NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey *Sidescan Sonar, Single Beam Sonar and Interferometric Sonar*

Field No. *A*

Registry No. *H11612*

LOCALITY

State *Louisiana*

General Locality *Lake Borgne*

Sublocality *North*

2007

CHIEF OF PARTY

Gary R. Davis

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. **H11612**

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. **A**

State Louisiana

General Locality Lake Borgne

Sublocality North

Scale 1:20,000 Date of survey 13 January 2007 – 02 June 2007

Instructions Dated October 18, 2006 Project No. S-J977-KR-SAIC

Vessel *M/V Thomas R Dowell* AL1534AH and *F/V Lacey Marie* LA6708FC

Chief of Party *GARY R. DAVIS*

Surveyed by: *Brian Biggert, Louie Cust, Gary Davis, Kevin Davis, Rick Davis, Travis Daniel, Paul Donaldson, Sean Halpin, Karen Hart, Chuck Holloway, Jason Infantino, Fred Jordon, John Kiernan, Meme Lobecker, Rick Nadeau, Chris Pinero, Gary Parker, Evan Robertson, Jeremy Shambaugh, Deb Smith, Mike Tappia, Justin West*

Soundings taken by (**echo sounder**) hand lead, pole Odom Echotrac CV, GeoAcoustics GeoSwath Plus

Graphic record scaled by

Graphic record checked by

Protracted by Automated plot by

Verification by **AHB (Comments in bold, blue font)**

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

REMARKS: **Contract** DG133C-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
Rotator Staffing Services, PO Box 366, 557 Cranbury Rd., E. Brunswick, NJ 08116
Lowe Engineers 2000 RiverEdge Parkway, Suite 400, Atlanta, GA 30328
John Oswald & Associates, LLC. 2000 E. Dowling Rd, Suite 10, Anchorage, AK 99507
Times: All times are recorded in UTC
UTM Zone: Zone 16
Purpose: To provide NOAA with accurate hydrographic survey data suitable for item detection and debris mapping in the assigned area: Sheet A (H11612) in Lake Borgne, Louisiana.

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 DG133C-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 H11612
Scale 1:20,000, Surveyed 2007
M/V Thomas R. Dowell* and *F/V Lacey Marie
Science Applications International Corporation (SAIC)
Gary R. Davis, Lead Hydrographer

PROJECT
Project Number: S-J977-KR-SAIC
Dates of Instructions: October 18, 2006 **Task Order#:** T0002

Dates of Supplemental Instructions: 25 October 2006, 16 November 2006, 09 January 2007, 30 May 2007, and 03 October 2007
Sheet Letter: A
Registry Number: H11612
Purpose: To provide NOAA with accurate hydrographic survey data suitable for item detection and debris mapping in the assigned area: Sheet A (H11612) in Lake Borgne, Louisiana.

A. AREA SURVEYED

The area surveyed was the northern section of Lake Borgne Louisiana, which covered 59.64 square nautical miles (Figure A-1). The line nautical miles, bottom samples, and other survey parameters are located in Table A-1. The area was surveyed at 40m line spacing with interferometric, singlebeam and sidescan sonar from 13 January 2007 – 2 June 2007 (Table A-2). The overall range of depths encountered in H11612 was 0.80 to 20.28 meters (2 to 66 feet). The depth range for singlebeam sonar data was 0.80 to 20.28 meters (2 to 66 feet) based on a minimum grid. The depth range for interferometric sonar data was 1.08 to 6.46 meters (3 to 21 feet) based on the CUBE depth.

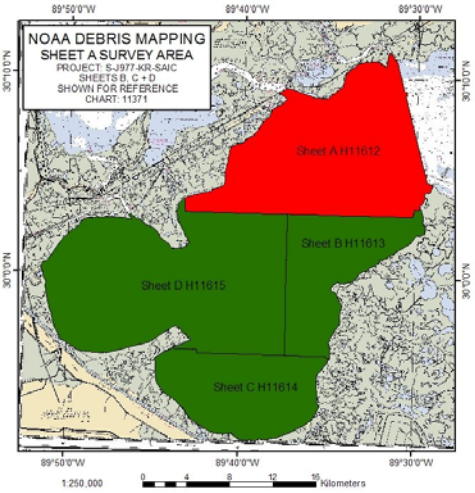


Figure A-1. Debris Mapping Survey Bounds

Table A-1. Hydrographic Survey Statistics

***M/V Thomas R. Dowell* and *F/V Lacey Marie,* Sheet A H11612**	
LNM Sidescan	3188
LNM Interferometric, Bathymetry	479
LNM Singlebeam Bathymetry	2709
LNM of Interferometric and Singlebeam Bathymetry	3188
LNM Shoreline / Nearshore Investigations	N/A
Number of Bottom Samples	63
Number of items investigated that required additional time/effort in	0
Total number of square nautical miles	59.64

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

Calendar Date	Julian Day
13-January-2007	13
14-January-2007	14
15-January-2007	15
18-January-2007	18
19-January-2007	19
22-January-2007	22
23-January-2007	23
24-January-2007	24
25-January-2007	25
26-January-2007	26
27-January-2007	27
29-January-2007	29
30-January-2007	30
01-February-2007	32
02-February-2007	33
03-February-2007	34
04-February-2007	35
05-February-2007	36
06-February-2007	37
07-February-2007	38
08-February-2007	39
09-February-2007	40
12-February-2007	43
19-February-2007	50
20-February-2007	51
21-February-2007	52
22-February-2007	53
23-February-2007	54
24-February-2007	55
25-February-2007	56
26-February-2007	57
27-February-2007	58
28-February-2007	59
05-March-2007	64
07-March-2007	66
09-March-2007	68
10-March-2007	69
11-March-2007	70
13-March-2007	72
18-March-2007	77
24-March-2007	83
25-March-2007	84
26-March-2007	85
28-March-2007	87
29-March-2007	88
01-April-2007	91
02-April-2007	92
03-April-2007	93
17-April-2007	107
23-April-2007	113
24-April-2007	114
26-April-2007	116
27-April-2007	117
28-April-2007	118
29-April-2007	119
30-April-2007	120
01-May-2007	121
02-May-2007	122
03-May-2007	123
04-May-2007	124
06-May-2007	126
08-May-2007	128
12-May-2007	132
13-May-2007	133
14-May-2007	134
15-May-2007	135
19-May-2007	139
20-May-2007	140
21-May-2007	141
22-May-2007	142
25-May-2007	145
26-May-2007	146
27-May-2007	147
28-May-2007	148
29-May-2007	149
31-May-2007	151
01-June-2007	152
02-June-2007	153

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 (DAPR) for S-J977-KR-SAIC delivered on 18 January 2008 (SAIC document number 07-TR-005). There were no variations from the equipment configuration described in the 18 January 2008 DAPR. Table B-1 and Table B-2 provide a summary of the major systems used.

Table B-1. Major Systems (*M/V Thomas R. Dowell*)

	Manufacturer / Model Number
Singlebeam Sonar	Odom CV
Sidescan Sonar	Klein 3000 Towfish
Vessel Attitude System	Applanix POS/MV 320 Inertial Navigation System
Positioning Systems	POS/MV 320 version 4
Sound Speed Systems	Sea-Bird Electronics, Inc. SBE 19-01 CTD Profiler

Table B-2. Major Systems (*F/V Lacey Marie*)

	Manufacturer / Model Number
Interferometric Sonar	GeoAcoustics GeoSwath Plus 250 kHz
Vessel Attitude System	Applanix POS/MV 320 Inertial Navigation System
Positioning Systems	POS/MV 320 version 4
Sound Speed Systems	Sea-Bird Electronics, Inc. SBE 19-01 CTD Profiler

B.1.1 Survey Vessels

The *M/V Thomas R. Dowell* and *F/V Lacey Marie* were the vessels used for all survey operations during the Lake Borgne survey project. Table B-3 lists vessel characteristics for the *M/V Thomas R. Dowell* and *F/V Lacey Marie*. Preliminary data processing took place on site at Shell Beach, LA and then data products were shipped to the Data Processing Center in the SAIC Newport, RI office for final processing.

Table B-3. Survey Vessel Characteristics

Vessel Name	**LOA**	**Beam**	**Draft**	**Max Transit Speed**	**Max Survey Speed**
M/V Thomas R. Dowell	32’	7’	2.5’	30 kts	8 kts
F/V Lacey Marie	41’	12’	2.5’	14 kts	7 kts

The *M/V Thomas R. Dowell* was the platform for the Odom CV singlebeam sonar, Klein 3000 sidescan sonar, and SBE 19-01 CTD data collection. The sensor configuration and offsets used for the survey are tabulated and depicted in the Data Acquisition and Processing Report. The reference point for the entire system is located at the top centerline of the POS/MV IMU. The Odom transducer was hull-mounted and the Klein 3000 Towfish was bow mounted. The POS/MV IMU was mounted 0.905 meters above, 2.080 meters forward, and 0.290 meters starboard of the transducer.

The *F/V Lacey Marie* was the platform for the GeoAcoustics GeoSwath Plus 250 kHz interferometric sonar and SBE 19-01 CTD data collection. The sensor configuration and offsets used for the survey are tabulated and depicted in the Data Acquisition and Processing Report. The reference point for the entire system is located at the top centerline of the POS/MV IMU. The GeoSwath transducer was pole-mounted off the bow on the vessel centerline and 3.31 meters below the mounting plate. The POS/MV IMU was mounted 0.330 meters directly above the transducer.

B.1.2 Major Systems

SAIC used their Integrated Survey System (**ISS-2000**) software on a Windows XP platform to acquire navigation and ancillary survey data on both vessels. Survey planning and data analysis were conducted using SAIC's **SABER** software on Red Hat Enterprise 4 Linux platforms.

On the *M/V Thomas R. Dowell*, 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) maintaining full resolution, with no conversion or down sampling techniques applied. All sidescan data were reviewed using Triton **Isis** software, while coverage mosaics were produced using **SABER.** Odom singlebeam sonar data were collected in Generic Sensor Format (GSF) using SAIC's **ISS-2000** software. The data were processed using SAIC's **SABER** software (edited and correctors applied).

On the *F/V Lacey Marie*, interferometric data were collected on a Windows XP platform using GeoAcoustics **GeoSwath Plus** (**GS+)** software. The GeoSwath system collected data in a proprietary Raw Data File (RDF) format, which stores all needed information for processing in one given file. The bathymetry data were then extracted from the RDF files within the **GS+** software into another proprietary intermediate file format CUBE File (CBF). The CBF files were then converted to Generic Sensor Format (GSF) using SAIC's **SABER** software. The data were then processed using SAIC's **SABER** software (edited and correctors applied). The sidescan imagery data were extracted from the RDF file into an intermediate **GS+** proprietary file as Swath Amplitude Files; pronounced swamp (SWP). The SWP files were then exported into an eXtended Triton Format (XTF) using the GeoAcoustics **GS+** software where it was down sampled to 1,024 samples per channel. Once the GeoSwath imagery data were in XTF format, those data and the Klein 3000 data were treated the same for further data processing. All sidescan

data were reviewed using Triton **Isis** software, while coverage mosaics were produced using **SABER.**

B.2 Quality Control

There were approximately 217 linear nautical miles of crosslines surveyed and approximately 2971 linear nautical miles of main scheme lines surveyed. This resulted in approximately 7 percent of linear nautical miles of crosslines compared to main scheme survey lines. The crosslines were oriented at 0°/180° and were spaced approximately 500 meters apart, while the main scheme lines were oriented at 92°/272° and were spaced 40 meters apart. The range scale was set to 25 meters for the sidescan acquisition yielding a 50 meter swath.

