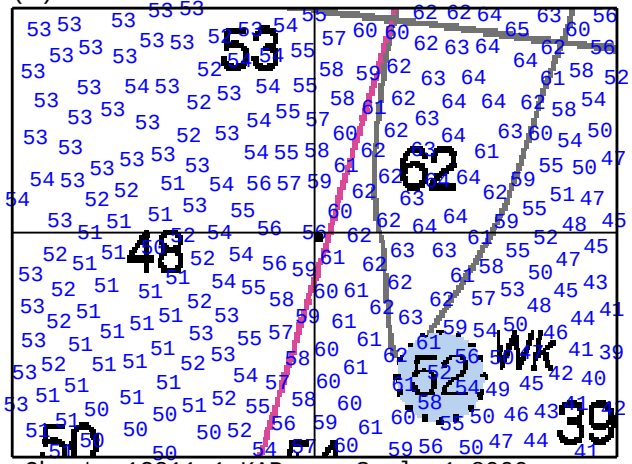
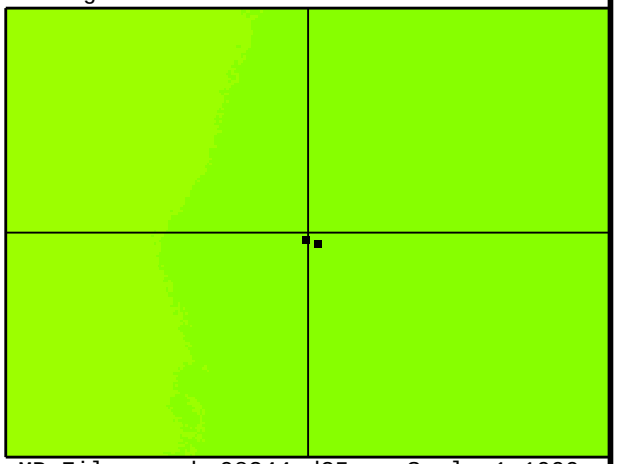
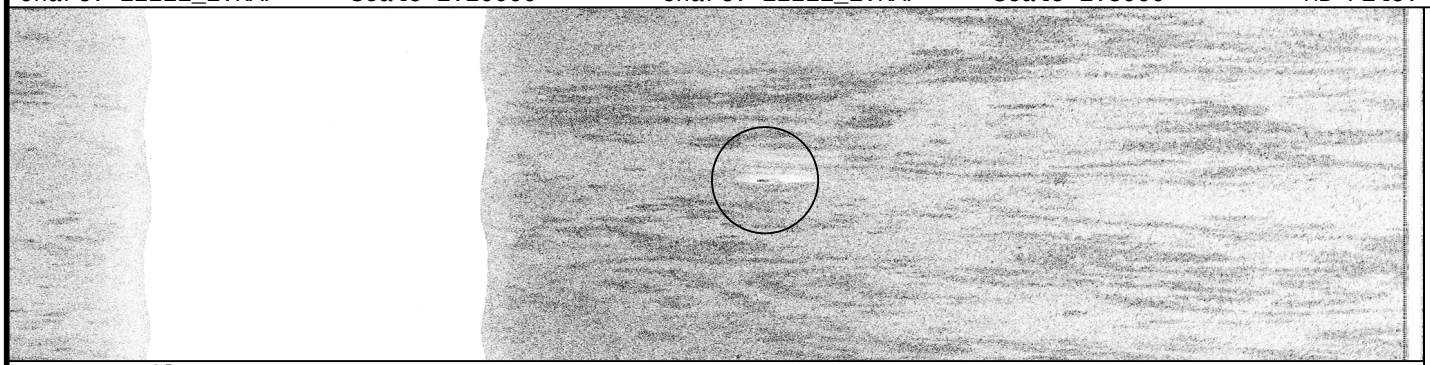


Chart: 12211_1.KAP Scale 1:8000

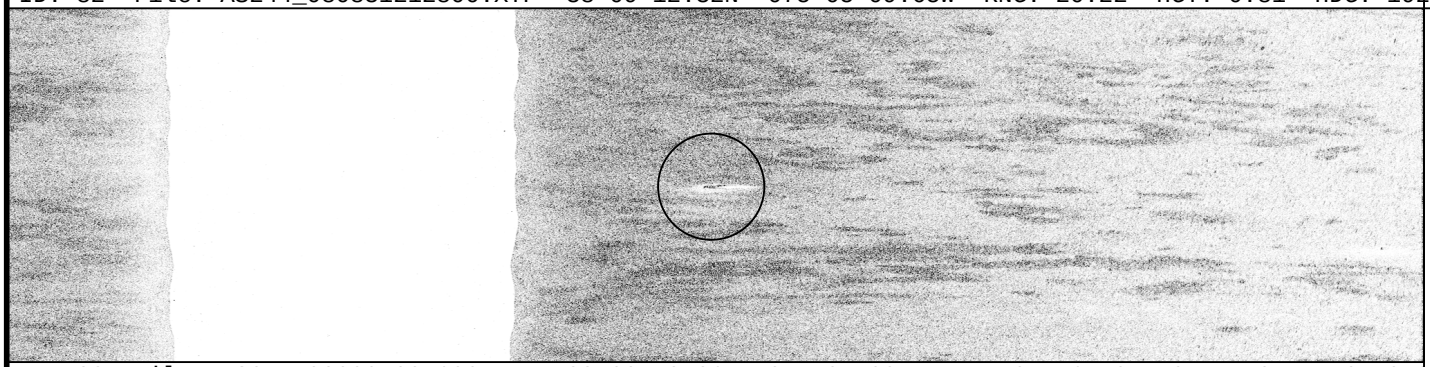


MB File: asmba08244.d25 Scale 1:1000



ID: 82 File: AS244_080831212800.XTF 38 09 12.32N 075 05 09.65W RNG: 20.22 HGT: 0.81 HDG: 192

COMMENT:
OBSTR. Chart sounding and label 'Obstn'.



ID: 83 File: AS245_080901004600.XTF 38 09 12.26N 075 05 09.44W RNG: 16.59 HGT: 1.01 HDG: 019

CORRELATED SS CONTACTS:

Contact	Range/Height
1244213346	20.22/0.81
1245011325	16.59/1.01

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0024 Least Depth: 57(ft), 17.43(m) Lat: 38 09 53.96N Lon: 075 05 02.18W Ping: 29282 Beam: 78

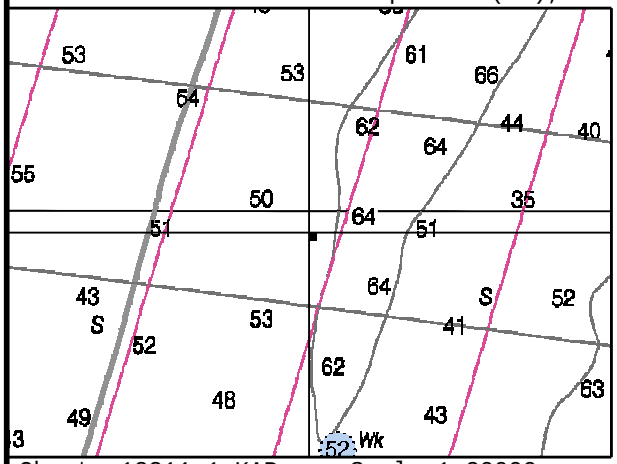


Chart: 12211_1.KAP Scale 1:20000

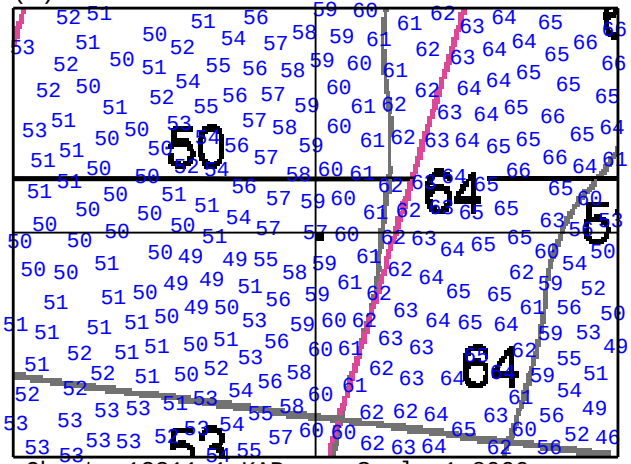
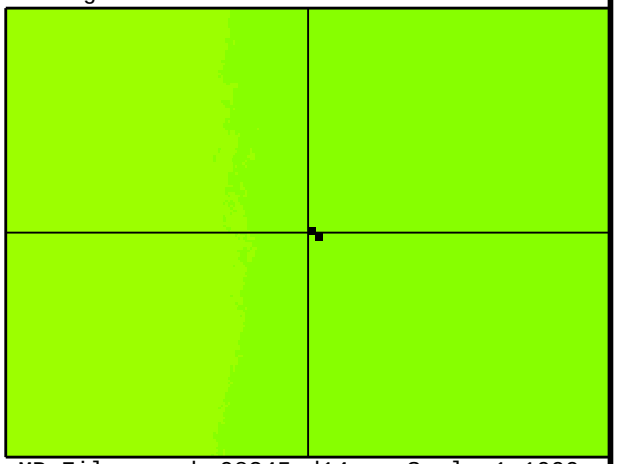
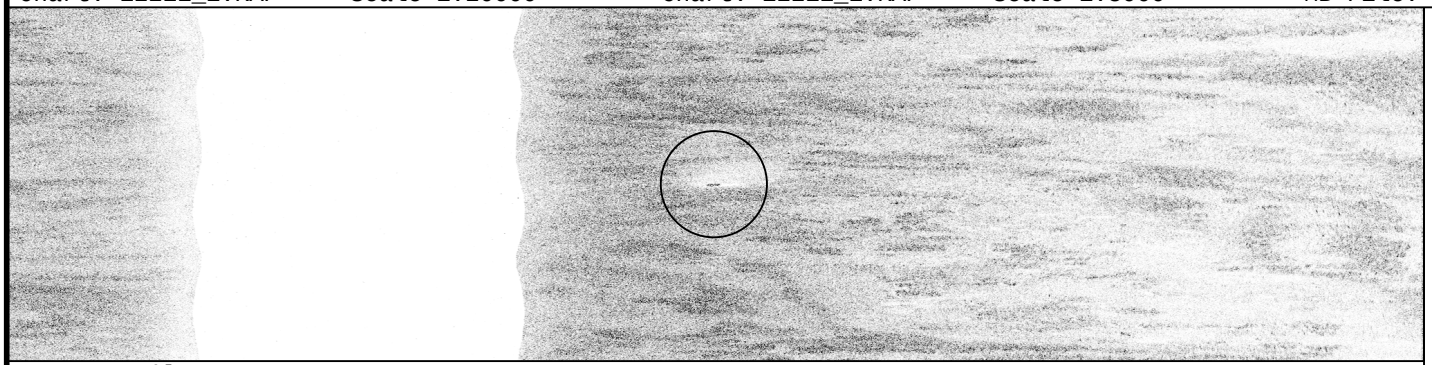


Chart: 12211_1.KAP Scale 1:8000



MB File: asmba08245.d14 Scale 1:1000



ID: 85 File: AS245_080901090900.XTF 38 09 54.03N 075 05 02.18W RNG: 15.97 HGT: 0.44 HDG: 197

COMMENT:
OBSTR. No chart. Nonsig relative to surrounding natural depths.

ID: 84 File: AS245_080901030000.XTF 38 09 53.95N 075 05 02.06W RNG: 28.59 HGT: 0.64 HDG: 018

CORRELATED SS CONTACTS:

Contact	Range/Height
1245093322	15.97/0.44
1245034311	28.59/0.64

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0025 Least Depth: 21(ft), 6.42(m) Lat: 38 10 24.82N Lon: 075 09 32.08W Ping: 63879 Beam: 53

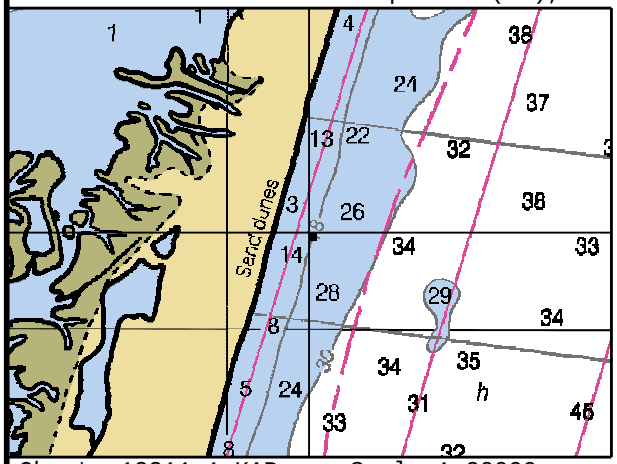


Chart: 12211_1.KAP Scale 1:20000

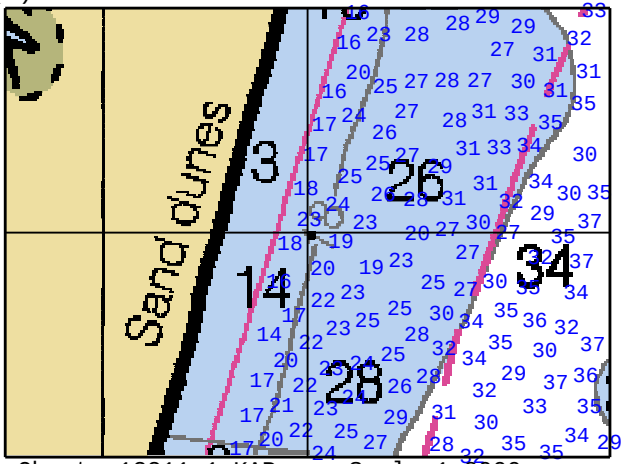
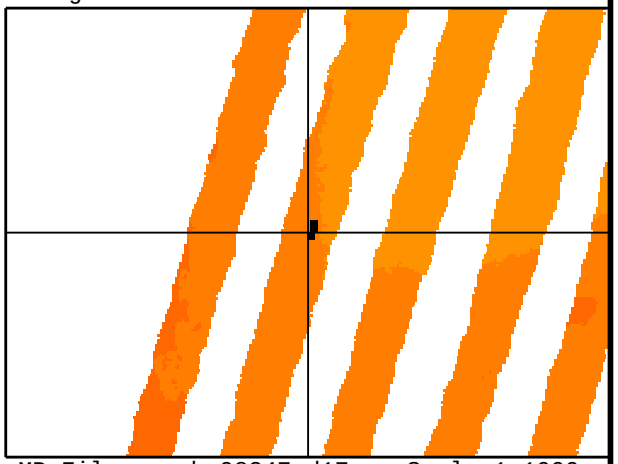


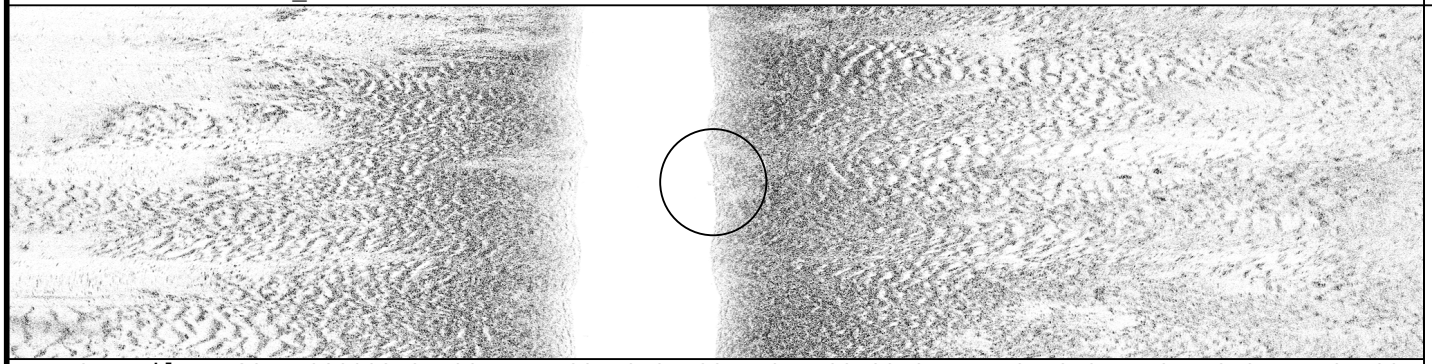
Chart: 12211_1.KAP Scale 1:8000



MB File: asmba08247.d17 Scale 1:1000

ID: 86 File: AS246_080902153100.XTF 38 10 24.83N 075 09 32.09W RNG: 41.19 HGT: 0.13 HDG: 195

COMMENT:
OBSTR. No chart. Nonsig relative to surrounding natural depths.