A Seabird Electronics SBE-19 CTD was used on both the *F/V Lacey Marie* and on the *M/V Thomas R. Dowell* 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. A surface sound velocimeter was used in conjunction with the sound speed profiles for collection of interferometric data. A Velport surface sound velocimeter was co-located with the transducers. Surface sound speed data were recorded and applied in real time by the GeoAcoustics **GS+** software to compute the return angle of the pulse. On Julian Day 124 (04 May 2007) at 15:25:05 the 25 mm stand off Velport SSV sensor was damaged and was replaced with a 50 mm Velport sensor on the evening of JD 132 (12 May 2007). From JD 124 (04 May 2007) through the evening of JD 132 (12 May 2007) the surface sound speed from the sound speed profile data collected with the Seabird SBE-19 CTD were applied to the data by using the **GS+** software during data collection. The value was updated with each new sound speed profile collected. The frequency of sound speed profile casts were increased during this time to reduce errors that could be introduced due to a change in the surface sound velocity. A review of the surface sound speed values between the currently applied cast and the next new sound speed cast was made as well to identify if there would be a cause for concern. There was little to no change in both the sound speed profile and the surface sound speed values during this time. And the sound speed data were nearly vertically profiled around the same sound speed value. Confidence checks of the sound speed profile casts were conducted weekly by comparing two consecutive casts taken with different Seabird SBE-19 CTD units.

Static draft measurements for the *F/V Lacey Marie* were taken from the bow, where the transducers were mounted, both before departure and after arrival at the dock. Dynamic draft was determined from a look up table using shaft RPM counters for the input. The dynamic draft table was constructed from measurements taken during the pre-survey Sea Acceptance Trials (SAT).

Static draft measurements for the *M/V Thomas R. Dowell* were taken from amid ship, where the transducer was mounted, both before departure and after arrival at the dock each day. Dynamic draft was determined from a look up table using manual entry of the RPM as read from the RPM gauge. The RPM value was updated with any change in RPM. The dynamic draft table was constructed from measurements taken during the pre-survey Sea Acceptance Trials. Dynamic draft corrections were performed in post-processing using SABER.

Horizontal positioning of the bathymetry transducers by the POS/MV was verified by daily confidence checks against an independent Trimble DGPS system. In addition, this comparison was running full time with an alarm to alert the survey watch stander should the position differences exceed the maximum allowable distance.

Confidence checks of the interferometric depths were made using a bar that was lowered to a known depth directly below the transducer. A sound speed profile was taken and the tide corrector was set to zero. The bar was lowered below the transducers to a depth of 2 meters. Data were recorded to a discrete raw data file. Depths displayed by the GeoSwath interferometric sonar were read and entered into a bar check log. Bar checks were taken approximately once per week during the survey.

Confidence checks of the singlebeam depths were made using a bar that was lowered to a known depth directly below the transducer. A sound speed profile was taken; RPM value and the tide corrector were set to zero. The bar was lowered below the transducer to various depths in 1-meter increments. The GSF file for the Odom echo sounder, the Odom DTC, Odom video 32-display and Odom controller were examined for the reported values once the bar was in place. The depth for each source was recorded within the *M/V Thomas R. Dowell* bar check log.

All individual soundings that were applied to the Bathymetric Attributed Grid (BAG) meet the Horizontal Position Accuracy and Vertical Accuracy specified in the NOS Specifications and deliverables. There are, however, areas where the BAG node uncertainty exceeds the IHO Order 1 allowable value specified in the NOS Specifications and deliverables. The largest number of nodes which exceed the maximum allowable uncertainty occur along the edges of a swath where there is no additional overlapping coverage from adjoining lines or where there is a variation in adjoining swaths due to tidal or sound speed differences. In few cases elsewhere within the grid, uncertainty is exceeded where the node has a low number of soundings contributing to a node depth or areas along oyster beds where the standard deviation was high. Various tests were conducted to determine if there was an optimal swath cutoff angle to significantly reduce or eliminate nodes which exceed the specified uncertainty values. These tests showed that reducing the swath angle did reduce the number of high uncertainty nodes, however, it also resulted in flagging an excessive amount of low uncertainty data as invalid in the process. Therefore, it was decided to retain the full swath data for production of the Bathymetric Attributed Grids. A SABER process called “Check PFM Uncertainty” flags nodes which exceed specified uncertainty limits. A text file which lists node position,

depth and uncertainty value for nodes which failed the specified uncertainty limit is included in Appendix V, Supplemental Survey Records and Correspondence.

Comparisons of multibeam and singlebeam main scheme data to crossline data were done daily in the field to ensure there were no systematic errors introduced and to identify potential problems with the acquisition system configurations. Comparisons of final crossing data in H11612 were conducted in several different iterations on averaged 5m gridded data. Singlebeam main scheme data were compared to singlebeam crossline data, which showed that 98.50% of comparisons are within 25 centimeters and 99.63% of comparisons are within 30 centimeters (Table B-4). The singlebeam main scheme data were then compared to the interferometric crossline data, which showed that 95.78% of comparisons are within 60 centimeters and 99.56% of comparisons are within 80 centimeters (Table B-5). The main scheme interferometric data were compared to the interferometric cross line data, which showed that 96.61% of comparisons are within 35 centimeters and 99.43% of comparisons are within 50 centimeters (Table B-6). The interferometric main scheme data were compared to the singlebeam crossline data, which showed that 95.52% of comparisons are within 50 centimeters and 99.34% of comparisons are within 60 centimeters (Table B-7). A final H11612 comparison was made with all main scheme data compared to all crossline data, which showed that 95.56% of comparisons are within 50 centimeters and 99.58% of comparisons are within 70 centimeters (Table B-8). Table B-9 presents the results of the a comparison between all data on H11612 compared to all data on H11613 and shows that 95.56% of comparisons are within 40 centimeters and 99.88% of comparisons are within 60 centimeters.

Table B-4. Junction Analysis Singlebeam Main Scheme vs. Singlebeam Crosslines, H11612

Depth Difference Range (cm)	All		Positive		Negative		Zero	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
0-5	2518	34.74	1194	28.99	1034	36.41	290	100
5-10	2193	64.99	1362	62.05	831	65.67		
10-15	1611	87.21	1017	86.74	594	86.58		
15-20	523	94.43	311	94.29	212	98.59		
20-25	295	98.50	166	98.32	129	98.59		
25-30	82	99.63	50	99.54	32	99.86		
>30	27	100	19	100	8	100		
Total	7249	100	4119	56.82%	2840	39.18%	290	4.00%

Table B-5. Junction Analysis Singlebeam Main Scheme vs. Interferometric Crosslines, H11612

Depth Difference Range (cm)	All		Positive		Negative		Zero	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
0-5	56	0.24	38	0.17	11	42.31	7	100
5-10	123	0.78	118	0.68	5	61.54		
10-15	527	3.08	522	2.96	5	80.77		
15-20	894	6.97	893	6.85	1	84.62		
20-25	2074	16	2072	15.89	2	92.31		
25-30	4063	33.7	4062	33.61	1	96.15		
30-35	4158	51.81	4158	51.75	0	96.15		
35-40	3043	65.07	3042	65.02	1	100		
40-45	3079	78.48	3079	78.45	0	100		
45-50	1956	87	1956	86.98	0	100		
50-60	2016	95.78	2016	95.77	0	100		
60-70	645	98.59	645	98.59	0	100		
70-80	224	99.56	224	99.56	0	100		
80-90	89	99.95	89	99.95	0	100		
90-110	11	100	11	100	0	100		
Total	22958	100%	22925	99.86%	26	0.11%	7	0.03%

Table B-6. Junction Analysis Interferometric Main Scheme vs. Interferometric Crosslines, H11612

Depth Difference Range (cm)	All		Positive		Negative		Zero	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
0-5	11175	26.75	5210	19.7	4669	33.26	1296	100
5-10	10595	52.11	6320	43.61	4275	63.71		
10-15	8929	73.49	5972	66.19	2957	84.78		
15-20	3671	82.27	2714	76.46	957	91.59		
20-25	2919	89.26	2286	85.1	633	96.1		
25-30	2056	94.18	1732	91.65	324	98.41		
30-35	1013	96.61	888	95.01	125	99.3		
35-40	526	97.87	473	96.8	53	99.68		
40-45	402	98.83	376	98.22	26	99.86		
45-50	250	99.43	240	99.13	10	99.94		
50-60	201	99.91	193	99.86	8	99.99		
60-70	28	99.98	28	99.97	0	99.99		
70-90	10	100	9	100	1	100		

Depth Difference Range (cm)	All		Positive		Negative		Zero	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Total	41775	100%	26441	63.29%	14038	33.60%	1296	3.10%

Table B-7. Junction Analysis Interferometric Main Scheme vs. Singlebeam Crosslines Nadir, H11612

Depth Difference Range (cm)	All		Positive		Negative		Zero	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
0-5	97	0.97	29	41.43	61	0.61	7	100
5-10	180	2.77	22	72.86	158	2.2		
10-15	610	8.86	16	95.71	594	8.19		
15-20	941	18.26	3	100	938	17.63		
20-25	1873	36.98	0	100	1873	36.49		
25-30	2307	60.03	0	100	2307	59.72		
30-35	1506	75.07	0	100	1506	74.88		
35-40	871	83.77	0	100	871	83.65		
40-45	700	90.77	0	100	700	90.7		
45-50	476	95.52	0	100	476	95.49		
50-60	382	99.34	0	100	382	99.34		
60-70	56	99.9	0	100	56	99.9		
70-90	10	100	0	100	10	100		
Total	10009	100%	70	0.70%	9932	99.23%	7	0.07%

Table B-8. Junction Analysis All Main Scheme vs. All Crosslines, H11612

Depth Difference Range (cm)	All		Positive		Negative		Zero	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
0-5	13730	16.85	6429	12.08	5717	21.45	1584	100
5-10	13039	32.86	7823	26.78	5216	41.02		
10-15	11689	47.21	7558	40.98	4131	56.51		
15-20	6033	54.62	3933	48.37	2100	64.39		
20-25	7124	63.36	4498	56.82	2626	74.24		
25-30	8436	73.72	5778	67.68	2658	84.21		
30-35	6611	81.83	4985	77.05	1626	90.31		
35-40	4399	87.23	3477	83.58	922	93.77		
40-45	4116	92.29	3397	89.96	719	96.47		
45-50	2663	95.56	2178	94.05	485	98.29		

Depth Difference Range (cm)	All		Positive		Negative		Zero	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
50-60	2561	98.7	2173	98.14	388	99.74		
60-70	718	99.58	661	99.38	57	99.96		
70-80	234	99.87	225	99.8	9	99.99		
80-90	96	99.99	94	99.98	2	100		
90-110	11	100	11	100	0	100		
Total	81460	100%	53220	65.33%	26656	32.72%	1584	1.94%

Table B-9. Junction Analysis H11612 vs. H11613

Depth Difference Range (cm)	All		Positive		Negative		Zero	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
0-5	485	11.78	218	23.77	219	6.95	48	100
5-10	453	22.78	221	47.87	232	14.3		
10-15	391	32.27	199	69.57	192	20.39		
15-20	379	41.48	72	77.43	307	30.13		
20-25	1062	67.27	54	83.32	1008	62.1		
25-30	922	89.66	23	85.82	899	90.61		
30-35	181	94.05	26	88.66	155	95.53		
35-40	62	95.56	17	90.51	45	96.96		
40-45	82	97.55	37	94.55	45	98.38		
45-50	60	99	34	98.26	26	99.21		
50-60	36	99.88	16	100	20	99.84		
60-70	5	100	0	100	5	100		
Total	4118	100%	917	22.27%	3153	76.57%	48	1.17%

Details of beam-by-beam comparison of 25 selected crossings for the interferometric data are presented in the Separates to this report. The crossings for detailed comparison were randomly selected for spatial and temporal distribution over the entire survey area.

The junction with H11615 will be discussed within that survey.

On days when the vessel was heading into steep seas, residual heave and pitch artifacts are seen in the CUBE Depth surface. These artifacts appear as a cross track ripple with a magnitude of approximately 10 cm. Analysis of crossings in these areas, as well as the final depth uncertainties, verify that the data meet the specified accuracies.

The **GS+** interferometric system provided both bathymetry as well as sidescan imagery data. The system was operated at a 25-meter range scale for 100% sidescan bottom coverage. Vessel speed was controlled so that there were more than three pings per meter

along track for object detection. While the full swath data provided full bottom coverage there were areas where the full swath was not used in the final BAG grids as a result of the total propagated error on the outer swath exceeding IHO Order 1 maximum allowed errors. This occurred for data collected on JD 132 15:25:05 UTC (12 May 2007) when the Velport SSV was not functioning and the Seabird CTD data was used for surface sound velocity.

The Klein 3000 sidescan sonar was operated using a 25-meter range scale to achieve 100% bottom coverage. Vessel speed was controlled so that there were more than three pings per meter along track for object detection. The Odom singlebeam was used for bathymetry in a fixed line spacing mode.

B.2.1 Multibeam Coverage Analysis

The line spacing used for the Lake Borgne debris mapping survey operations was set to achieve 100% sidescan sonar coverage. The resulting bathymetry coverage was comprised from the combination of the soundings from the singlebeam and interferometric sonars. The two 1-meter node BAGs, H11612_1_of_2.bag (west side) and H11612_2_of_2.bag (east side) made from the separate 1-meter node **PFM CUBED Surfaces** were used for the demonstration of coverage. The **SABER Gapchecker** routine flagged nodes exceeding the allowable gap limit. In addition the entire surface was visually scanned for holidays. Additional survey lines were run to fill any detected holidays. The SABER Gapchecker routine was run on the final PFM Cubed Surfaces resulting in the coverage statistics shown in Table B-10.

Table B-10. Coverage Statistics

Grid	Number of Nodes	Nodes with valid Depth	> 3 Adjacent Empty Nodes	% Coverage
H11612_1_of_2.bag	16,115,796	16,115,389	317	99.99%
H11612_2_of_2.bag	19,666,616	19,656,864	2430	99.95%

B.2.2 Survey Systems Error Model

The Total Propagated Error (TPE) model that SAIC has adopted had its genesis at the Naval Oceanographic Office (NAVOCEANO), and is based on years of work by Rob Hare and others. The fidelity of any error model is coupled to the applicability of the equations that are used to estimate each of the components that contribute to the overall error that is inherent in each sounding. SAIC's approach to quantifying the TPE is to decompose the cumulative errors into individual components and then further decompose those into a horizontal and vertical component. The model then combines the horizontal and vertical error components to yield an estimate of the system error as a whole. This cumulative system error is the TPE. By using this approach, SAIC can more easily incorporate future error 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 error model are captured as parameters taken from the Error Parameters File (EPF), which is an ASCII text file typically created during survey system installation and integration. The parameters are also obtained from values recorded in the GSF file(s) during data collection and processing. While the input units vary, all error values that contribute to the cumulative TPE estimate are converted to meters by **SABER's errors** program or have units of meters from the beginning. The cumulative TPE estimates are separated into a horizontal and vertical component, and are recorded as the Horizontal Error and Vertical Error records for each beam in the GSF file. These error values are at the two sigma or 95% confidence level. The intent is to use these error estimates to gauge the accuracy of each sounding's coordinates and depth.

As part of the Lake Borgne surveys, SAIC developed an error model for the GeoAcoustics GeoSwath 250kHz interferometric sonar with guidance coming from the sonar manufacturer. This error model included an angle uncertainty of 0.02 degrees and a range uncertainty of 0.04 meters for each sounding. This model also included a footprint correction to the sonar related components that contribute to the Total Propagated Error. The resulting error values produced from this model, match both the magnitude and the shape of the error curve over the entire swath that was apparent in the real survey data as determined by SAIC's Accutest procedures. For more information, see the Data Acquisition and Processing Report (SAIC Doc 07-TR-005).

Table B-11 and Table B-12 show the values entered in the EPF used for the **GS+** data. The only value that varied was the Surface Sound Speed Error (SSSV_measurement_error). When the 25-mm Velport SSV sensor was in use, an SSSV_measurement_error of 0.20 meters was used for the TPE calculation. When no SSV sensor was in use and values from the Seabird CTD were used an SSSV_measurement_error of 5.0 meters was used for the TPE calculation. When the 50-mm Velport SSV sensor was in use, an SSSV_measurement_error of 0.12 meters was used for the TPE calculation. All parameter uncertainties in this file are entered at the one sigma level of confidence, but the outputs from **SABER's errors** program are at the two sigma or 95% confidence level. Sign conventions are: X = positive forward, Y = positive starboard, Z = positive down.

Table B-11. 2007 *F/V Lacey Marie* Error Parameters.

Parameter	Value	Units
static_draft	1.20	Meters
draft_error (uncertainty)	0.02	Meters
squat_error (uncertainty)	0.02	Meters
fixed_heave_error_component (uncertainty)	0.05	Meters
perc_swellheave_err_component (uncertainty)	5.00	Percent
roll_measurement_error (uncertainty)	0.02	Degrees

Parameter	Value	Units
pitch_measurement_error (uncertainty)	0.02	Degrees
heading_measurement_error (uncertainty)	0.02	Degrees
speed_measurement_error (uncertainty)	0.057	meters/second (m/s)
SSSV_measurement_error (uncertainty)	0.20, 0.12 or 5.00*	meters/second (m/s)
predicted_tide_measurement_error (uncertainty)	0.18	Meters
observed_tide_measurement_error (uncertainty)	0.12	Meters
tide_zone_error (uncertainty)	0.10	Meters
positioning_device_x_offset	-9.914	Meters
positioning_device_xoffset_err (uncertainty)	0.02	Meters
positioning_device_y_offset	-1.00	Meters
positioning_device_yoffset_err (uncertainty)	0.02	Meters
positioning_device_z_offset	-4.842	Meters
positioning_device_zoffset_err (uncertainty)	0.02	Meters
VRU_device_x_offset	-0.17	Meters
VRU_device_x_offset_error (uncertainty)	0.005	Meters
VRU_device_y_offset	0.09	Meters
VRU_device_y_offset_error (uncertainty)	0.005	Meters
VRU_device_z_offset	0.33	Meters
VRU_device_z_offset_error (uncertainty)	0.005	Meters
gps_latency	0.00	milliseconds (msec)
vru_latency	0.00	milliseconds (msec)
gps_latency_error (uncertainty)	1.00	milliseconds (msec)
vru_latency_error (uncertainty)	1.00	milliseconds (msec)
horizontal_navigation_error (uncertainty)	0.75	Meters
svp_measurement_error (uncertainty)	0.75	meters/second (m/s)

*See explanation regarding SSSV_measurement_error in previous paragraph.

Table B-12. SONAR Parameters GeoSwath Plus

Parameter	Value	Units
transducer_device_x_offset	0.00	Meters
transducer_device_xoffset_error (uncertainty)	0.02	Meters
transducer_device_y_offset	0.00	Meters
transducer_device_yoffset_error (uncertainty)	0.02	Meters
transducer_device_z_offset	0.00	Meters
transducer_device_zoffset_error (uncertainty)	0.02	Meters
roll_offset_error (uncertainty)	0.05	Degrees
pitch_offset_error (uncertainty)	0.05	Degrees
heading_offset_error (uncertainty)	0.05	Degrees
sounder_latency	0.00	milliseconds (msec)
sounder_latency_error (uncertainty)	1.00	milliseconds (msec)

Parameter	Value	Units
model_tuning Factor	-10	Unitless
amplitude_phase_transition	1	Unitless
sounder_installation_angle	60	Degrees
sounder_fore_aft_beamwidth	0.50	Degrees
sounder_athwartship_beamwidth	0.02	Degrees
range_sampling_res	0.017	Meters
pulse_length	0.064	Meters

B.3 Corrections to Echo Soundings

Please refer to the Data Acquisition and Processing Report, SAIC Doc 07-TR-005, delivered on 18 January 2008 for a description of all corrections applied to echo soundings. There were no deviations from the corrections described therein. GeoAcoustics interferometric GSF format data is fully compatible with Caris 6.1 with hot fix 6.

B.4 Data Processing

The survey area of H11612 was broken into two separate BAGs because of the large volume of interferometric data. The areas were a Western (H11612_1_of_2.bag), and an Eastern (H11612_2_of_2.bag). Both BAGs were made with a 1-meter node resolution. While the depths in the areas surveyed with the GeoAcoustics GeoSwath 250kHz interferometric sonar were less than 15 meters, which would indicate the need for 0.5-meter node resolution, the consistently flat bottom merits larger node spacing. SAIC discussed this approach with the Atlantic Hydrographic Branch. The 1-meter BAGs serve for both the delivered bathymetric model and the demonstration of coverage for this survey.

Throughout the survey effort, sidescan data were reviewed and preliminary contacts identified. On a weekly basis newly identified preliminary sidescan contacts were uploaded to a NOAA share point web site. The upload of preliminary contacts allowed NOAA to assess progress and review contact densities and size to prioritize debris removal efforts. After final analysis of all available data, a final set of contacts was established for delivery. The list of preliminary contacts delivered via the share point web site was compared to the finalized sidescan contact list. Of the 289 preliminary contacts, 25 were disproved with additional data collected during item investigations and 22 more were removed after further data review. Forty-nine additional contacts were created that were not part of the preliminary weekly deliveries.