ID: 87 File: AS247_080903131700.XTF 38 10 24.93N 075 09 32.05W RNG: 2.97 HGT: 0.27 HDG: 201

CORRELATED SS CONTACTS:

Contact	Range/Height
1246160414	41.19/0.13
1247135223	2.97/0.27
1247143630	36.22/0.40

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0026 Least Depth: 49(ft), 14.92(m) Lat: 38 05 03.73N Lon: 075 08 31.76W Ping: 6235 Beam: 91

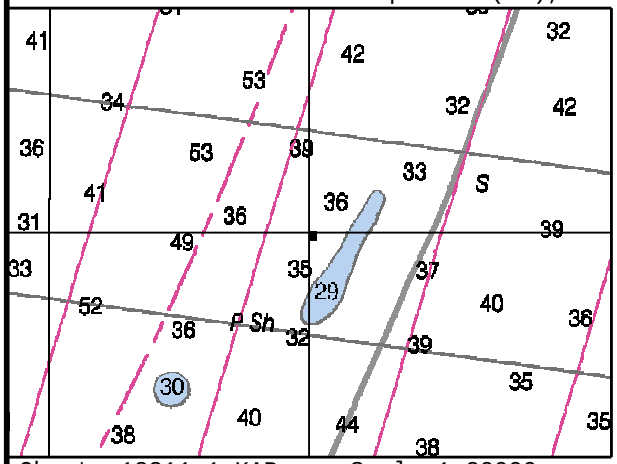


Chart: 12211_1.KAP Scale 1:20000

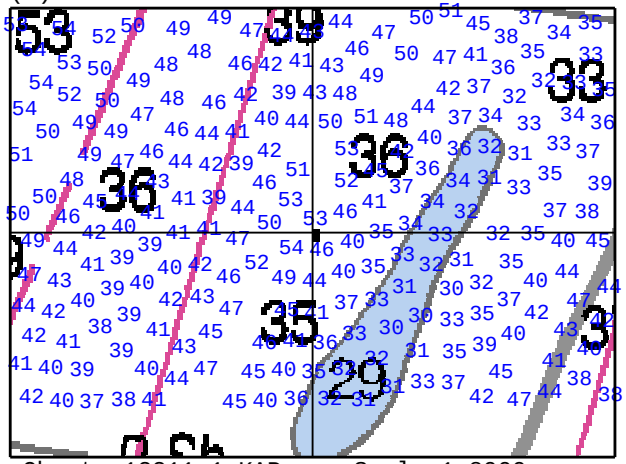
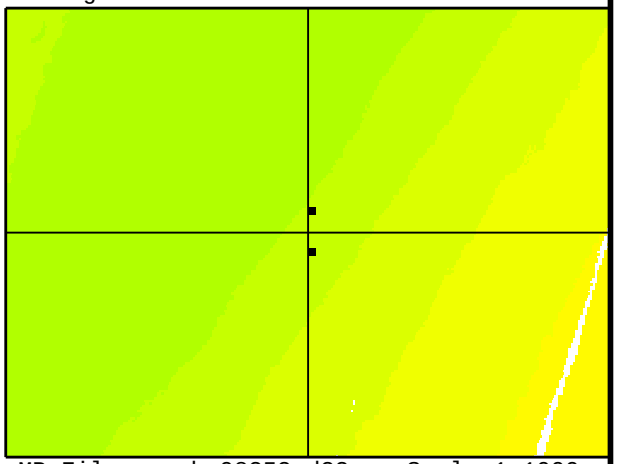
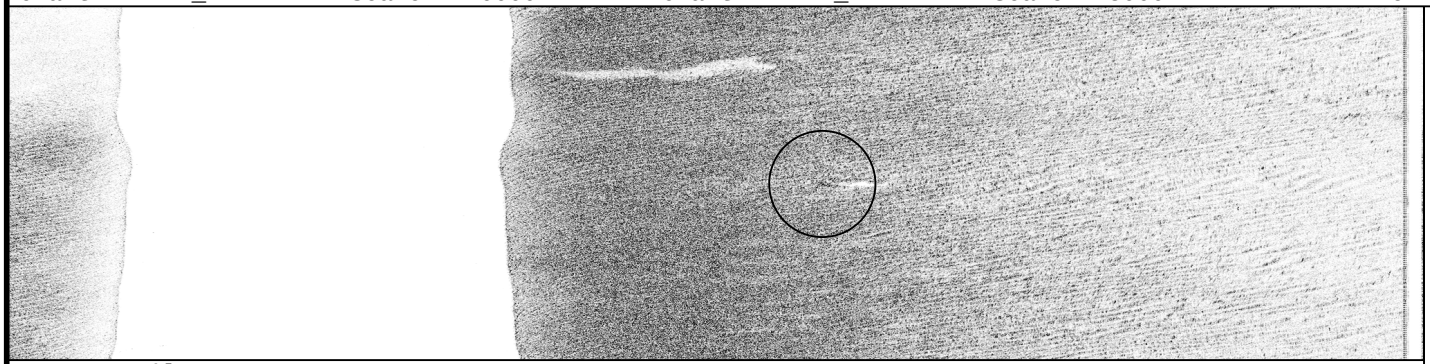


Chart: 12211_1.KAP Scale 1:8000

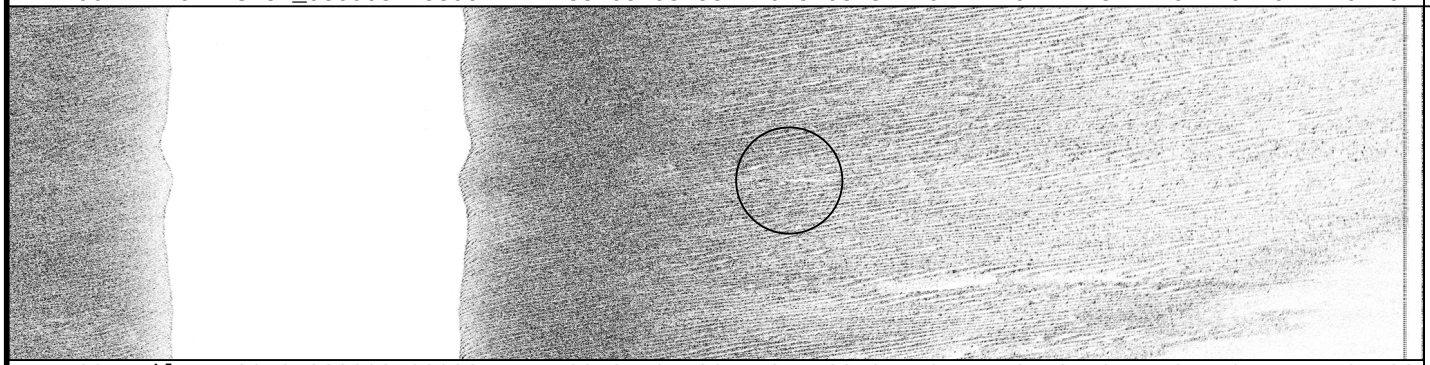


MB File: asmba08252.d22 Scale 1:1000



ID: 90 File: AS252_080908225800.XTF 38 05 03.53N 075 08 31.76W RNG: 22.81 HGT: 0.70 HDG: 022

COMMENT:
OBSTR. No chart. Nonsig relative to surrounding natural depths.



ID: 89 File: AS252_080908193900.XTF 38 05 04.06N 075 08 31.76W RNG: 21.31 HGT: 0.55 HDG: 201

CORRELATED SS CONTACTS:

Contact	Range/Height
1252230424	22.81/0.70
1252204053	21.31/0.55

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0027 Least Depth: 56(ft), 17.15(m) Lat: 38 09 43.43N Lon: 075 06 50.63W Ping: 26948 Beam: 89

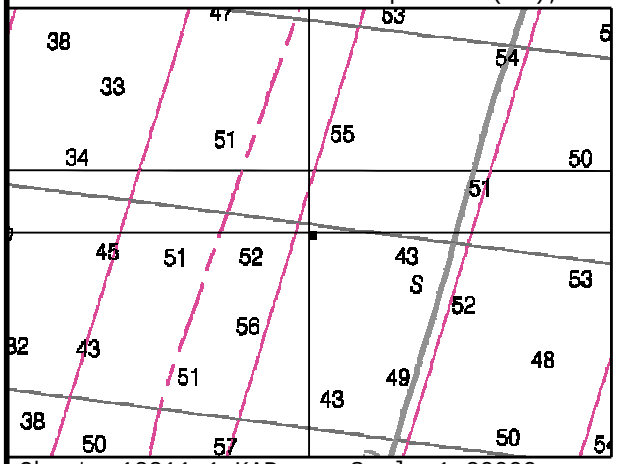


Chart: 12211_1.KAP Scale 1:20000

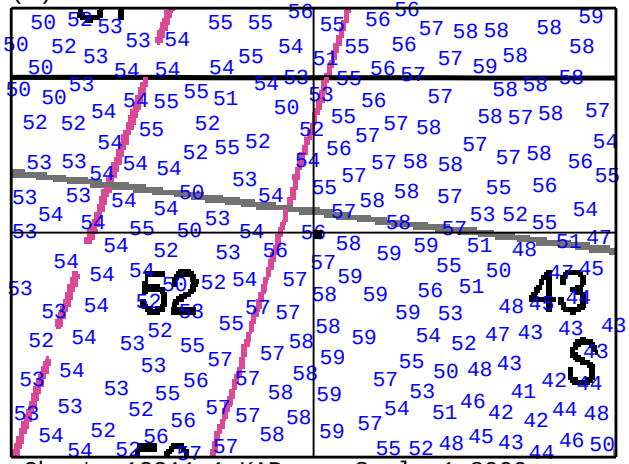
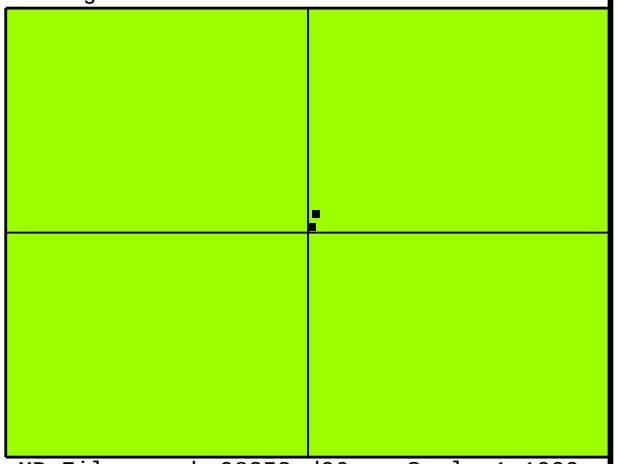
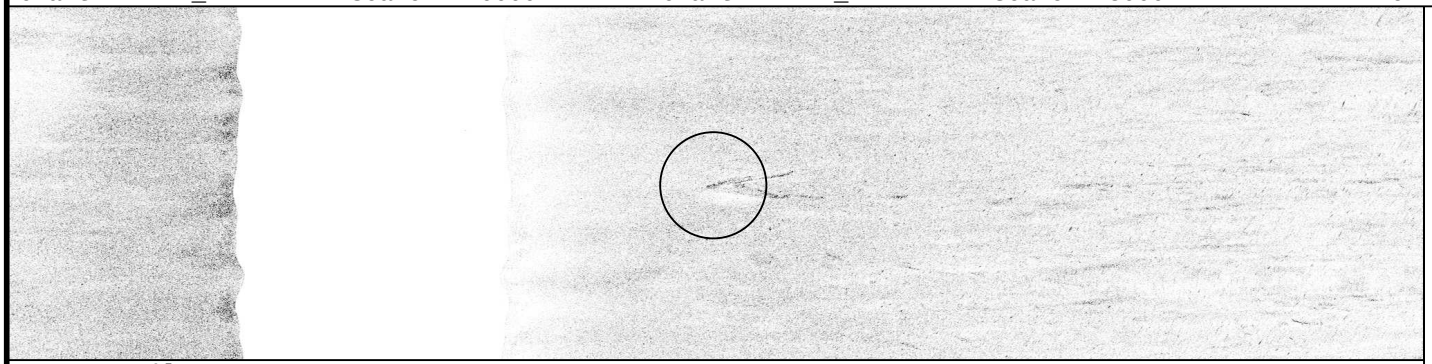


Chart: 12211_1.KAP Scale 1:8000



MB File: asmba08253.d06 Scale 1:1000



ID: 95 File: AS255_080911193000.XTF 38 09 43.56N 075 06 50.63W RNG: 15.34 HGT: 0.31 HDG: 010

COMMENT:
OBSTR. No chart. Nonsig relative to surrounding natural depths.

ID: 93 File: AS253_080909043800.XTF 38 09 43.72N 075 06 50.56W RNG: 25.78 HGT: 0.52 HDG: 200

CORRELATED SS CONTACTS:

Contact	Range/Height
1255201356	15.34/0.31
1253050939	25.78/0.52

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0028 Least Depth: 55(ft), 16.83(m) Lat: 38 10 45.08N Lon: 075 06 22.14W Ping: 45545 Beam: 64

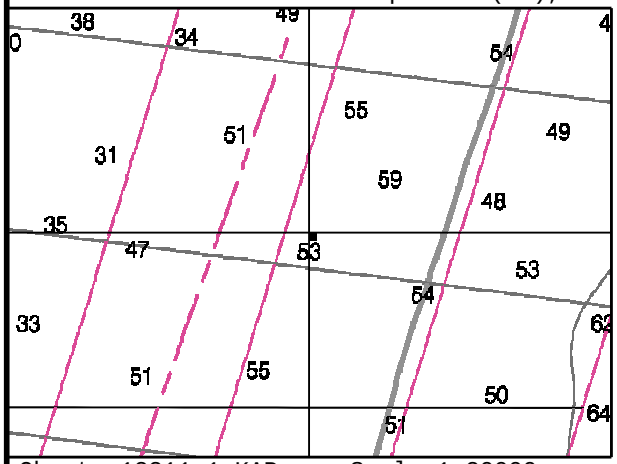


Chart: 12211_1.KAP Scale 1:20000

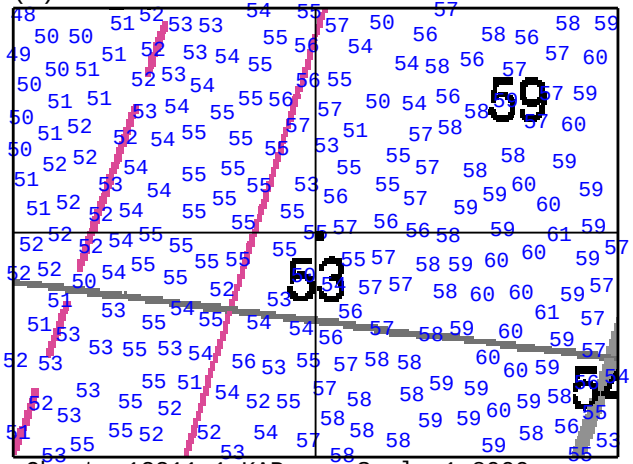
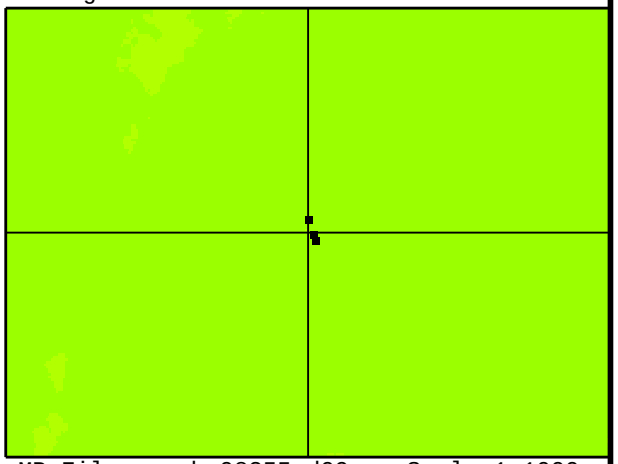
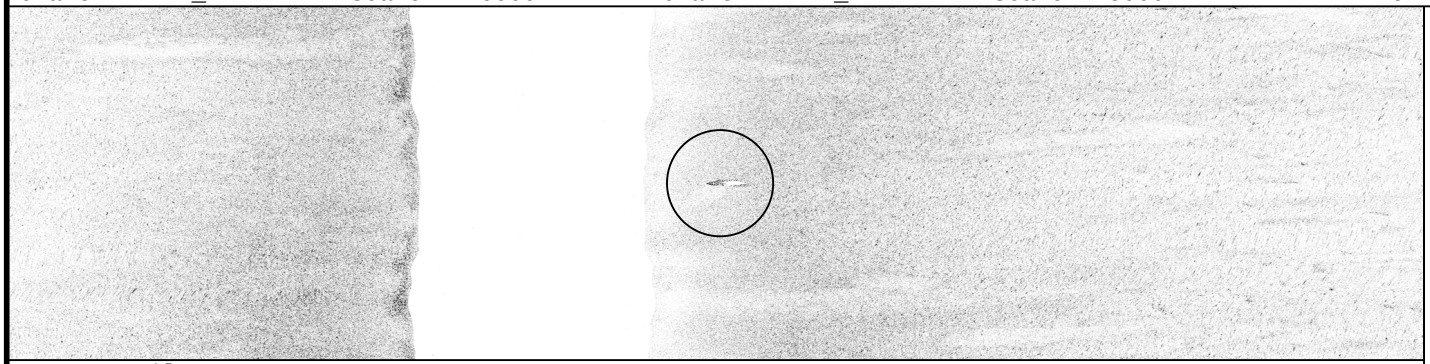


Chart: 12211_1.KAP Scale 1:8000



MB File: asmba08255.d09 Scale 1:1000



ID: 96 File: AS255_080911230800.XTF 38 10 45.10N 075 06 22.11W RNG: 8.44 HGT: 0.65 HDG: 018

COMMENT:
OBSTR. No chart. Nonsig relative to surrounding natural depths.