C. HORIZONTAL AND VERTICAL CONTROL

A subordinate tide station (8761529 Martello Castle, LA) was installed by John Oswald and Associates and Lowe Engineers, under sub-contract to SAIC. Analysis of water levels obtained from tide station 8761529 and NOAA tide station 8747437 Bay

Waveland Yacht Club, MS were performed to determine final water level zoning parameters. Zone boundaries were provided by NOAA. Tide station 8761529 was the source of verified water level heights for corrections to soundings.

The primary means for analyzing the adequacy of zoning was to conduct a zone to zone analysis. In addition, adequacy of zoning was verified by observing zone boundary crossings in the navigated swath editor, SAIC's **MultiView Editor (MVE)**, and examination of the sun illuminated coverage plots at zone boundaries. Crossline comparisons were used to analyze zoning for the influence of wind and weather. Table C-1 presents the water level zoning parameters for H11612 that were developed based on comparisons to NOAA tide station 8747437 and a zone to zone analysis.

Table C-1. Water Level Zoning Parameters Applied on Sheet H11612

Zone	Time Corrector (hours:minutes)	Range Ratio	Reference Station
CGM81	-2:36	1.131	8761529
CGM82	-2:18	1.118	8761529
CGM83	-2:06	1.105	8761529
CGM84	-1:54	1.092	8761529
CGM85	-1:35	1.079	8761529
CGM86	-1:18	1.065	8761529
CGM87	-1:06	1.052	8761529
CGM88	-0:48	1.039	8761529
CGM89	-0:30	1.026	8761529
CGM90	-0:12	1.013	8761529

The survey data for sheet H11612 were collected in horizontal datum NAD-83, using geodetic coordinates, while data display and products used the UTM Zone 16 projection. The equipment used for positioning on the *F/V Lacey Marie* and the *M/V Thomas R. Dowell* are listed in Table C-2.

Table C-2. Positioning equipment used for Sheet H11612

	POS/MV Serial No.	Hardware Firmware	Software Firmware	GPS Receivers
F/V Lacey Marie	2575	2.9-7	03.26	Trimble BD950
M/V Thomas R.Dowell	2579	2.9-7	03.26	Trimble BD950

Differential correctors used for H11612 online data were from the U.S. Coast Guard Stations at English Turn, LA and Mobile Point, AL. The differential receiver was set to only receive data from these two corrector stations. There were two occasions where differential correctors were lost for 290 seconds and 48 seconds while on line, however in general any loss observed in differential correctors was between 2 and 13 seconds in

duration. There were no positional issues noted for times where the differential correctors were lost. This is consistent with what is expected from a POS/MV inertial system, which has the ability to maintain accurate positions for several minutes after loss of differential correctors.

Please refer to the Horizontal and Vertical Control Report SAIC Doc 07-TR-006 for detailed descriptions of the procedures and systems used to attain hydrographic positioning.

D. RESULTS AND RECOMMENDATIONS

D.1 Chart Comparison

H11612 was compared to the largest scale Raster Chart (11371, 1/80,000 scale and 11367, 1/40,000 scale) and to the Electronic Navigational Charts (ENC) that covered the statement of work area (US4MS10M and US5LA36M). All positions are presented in horizontal datum NAD-83.

Chart 11367, 1/40,000 scale, 34th Edition 08/01/2006 corrected by NTM through 12/01/2007

Chart 11371, 1/80,000 scale, 38th Edition 04/01/2007 corrected by NTM through 12/01/2007

ENC US4MS10M, 1/80,000, 4th Edition Issued 09/05/2007 Update 09/21/2007, area common to chart 11371

The chart comparisons were conducted by using SAIC's **SABER** software to view the largest scale BSB Raster chart with overlain layers of H11612 data such as the CUBE gridded surface, selected soundings, and features. For comparisons between the two ENC's to the results of this survey, HydroService's **dKart Inspector** was 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 11367, 1/40,000 scale

There were 18 charted objects that were identified for 200% sidescan coverage on chart 11367; three wrecks, five obstructions, six piles, two snags, one pipe, and one rock jetty.

The charted dangerous wreck in 30° 10' 47.36"N 089° 31' 49.31"W was not found during this survey. Recommend removing the wreck symbol and danger circle. **Concur.**

The charted dangerous wreck labeled PA in 30° 07' 57.18"N 089° 34' 52.11"W was not found during this survey. Recommend removing the wreck symbol, danger curve and label PA. **Concur.**

The charted dangerous wreck labeled PA in 30° 08’ 48.10”N 089° 35’ 36.06”W was not found in its charted position. A submerged wreck (Feature 51) was found in 30° 08’ 51.02”N 089° 35’ 38.85”W with a least depth of 2.67 meters, 0.333 meter uncertainty, (9 feet). Recommend removing the wreck symbol, danger circle, blue tint and label PA and charting a 9 foot sounding, danger circle, blue tint, and label Wk in 30° 08’ 51.02”N 089° 35’ 38.85”W. **Concur.**

The charted obstruction labeled Obstn in 30° 09’ 58.51”N 089° 31’ 28.47”W was not found during this survey. Recommend removing the Obstruction symbol and label Obstn. **Concur.**

The charted dangerous obstruction labeled Obstn PD in 30° 09’ 16.00”N 089° 30’ 44.50”W was not found during this survey. Recommend removing the danger circle, blue tint and label Obstn PD. **Concur.**

The charted dangerous obstruction labeled Obstn rep PA in 30° 08’ 53.24”N 089° 33’ 16.75”W was not found during this survey. Recommend removing the danger circle, blue tint and label Obstn rep PA. **Concur.**

The charted obstruction labeled Obstn in 30° 08’ 09.65”N 089° 37’ 12.00”W was not in its charted position. An obstruction (Feature 35) was found in 30° 08’ 08.34”N 089° 37’ 12.61”W with a least depth of 1.83 meters (6 feet), determined from the sidescan data. Recommend removing the Obstruction symbol and label Obstn. Due to the close proximity of the obstruction to an oil platform, there are no additional charting recommendations. **Concur.**

The charted dangerous obstruction labeled Obstn PA in 30° 06’ 59.35”N 089° 39’ 21.55”W was not found during this survey. Recommend removing the danger circle, blue tint and label Obstn PA. **Concur.**

The charted pile labeled Pile Awash PA in 30° 10’ 24.00”N 089° 31’ 30.00”W was not found during this survey. Recommend removing the pile symbol and label Pile Awash PA. **Concur.**

The charted pile labeled Piling in 30° 10’ 20.44”N 089° 32’ 11.90”W was not found during this survey. Recommend removing the pile symbol and label Pile. **Concur.**

The charted pile labeled Subm pile in 30° 08’ 53.32”N 089° 31’ 47.00”W was not found during this survey. Recommend removing the pile symbol and label Subm pile. **Concur.**

The 10 charted piles labeled Subm piles PA in 30° 07’ 50.00”N 089° 35’ 41.22”W were not found in their charted position. Exposed piles were found in:

30° 07’ 54.34”N 089° 35’ 39.43”W (Feature 58)
30° 07’ 55.53”N 089° 35’ 38.57”W (Feature 61)
30° 07’ 55.73”N 089° 35’ 37.17”W (Feature 62)
30° 07’ 55.11”N 089° 35’ 36.31”W (Feature 63)

30° 07’ 55.93”N 089° 35’ 34.95”W (Feature 64)

Recommend removing the 10 pile symbols and label Subm piles PA and charting a pile symbol and label Piles in 30° 07’ 54.34”N 089° 35’ 39.43”W and charting a dolphin symbol in:

30° 07’ 55.53”N 089° 35’ 38.57”W
30° 07’ 55.73”N 089° 35’ 37.17”W
30° 07’ 55.11”N 089° 35’ 36.31”W
30° 07’ 55.93”N 089° 35’ 34.95”W

and label Dols. **Concur.**

The 3 charted piles labeled Piling in 30° 10’ 45.15”N 089° 33’ 15.75”W were not found in their charted positions. Five submerged piles were found in:

30° 10’ 41.80”N 089° 33’ 13.97”W (Feature 66)
30° 10’ 43.04”N 089° 33’ 14.78”W (Feature 67)
30° 10’ 44.08”N 089° 33’ 15.75”W (Feature 68)
30° 10’ 44.80”N 089° 33’ 16.28”W (Feature 69)
30° 10’ 48.44”N 089° 33’ 13.25”W (Feature 70)

Recommend removing the 3 charted pile symbols and label Piling and chart a pile symbol in:

30° 10’ 41.80”N 089° 33’ 13.97”W
30° 10’ 43.04”N 089° 33’ 14.78”W
30° 10’ 44.08”N 089° 33’ 15.75”W
30° 10’ 44.80”N 089° 33’ 16.28”W
30° 10’ 48.44”N 089° 33’ 13.25”W

and label Subm piles. **Concur.**

The charted submerged pile labeled Sign in 30° 09’ 04.10”N 089° 32’ 08.10”W was not found during this survey. Recommend removing the pile symbol and label Sign. **Concur.**

The charted submerged pile labeled Subm Pile in 30° 09’ 03.26”N 089° 31’ 57.27”W was not found during this survey. Recommend removing the pile symbol and label Subm pile. **Concur.**

The charted submerged pile labeled Subm Pile in 30° 09’ 04.04”N 089° 31’ 45.13”W was not found during this survey. Recommend removing the pile symbol and label Subm pile. **Concur.**

The charted snag labeled Snag in 30° 09’ 07.15”N 089° 34’ 40.10”W was not found during this survey. Recommend removing the snag symbol and label Snag. **Concur.**

The charted snags labeled Snags in 30° 08’ 47.64”N 089° 35’ 01.55”W and 30° 08’ 48.43”N 089° 34’ 53.32”W were not found during this survey. Recommend removing the snag symbols and label Snags. **Concur.**

The charted snag labeled Snag located in 30° 10’ 47.47”N 089° 33’ 01.78 (Feature 14) is from Danger to Navigation Report #5. **Concur.**

The charted pipe labeled Pipe (lighted) in 30° 09’ 48.75”N 089° 34’ 04.45”W was not found during this survey. Recommend removing the pipe symbol and label Pipe (lighted). **Concur.**

The charted jetties labeled Rock jetties in 30° 10’ 11.74”N 089° 34’ 10.55”W were not found during this survey. Recommend removing the jetty symbol and label Rock jetties. **Concur.**

The two small charted islands in 30°10’20.45”N 089° 31’ 44.50”W and 30° 10’ 15.05” 089° 31’ 43.43”W were not found during this survey. Recommend removing both islands and the label Little Grassy I. **Concur.**

The charted platform labeled Platform in 30° 07’ 35.67”N 089° 36’ 27.35”W was not found during this survey. Recommend removing the platform symbol and label Platform. **Concur.**

The charted platform labeled Platform in 30° 08’ 08.78”N 089° 37’ 12.52”W is charted based on Danger to Navigation Report #2 (Feature 36). Recommend removing the label Platform and label Platforms. **Chart label “Platform” in location of DtoN.**

The charted platforms labeled Platforms in 30° 07’ 57.63”N 089° 35’ 37.89”W and 30° 07’ 56.38”N 089° 35’ 35.99”W were not found in their charted positions during this survey. Two platforms were found in 30° 07’ 56.77”N 089° 35’ 37.60”W (Feature 55) and 30° 07’ 57.46”N 089° 35’ 38.90”W (Feature 56). Recommend removing the platform symbols and chart a platform in 30° 07’ 57.46”N 089° 35’ 38.90”W and label Platforms. **Concur.**

An uncharted platform was located in 30° 07’ 57.39”N 089° 37’ 20.70”W (Feature 4). Recommend charting a platform symbol in 30° 07’ 57.39”N 089° 37’ 20.70”W and label Platform. **Concur.**

The charted platform in 30° 08’ 22.07”N 089° 36’ 38.12”W was not found in its charted position. A platform was found in 30° 08’ 22.07”N 089° 36’ 29.85”W (Feature 40). The charted position is based on Danger to Navigation Report #3. Additional survey data collected after the report was submitted resulting in a slightly different position. The reported position for feature 40 has been updated to reflect the platforms true position. Recommend removing the platform symbol and chart a platform symbol in 30° 08’ 22.07”N 089° 36’ 29.85”W and label Platform. **Concur.**

The charted dangerous obstruction labeled Obstn rep in 30° 08’ 06.84”N 089° 37’ 25.14”W is charted based on Danger to Navigation Report #2. The object is an awash pile located in 30° 08’ 06.57”N 089° 37’ 25.21”W (Feature 71). Recommend removing

the danger circle and label Obstn rep and chart a pile symbol and label Awash pile. **Concur. Chart Awash pile at the above listed location.**

There were no shoals located in 30° 08’ 59.06”N 089° 37’ 16.74”W. Recommend removing the label Shoal rep 1974 located in this position. **Concur.**

The two charted submerged piles labeled Subm piles rep charted in 30° 08’ 24.50”N 089° 36’ 43.98”W and 30° 08’ 24.33”N 089° 36’ 40.37”W are from Danger to Navigation Report #3. Additional data collected after submittal of the report confirmed that there is only one submerged pile in 30° 08’ 24.12”N 089° 36’ 40.01”W (Feature 12) with an estimated least depth from the sidescan data of 1.94 meters (6 feet). Recommend removing the pile symbol in 30° 08’ 24.50”N 089° 36’ 43.98”W and change the label to Subm pile. **Concur.**

The submerged piles labeled Subm piles in 30° 07’ 17.05”N 089° 34’ 37.52”W are from Danger to Navigation Report #5. The charted position is correct. These piles (Feature 72) are exposed at low tide and it is recommended that the label Subm piles be removed and add the label Awash piles. **Concur.**

The charted obstruction labeled Subm concrete blocks in 30° 10’ 52.55”N 089° 31’ 51.34”W were not found in their charted position. Submerged concrete blocks were found in 30° 10’ 54.32”N 089° 31’ 48.78”W (Feature 77) with a least depth of 2.04 meters (6 feet), determined from the sidescan data. Recommend removing the obstruction symbol and label and chart an obstruction in 30° 10’ 54.32”N 089° 31’ 48.78”W.and label Subm concrete blocks. **Concur.**

The charted depths at the entrance to the Pearl River in 30° 10’ 59.70”N 089° 31’ 33.72”W agree with the surveyed depths. **Concur.**

The charted depths at the entrance to the Rigolets in 30° 09’14.86” 089° 37’ 10.33”W agree with the surveyed depths. **Concur.**

Charted depths throughout the main body of Lake Borgne are generally 1 to 2 feet shoaler than the survey depths. **Concur.**

The charted shoreline has receded and is no longer accurate. Sounding were obtained over charted land, especially along the west side around Unknown Pass and along the north side in the vicinity of Long Point and Sand Bayou as well as the shoreline west of the entrance to the Pearl River. **Concur. In addition, the shoreline has receded in the southeastern portion of the survey area, along Malheureux Pt – soundings were obtained over charted land.**

The Lake Borgne Daybeacon 14 in 30° 08’ 58.75”N 089° 32’ 40.31”W was not present during this survey. See Section D.1.2 for additional information.

The Lake Borgne Daybeacon 12 in 30° 09’ 07.91”N 089° 31’ 50.75”W was not present during this survey. See Section D.1.2 for additional information.

The Lake Borgne Daybeacon 20 in 30° 08’ 37.07”N 089° 35’ 35.93”W was replaced with a red buoy “20” found in 30° 08’ 36.72”N 089° 35’ 35.70”W (Feature 74). See Section D.1.2 for additional information.

The Lake Borgne Daybeacon 19 in 30° 08’ 30.28”N 089° 35’ 41.03”W was replaced with a green buoy “19” found in 30° 08’ 29.64”N 089° 35’ 39.84”W (Feature 75). See Section D.1.2 for additional information.

Recommend that the chart be updated with the results of this survey.

Uncharted Wrecks and Obstructions

No uncharted wrecks were found in H11612.

Table D-1. lists other uncharted obstructions found in H11612 that are recommended for charting in raster chart 11367, 1/40,000 scale.

Table D-1. Uncharted Obstructions in Raster Chart 11367, 1/40,000 scale

Feature Number	Feature Position (NAD83)		Least Depth Meters (Feet)	Uncertainty (Meters)	Charting Recommendations
	Latitude (N)	Longitude (W)			
3	30° 06’ 44.18”	089° 36’ 46.79”	2.28 (7)	N/A	OBSTR Chart sounding and label Obstn **Do not concur – obstr is far from channel and only 1 ft off bottom. LD sounding designated, AHB recommends no further action.**
7	30° 09’ 20.89”	089° 31’ 29.78”	1.29 (4)	0.459	OBSTRS Chart sounding and label Obstns **Concur, and submitted as DtoN by AHB on 03JUL2008.**
9	30° 08’ 29.26”	089° 35’ 50.23”	3.88 (12)	N/A	OBSTR Chart sounding and label Obstn **Concur.**
10	30° 10’ 56.71”	089° 31’ 25.78”	3.50 (11)	N/A	OBSTR Chart sounding and label Obstn **Do not concur – obstr is less than 1 ft off bottom, and insignificant among surrounding depths. LD sounding designated, AHB recommends no further action.**

Feature Number	Feature Position (NAD83)		Least Depth Meters (Feet)	Uncertainty (Meters)	Charting Recommendations
	Latitude (N)	Longitude (W)			
11*	30° 09’ 45.46”	089° 33’ 37.48”	1.37 (4)	N/A	OBSTR Chart sounding and label Obstn **Concur. 4 ft sounding (deemed from SSS) is very significant amongst surrounding soundings, and since the LD cannot be designated, must chart.**
13*	30° 08’ 23.22”	089° 30’ 47.87”	3.28 (11)	N/A	OBSTR Chart sounding and label Obstn **Do not concur – 11 ft sounding (deemed from SSS) is far from channel and not significant amongst surrounding soundings.**
16*	30° 09’ 20.14”	089° 37’ 41.05”	13.41 (44)	N/A	OBSTRS Chart sounding and label Obstns **Do not concur – 44 ft sounding (deemed from SSS) is far from channel and not significant amongst surrounding soundings.**
17*	30° 08’ 27.00”	089° 31’ 48.07”	2.45 (8)	N/A	OBSTR Chart sounding and label Obstn **Do not concur – 8 ft sounding (deemed from SSS) is far from channel and not significant amongst surrounding soundings.**
18*	30° 11’ 11.26”	089° 31’ 33.52”	6.20 (20)	N/A	OBSTN **Concur.**
21*	30° 08’ 27.99”	089° 32’ 37.65”	2.20 (7)	N/A	OBSTN **Concur.**
24*	30° 08’ 47.51”	089° 37’ 07.64”	3.87 (12)	N/A	OBSTR Chart sounding and label Obstn **Concur. 12 ft sounding (deemed from SSS) is in close proximity to channel.**
27*	30° 09’ 25.39”	089° 37’ 37.77”	3.99 (13)	N/A	OBSTN **Concur, 13 ft significant in this area.**
31*	30° 09’ 14.85”	089° 37’ 52.56”	4.58 (15)	N/A	OBSTRS Chart sounding and label Obstns **Concur. 15 ft sounding (deemed from SSS) is significant amongst surrounding soundings and is in close proximity to channel.**
32*	30° 09’ 16.69”	089° 37’ 47.74”	5.58(18)	N/A	OBSTN **Concur.**

Feature Number	Feature Position (NAD83)		Least Depth Meters (Feet)	Uncertainty (Meters)	Charting Recommendations
	Latitude (N)	Longitude (W)			
38*	30° 09’ 06.81”	089° 36’ 40.72”	1.69 (5)	N/A	OBSTR Chart sounding and label Obstn **Concur. 5 ft sounding is significant amongst surrounding soundings and is in close proximity to channel traffic.**
43*	30° 09’ 05.12”	089° 36’ 19.52”	1.57 (5)	N/A	OBSTR Chart sounding and label Obstn **Do not concur. 5 ft sounding is insignificant amongst surrounding soundings.**

* Found by sidescan sonar only, least depth estimated from sidescan data.

Chart 11371, 1/80,000 scale

There were 29 charted objects that were identified for 200% sidescan coverage on chart 11371; seven wrecks, six obstructions, seven piles, two snags, three pipes, 1 rock jetty, one tree, and two dolphins.