ID: 94 File: AS255_080911173700.XTF 38 10 45.02N 075 06 22.07W RNG: 29.16 HGT: 0.37 HDG: 199

CORRELATED SS CONTACTS:

Contact	Range/Height
1255234312	8.44/0.65
1255175743	29.16/0.37
1253050132	-45.50/0.46

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0029 Least Depth: 51(ft), 15.73(m) Lat: 38 05 43.35N Lon: 075 08 38.71W Ping: 61203 Beam: 40

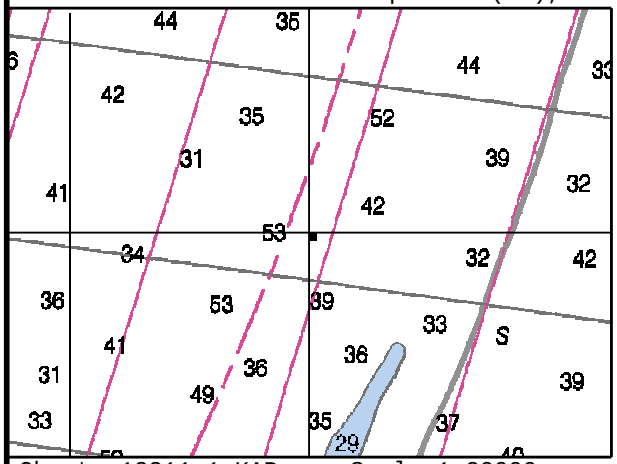


Chart: 12211_1.KAP Scale 1:20000

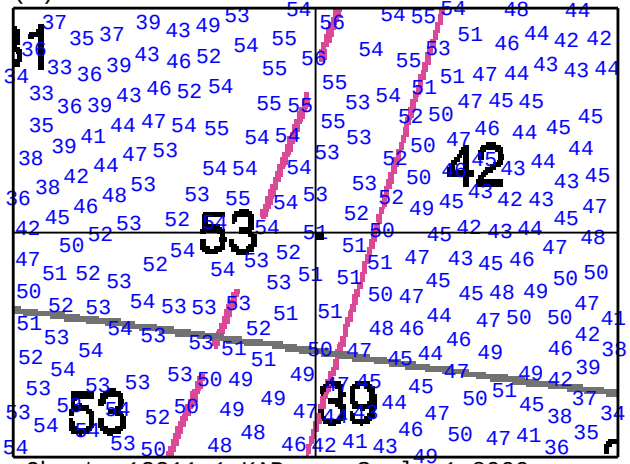
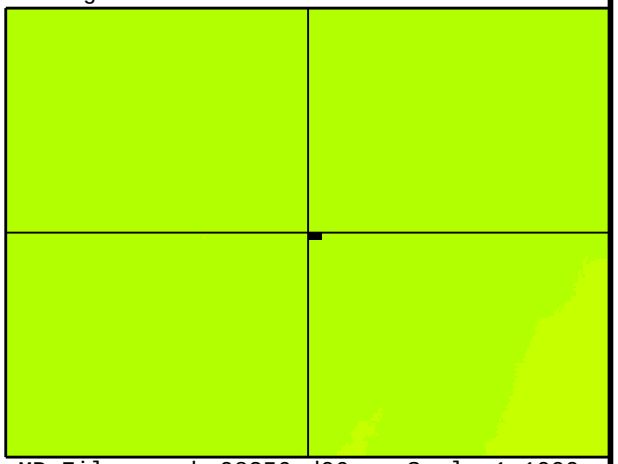
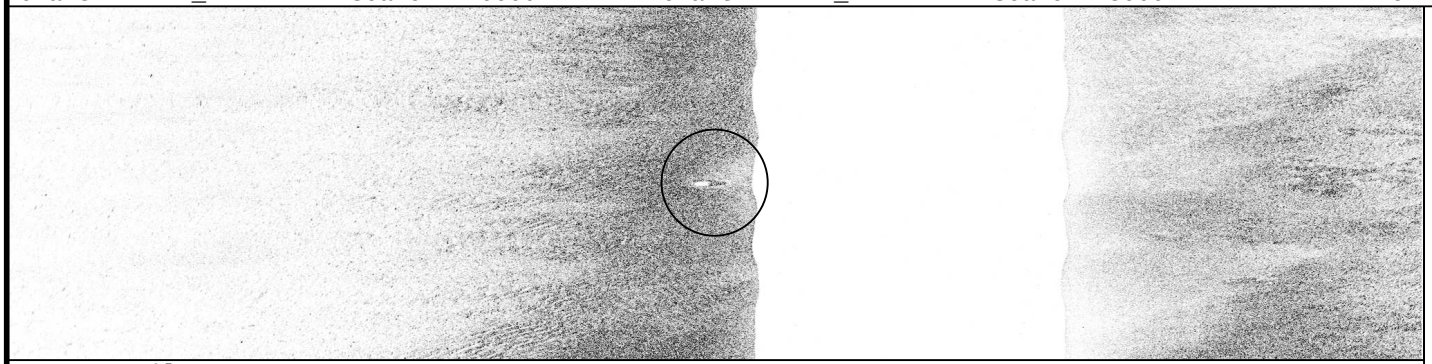


Chart: 12211_1.KAP Scale 1:8000



MB File: asmba08256.d06 Scale 1:1000



ID: 99 File: AS256_080912053800.XTF 38 05 43.36N 075 08 38.69W RNG: -8.91 HGT: 0.95 HDG: 203

COMMENT:
OBSTR. No chart. Nonsig relative to surrounding natural depths.

ID: 97 File: AS256_080912012400.XTF 38 05 43.36N 075 08 38.60W RNG: -33.56 HGT: 0.50 HDG: 024

CORRELATED SS CONTACTS:

Contact	Range/Height
1256064708	-8.91/0.95
1256013857	-33.56/0.50

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0030 Least Depth: 54(ft), 16.52(m) Lat: 38 06 06.52N Lon: 075 08 41.00W Ping: 10853 Beam: 73

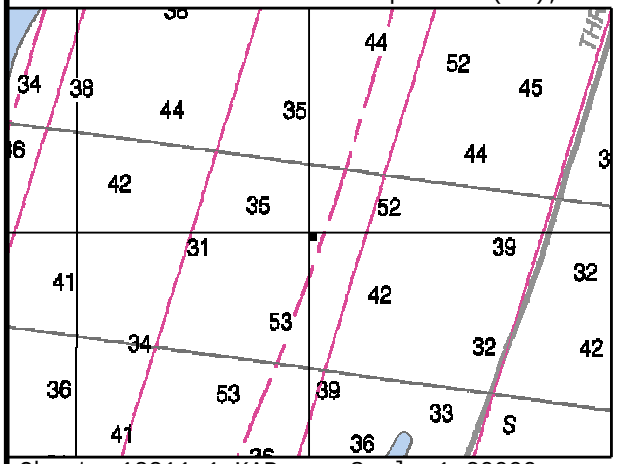


Chart: 12211_1.KAP Scale 1:20000

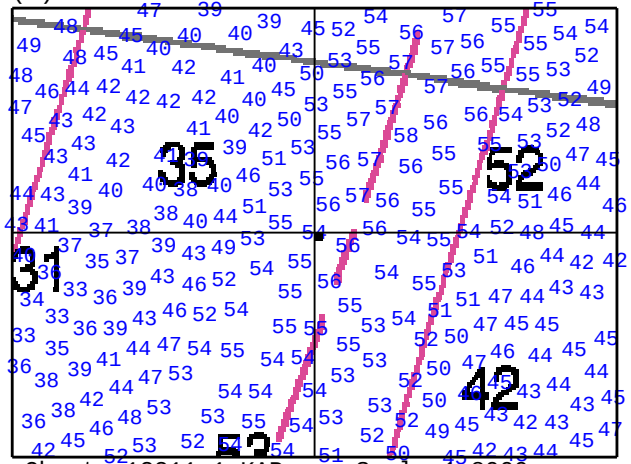
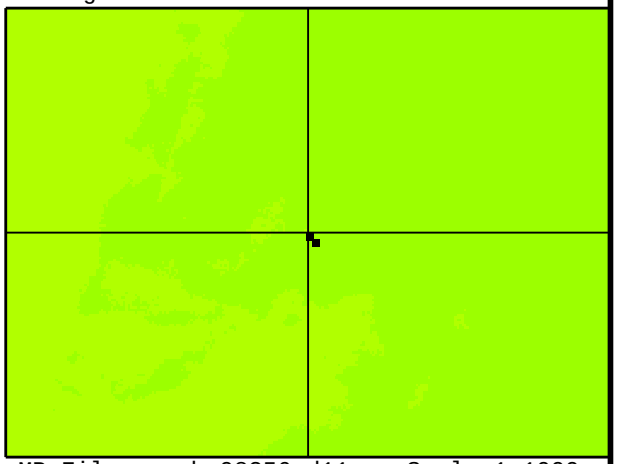
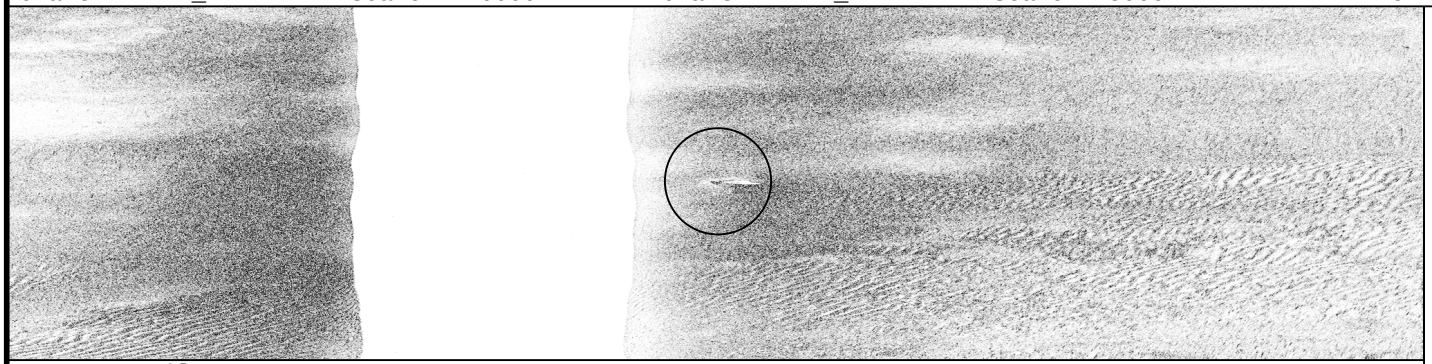


Chart: 12211_1.KAP Scale 1:8000

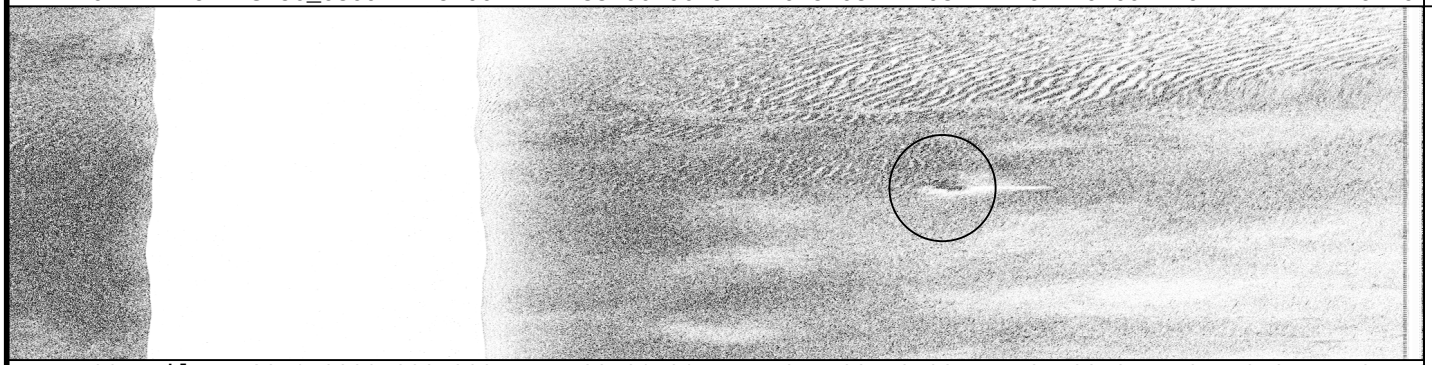


MB File: asmba08256.d11 Scale 1:1000



ID: 101 File: AS256_080912115400.XTF 38 06 06.52N 075 08 41.03W RNG: 10.09 HGT: 1.11 HDG: 020

COMMENT:
OBSTR. No chart. Nonsig relative to surrounding natural depths.



ID: 100 File: AS256_080912081900.XTF 38 06 06.44N 075 08 40.93W RNG: 28.25 HGT: 0.87 HDG: 196

CORRELATED SS CONTACTS:

Contact	Range/Height
1256120640	10.09/1.11
1256092257	28.25/0.87

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0031 Least Depth: 49(ft), 15.00(m) Lat: 38 11 46.68N Lon: 075 06 22.22W Ping: 20388 Beam: 17

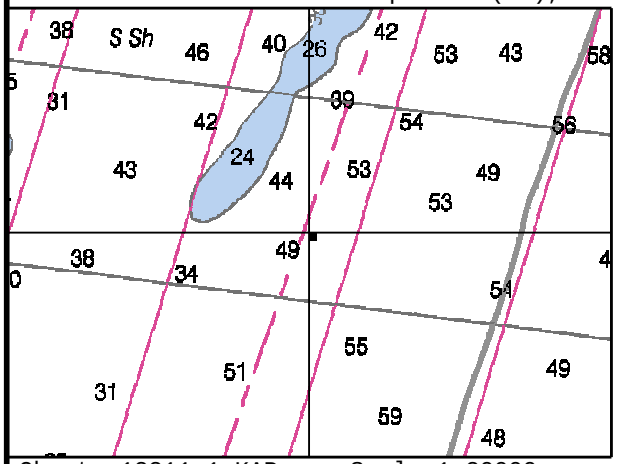


Chart: 12211_1.KAP Scale 1:20000

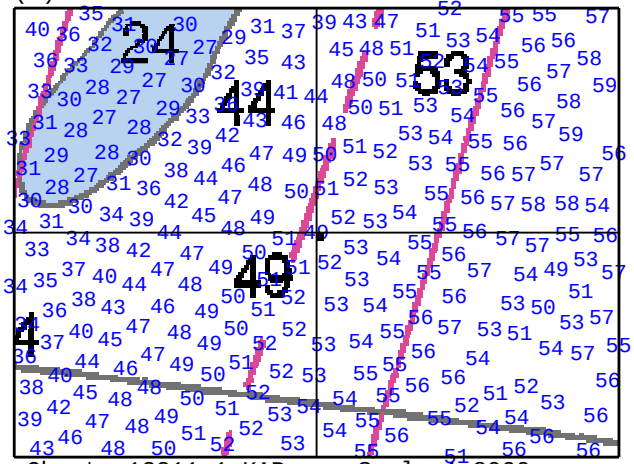
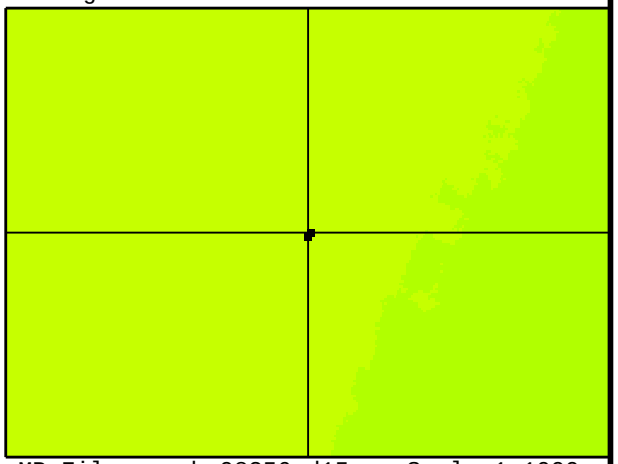
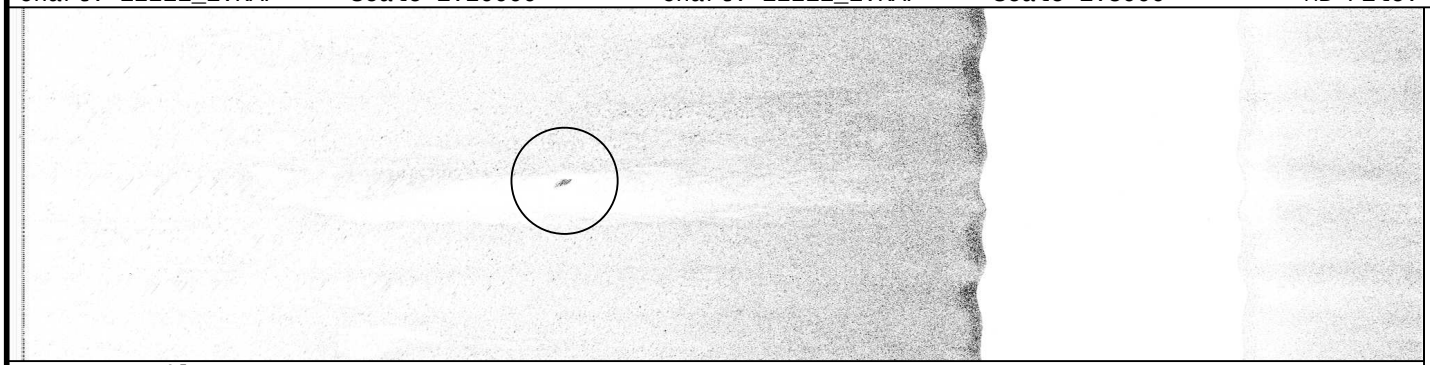


Chart: 12211_1.KAP Scale 1:8000

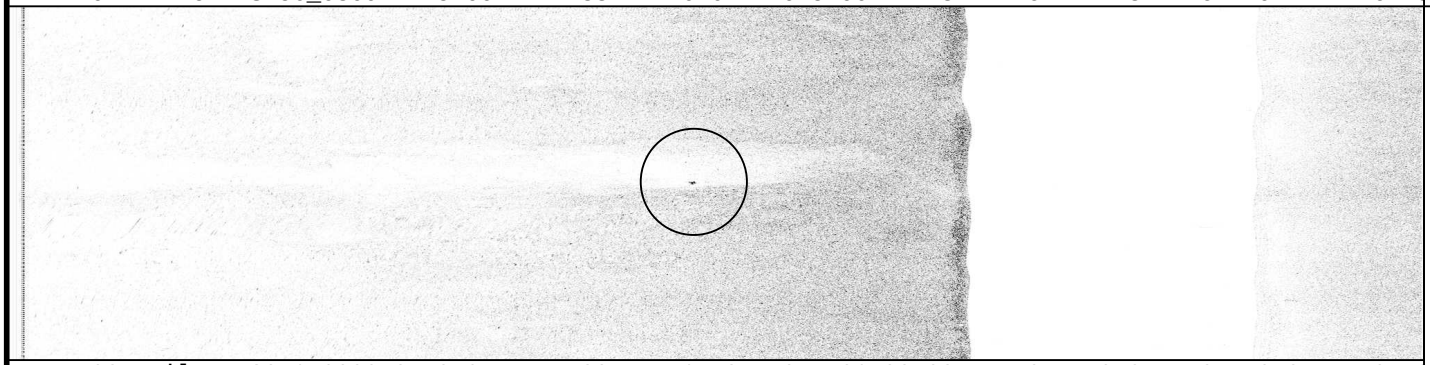


MB File: asmba08256.d15 Scale 1:1000



ID: 102 File: AS256_080912115400.XTF 38 11 46.67N 075 06 22.28W RNG: -24.81 HGT: 0.27 HDG: 022

COMMENT:
OBSTR. Chart sounding and label 'Obstn'.



ID: 103 File: AS256_080912152501.XTF 38 11 46.73N 075 06 22.23W RNG: -18.97 HGT: 0.37 HDG: 200

CORRELATED SS CONTACTS:

Contact	Range/Height
1256124936	-24.81/0.27
1256154247	-18.97/0.37

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0032 Least Depth: 45(ft), 13.65(m) Lat: 38 12 26.73N Lon: 075 06 59.22W Ping: 10337 Beam: 91

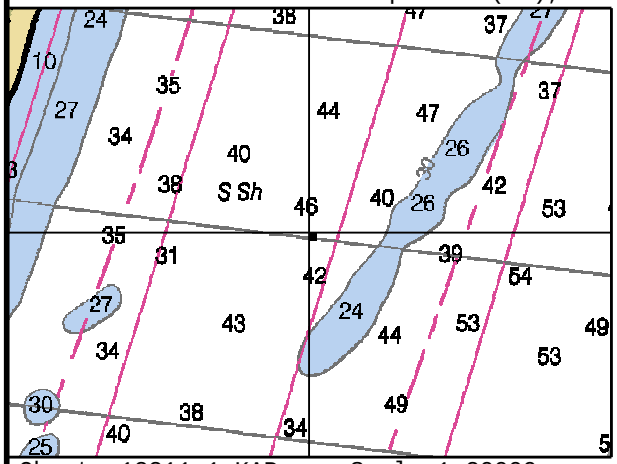


Chart: 12211_1.KAP Scale 1:20000

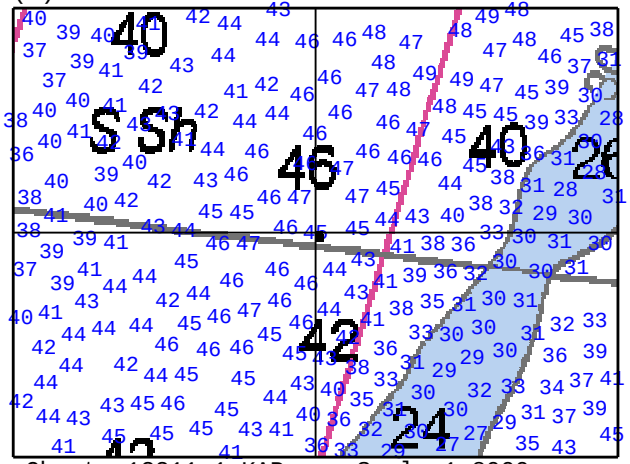
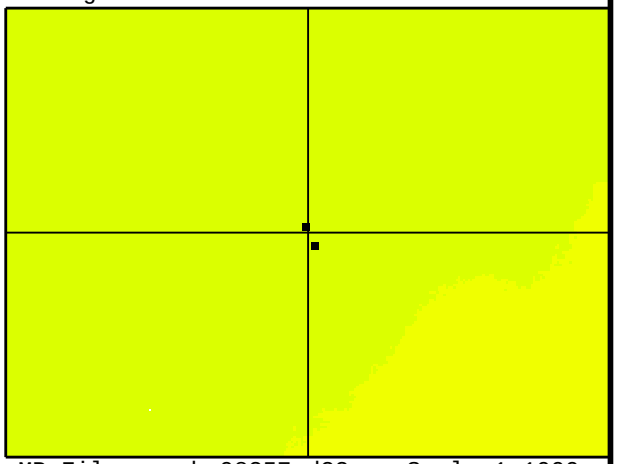
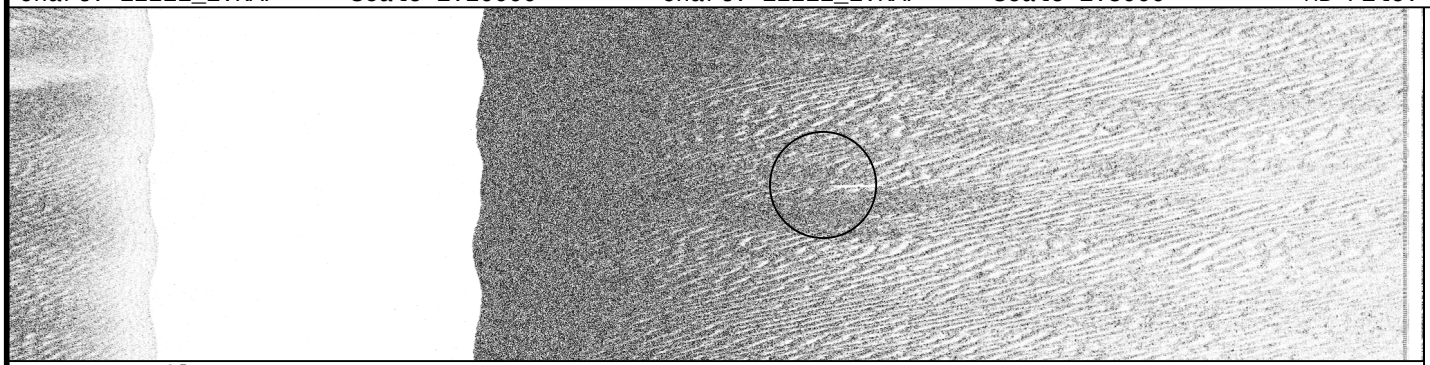


Chart: 12211_1.KAP Scale 1:8000

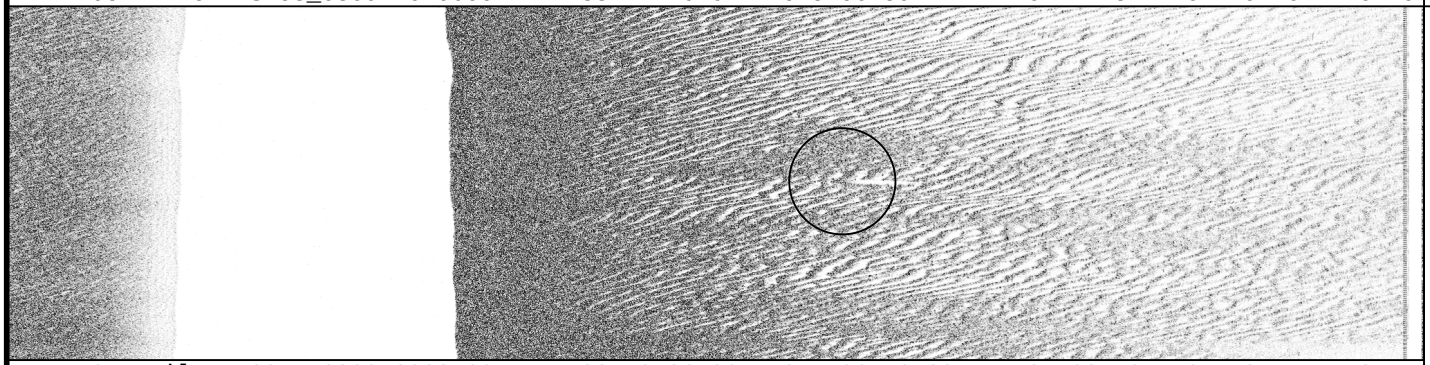


MB File: asmba08257.d22 Scale 1:1000



ID: 105 File: AS258_080914040600.XTF 38 12 26.61N 075 06 59.17W RNG: 22.84 HGT: 0.76 HDG: 017

COMMENT:
OBSTR. No chart. Nonsig relative to surrounding natural depths.



ID: 104 File: AS257_080913233400.XTF 38 12 26.86N 075 06 59.32W RNG: 23.72 HGT: 0.77 HDG: 198

CORRELATED SS CONTACTS:

Contact	Range/Height
1258040804	22.84/0.76
1257234646	23.72/0.77

FEATURE CORRELATOR SHEET Job: H11874

Feature #: 0033 Least Depth: 55(ft), 16.99(m) Lat: 38 08 05.34N Lon: 075 02 22.77W Ping: 6693 Beam: 41

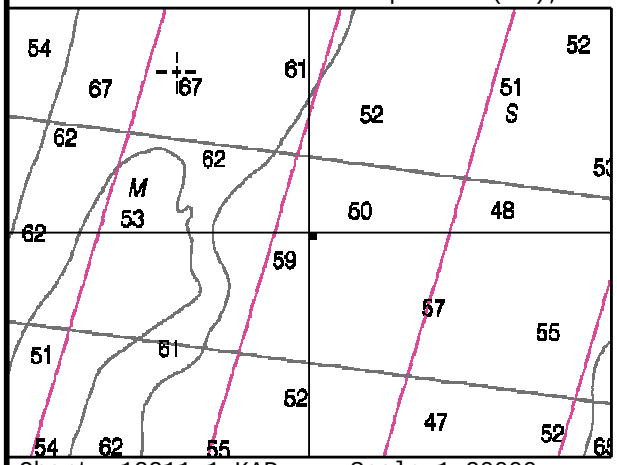


Chart: 12211_1.KAP Scale 1:20000

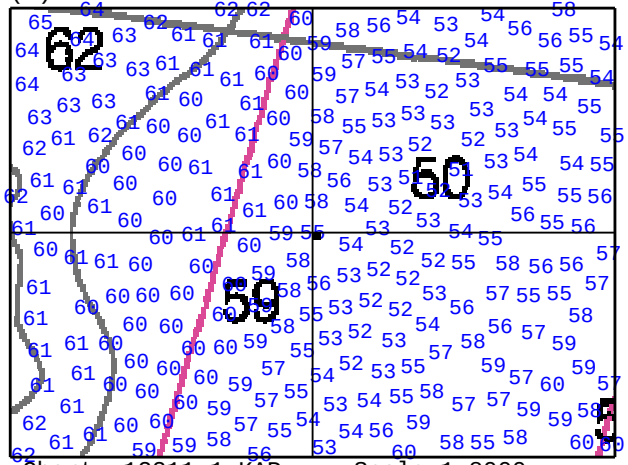
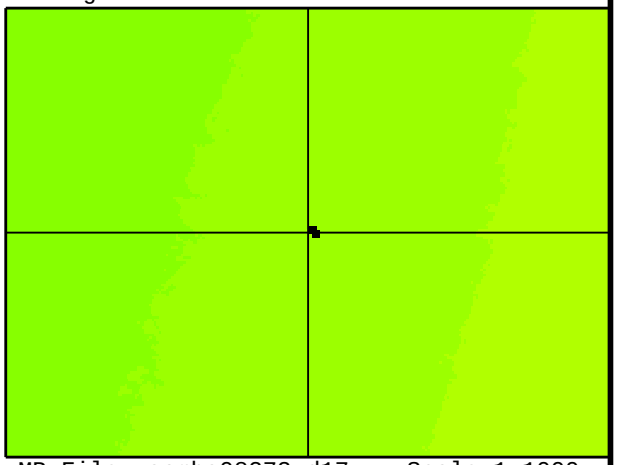
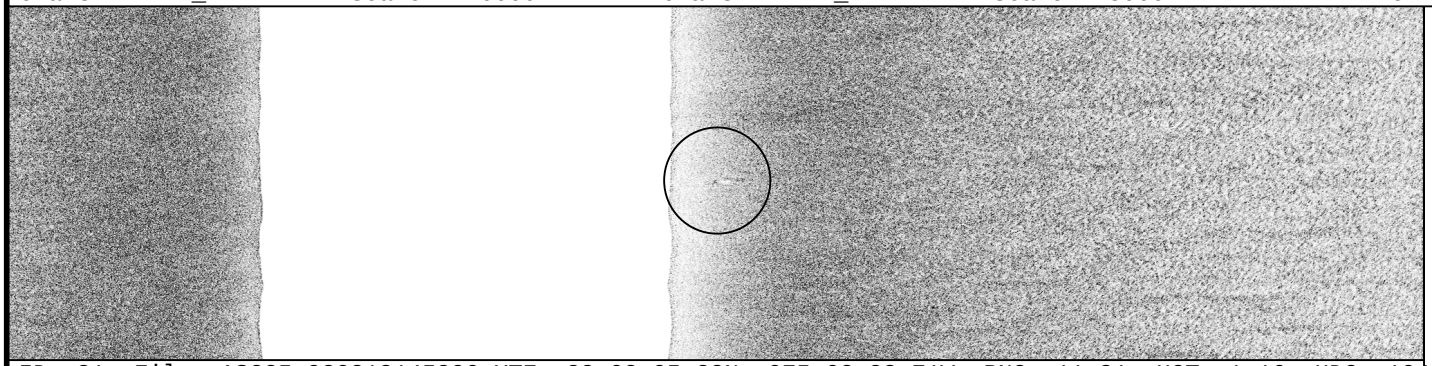


Chart: 12211_1.KAP Scale 1:8000

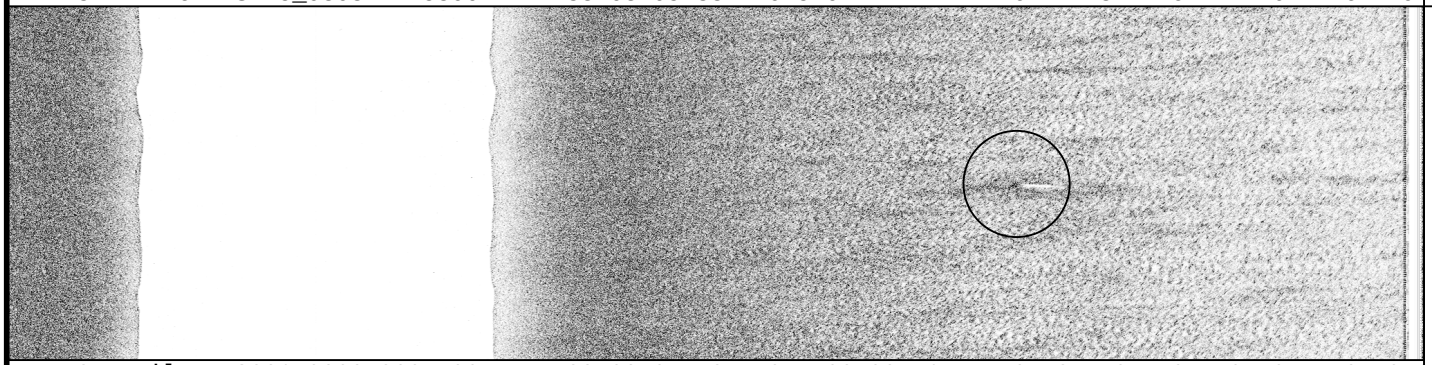


MB File: asmba08273.d17 Scale 1:1000



ID: 31 File: AS225_080812145800.XTF 38 08 05.38N 075 02 22.71W RNG: 11.31 HGT: 1.16 HDG: 194

COMMENT:
OBSTR. No chart. Nonsig relative to surrounding natural depths.