The charted dangerous wreck in 30° 10’ 47.21”N 089° 31’ 48.08”W was not found during this survey. Recommend removing the wreck symbol and danger circle. **Concur.**

The charted dangerous wreck labeled PA in 30° 07’ 57.88”N 089° 34’ 51.21”W was not found during this survey. Recommend removing the wreck symbol, danger circle and label PA. **Concur.**

The charted dangerous wreck labeled PA in 30° 08’ 48.37”N 089° 35’ 35.93”W was not found in its charted position. A submerged wreck (Feature 51) was found in 30° 08’ 51.02”N 089° 35’ 38.85”W with a least depth of 2.67 meters, 0.333 meter uncertainty, (9 feet). Recommend removing the wreck symbol, danger circle, blue tint and label PA and charting a 9 foot sounding, danger circle, blue tint, and label Wk in 30° 08’ 51.02”N 089° 35’ 38.85”W. **Concur.**

The charted dangerous wreck labeled PA in 30° 06’ 40.55”N 089° 30’ 42.78”W was not found in its charted position. A submerged wreck (Feature 60) was found in 30° 06’ 37.32”N 089° 30’ 44.86”W with a least depth of 3.43 meters (11 feet) from singlebeam. Recommend removing the wreck symbol, danger circle, blue tint and label PA and chart an11 foot sounding, danger circle, blue tint, and label Wk in 30° 06’ 37.32”N 089° 30’ 44.86”W. **Concur.**

The charted exposed wreck labeled PA in 30° 05’ 14.36”N 089° 29’ 48.38”W was not found during this survey. Recommend removing the exposed wreck symbol and label PA. **Concur.**

The charted dangerous wreck labeled PD in 30° 05’ 13.44”N 089° 29’ 30.16”W was not found during this survey. Recommend removing the wreck symbol, danger circle, blue tint and label PD. **Concur.**

The charted dangerous wreck labeled PD in 30° 06’ 20.74”N 089° 33’ 10.05”W was not found during this survey. Recommend removing the wreck symbol, danger circle, blue tint and label PD. **Concur.**

The charted obstruction labeled Obstn in 30° 09’ 59.68”N 089° 31’ 27.90”W was not found during this survey. Recommend removing the Obstruction symbol and label Obstn. **Concur.**

The charted dangerous obstruction labeled Obstn PD in 30° 09’ 18.32”N 089° 30’ 44.50”W was not found during this survey. Recommend removing the danger circle, blue tint and label Obstn PD. **Concur.**

The charted dangerous obstruction labeled Obstn rep PA in 30° 08’ 55.24”N 089° 33’ 14.04”W was not found during this survey. Recommend removing the danger circle, blue tint and label Obstn rep PA. **Concur.**

The charted dangerous obstruction labeled Obstn PA in 30° 08’ 10.18”N 089° 37’ 09.39”W was not found in its charted position. An obstruction (Feature 35) was found in 30° 08’ 08.34”N 089° 37’ 12.61”W with a least depth of 1.83 meters (6 feet), determined from the sidescan data. Recommend removing the Obstruction symbol, danger circle, and label Obstn PA. Due to the close proximity of the obstruction to an oil platform, there are no additional charting recommendations. **Concur.**

The charted dangerous obstruction labeled Obstn PA in 30° 07’ 00.40”N 089° 39’ 18.45”W was not found during this survey. Recommend removing the danger circle, blue tint and label Obstn PA. **Concur.**

The charted dangerous obstruction labeled Obstn PA in 30° 03’ 31.71”N 089° 41’ 18.49”W was not found during this survey. Recommend removing the danger circle, blue tint and label Obstn PA. **Concur.**

The charted pile labeled Pile Awash PA in 30° 10’ 24.57”N 089° 31’ 29.73”W was not found during this survey. Recommend removing the pile symbol and label Pile Awash PA. **Concur.**

The charted pile labeled Piling in 30° 10’ 21.22”N 089° 32’ 10.21”W was not found during this survey. Recommend removing the pile symbol and label Pile. **Concur.**

The charted pile labeled Subm Pile in 30° 08’ 53.80”N 089° 31’ 46.66”W was not found during this survey. Recommend removing the pile symbol and label Subm pile. **Concur.**

The 8 charted piles labeled Subm piles PA in 30° 07’ 52.62”N 089° 35’ 40.79”W were not found in their charted position. Exposed piles were found in:

30° 07’ 54.34”N 089° 35’ 39.43”W (Feature 58)
30° 07’ 55.53”N 089° 35’ 38.57”W (Feature 61)
30° 07’ 55.73”N 089° 35’ 37.17”W (Feature 62)
30° 07’ 55.11”N 089° 35’ 36.31”W (Feature 63)
30° 07’ 55.93”N 089° 35’ 34.95”W (Feature 64)

Recommend removing the 8 pile symbols and label Subm piles PA and charting a pile symbol and label Piles in 30° 07’ 54.34”N 089° 35’ 39.43”W and charting a dolphin symbol in:

30° 07’ 55.53”N 089° 35’ 38.57”W
30° 07’ 55.73”N 089° 35’ 37.17”W
30° 07’ 55.11”N 089° 35’ 36.31”W
30° 07’ 55.93”N 089° 35’ 34.95”W

and label Dols. **Concur.**

The two charted piles labeled Piling in 30° 10’ 45.86”N 089° 33’ 14.50”W were not found in their charted positions. Five submerged piles were found in:

30° 10’ 41.80”N 089° 33’ 13.97”W (Feature 66)
30° 10’ 43.04”N 089° 33’ 14.78”W (Feature 67)
30° 10’ 44.08”N 089° 33’ 15.75”W (Feature 68)
30° 10’ 44.80”N 089° 33’ 16.28”W (Feature 69)
30° 10’ 48.44”N 089° 33’ 13.25”W (Feature 70)

Recommend removing the 2 charted pile symbols and label Piling and chart a pile symbol in:

30° 10’ 41.80”N 089° 33’ 13.97”W
30° 10’ 43.04”N 089° 33’ 14.78”W
30° 10’ 44.08”N 089° 33’ 15.75”W
30° 10’ 44.80”N 089° 33’ 16.28”W
30° 10’ 48.44”N 089° 33’ 13.25”W

and label Subm piles. **Concur.**

The charted submerged piles labeled Subm piles in 30° 09’ 05.00”N 089° 32’ 07.91”W and 30° 09’ 05.38”N 089° 31’ 56.45”W were not found during this survey. Recommend removing the pile symbols and label Subm piles. **Concur.**

The charted submerged piles labeled Subm piles PA in 30° 03’ 33.14”N 089° 40’ 47.81”W were not found during this survey. Recommend removing the pile symbols and label Subm piles PA. **Concur.**

The charted snag labeled Snag in 30° 09’ 07.27”N 089° 34’ 39.87”W was not found during this survey. Recommend removing the snag symbol and label Snag. **Concur.**

The charted snags labeled Snags in 30° 08’ 48.83”N 089° 34’ 59.08”W and 30° 08’ 48.67”N 089° 34’ 53.09”W were not found during this survey. Recommend removing the snag symbols and label Snags. **Concur.**

The charted snag labeled Srag located in 30° 10’ 47.47”N 089° 33’ 01.78 (Feature 14) is from Danger to Navigation Report #5. Recommend updating the label to Snag. **Concur.**

The charted pipe labeled Pipe (lighted) in 30° 09’ 48.90”N 089° 34’ 03.04”W was not found during this survey. Recommend removing the pipe symbol and label Pipe (lighted). **Concur.**

The charted pipe labeled Pipe PA in 30° 06’ 43.61”N 089° 30’ 49.53”W was not found during this survey. Recommend removing the pipe symbol and label Pipe PA. **Concur.**

The charted pipe labeled Pipes PA in 30° 05’ 31.96”N 089° 36’ 40.38”W was not found during this survey. Recommend removing the pipe symbol and label Pipes PA. **Concur.**

The charted jetties labeled Subm rock jetties in 30° 10’ 13.06”N 089° 34’ 07.96”W were not found during this survey. Recommend removing the jetty symbol and label Subm rock jetties. **Concur.**

The charted Tree labeled Tree in 30° 04’ 12.27”N 089° 41’ 53.40”W was not found during this survey. Recommend removing the tree symbol and label Tree. **Concur.**

The two charted submerged dolphins labeled Subm dols in 30° 03’ 43.04”N 089° 39’ 31.63”W and 30° 03’ 39.68”N 089° 39’ 06.71”W were not found during this survey. Submerged piles were found in 30° 03’ 39.68”N 089° 39’ 33.50”W (Feature 65). Recommend removing the dolphin symbols and label Subm dols and chart a submerged pile symbol in 30° 03’ 39.68”N 089° 39’ 33.50”W and label Subm piles. **Concur.**

The small charted island in 30°10’20.80”N 089° 31’ 43.90”W was not found during this survey. Recommend removing the island and the label Little Grassy I. **Concur.**

The charted platform labeled Platform in 30° 07’ 36.74”N 089° 36’ 24.83”W was not found during this survey. Recommend removing the platform symbol and label Platform. **Concur.**

An uncharted platform was located in 30° 07’ 57.39”N 089° 37’ 20.70”W (Feature 4). Recommend charting a platform symbol in 30° 07’ 57.39”N 089° 37’ 20.70”W and label Platform. **Concur.**

The charted platform labeled Platform in 30° 08’ 08.78”N 089° 37’ 12.52”W is charted based on Danger to Navigation Report #2 (Feature 36). The charted position is correct. Recommend removing the label Platform and label Platforms. **Concur.**

The charted platform in 30° 08’ 22.46”N 089° 36’ 37.79”W was not found in its charted position. A platform was found in 30° 08’ 22.07”N 089° 36’ 29.85”W (Feature 40). The charted position is based on Danger to Navigation Report #3. Additional survey data collected after the report was submitted resulting in a slightly different position. The

reported position for feature 40 has been updated to reflect the platforms true position. Recommend removing the platform symbol and chart a platform symbol in 30° 08' 22.07"N 089° 36' 29.85"W and label Platform. **Concur.**

The charted platform labeled Platform in 30° 07' 59.23"N 089° 35' 35.14"W was not found in the charted positions during this survey. Two platforms were found in 30° 07' 56.77"N 089° 35' 37.60"W (Feature 55) and 30° 07' 57.46"N 089° 35' 38.90"W (Feature 56). Recommend removing the platform symbol and chart a platform in 30° 07' 57.46"N 089° 35' 38.90"W and label Platforms. **Concur.**

The charted dangerous obstruction labeled Obstn rep in 30° 08' 07.49"N 089° 37' 24.66"W is charted based on Danger to Navigation Report #2. The object is an awash pile located in 30° 08' 06.57"N 089° 37' 25.21"W (Feature 71). Recommend removing the danger circle and label Obstn rep and chart a pile symbol and label Awash pile. **Concur. Chart Awash pile at the above listed location.**

There were no shoals located in 30° 08' 59.32"N 089° 37' 16.03"W. Recommend removing the label Shl (rep 1974) and arrow located in this position. **Concur.**

The two charted submerged piles labeled Subm piles rep charted in 30° 08' 24.80"N 089° 36' 43.68"W and 30° 08'24.60"N 089° 36 40.11"W are from Danger to Navigation Report #3. Additional data collected after submittal of the report confirmed that there is only one submerged pile in 30° 08' 24.12"N 089° 36' 40.01"W (Feature 12) with an estimated least depth from the sidescan data of 1.94 meters (6 feet). Recommend removing the pile symbol in 30° 08' 24.80"N 089° 36' 43.68"W and change the label to Subm pile. **Concur.**

The submerged piles labeled Subm piles in 30° 07' 17.05"N 089° 34' 37.52"W are from Danger to Navigation Report #5. The charted position is correct. These piles (Feature 72) are exposed at low tide and it is recommended that the label Subm piles be removed and add the label Awash piles. **Concur.**

The charted platform labeled Platform in 30° 05' 38.98"N 089° 39' 49.81"W was found in 30° 05' 39.48"N 089° 39' 50.22"W (Feature 73). **Concur.**

The charted dangerous obstruction with a least depth of 7 feet and labeled Obstn PA in 30° 05' 06.49"N 089° 35' 46.56"W is from Danger to Navigation Report # 4 (Feature 5). The obstruction is charted correctly. **Concur.**

The charted obstruction labeled Subm Concrete blocks in 30° 10' 53.30"N 089° 31' 49.56"W were not found in their charted position. Submerged concrete blocks were found in 30° 10' 54.32"N 089° 31' 48.78"W (Feature 77) with a least depth of 2.04 meters (6 feet), determined from the sidescan data. Recommend removing the obstruction symbol and label and chart an obstruction in 30° 10' 54.32"N 089° 31' 48.78"W.and label Subm concrete blocks. **Concur.**

The charted depths at the entrance to the Pearl River in 30° 10’ 51.74”N 089° 31’ 29.51”W agree with the surveyed depths. **Concur.**

The charted depths at the entrance to the Rigolets in 30° 09’13.53.86” 089° 37’ 30.50”W agree with the surveyed depths. **Concur.**

The charted depths throughout the main body of Lake Borgne are generally 1 to 2 feet shoaler than the survey depths. **Concur.**

The charted shoreline has receded and is no longer accurate. Sounding were obtained over charted land, especially along the west side from Shell Point and Unknown Pass and along the north side in the vicinity of Long Point and Redfish Bayou as well as the shoreline west of the entrance to the Pearl River. **Concur. In addition, the shoreline has receded in the southeastern portion of the survey area, along Malheureux Pt – soundings were obtained over charted land.**

The Lake Borgne Daybeacon 14 in 30° 08’ 58.75”N 089° 32’ 40.31”W was not present during this survey. See Section D.1.2 for additional information.