ID: 34 File: AS226_080813001400.XTF 38 08 05.43N 075 02 22.76W RNG: 31.59 HGT: 0.49 HDG: 016

CORRELATED SS CONTACTS:

Contact	Range/Height
1225153103	11.31/1.16
1226004146	31.59/0.49

Feature Number	Feature Position (NAD83)		Category	Multibeam File	Ping	Beam	Depth (Meters)	Vertical Uncertainty (Meters)	Horizontal Uncertainty (Meters)	Time (UTC)
	Latitude (N)	Longitude (W)								
1	38 04 56.70N	075 02 45.40W	Designated Sounding	asmba08223.d21	3495	29	15.45	0.28	1.45	18:04:04
2	38 11 22.56N	075 00 23.34W	Designated Sounding	asmba08224.d12	60011	91	18.06	0.28	1.54	13:25:25
3	38 10 04.97N	075 01 22.18W	Designated Sounding	asmba08225.d12	41914	12	19.84	0.29	1.68	08:10:58
4	38 06 55.67N	075 02 50.22W	Designated Sounding	asmba08225.d14	19326	17	15.85	0.28	1.32	09:50:18
5	38 06 55.59N	075 02 49.73W	Designated Sounding	asmba08225.d14	19332	37	15.82	0.28	1.30	09:50:19
6	38 06 55.48N	075 02 49.18W	Designated Sounding	asmba08225.d14	19336	71	15.87	0.28	1.30	09:50:19
7	38 06 56.35N	075 02 49.68W	Designated Sounding	asmba08225.d14	19427	25	15.72	0.28	1.30	09:50:24
8	38 06 56.47N	075 02 49.75W	Designated Sounding	asmba08225.d14	19440	22	15.66	0.28	1.31	09:50:25
9	38 06 56.53N	075 02 49.57W	Designated Sounding	asmba08225.d14	19453	28	15.64	0.28	1.30	09:50:25
10	38 05 20.04N	075 03 19.87W	Designated Sounding	asmba08225.d19	47804	28	16.47	0.28	1.41	13:39:55
11	38 05 19.82N	075 03 19.76W	Designated Sounding	asmba08225.d19	47824	20	16.60	0.28	1.42	13:39:56
12	38 05 19.87N	075 03 20.20W	Designated Sounding	asmba08225.d19	47833	39	16.68	0.28	1.40	13:39:57
13	38 06 56.54N	075 02 49.90W	Designated Sounding	asmba08225.d22	35560	12	15.31	0.28	1.40	15:39:46
14	38 06 56.41N	075 02 49.94W	Designated Sounding	asmba08225.d22	35574	13	15.79	0.28	1.40	15:39:47
15	38 09 36.44N	075 02 01.29W	Designated Sounding	asmba08226.d05	18372	22	20.17	0.28	1.82	03:39:09
16	38 10 13.87N	074 59 26.31W	Designated Sounding	asmba08232.d13	11475	43	19.44	0.28	1.44	09:55:19
17	38 08 35.90N	075 09 58.51W	Designated Sounding	asmba08234.d17	32307	83	8.84	0.27	1.48	16:26:40
18	38 08 35.60N	075 09 57.80W	Designated Sounding	asmba08234.d17	32342	12	8.41	0.27	1.48	16:26:42
19	38 08 35.62N	075 09 58.13W	Designated Sounding	asmba08234.d17	32359	35	8.56	0.28	1.47	16:26:42
20	38 08 35.56N	075 09 58.05W	Designated Sounding	asmba08234.d17	32371	26	8.58	0.27	1.48	16:26:43
21	38 08 35.53N	075 09 57.99W	Designated Sounding	asmba08234.d17	32373	21	8.63	0.27	1.48	16:26:43
22	38 08 35.48N	075 09 57.91W	Designated Sounding	asmba08234.d17	32381	16	8.53	0.27	1.48	16:26:43
23	38 08 35.40N	075 09 57.79W	Designated Sounding	asmba08234.d17	32394	12	8.47	0.27	1.49	16:26:44
24	38 08 35.97N	075 09 57.62W	Designated Sounding	asmba08235.d21	70516	4	8.91	0.28	1.51	16:50:12
25	38 08 36.08N	075 09 57.58W	Designated Sounding	asmba08235.d21	70541	4	9.00	0.28	1.51	16:50:13
26	38 08 33.90N	075 03 29.56W	Designated Sounding	asmba08235.d27	8389	19	19.35	0.28	1.47	21:36:36
27	38 08 37.27N	075 03 24.89W	Designated Sounding	asmba08237.d04	37492	38	19.89	0.28	1.43	06:57:37
28	38 07 33.56N	075 04 09.15W	Designated Sounding	asmba08238.d08	37270	64	19.23	0.28	1.57	07:56:57
29	38 08 58.64N	075 04 53.09W	Designated Sounding	asmba08244.d09	27086	45	16.81	0.28	1.63	07:02:41
30	38 08 58.44N	075 04 52.92W	Designated Sounding	asmba08244.d09	27100	30	16.73	0.28	1.63	07:02:42
31	38 08 58.24N	075 04 52.79W	Designated Sounding	asmba08244.d09	27115	20	16.46	0.28	1.64	07:02:43
32	38 08 58.15N	075 04 52.74W	Designated Sounding	asmba08244.d09	27122	18	16.52	0.28	1.64	07:02:44
33	38 08 58.07N	075 04 52.59W	Designated Sounding	asmba08244.d09	27125	14	16.63	0.28	1.66	07:02:44
34	38 08 57.78N	075 04 52.57W	Designated Sounding	asmba08244.d09	27151	12	15.96	0.28	1.66	07:02:46
35	38 09 54.00N	075 05 02.13W	Designated Sounding	asmba08245.d06	46301	90	17.43	0.28	1.74	03:43:02
36	38 11 17.23N	075 00 20.38W	Designated Sounding	asmba08273.d31	12592	57	14.53	0.28	1.33	18:12:26

Feature Number	Feature Position (NAD83)		Category	Multibeam File	Ping	Beam	Depth (Meters)	Vertical Uncertainty (Meters)	Horizontal Uncertainty (Meters)	Time (UTC)
	Latitude (N)	Longitude (W)								
37	38 11 17.25N	075 00 20.77W	Designated Sounding	asmba08273.d31	12644	69	17.62	0.28	1.34	18:12:29
38	38 11 17.05N	075 00 21.54W	Designated Sounding	asmba08273.d31	12750	73	17.62	0.28	1.35	18:12:35
39	38 11 16.57N	075 00 21.74W	Designated Sounding	asmba08273.d31	12805	54	18.53	0.28	1.35	18:12:38
40	38 11 16.51N	075 00 21.89W	Designated Sounding	asmba08273.d31	12827	51	17.67	0.28	1.35	18:12:40
41	38 11 16.77N	075 00 22.28W	Designated Sounding	asmba08273.d31	12859	75	18.21	0.28	1.35	18:12:41
42	38 08 35.82N	075 09 58.13W	Designated Sounding	asmba08273.d56	29119	91	8.94	0.27	2.11	23:45:17

Feature Number	Feature Position (NAD83)		Description	Multibeam File	Ping	Beam	Depth (Meters)	Vertical Uncertainty (Meters)	Horizontal Uncertainty (Meters)	Time (UTC)
	Latitude (N)	Longitude (W)								
1	38 04 56.60	075 02 45.19	WRECK. Chart sounding and danger circle with blue tint and label 'Wk'. Danger to Navigation #5.	asmba08223.d21	3490	42	15.44	0.28	1.45	18:04:04
2	38 11 16.32	075 00 22.79	WRECK. Chart sounding and danger circle with blue tint and label 'Wk'. Danger to Navigation #1. AWOIS 1029.	asmba08224.d07	15901	14	14.47	0.28	1.65	08:38:22
3	38 11 19.97	075 00 14.72	OBSTR. No chart. Feature 2 charting recommendation encompasses this feature.	asmba08224.d09	20824	74	18.60	0.28	1.48	11:01:28
4	38 11 22.51	075 00 23.38	OBSTR. No chart. Feature 2 charting recommendation encompasses this feature.	asmba08224.d12	60005	91	18.04	0.28	1.54	13:25:24
5	38 09 54.35	075 01 24.27	OBSTR. No chart. Nonsig relative to surrounding natural depths.	asmba08225.d12	40820	88	18.80	0.28	1.85	08:09:42
6	38 06 55.55	075 02 49.44	WRECK. No chart. See Feature 7. Danger to Navigation #4.	asmba08225.d14	19336	55	15.79	0.28	1.30	09:50:19
7	38 06 56.73	075 02 49.87	WRECK. Chart sounding and label 'Wks'. Danger to Navigation #4. See Feature 6.	asmba08225.d14	19469	15	15.23	0.28	1.32	09:50:26
8	38 06 45.48	075 02 45.39	OBSTR. No chart. Nonsig relative to surrounding natural depths.	asmba08225.d19	37761	72	14.63	0.28	1.45	13:28:41
9	38 05 19.91	075 03 20.07	OBSTR. Chart sounding and danger circle with blue tint and label 'Obstn'. Danger to Navigation #6. AWOIS 14228.	asmba08225.d19	47824	33	16.33	0.28	1.40	13:39:56
10	38 10 08.76	075 01 24.89	OBSTR. No chart. Nonsig relative to surrounding natural depths.	asmba08225.d21	28702	91	19.85	0.30	1.55	14:43:58
11	38 09 31.45	075 09 28.23	OBSTR. No chart. Nonsig relative to surrounding natural depths.	asmba08226.d35	49735	38	09.67	0.28	1.26	20:24:34
12	38 08 35.41	075 02 56.09	OBSTR. No chart. Nonsig relative to surrounding natural depths.	asmba08228.d47	34657	75	19.83	0.28	1.60	15:03:05
13	38 08 57.72	075 02 53.82	OBSTR. No chart. Nonsig relative to surrounding natural depths.	asmba08228.d48	24289	89	20.15	0.28	1.46	15:59:24
14	38 05 49.82	075 02 26.34	OBSTR. No chart. Nonsig relative to surrounding natural depths.	asmba08232.d17	15695	15	15.81	0.28	1.48	13:04:48
15	38 05 04.06	075 01 35.82	OBSTR. No chart. Nonsig relative to surrounding natural depths.	asmba08232.d24	7646	85	11.60	0.27	1.19	18:37:40
16	38 08 00.30	075 00 03.32	OBSTR. No chart. Nonsig relative to surrounding natural depths.	asmba08232.d28	29438	25	19.15	0.28	1.68	23:32:29
17	38 09 22.70	074 59 27.61	OBSTR. No chart. Nonsig relative to surrounding natural depths.	asmba08232.d28	39178	86	20.76	0.28	1.75	23:43:44
18	38 08 35.52	075 09 57.79	WRECK. Chart sounding and danger circle with blue tint and label 'Wk'. Danger to Navigation #2.	asmba08234.d17	32361	10	08.34	0.27	1.48	16:26:42
19	38 08 33.88	075 03 29.62	OBSTR. No chart. Nonsig relative to surrounding natural depths.	asmba08237.d07	34474	10	19.13	0.29	1.59	10:22:13
20	38 10 27.18	075 04 13.26	OBSTR. No chart. Nonsig relative to surrounding natural depths.	asmba08244.d12	16515	53	19.84	0.28	1.42	09:16:42

Feature Number	Feature Position (NAD83)		Description	Multibeam File	Ping	Beam	Depth (Meters)	Vertical Uncertainty (Meters)	Horizontal Uncertainty (Meters)	Time (UTC)
	Latitude (N)	Longitude (W)								
21	38 09 20.86	075 04 46.17	OBSTR. No chart. Nonsig relative to surrounding natural depths.	asmba08244.d14	11270	36	18.76	0.28	1.62	10:50:35
22	38 08 57.84	075 04 52.54	WRECK. Chart sounding and danger circle with blue tint and label 'Wk'. Danger to Navigation #3.	asmba08244.d16	38664	21	15.80	0.28	1.42	12:56:53
23	38 09 12.36	075 05 09.54	OBSTR. Chart sounding and label 'Obstn'.	asmba08244.d25	23332	86	17.05	0.28	1.49	21:33:35
24	38 09 53.96	075 05 02.18	OBSTR. No chart. Nonsig relative to surrounding natural depths.	asmba08245.d14	29282	78	17.43	0.28	1.47	09:33:11
25	38 10 24.82	075 09 32.08	OBSTR. No chart. Nonsig relative to surrounding natural depths.	asmba08247.d17	63879	53	06.42	0.28	1.49	13:52:14
26	38 05 03.73	075 08 31.76	OBSTR. No chart. Nonsig relative to surrounding natural depths.	asmba08252.d22	6235	91	14.92	0.28	1.68	23:04:15
27	38 09 43.43	075 06 50.63	OBSTR. No chart. Nonsig relative to surrounding natural depths.	asmba08253.d06	26948	89	17.15	0.28	1.30	05:09:29
28	38 10 45.08	075 06 22.14	OBSTR. No chart. Nonsig relative to surrounding natural depths.	asmba08255.d09	45545	64	16.83	0.28	1.58	23:42:58
29	38 05 43.35	075 08 38.71	OBSTR. No chart. Nonsig relative to surrounding natural depths.	asmba08256.d06	61203	40	15.73	0.28	1.58	06:46:58
30	38 06 06.52	075 08 41.00	OBSTR. No chart. Nonsig relative to surrounding natural depths.	asmba08256.d11	10853	73	16.52	0.28	1.45	12:06:29
31	38 11 46.68	075 06 22.22	OBSTR. Chart sounding and label 'Obstn'.	asmba08256.d15	20388	17	15.00	0.28	1.71	15:42:38
32	38 12 26.73	075 06 59.22	OBSTR. No chart. Nonsig relative to surrounding natural depths.	asmba08257.d22	10337	91	13.65	0.28	1.56	23:46:36
33	38 08 05.34	075 02 22.77	OBSTR. No chart. Nonsig relative to surrounding natural depths.	asmba08273.d17	6693	41	16.99	0.28	1.24	15:17:22

Year / JD	Time (UTC)	Contact Position (NAD83)		Contact Number	Range (M)	Fish Altitude (M)	Range Scale (M)	Shadow Length (M)	Contact Length (M)	Contact Width (M)	Contact Height (M)	Feature Number	Depth (F)	*Is in S-57 File
		Latitude (N)	Longitude (W)											
2008/223	18:04:13	38 04 56.63	075 02 45.33	1223180413	-10.34	6.91	50	0.11	6.27	11.55	0.03	1	50.65	Yes
2008/223	20:34:30	38 05 49.85	075 02 26.28	1223203430	44.31	7.38	50	2.28	0.69	1.01	0.36	14	51.86	Yes
2008/223	22:43:27	38 04 56.33	075 02 44.44	1223224326	24.75	5.59	50	1.54	1.16	0.51	0.33	1	50.65	Yes
2008/223	23:00:07	38 05 49.72	075 02 26.32	1223230006	7.31	5.87	50	0.91	2.45	0.41	0.9	14	51.86	Yes
2008/224	01:19:43	38 04 56.68	075 02 45.41	1224011942	32.06	6.77	50	1.50	1.72	0.57	0.3	1	50.65	Yes
2008/224	01:28:15	38 05 49.57	075 02 26.35	1224012815	-35.84	6.13	50	3.55	2.53	0.92	0.54	14	51.86	Yes
2008/224	02:49:55	38 11 20.03	075 00 14.67	1224024955	25.69	7.94	50	1.90	2.64	1.15	0.55	3	61.02	Yes
2008/224	05:33:06	38 11 17.12	075 00 20.25	1224053305	-13.28	8.95	50	15.64	11.40	6.11	3.81	2	47.47	Yes
2008/224	06:02:20	38 11 22.56	075 00 23.32	1224060219	13.38	7.10	50	2.48	3.20	1.74	1.11	4	59.18	Yes
2008/224	08:38:34	38 11 16.43	075 00 22.87	1224083833	-20.12	9.85	50	24.35	25.10	6.95	5.89	2	47.47	Yes
2008/224	08:39:56	38 11 07.73	075 00 26.38	1224083955	-22.22	9.04	50	1.16	2.35	0.34	0.48	N/A	N/A	No
2008/224	11:01:39	38 11 19.92	075 00 14.72	1224110139	14.25	7.91	50	2.64	2.79	1.12	1.32	3	61.02	Yes
2008/224	11:13:19	38 11 16.33	075 00 22.74	1224111319	20.19	11.31	50	16.34	1.96	1.13	5.32	2	47.47	Yes
2008/224	11:14:29	38 11 07.65	075 00 26.37	1224111429	21.78	9.94	50	0.98	0.72	0.42	0.46	N/A	N/A	No
2008/224	13:25:36	38 11 22.49	075 00 23.35	1224132536	28.12	7.04	50	3.11	2.75	2.35	0.65	4	59.18	Yes
2008/225	02:18:21	38 09 54.54	075 01 24.25	1225021821	19.84	6.20	50	1.80	2.36	1.02	0.51	5	61.67	Yes
2008/225	07:35:08	38 05 19.69	075 03 19.73	1225073508	-24.41	4.52	50	4.41	3.08	0.54	0.68	9	53.57	Yes
2008/225	08:09:56	38 09 54.34	075 01 24.20	1225080955	23.62	5.56	50	2.82	3.05	0.61	0.59	5	61.67	Yes
2008/225	08:11:13	38 10 05.04	075 01 21.90	1225081112	-27.16	6.34	50	2.12	0.68	0.29	0.46	N/A	N/A	No
2008/225	08:49:09	38 10 08.82	075 01 24.99	1225084908	14.75	7.47	50	0.93	1.78	0.55	0.49	10	65.12	Yes
2008/225	09:50:30	38 06 55.37	075 02 49.03	1225095029	13.06	5.35	50	0.49	4.10	16.34	0.08	6	51.8	Yes
2008/225	09:50:37	38 06 56.61	075 02 49.75	1225095036	-18.12	5.63	50	5.16	3.10	1.45	1.21	7	49.96	Yes
2008/225	11:19:34	38 06 45.68	075 02 45.32	1225111934	-32.78	6.97	50	5.07	4.58	0.77	0.93	8	47.99	Yes
2008/225	11:30:34	38 05 19.83	075 03 20.36	1225113033	-42.25	9.82	50	2.12	2.09	1.12	0.47	9	53.57	Yes
2008/225	11:57:49	38 06 55.33	075 02 49.37	1225115748	-36.22	7.61	50	0.73	10.01	26.50	0.08	6	51.8	Yes
2008/225	13:02:45	38 10 05.26	075 01 22.10	1225130245	-11.66	7.53	50	0.87	0.91	0.57	0.63	N/A	N/A	No
2008/225	13:28:53	38 06 45.57	075 02 45.39	1225132852	8.84	3.88	50	2.40	2.86	0.56	0.85	8	47.99	Yes
2008/225	13:38:41	38 05 30.71	075 03 15.31	1225133840	-15.88	7.09	50	1.76	1.11	0.24	0.77	N/A	N/A	No
2008/225	13:40:05	38 05 20.04	075 03 20.04	1225134005	-10.44	7.91	50	1.50	1.48	0.57	1.31	9	53.57	Yes
2008/225	14:44:11	38 10 08.69	075 01 24.88	1225144411	31.31	7.47	50	1.48	1.47	0.52	0.34	10	65.12	Yes
2008/225	15:31:03	38 08 05.38	075 02 22.71	1225153103	11.31	9.22	50	1.01	1.49	0.38	1.16	33	55.74	Yes
2008/225	15:39:56	38 06 56.42	075 02 49.64	1225153955	-30.09	8.28	50	3.04	2.28	1.79	0.75	7	49.96	Yes
2008/225	15:40:01	38 06 55.62	075 02 49.65	1225154001	-37.62	8.28	50	0.98	8.35	27.12	0.12	6	51.8	Yes
2008/226	00:41:47	38 08 05.43	075 02 22.76	1226004146	31.59	7.89	50	2.03	1.46	0.32	0.49	33	55.74	Yes
2008/226	03:39:21	38 09 36.54	075 02 01.37	1226033920	-17	7.61	50	1.49	1.19	0.35	0.66	N/A	N/A	No
2008/226	06:08:14	38 09 36.43	075 02 01.36	1226060813	25.5	7.91	50	1.47	2.48	0.56	0.45	N/A	N/A	No
2008/226	06:09:53	38 09 22.97	075 02 06.26	1226060953	11.44	7.56	50	0.93	1.26	0.38	0.71	N/A	N/A	No
2008/226	13:55:33	38 13 02.53	075 08 10.68	1226135532	13.72	3.53	50	1.93	1.13	0.68	0.43	N/A	N/A	No
2008/226	14:52:01	38 08 35.77	075 09 58.30	1226145200	-38.66	4.09	50	0.47	2.15	16.29	0.03	18	27.36	Yes
2008/226	16:40:42	38 11 10.33	075 08 50.50	1226164042	14.78	3.78	50	1.90	0.82	0.23	0.44	N/A	N/A	No
2008/226	17:46:27	38 09 31.33	075 09 28.20	1226174626	35.34	4.41	50	0.06	1.75	1.39	0.01	11	31.72	Yes
2008/226	20:24:42	38 09 31.43	075 09 28.26	1226202441	-6.09	4.99	50	0.14	1.32	1.71	0.13	11	31.72	Yes
2008/226	22:59:56	38 06 47.03	075 03 09.29	1226225956	17.84	7.09	50	1.42	1.10	0.24	0.56	N/A	N/A	No
2008/228	09:04:27	38 08 35.43	075 02 56.18	1228090427	29.94	6.07	50	2.29	0.53	0.29	0.44	12	65.05	Yes
2008/228	12:46:44	38 08 51.92	075 02 38.52	1228124643	23.06	9.41	50	1.27	1.61	0.31	0.53	N/A	N/A	No

Year / JD	Time (UTC)	Contact Position (NAD83)		Contact Number	Range (M)	Fish Altitude (M)	Range Scale (M)	Shadow Length (M)	Contact Length (M)	Contact Width (M)	Contact Height (M)	Feature Number	Depth (F)	*Is in S-57 File
		Latitude (N)	Longitude (W)											
2008/228	15:03:17	38 08 35.35	075 02 56.09	1228150317	15.62	7.86	50	1.10	1.17	0.73	0.57	12	65.05	Yes
2008/228	15:04:19	38 08 43.65	075 02 53.49	1228150419	-10.44	7.32	50	0.93	0.97	0.48	0.77	N/A	N/A	No
2008/228	15:59:36	38 08 57.78	075 02 53.83	1228155936	30.31	7.30	50	3.50	0.60	0.35	0.77	13	66.09	Yes
2008/228	22:16:04	38 08 57.61	075 02 53.74	1228221603	16.19	8.41	50	1.77	2.06	1.68	0.84	13	66.09	Yes
2008/229	00:45:31	38 11 03.07	075 02 11.13	1229004530	41.5	5.69	50	6.62	0.97	0.22	0.78	N/A	N/A	No
2008/229	02:58:25	38 11 03.49	075 02 11.55	1229025824	-14.62	7.19	50	1.21	0.86	0.47	0.6	N/A	N/A	No

Appendix III
Final progress sketch and survey outline

APPENDIX III. FINAL PROGRESS SKETCH AND SURVEY OUTLINE

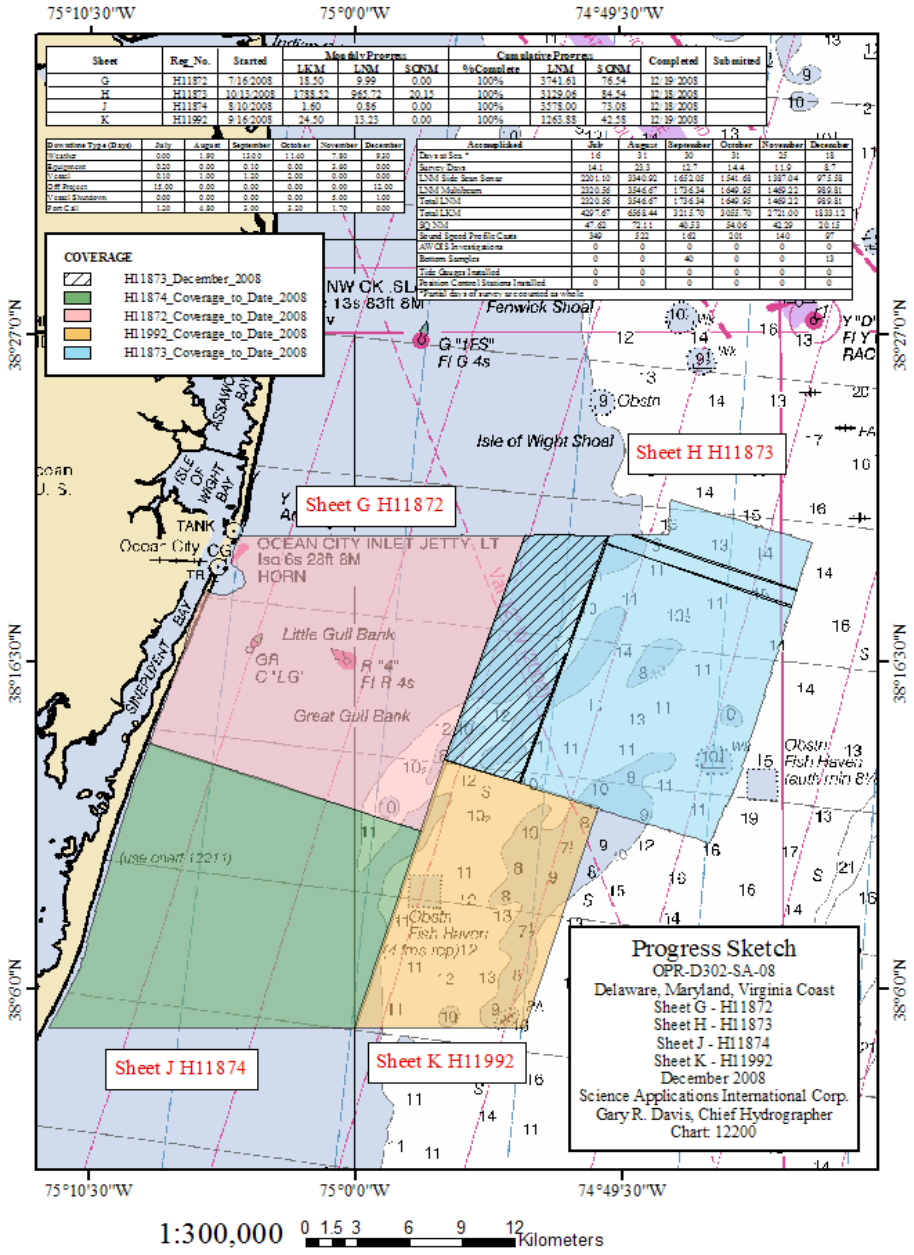


Figure Appendix III-1. Final Progress Sketch for H11874

The Survey Outline for H11874 was delivered to the COTR, on 12 January 2009 in file delmarva_2008_survey_outline_LL_R12.zip. The WinZip file contained a DXF format survey outline in lat/long format for import into MapInfo for each sheet surveyed. The survey outline file for Sheet J (h11874_survey_outline_LL_R12.dxf) was also part of this delivery. Figure Appendix III-2 demonstrates the graphical depiction of the DXF.

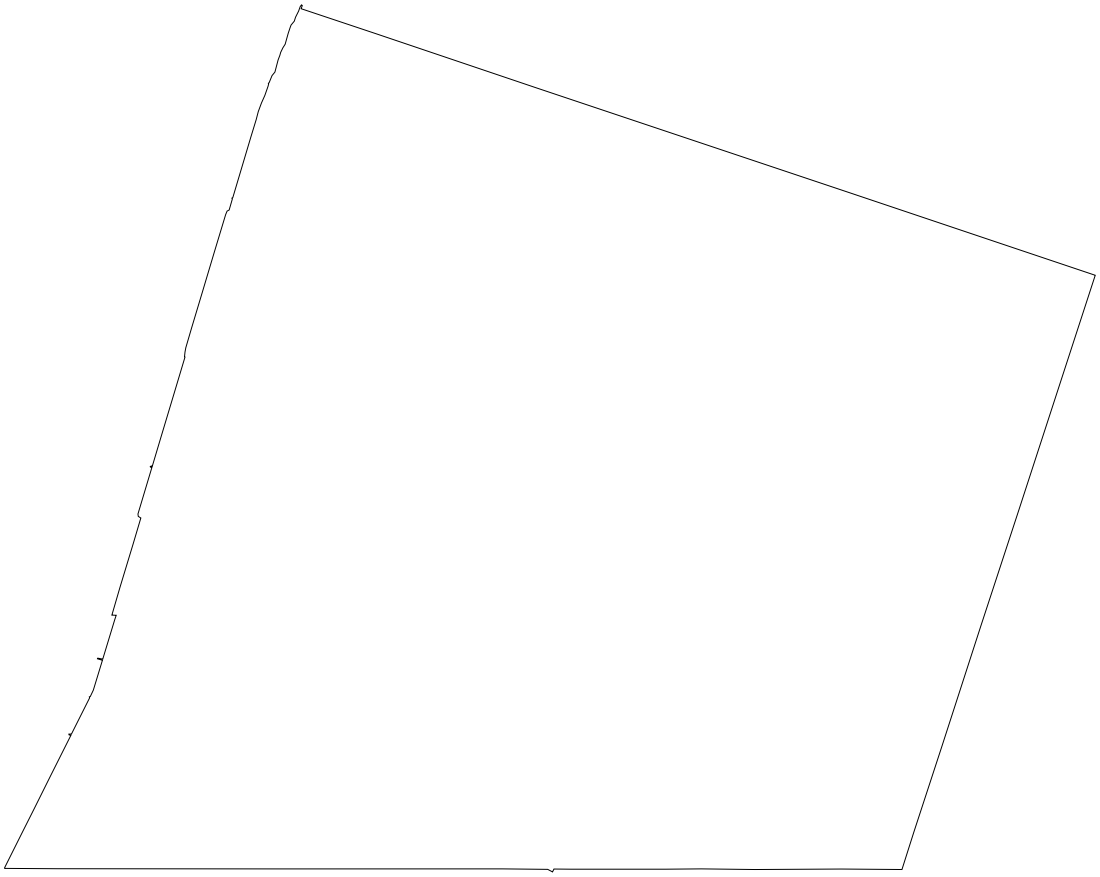


Figure Appendix III-2. Survey Outline for H11874

Appendix IV
Tides and water levels

APPENDIX IV. TIDES AND WATER LEVELS

The on-line times for acquisition of valid hydrographic data are presented in Table Appendix IV-1 Abstract of Times of Hydrography, H11874.

Project: OPR-D302-SA-08
Registry No.: H11874
Contractor Name: Science Applications International Corporation
Date: 18 December 2008
Sheet Letter: J
Inclusive Dates: 10 August 2008 – 18 December 2008

Field work is complete.

Table Appendix IV-1. Abstract Times of Hydrography, H11874

Begin Date	Begin Julian Day	Begin Time	End Date	End Julian Day	End Time
8/10/2008	223	16:57:57	8/26/2008	239	08:07:23
8/29/2008	242	17:17:01	9/03/2008	247	15:30:33
9/07/2008	251	22:11:25	9/09/2008	253	06:28:03
9/11/2008	255	17:35:01	9/16/2008	260	05:14:44
9/29/2008	273	12:21:53	9/30/2008	274	04:03:50
12/18/2008	353	14:42:24	12/18/2008	353	18:18:17

Final Tide Note
Observed verified water levels were downloaded from the http://tidesandcurrents.noaa.gov/ web site for Duck, NC (865-1370). Water Level correctors were prepared for each zone using the **SABER/Tools/Create Water Level Files** software. **SABER/Apply Correctors/Tides** software applied these files to the multibeam data according to the zone containing the nadir beam of each ping.

Analysis of the H11874 multibeam data in the **SABER Multi-View Editor** and in depth grids revealed minimal depth jumps across the junction of zones based on Duck, NC (865-1370). A spreadsheet analysis also confirmed the adequacy of zoning correctors based on Duck, NC (865-1370), results can be found in the Data Acquisition and Processing Report (09-TR-034) delivered on 30 October 2009. The water level zoning correctors based entirely on Duck, NC (865- 1370) was applied to all multibeam data for H11874.

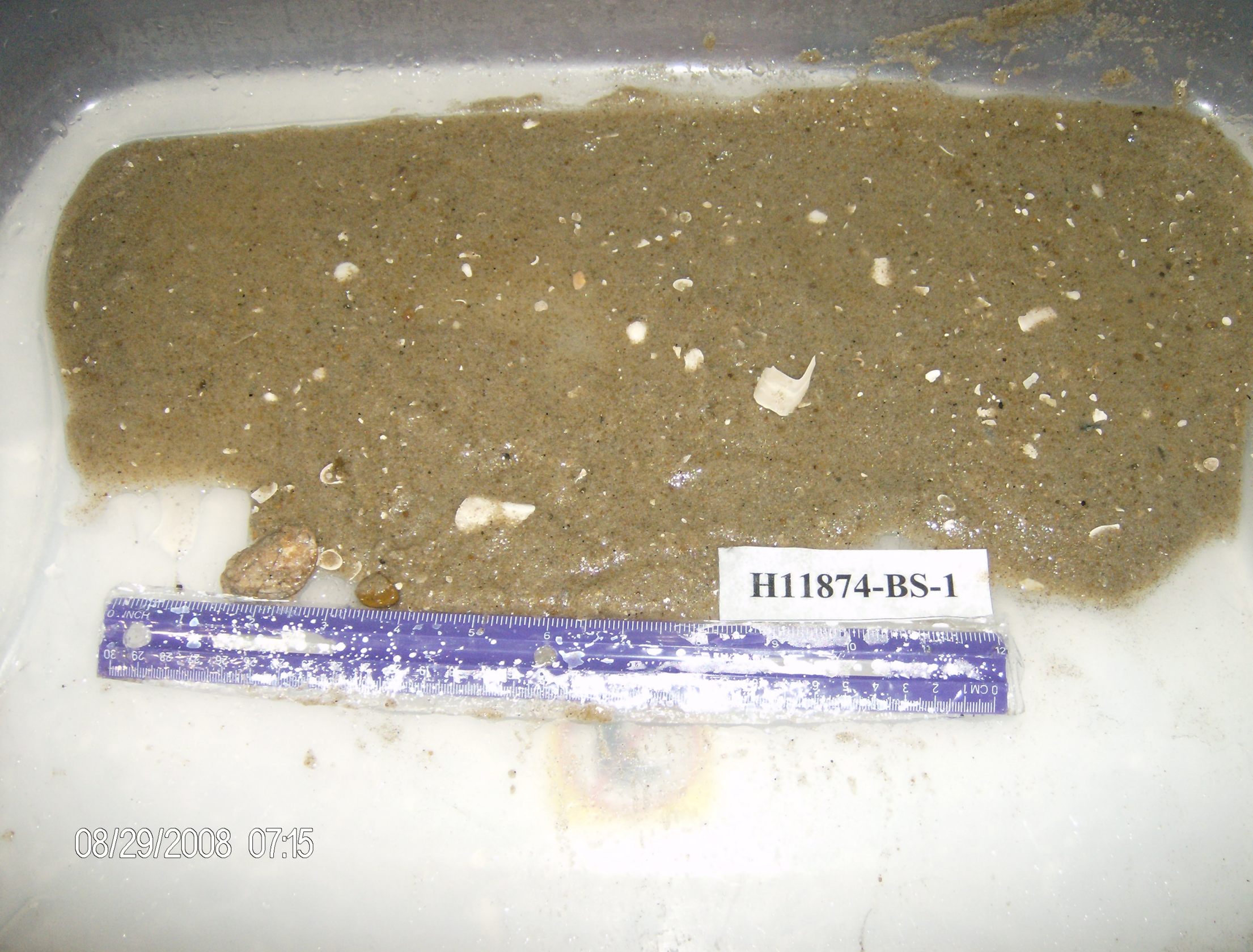
Appendix V
Supplemental survey records & correspondence

APPENDIX V. SUPPLEMENTAL SURVEY RECORDS & CORRESPONDENCE

This appendix is comprised of three sections and two attached files. The first section contains the Danger to Navigation Reports as originally prepared by SAIC and delivered to AHB. The second section contains copies of e-mail exchanges between SAIC and NOAA concerning various data processing and submittal clarifications. The third section contains the tabular summary of the bottom composition results for this sheet. The attached text file outlined below list the nodes from the 10 Bathymetric Attributed Grids (BAGs) that exceeded the IHO Order one uncertainty.