The Lake Borgne Daybeacon 12 in 30° 09’ 07.91”N 089° 31’ 50.75”W was not present during this survey. See Section D.1.2 for additional information.

The Lake Borgne Daybeacon 20 in 30° 08’ 37.07”N 089° 35’ 35.93”W was replaced with a red buoy “20” found in 30° 08’ 36.72”N 089° 35’ 35.70”W (Feature 74). See Section D.1.2 for additional information.

The Lake Borgne Daybeacon 19 in 30° 08’ 30.28”N 089° 35’ 41.03”W was replaced with a green buoy “19” found in 30° 08’ 29.64”N 089° 35’ 39.84”W (Feature 75). See Section D.1.2 for additional information.

Recommend that the chart be updated with the results of this survey.

Uncharted Wrecks and Obstructions

No uncharted wrecks were found in H11612. Table D-2 lists other uncharted obstructions found in H11612 that are recommended for charting in raster chart 11371, 1/80,000 scale.

Table D-2. Uncharted Obstructions in Raster Chart 11371, 1/80,000 scale

Feature Number	Feature Position (NAD83)		Least Depth Meters (Feet)	Uncertainty (Meters)	Charting Recommendations
	Latitude (N)	Longitude (W)			

Feature Number	Feature Position (NAD83)		Least Depth Meters (Feet)	Uncertainty (Meters)	Charting Recommendations
	Latitude (N)	Longitude (W)			
2	30° 04’ 10.01”	089° 29’ 37.91”	2.27 (7)	N/A	OBSTR Chart sounding and label Obstn **Do not concur – 7 foot sounding is insignificant amongst surrounding depths .**
3	30° 06’ 44.18”	089° 36’ 46.79”	2.28 (7)	N/A	OBSTR Chart sounding and label Obstn **Do not concur – obstr is far from channel and only 1 ft off bottom.**
7	30° 09’ 20.89”	089° 31’ 29.78”	1.29 (4)	0.459	OBSTRS Chart sounding and label Obstns **Concur – submitted as DtoN by AHB on 03JUL2008.**
9	30° 08’ 29.26”	089° 35’ 50.23”	3.88 (12)	N/A	OBSTR Chart sounding and label Obstn **Concur.**
10	30° 10’ 56.71”	089° 31’ 25.78”	3.50 (11)	N/A	OBSTR Chart sounding and label Obstn **Do not concur – obstr is less than 1 ft off bottom, and insignificant amongst surrounding depths. LD sounding designated, AHB recommends no further action.**
11*	30° 09’ 45.46”	089° 33’ 37.48”	1.37 (4)	N/A	OBSTR Chart sounding and label Obstn **Concur. 4 ft sounding (deemed from SSS) is very significant amongst surrounding soundings, and since the LD cannot be designated, recommend charting obstr.**
13*	30° 08’ 23.22”	089° 30’ 47.87”	3.28 (11)	N/A	OBSTR Chart sounding and label Obstn **Do not concur – 11 ft sounding (deemed from SSS) is far from channel and not significant amongst surrounding soundings.**
16*	30° 09’ 20.14”	089° 37’ 41.05”	13.41 (44)	N/A	OBSTRS Chart sounding and label Obstns **Do not concur – 44 ft sounding (deemed from SSS) is far from channel and not significant amongst surrounding soundings.**

Feature Number	Feature Position (NAD83)		Least Depth Meters (Feet)	Uncertainty (Meters)	Charting Recommendations
	Latitude (N)	Longitude (W)			
17*	30° 08’ 27.00”	089° 31’ 48.07”	2.45 (8)	N/A	OBSTR Chart sounding and label Obstn **Do not concur – 8 ft sounding (deemed from SSS) is far from channel and not significant amongst surrounding soundings.**
18*	30° 11’ 11.26”	089° 31’ 33.52”	6.20 (20)	N/A	OBSTN **Concur.**
21*	30° 08’ 27.99”	089° 32’ 37.65”	2.20 (7)	N/A	OBSTN **Concur.**
23*	30° 06’ 27.62”	089° 31’ 36.92”	2.37 (8)	N/A	OBSTRS Chart sounding and label Obstns **Concur. Sounding (deemed from SSS) is significant amongst surrounding depths.**
24*	30° 08’ 47.51”	089° 37’ 07.64”	3.87 (12)	N/A	OBSTR Chart sounding and label Obstn **Concur. 12 ft sounding (deemed from SSS) is in close proximity to channel.**
27*	30° 09’ 25.39”	089° 37’ 37.77”	3.99 (13)	N/A	OBSTN **Concur, 13 ft significant in this area.**
31*	30° 09’ 14.85”	089° 37’ 52.56”	4.58 (15)	N/A	OBSTRS Chart sounding and label Obstns **Concur. 15 ft sounding (deemed from SSS) is significant amongst surrounding soundings and is in close proximity to channel.**
32*	30° 09’ 16.69”	089° 37’ 47.74”	5.58(18)	N/A	OBSTN **Concur.**
38*	30° 09’ 06.81”	089° 36’ 40.72”	1.69 (5)	N/A	OBSTR Chart sounding and label Obstn **Concur. 5 ft sounding is significant amongst surrounding soundings and is in close proximity to channel traffic.**
43*	30° 09’ 05.12”	089° 36’ 19.52”	1.57 (5)	N/A	OBSTR Chart sounding and label Obstn **Do not concur – 5 ft sounding is insignificant amongst surrounding soundings.**

* Found by sidescan sonar only, least depth estimated from sidescan data.

ENC US4MS10M, 1/80,000 scale

The charted dangerous wreck in 30° 10’ 47.21”N 089° 31’ 48.41”W was not found during this survey. Recommend removing the dangerous wreck object. **Concur.**

The charted dangerous wreck in 30° 07’ 57.64”N 089° 34’ 51.35”W was not found during this survey. Recommend removing the dangerous wreck object. **Concur.**

The charted dangerous wreck in 30° 08’ 48.46”N 089° 35’ 36.21”W was not found in its charted position. A submerged wreck (Feature 51) was found in 30° 08’ 51.02”N 089° 35’ 38.85”W with a least depth of 2.67 meters, 0.333 meter uncertainty. Recommend updating charted position to 30° 08’ 51.02”N 089° 35’ 38.85”W. **Concur.**

The charted dangerous wreck in 30° 06’ 40.44”N 089° 30’ 42.93”W was not found in its charted position. A submerged wreck (Feature 60) was found in 30° 06’ 37.32”N 089° 30’ 44.86”W with a least depth of 3.43 meters (11 feet) from singlebeam. Recommend updating charted position to 30° 06’ 37.32”N 089° 30’ 44.86”W. **Concur.**

The charted exposed wreck in 30° 05’ 14.08”N 089° 29’ 48.38”W was not found during this survey. Recommend removing the exposed wreck object. **Concur.**

The charted dangerous wreck in 30° 05’ 13.25”N 089° 29’ 30.48”W was not found during this survey. Recommend removing the dangerous wreck object. **Concur.**

The charted dangerous wreck in 30° 06’ 20.56”N 089° 33’ 10.38”W was not found during this survey. Recommend removing the dangerous wreck object. **Concur.**

The charted submerged obstruction in 30° 09’ 59.76”N 089° 31’ 28.09”W was not found during this survey. Recommend removing the submerged obstruction object. **Concur.**

The charted submerged obstruction in 30° 09’ 18.19”N 089° 30’ 44.82”W was not found during this survey. Recommend removing the submerged obstruction object. **Concur.**

The charted submerged obstruction in 30° 08’ 54.81”N 089° 33’ 14.51”W was not found during this survey. Recommend removing the submerged obstruction object. **Concur.**

The charted submerged obstruction in 30° 08’ 10.09”N 089° 37’ 09.39”W was not found in its charted position. An obstruction (Feature 35) was found in 30° 08’ 08.34”N 089° 37’ 12.61”W with a least depth of 1.83 meters. Recommend updating charted position to 30° 08’ 08.34”N 089° 37’ 12.61”W. **Concur.**

The charted submerged obstruction in 30° 07’ 00.33”N 089° 39’ 18.31”W was not found during this survey. Recommend removing the submerged obstruction object. **Concur.**

The charted submerged obstruction in 30° 03’ 31.43”N 089° 41’ 18.77”W was not found during this survey. Recommend removing the submerged obstruction object. **Concur.**

The charted snag/stump obstruction in 30° 10’ 24.35”N 089° 31’ 29.82”W was not found during this survey. Recommend removing the obstruction object. **Concur.**

The charted pile in 30° 10’ 21.24”N 089° 32’ 10.37”W was not found during this survey. Recommend removing the pile object. **Concur.**

The charted snag/stump obstruction in 30° 08’ 53.55”N 089° 31’ 46.80”W was not found during this survey. Recommend removing the obstruction object. **Concur.**

The 8 charted snag/stump obstructions in:

30° 07’ 54.66”N 089° 35’ 45.24”W
30° 07’ 56.67”N 089° 35’ 42.08”W
30° 07’ 52.21”N 089° 35’ 42.61”W
30° 07’ 54.02”N 089° 35’ 40.20”W
30° 07’ 49.75”N 089° 35’ 40.62”W
30° 07’ 52.02”N 089° 35’ 37.47”W
30° 07’ 46.83”N 089° 35’ 41.67”W
30° 07’ 45.46”N 089° 35’ 37.36”W

were not found in their charted position. Five exposed piles were found in:

30° 07” 54.34”N 089° 35’ 39.43”W (Feature 58)
30° 07’ 55.53”N 089° 35’ 38.57”W (Feature 61)
30° 07’ 55.73”N 089° 35’ 37.17”W (Feature 62)
30° 07’ 55.11”N 089° 35’ 36.31”W (Feature 63)
30° 07’ 55.93”N 089° 35’ 34.95”W (Feature 64)