- One text file and one corresponding PDF file, titled *H11874_one_m_bag_Uncertainty_Exceeds_IHO1.txt*, listing all of the nodes from the one-meter BAGs where the final uncertainties exceeded the IHO Order 1 uncertainty at that depth.
- 13 JPEG files containing photographs of the bottom samples, listed below:

H11874-BS-1.jpg
H11874-BS-2.jpg
H11874-BS-3.jpg
H11874-BS-4.jpg
H11874-BS-5.jpg
H11874-BS-6.jpg
H11874-BS-7.jpg
H11874-BS-8.jpg
H11874-BS-9.jpg
H11874-BS-10.jpg
H11874-BS-11.jpg
H11874-BS-12.jpg
H11874-BS-13.jpg


H11874-BS-1
08/29/2008 07:15


H11874-BS-2
08/29/2008 07:55


H11874-BS-3
08/29/2008 08:26


H11874-BS-4
08/29/2008 09:25

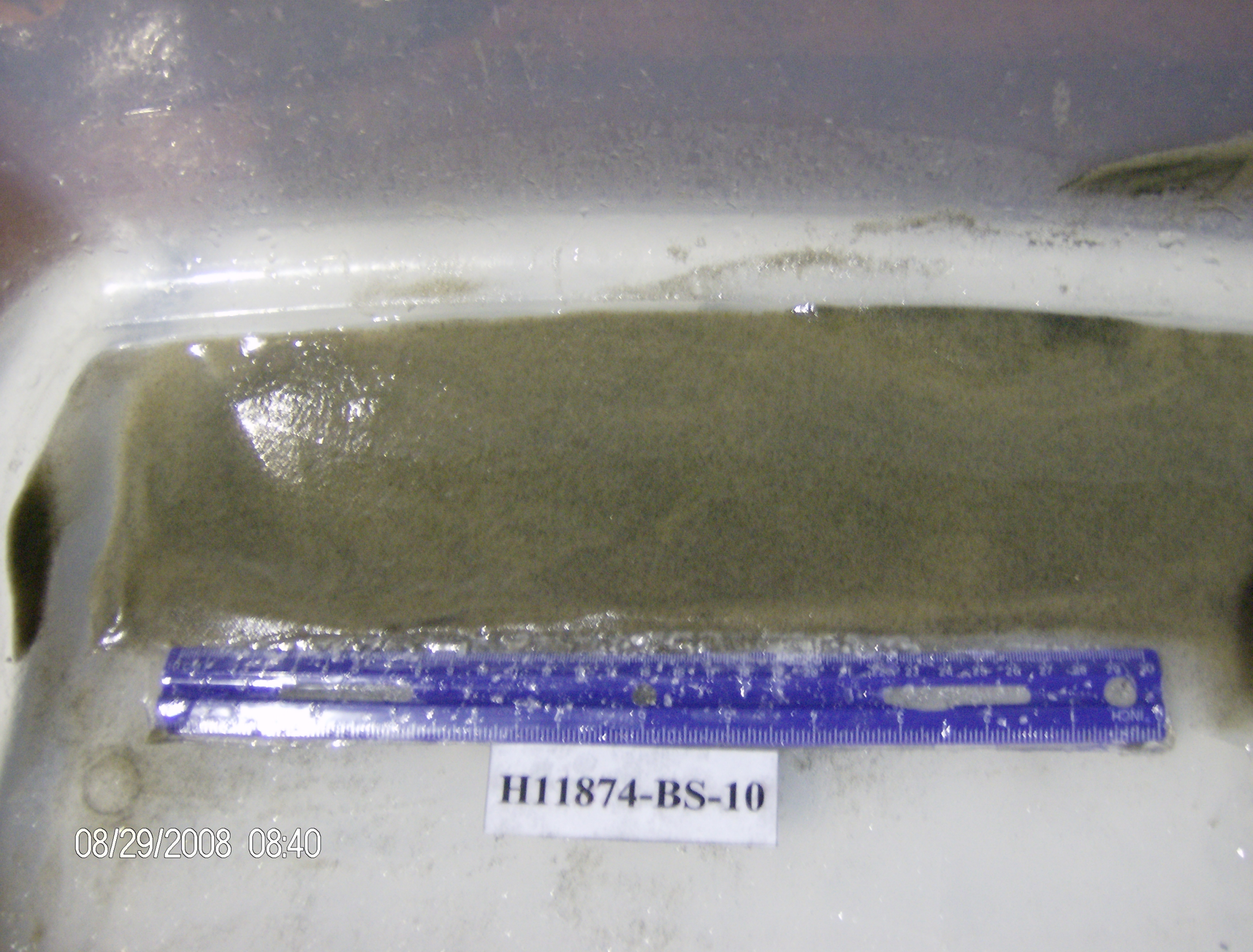

H11874-BS-5
08/29/2008 09:43


H11874-BS-6
08/29/2008 10:07


H11874-BS-7
08/29/2008 10:27


H11874-BS-8
08/29/2008 10:41


H11874-BS-9
08/29/2008 09:05


H11874-BS-10
08/29/2008 08:40


H11874-BS-11
08/29/2008 10:56


H11874-BS-12
08/29/2008 11:22


H11874-BS-13
08/29/2008 11:52

CORRESPONDENCE

From: Crescent Moegling [Crescent.Moegling@noaa.gov]
Sent: Thursday, July 31, 2008 9:09 AM
To: Evans, Rhodri E.
Cc: Mark.T.Lathrop@noaa.gov; Donaldson, Paul L.; Davis, Gary R.; Quintal, Rebecca T.; Lepore, Christine A.; Hemmings, Michael P.; Howard, David; Jagoe, Donald A.
Subject: Re: Status of SAIC Task Orders

Rod,

You will not need to retain the bottom samples. I've seen in the past where other firms have taken photos rather than keeping the actual sample which may prove useful.

Crescent
--
Crescent Moegling
NOAA Hydrographic Surveys Division
Branch Chief - Data Acquisition Control

Evans, Rhodri E. wrote:
Mark and Crescent,

The current status of Task Order #3 DELMARVA (CDEF) and Task Order #5 MARYLAND (GHJ) is as follows:

1.. Delaware and Maryland Sheets C, D, E and F (Task Order #3): The final sheet "D" is scheduled for delivery to AHB 1st August 2008;

2.. Maryland Sheets G, H and J (Task Order #5): progress is satisfactory on the survey on Maryland Sheet H11872 (Sheet G). We are experiencing some fog conditions, causing us to move offshore to avoid commercial vessels trying to get into the inlet or drifting near shore waiting for the fog to break. As of 7/30/2008 we are 19.66% complete (line kilometers: 3997) of the total 3 sheets on the main-scheme survey.

· We note with thanks that the Duck, NC tide gauge (8651370) is now placed on the hydro hot list.

At your earliest convenience, please advise us on the following:

· During the past, when we have collected bottom samples for chart verification, we have had an exemption from retaining the bottom samples. Do we need to retain the bottom samples this year or will you accept disposal once logged onboard?

The next status report will be on Monday 4th August 2008.

Regards, RE.
--
Rod Evans Ph.D.,
AVP & Marine Survey Manager,
Science Applications International Corporation,
Tel (401) 848.4783.

> -----Original Message-----
> From: Davis, Gary R.
> Sent: Friday, May 22, 2009 1:13 PM
> To: Mark.T.Lathrop
> Cc: Gene Parker; Evans, Rhodri E.; Paul Donalson; Quintal, Rebecca T.;
> Simmons, Walter S.; Infantino, Jason
> Subject:
>
> Mark,
>
> Attached zip files contain the fourth, fifth, and sixth Danger to
> Navigation Reports for H11874.
>
> Please contact SAIC, Newport if there are any questions or concerns
> with the attachment.
>
> Regards,
> Gary R. Davis, ACSM Certified Hydrographer Chief Hydrographer SAIC
> Marine Science and Technology Division
> 221 Third Street
> Building A
> Newport, RI 02840
> Tel (401)847-4210
> Email: gary.r.davis@saic.com

From: Castle.E.Parker [Castle.E.Parker@noaa.gov]
Sent: Tuesday, May 26, 2009 2:28 PM
To: Infantino, Jason
Subject: Re: [DELMARVA 2008] Danger to Navigation Report 6 H11874.

Attachments: Card for Castle.E.Parker

too late, it's already been submitted to MCD just about 2 hours ago.
gene

"Infantino, Jason" wrote:

> Mark,
>
> The Danger to Navigation Report # 6 (submitted 22May2009) for H11874
> (DELMARVA 2008) had incorrect side scan sonar images on page 4. The
> side scan images have been updated in the revised DTON6 attachment.
> There were no other changes made.
>

> Our sincerest apologies for any confusion,
>
> -Jason
>
> **********
> Jason M Infantino
> Assistant Data Center Manager
> Science Applications International Corporation
> 221 Third Street
> Newport, RI 02840 USA
> 401-847-4210
> 401-849-1585 (Fax)
> infantinoj@saic.com
>

From: Quintal, Rebecca T.
Sent: Thursday, September 17, 2009 3:22 PM
To: sarah.eggleston@noaa.gov
Cc: Castle.E.Parker
Subject: A few Questions about S-57 file attribution.

Sarah,
Hello. We are very close to delivering H11872 and have a couple of questions first. These surveys are to be delivered to the April 2008 Specifications.

#1
In Section 8.2.1 S-57 Attribution, it states that the survey should be indicated by surve (see below).
SORIND (Source indication) Format: `Country code, Authority code, Source, ID Code'. Example, _US,US,*surve*,H11393_, However the table that is just below this text shows the survey as: survy. I am guessing that one of these is a typo.

Interestingly when I look at the April 2007 Specs and the April 2009 Specs I see differences in all 3 versions

2009 Version:
SORIND (Source indication)
Format: 'Country code, Authority code, Source, ID Code'. Example,
"US,US,survey,H11393",
2007 Version:
_SORIND _(Source indication)
Format: 'Country code, Authority code, Source, ID Code'. Example,
"US,US,surve,H11393",
Can you please confirm if the correct attribution under SORIND should be:
A) surve
B) survy

Also, should it be the same for both 2008 surveys and 2009 surveys?
#2
Please confirm if we are still make a DEPARE for the entire sheet that contains the minimum and maximum depth on the sheet. We notice that some of the specifics regarding depth contours and depth areas wee removed from the 2008 and 2009 Specifications compared to the 2007 specs.

#3
For past deliveries we have always attributed all objects with a SORIND of surve. But now we want to confirm this for features. Since the features are actually based on the sounding (least depth) should they be attributed with surve or nsurf. As these features are also overrides to the CUBE model the same depth is also present in the BAG grid.

Thanks for the clarification!

-Rebecca

From: Sarah Eggleston [mailto:Sarah.Eggleston@noaa.gov]
Sent: Tue 9/22/2009 2:58 PM
To: Quintal, Rebecca T.
Subject: Re: FW: A few Questions about S-57 file attribution.

Good afternoon,

Sorry for the delay in response, I have been having some e-mail related technical difficulties. In answer to your queries:
1. It should be survy not surve - were working on getting those all caught for the next specs version.
2. No DEPARE is required with the new specs.
3. Features should have the S-57 attribute of nsurf.
4. Only the final processed GSF files are needed.

Sorry for any confusion,

-Sarah

Quintal, Rebecca T. wrote:

Sarah,
Hello. In addition to the questions below. I have another one for you.

In the April 2008 Specs Section 8.4 (Digital Data Files)

For both single beam and multibeam data, Contractors should separate digital deliverables into two data types: raw and processed. Raw should be uncorrected or with

exception of online corrections. Processed data should include the Caris HDCS format or GSF.

We collect our data in GSF format. Is the requirement here to get a copy of all of the "as collected" GSF files as well as the final processed GSF files?

We hope to have a delivery out next week. Sorry for the list of questions. We very much appreciate your guidance.

Thanks!
-Rebecca

From: Castle.E.Parker [Castle.E.Parker@noaa.gov]
Sent: Tuesday, December 08, 2009 4:01 PM
To: Davis, Gary R.
Subject: Re: H11874 (Sheet J) Danger to Navigation Report #5

Attachments: Castle_E_Parker.vcf

Hey Gary,

H11874 DtoN #5 was not submitted to MCD; my notes indicate that it wasn't significant in relation to the chart. 50-ft Wk in 52-ft of water. note indicates that this feature will be addressed during H-cell processing. So, it will and should be a survey feature, I didn't consider it a hazard to surface navigation to warrant DtoN submission.
SAIC should still consider it a survey feature for chart application.

H11874 Appendix 1 includes only DtoNs 1,2,3,4,and 6.

Gene

From: Quintal, Rebecca T.
Sent: Friday, December 18, 2009 4:14 PM
To:'Mark.T.Lathrop@noaa.gov';'Castle.E.Parker@noaa.gov';'Sarah.Eggleston@noaa.gov'
Cc:'Evans,RhodriE.';JASON.INFANTINO@saic.com;
PAUL.L.DONALDSON@saic.com; DEBORAH.M.SMITH@saic.com
Subject: FW: [Fwd: SAIC Status Report]

Hello Mark, Gene and Sarah,

We now have received and tested a patch to Caris Hips version 6.1 that is compatible with the current version of GSF files. While the Caris version 7.0 Hotfix (Hotfix 5 for HIPS/SIPS 7.0) has been available since October 22, 2009 from www.caris.com, we required the patch for Caris version 6.1. Instead of posting a Hotfix on their website, Caris has delivered to SAIC a self extracting ZIP file to provide to NOAA for the GSF 3.01 upgrade for HIPS and SIPS 6.1.2.8. SAIC is delivering this patch to NOAA on the

USB drive that contains the delivery for H11784 (Terrebonne Bay Sheet B) which is going out in FedEx today. On this drive there is a "Caris_Hotfix_6128" folder that contains the *.exe file.

This hotfix will be required to ingest the GSF files from the recent SAIC deliveries (listed below) if using Hips version 6.1.

H11872 (DELMARVA Sheet G) – delivered on 30 October 2009

H11785 (Terrebonne Bay Sheet C) – delivered on 11 November 2009

H11783 (Terrebonne Bay Sheet A) – delivered on 24 November 2009

H11784 (Terrebonne Bay Sheet B) – delivered on 18 December 2009

We apologize for any inconvenience this de lay in the Caris 6.1 software patch has caused. Please let us know if you have any que stions. Directions for installing the patch are below.

Thank you,

-Rebecca

To install the Caris patch:

By double clicking on the .exe th e files will be extracted right to the Bind directory of HIPs 6.1 providing the application is installed in the following location:

C:\CARIS\HIPS\61

If not the user can choose where to have the files extracted to upon running the executable.

> ---
> Subject: SAIC Status Report
> From: "Evans, Rhodri E." <RHODRI.E.EVANS@saic.com>
> Date: Thu, 29 Oct 2009 07:19:09 -0400
> To: Mark.T.Lathrop@noaa.gov
> To: Mark.T.Lathrop@noaa.gov
> CC: Benjamin.K.Evans@noaa.gov

> *Mark,*

> *The current status of Task Order #5 MARYLAND (GHJ with Modification
> for K), Task Order #6 TERREBONNE BAY (Debris Mapping Sheets ABC), the
> OMNI TO#1 MARYLAND Sheets LMN, TO#2 DELMARVA Sheets OPQR, and O#3

> Georgia ABCDE is as follows: *>

> *A) Maryland Sheets G, H, J and K (Task Order #5 Mod): Data
> Processing activity on the Task Order continues in Newport, RI. We
> anticipate the first delivery (Sheet G) being made in October 2009 to
> the AHB. *>

> *In recent months SAIC has upgraded to a new version of GSF (3.01).
> We have contracted Caris to upgrade their GSF converter within Caris
> HIPS to work with this new version of GSF. While the contract was for
> a HotFix to be released against Caris version 6.1, the version of the
> updated GSF converter that has been released to date has been for
> Caris version 7.0 (Hotfix 5 for HIPS/SIPS 7.0, available as of October
> 22, 2009 from www.caris.com). We are working with Caris to get the
> Hotfix released for the correct version of Caris HIPS, but in the
> meantime we have been in contact with AHB to determine if they have
> Caris version 7.0 and could potentially work within that version until
> the version 6.1 Hotfix is available. We are ready to deliver H11872
> (Sheet G of DELMARVA) this week except for this HotFix issue. *>

> *SAIC propose that we go ahead and deliver these sheets as soon as
> they are ready and not hold up delivery until this Caris version issue
> is resolved. Please let us know if this proposal is acceptable. *>

> *We will continue working with Caris to resolve this version
> discrepancy as soon as possible. We apologize for any inconvenience.
> Please let us know if you have any questions.*>

> *B) Debris Mapping (Task Order #6): Data Processing activity on the
> Task Order continues in Newport, RI. We anticipate the first of the
> three sheets being delivered on 6^th November 2009. Please note that
> this is a week later than originally targeted due to the complexity of
> the Sheet C item investigations work and the flow down effects of an
> earlier failure of some of our data center hard drives.*>

> *We look forward to receiving the formal modification of the PoP to
> 31^st December 2009.*

> *C) Maryland Sheets L, M and N (OMNI Task Order #1 Mod): We estimate
> approximately 5 survey operational days remaining to complete the
> holiday/gap fills and bottom samples on Sheets M and N. This will most
> likely be conducted in spring of 2010.*>

> *D) DELMARVA Sheets O, P, Q and R (OMNI Task Order #2 ARRA funded):
> We suspended survey on 8th October 2009. We are now approximately
> 15.58% complete on the OPQR survey. We will most likely be resuming

> survey in the spring of 2010*>

> *E) TO#3 Georgia ABCDE (OMNI Task Order #3 ARRA funded): The vessel is
> now on survey operations as of yesterday, 28 October 2009.*
> *The next status report will be on Monday, 2 November 2009.*

> *Regards,*
> *Rod Evans.*

-----Original Message-----
From: Castle.E.Parker [mailto:Castle.E.Parker@noaa.gov]
Sent: Thursday, October 29, 2009 8:49 AM
To: Mark.T.Lathrop
Cc: Quintal, Rebecca T.; Sarah Eggleston
Subject: Re: [Fwd: SAIC Status Report]

Good Day Mark,

I talked with Rebecca Quintal abo ut this day before yesterday. I m entioned that AHB is capable of using Caris version 7, although it's still going through the testing phase. Some of NOAA fi eld units are using th e 7 version. If the su rvey was processed in version 7, AHB would review using the sam e version; if not processed in 7, we go back to the working version of 6.1. AHB will not know the implication till we receive the GSF files and convert. At this point , I can' t provide you with a definitive answer without attempting to convert the GSF and observe the re sults. All I can say is that AHB will deal with the issue once the survey is delive red. AHB coul d provide a better answer to your questions if SAIC would like to provide some GSF files for prelim inary review and conversion testing. For now, this moment, we'll have to stand by and wait and see.

Regards,
Gene

Mark.T.Lathrop wrote:

> Hi Gene,
> Before SAIC delivers their Delmarva survey from last year, I want to
> make sure that the current Caris HotFix is acceptable for AHB. Please
> see note A below.

> Thanks,
> Mark

BOTTOM COMPOSISTION

There were 13 bottom samples taken to verify the bottom types charted for H 11874. Table Appendix V-1 compares information for each sample collected to the charted bottom type.

Table Appendix V-1. H11874 Bottom Sample Characteristics

JD	Sample Number	Bottom Sample Position (NAD83)		Observed Bottom Type	Depth of Bottom Sample (m)	Depth Uncert. (m)	Charted Bottom Type
		Latitude (N)	Longitude (W)				Chart# 12211_1
273	H11874-BS-1	038 12 04.7	075 02 10.6	med S brk Sh	16.1	0.280	S
273	H11874-BS-2	038 12 35.2	075 07 28.5	fne S M	12.8	0.280	S Sh
273	H11874-BS-3	038 09 39.3	075 08 34.0	M	13.1	0.280	h
273	H11874-BS-4	038 09 29.9	075 06 13.1	fne S brk Sh	13.5	0.279	S
273	H11874-BS-5	038 09 37.2	075 04 02.1	fne S brk Sh	11.5	0.270	S
273	H11874-BS-6	038 08 36.1	075 01 14.2	fne S brk Sh	16.1	0.280	S
273	H11874-BS-7	038 08 15.0	075 03 20.3	fne S brk Sh	17.3	0.280	M
273	H11874-BS-8	038 07 36.5	075 04 28.8	fne S brk Sh	18.0	0.280	S
273	H11874-BS-9	038 08 18.2	075 07 02.2	brk Sh med S	16.3	0.280	M
273	H11874-BS-10	038 08 38.2	075 09 13.9	fne S	9.8	0.280	S
273	H11874-BS-11	038 07 45.6	075 06 24.4	fne S	13.8	0.280	S
273	H11874-BS-12	038 06 34.8	075 03 23.3	S brk Sh	17.3	0.280	S
273	H11874-BS-13	038 05 17.4	075 07 31.6	fne S	13.7	0.280	S

*Note: Charts 12200_1 (Cape May to Cape Hatteras) and 13003_1 (Cape Sable to Cape Hatteras) cover parts or all of the survey area of sheet H11874 however have no bottom samples listed within survey area.

It is recommended that the bottom type charted be updated where necessary based on the information collected during the latest survey.

AHB COMPILATION LOG

General Survey Information	
REGISTRY No.	H11874
PROJECT No.	OPR-D302-SA-08
FIELD UNIT	Science Applications International Corporation
DATE OF SURVEY	20080810 - 20081218
LARGEST SCALE CHART	***12211_1, edition 44, 20110201, 1:80,000***
ADDITIONAL CHARTS	***N/A***
SOUNDING UNITS	**FEET**
COMPILER	Rosemary P. Abbitt

Source Grids	**File Name** *H:\Compilation\H11874_D302_SAIC\AHB_H11874\SAR Final Products\GRIDS*
	H11874_MB_1m_MLLW_1of11.bag **H11874_MB_1m_MLLW_2of11.bag** **H11874_MB_1m_MLLW_3of11.bag** **H11874_MB_1m_MLLW_4of11.bag** **H11874_MB_1m_MLLW_5of11.bag** **H11874_MB_1m_MLLW_6of11.bag** **H11874_MB_1m_MLLW_7of11.bag** **H11874_MB_1m_MLLW_8of11.bag** **H11874_MB_1m_MLLW_9of11.bag** **H11874_MB_1m_MLLW_10of11.bag** **H11874_MB_1m_MLLW_11of11.bag**
Surfaces	**File Name** *H:\Compilation\H11874_D302_SAIC\AHB_H11874\COMPILE\Working*
Combined	**H11874_2m_Combined.csar**
Interpolated TIN	\Interpolated TIN**H11874_12m_InterpTIN.csar**
Shifted Interpolated TIN	\Shifted Surface**H11874_12m_InterpTIN_Shifted.csar**
Final HOBs	**File Name** H:\Compilation\H11874_D302_SAIC\AHB_H11874\COMPILE\Final_Hobs
Survey Scale Soundings	**H11874_SS_Soundings.hob**
Chart Scale Soundings	**H11874_CS_Soundings.hob**
Contour Layer	**H11874_Contours.hob**
Feature Layer	**H11874_Features.hob**
Meta-Objects Layer	**H11874_MetaObjects.hob**
Blue Notes	**H11874_BlueNotes.hob**
ENC Retain Soundings	**N/A**

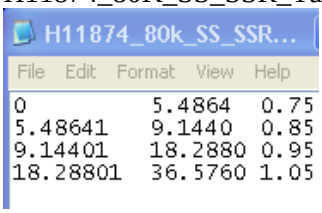
Meta-Objects Attribution	
Acronym	**Value**
M_COVR	
CATCOV	1 – coverage available
SORDAT	20081218
SORIND	US,US,graph,H11874
M_QUAL	
CATZOC	6 – zone of confidence U (data not assessed)
INFORM	*M/V Atlantic Surveyor;* D582365
POSACC	10.0 m
SORDAT	20081218

SORIND	US,US,graph,H11874
SUREND	20081218
SURSTA	20080810
DEPARE	
DRVALV 1	12.89 ft
DRVALV2	74.80 ft
SORDAT	20081218
SORIND	US,US,graph,H11874
M_CSCL	
CSCALE	N/A
SORDAT	
SORIND	

SPECIFICATIONS:

I. COMBINED SURFACE:
- a. Number of SAR Final Grids: 11
- b. Resolution of Combined (m): 2 m

II. SURVEY SCALE SOUNDINGS (SS):
- a. Attribute Name: Depth
- b. Selection criteria: Radius, Shoal bias
- c. Radius value is: mm at map scale
  - i. Use single-defined radius: NA
  - ii. And/Or use radius table file: H11874_80K_SS_SSR_Table.txt [*80k = chart scale*]



- d. Queried Depth of All Soundings
  - i. Minimum: 12.8937 ft
  - ii. Maximum: 73.7533 ft

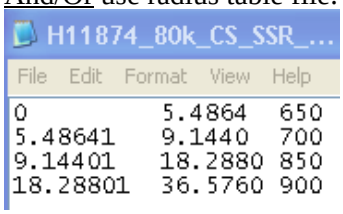
III. INTERPOLATED TIN SURFACE:
- a. Resolution (m): 12 m
- b. Interpolation method: Natural Neighbor
- c. Shift value: -0.75 ft

IV. CONTOURS:
- a. Attribute Name: Depth
- b. Use a Depth List: H11874_depth_contours.txt
- c. Output Options: Create contour lines
  - i. Line Object: DEPCNT
  - ii. Value Attribute: VALDCO

V. FEATURES:
- a. Number of Chart Features: 16 [*all features included in H-Cell*]
- b. Number of Non-Chart Features: 21 [*all features submitted by field & not included in H-Cell*]

VI. CHART SURVEY SOUNDINGS (CS):
- a. Number of ENC CS Soundings: 398

b. Attribute Name: Depth
c. Selection criteria: Radius, Shoal bias
d. Radius value is: Distance on the ground (m)
   i. Use single-defined radius: N/A
   ii. And/Or use radius table file: H11874_80K_CS_SSR_Table.txt



[*80k = chart scale*]

   iii. Enable Filter: Interpolated !=1
e. Number Survey CS Soundings: 432

VII. NOTES:

ATLANTIC HYDROGRAPHIC BRANCH
HCELL REPORT to ACCOMPANY
SURVEY H11874 (2008)

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

A. AREA SURVEYED

B. DATA ACQUISITION AND PROCESSING

B.2 QUALITY CONTROL

The AHB source depth grids for the survey's nautical chart update were 1m resolution BASE surfaces (*.BAGs), which were combined at 2m resolution. The survey scale soundings were created from the combined surface at the largest scale chart covering the respective area of the survey (Chart 12211 - 1:80,000) using a sounding spacing range (SSR) file. A TIN was created from the survey scale soundings, from which an interpolated surface of 12m resolution was generated. The chart scale soundings were derived from only the non-interpolated nodes of this surface to preserve absolute continuity between the charted depths, the survey scale soundings, and the original source grid. The chart scale soundings were selected using a sounding spacing range (SSR) file. The chart scale soundings are a subset of the survey scale soundings. The surface model was referenced when selecting the chart scale soundings, to ensure that the selected soundings portray the bathymetry within the common area.

The interpolated TIN surface of 12m resolution was shifted by the NOAA sounding rounding value of -0.75 feet. The shifted interpolated TIN was used to generate depth contours in feet (18, 30, and 60 feet). The depth contours are forwarded to MCD for reference only. The contours were utilized during chart scale sounding selection and quality assurance efforts at AHB. The depth contours are incorporated into the SS HCell product as per 2009 HCell Specifications.

The compilation products (Final *.HOB files) for this survey are detailed in the H11874 AHB Compilation Log contained within this document. The Final HOB files include depth areas (DEPARE), depth contours (DEPCNT), soundings (SOUNDG), meta-objects (M_COVR, and M_QUAL), cartographic Blue Notes ($CSYMB), and features (WRECKS, and SBDARE).

As dictated by Hydrographic Technical Directive 2008-8, the Final HOB files were combined into two separate HCell files in S-57 format. Both S-57 files were exported from CARIS Bathy DataBASE in meters, and then converted from metric units into feet using CARIS HOM ENC 3.3. Quality assurance and topology checks were conducted using CARIS S-57 Composer 2.1 and DKART Inspector 5.1 validation tests.

The final HCell products are two S-57 files, in Lat/Long NAD-83. The contents of these two HCell deliverables are listed in the table below:

TABLE 1 - Contents of HCell Files

H11874_CS.000			Scale 1:80,000
Object Class Types	**Geographic**	**Cartographic**	**Meta**
S-57 Object Acronyms	DEPARE	$CSYMB	M_COVR
	WRECKS		M_QUAL
	SBDARE		
	SOUNDG		
H11874_SS.000			**Scale 1:20,000**
Object Class Types	**Geographic**		
S-57 Object Acronyms	DEPCNT		
	SOUNDG		

B.2.4 Junctions and Prior Surveys

Survey H11874 (2008) junctions with survey H11872 (2008) to the north, H11873 (2008) to the northeast, and H11992 (2008) to the east, H12003 (2009) to the south. Survey 11872 has been applied to the chart. Survey H12003 has not been processed by AHB and is not yet available for junction comparison. Most present survey depths compare within 1 foot of junctioning survey depths to the north, within 1 foot of junctioning survey depths to the northeast, and within 1 foot of junctioning survey depths to the east. Most present survey depths compare within 1 foot of the charted hydrography to the south.

B.4 DATA PROCESSING

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

CARIS Bathy DataBASE version 3.0/HF10
CARIS HIPS/SIPS version 7.0/SP2/HF6
CARIS S-57 Composer version 2.1/HF5
CARIS HOM ENC version 3.3/SP3/HF8
DKART Inspector version 5.1
HSTP Pydro version 10.11 (r3191)

C. HORIZONTAL AND VERTICAL CONTROL

The hydrographer makes adequate mention of horizontal and vertical control used for this survey in section C of the DR. The sounding datum for this survey is Mean Lower Low Water (MLLW), and the vertical datum is Mean High Water (MHW). Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD83), UTM projection zone 18N North.

D. RESULTS AND RECOMMENDATIONS

D.1 CHART COMPARISON

12200_1 (44th Edition, FEB/2011)
Fenwick Island to Chincoteague Inlet; Ocean City Inlet
Corrected through NM 03/12/2011
Corrected through LNM 03/01/2011
Scale 1:80000

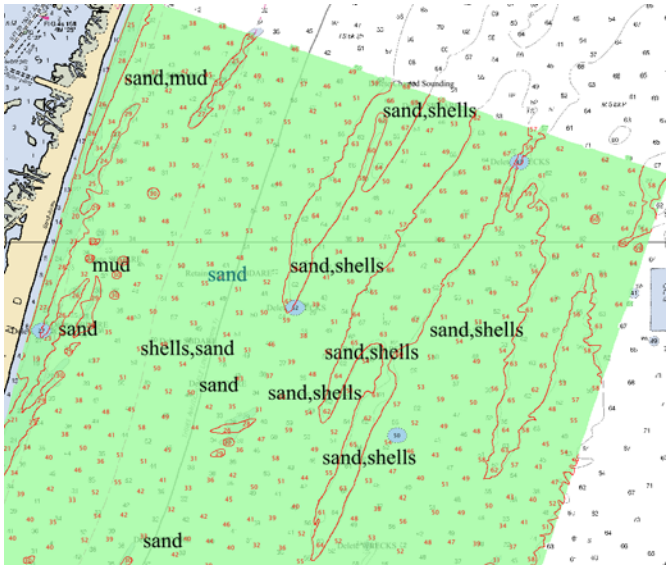
ENC COMPARISON

US4VA50M
Fenwick Island to Chincoteague Inlet; Ocean City Inlet
Edition 15
Application Date 2011/03/29
Issue Date 2011/03/29
Chart 12211

D.2 ADDITIONAL RESULTS

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

a. The field unit collected a total of 13 bottom samples. Most charted seabed characteristics were superceded by the survey findings; twelve collected bottom samples are recommended to be applied to chart and one charted seabed characteristic is recommended to be retained.



D.6 MISCELLANEOUS

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

D.7 ADEQUACY OF SURVEY

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

APPROVAL SHEET
H11874 (2008)

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of depth contours, disposition of critical depths, cartographic symbolization, and verification or disproval of charted data. All revisions and additions made to the HCell 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 HCell Report.

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

R. Abbitt

Digitally signed by Rosemary P. Abbitt
DN: cn=Rosemary P. Abbitt, o=NOAA, ou=ERT, email=rosemary.abbitt@noaa.gov, c=US
Date: 2011.05.20 09:26:52 -04'00'

Rosemary P. Abbitt
Hydrographic Survey Intern
Atlantic Hydrographic Branch

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

Richard T. Brennan

Richard T. Brennan
2011.05.26 21:44:54 -04'00'

Approved: _____

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