Recommend removing the 8 charted snag/stump objects and adding the five pile objects. **Concur.**

The 2 post piles in 30° 10’ 44.71”N 089° 33’ 14.12”W and 30° 10’ 46.73”N 089° 33’ 15.37”W were not found in their charted positions. Five submerged piles were found in:

30° 10’ 41.80”N 089° 33’ 13.97”W (Feature 66)
30° 10’ 43.04”N 089° 33’ 14.78”W (Feature 67)
30° 10’ 44.08”N 089° 33’ 15.75”W (Feature 68)
30° 10’ 44.80”N 089° 33’ 16.28”W (Feature 69)
30° 10’ 48.44”N 089° 33’ 13.25”W (Feature 70)

Recommend removing the 2 post pile objects and adding the 5 submerged piles. **Concur.**

The charted snag/stump obstruction 30° 09’ 05.50”N 089° 31’ 56.81”W was not found during this survey. Recommend removing the obstruction object. **Concur.**

The charted snag/stump obstruction in 30° 09’ 04.68”N 089° 32’ 08.04”W was not found during this survey. Recommend removing the obstruction object. **Concur.**

The charted snag/stump obstruction in 30° 03’ 33.01”N 089° 40’ 47.85”W was not found during this survey. Recommend removing the obstruction object. **Concur.**

The charted snag/stump obstruction in 30° 09’ 07.53”N 089° 34’ 39.87”W was not found during this survey. Recommend removing the obstruction object. **Concur.**

The charted snag/stump obstruction in 30° 08’ 49.07”N 089° 34’ 59.28”W was not found during this survey. Recommend removing the obstruction object. **Concur.**

The charted snag/stump obstruction in 30° 08’ 48.98”N 089° 34’ 53.31”W was not found during this survey. Recommend removing the obstruction object. **Concur.**

The charted pile in 30° 10’ 47.52”N 089° 33’ 01.80 is from Danger to Navigation Report #5. Recommend removing the pile object and adding a snag/stump obstruction in 30° 10’ 47.47”N 089° 33’ 01.78”W (Feature 14). **Concur.**

The charted pile in 30° 09’ 48.96”N 089° 34’ 03.18”W was not found during this survey. Recommend removing the pile object. **Concur.**

The charted snag/stump obstruction in 30° 06’ 43.55”N 089° 30’ 49.76”W was not found during this survey. Recommend removing obstruction object. **Concur.**

The charted pile in 30° 05’ 31.65”N 089° 36’ 40.55”W was not found during this survey. Recommend removing the pile object. **Concur.**

The charted pier from 30° 10’ 13.88”N 089° 34’ 12.27”W to 30° 10’ 11.08”N 089° 34’ 06.28”W was not found to extend this far from shore. Recommend changing the offshore end to 30° 10’ 13.29”N 089° 34’10.84”W based on the sidescan sonar coverage. **Concur.**

The charted pier from 30° 10’ 15.76”N 089° 34’ 11.07”W to 30° 10’ 12.58”N 089° 34’ 04.89”W was not found to extend this far from shore. Recommend changing the offshore end to 30° 10’ 15.28”N 089° 34’10.11”W based on the sidescan sonar coverage. **Concur.**

The charted submerged obstruction in 30° 04’ 11.99”N 089° 41’ 53.44”W was not found during this survey. Recommend removing submerged obstruction object. **Concur.**

The charted mooring facility dolphin in 30° 03’ 42.91”N 089° 39’ 31.75”W was not found during this survey. Submerged piles were found in 30° 03’ 39.68”N 089° 39’ 33.50”W (Feature 65). Recommend removing the mooring facility dolphin object and adding a submerged pile object in 30° 03’ 39.68”N 089° 39’ 33.50”W. **Concur.**

The charted mooring facility dolphin in 30° 03’ 39.45”N 089° 39’ 06.88”W was not found during this survey. Recommend removing the mooring facility dolphin. **Concur.**

The small charted island (Little Grassy Island) in 30°10’ 21.13”N 089° 31’ 44.12”W was not found during this survey. Recommend removing the coastline object, land area object, and land region object in this location. **Concur.**

The charted offshore platform in 30° 07’ 36.63”N 089° 36’ 25.05”W was not found during this survey. Recommend removing the offshore platform object. **Concur.**

The charted offshore platform in 30° 08’ 08.29”N 089° 37’ 12.32”W is based on Danger to Navigation Report #2. Recommend updating the position to 30° 08’ 08.78”N 089° 37’ 12.52”W (Feature 36). **Concur.**

The charted platform in 30° 08’ 21.97”N 089° 36’ 38.05”W was not found in its charted position. A platform was found in 30° 08’ 22.07”N 089° 36’ 29.85”W (Feature 40). The charted position is based on Danger to Navigation Report #3. Additional survey data collected after the report was submitted resulted in the corrected position. Recommend updating the platform object position to 30° 08’ 22.07”N 089° 36’ 29.85”W. **Concur.**

The charted offshore platform in 30° 07’ 59.04”N 089° 35’ 35.27”W was not found in its charted position during this survey. Two platforms were found in 30° 07’ 56.77”N 089° 35’ 37.60”W (Feature 55) and 30° 07’ 57.46”N 089° 35’ 38.90”W (Feature 56). Recommend removing the offshore platform object and adding the two offshore platform objects in 30° 07’ 56.77”N 089° 35’ 37.60”W and 30° 07’ 57.46”N 089° 35’ 38.90”W. **Concur.**

The charted submerged obstruction in 30° 08’ 06.65”N 089° 37’ 25.21”W is charted based on Danger to Navigation Report #2. The object is an awash pile located in 30° 08’ 06.57”N 089° 37’ 25.21”W (Feature 71). Recommend removing the submerged obstruction object and adding the pile object in 30° 08’ 06.57”N 089° 37’ 25.21”W. **Concur.**

Recommend removing the caution area object in 30° 08’ 59.67” 089° 37’ 16.44”W with the information Shoal Reported 1974. No shoals were found in this area during this survey. **Concur.**

The two charted submerged obstructions charted in 30° 08’ 24.36”N 089° 36’ 43.88”W and 30° 08’24.18”N 089° 36 40.32”W are from Danger to Navigation Report #3. Additional data collected after submittal of the report confirmed that there is only one submerged pile in 30° 08’ 24.12”N 089° 36’ 40.01”W (Feature 12) with an estimated least depth from the sidescan data of 1.94 meters (6 feet). Recommend removing the two submerged obstruction objects and adding a submerged pile object 30° 08’ 24.12”N 089° 36’ 40.01”W. **Concur.**

The charted submerged obstruction in 30° 07’ 17.16”N 089° 34’ 37.50”W is from Danger to Navigation Report #5. These piles (Feature 72) are exposed at low tide. Recommend removing the submerged obstruction object and adding a pile object in 30° 07’ 17.05”N 089° 34’ 37.52”W. **Concur.**

The charted offshore platform in 30° 05’ 39.02”N 089° 39’ 50.07”W was found in 30° 05’ 39.48”N 089° 39’ 50.22”W (Feature 73). Recommend updating the object position to 30° 05’ 39.48”N 089° 39’ 50.22”W. **Concur.**

The charted submerged obstruction with a least depth of 2.1 meters in 30° 05’ 06.48”N 089° 35’ 46.56”W is from Danger to Navigation Report # 4. Recommend updating the position to 30° 05’ 06.49”N 089° 35’ 46.56”W and the value of sounding to 2.3 meters (Feature 5). **Concur.**

The charted submerged obstruction in 30° 10’ 53.30”N 089° 31’ 49.53”W was not found in its charted position. Submerged concrete blocks were found in 30° 10’ 54.32”N 089° 31’ 48.78”W (Feature 77) with a least depth of 2.04 meters (6 feet), determined from the sidescan data. Recommend updating the object position to 30° 10’ 54.32”N 089° 31’ 48.78”W. **Concur.**

The charted depths at the entrance to the Pearl River in 30° 10’ 51.74”N 089° 31’ 29.51”W agree with the surveyed depths. **Concur.**

The charted depths at the entrance to the Rigolets in 30° 09’13.53.86” 089° 37’ 30.50”W agree with the surveyed depths. **Concur.**

Charted depths throughout the main body of Lake Borgne are generally 0.50 meters shoaler than the survey depths. **Concur.**

The charted shoreline has receded and is no longer accurate. Sounding were obtained over charted land, especially along the west side from Shell Point and Unknown Pass and along the north side in the vicinity of Long Point and Redfish Bayou as well as the shoreline west of the entrance to the Pearl River. **Concur. In addition, the shoreline has receded in the southeastern portion of the survey area, along Malheureux Pt – soundings were obtained over charted land.**

The Lake Borgne Daybeacon 14 in 30° 08’ 58.71”N 089° 32’ 40.19”W was not present during this survey. See Section D.1.2 for additional information.

The Lake Borgne Daybeacon 12 in 30° 09’ 07.80”N 089° 31’ 50.64”W was not present during this survey. See Section D.1.2 for additional information.

The Lake Borgne Daybeacon 20 in 30° 08’ 37.00”N 089° 35’ 36.00”W was replaced with a red buoy “20” ” found in 30° 08’ 36.72”N 089° 35’ 35.70”W (Feature 74). See Section D.1.2 for additional information.

The Lake Borgne Daybeacon 19 in 30° 08’ 30.17”N 089° 35’ 40.92”W was replaced with a green buoy “19” found in 30° 08’ 29.64”N 089° 35’ 39.84”W (Feature 75). See Section D.1.2 for additional information.

The special purpose beacon Lake Borgne Range Front Light in 30° 08’ 24.16”N 089° 36’ 39.94”W was not present during this survey. This beacon is not in the 2007 USCG Light List, Volume 4, Gulfport Ship Channel, MS to Lakes Pontchartrain and Maurepas, LA.

The special purpose beacon Lake Borgne Range Rear Light in 30° 08’ 11.59”N 089° 38’ 22.18”W was not present during this survey. This beacon is not in the 2007 USCG Light List, Volume 4, Gulfport Ship Channel, MS to Lakes Pontchartrain and Maurepas, LA.

Uncharted Wrecks and Obstructions

No uncharted wrecks were found in H11612. Table D-3 lists other S-57 objects in H11612 that are not on ENC US4MS10M, 1/80,000 scale.

Table D-3. S-57 Objects Found in H11612 not on ENC US4MS10M

Feature Number	Feature Position (NAD83)		Least Depth Meters (Feet)	Uncertainty (Meters)	Object
	Latitude (N)	Longitude (W)			
1	30° 08’ 38.52”	089° 36’ 54.16”	4.00 (13)	N/A	OBSTN **Do not concur – 13 ft sounding is insignificant amongst surrounding soundings. LD designated, AHB recommends no further action.**
2	30° 04’ 10.01”	089° 29’ 37.91”	2.27 (7)	N/A	OBSTN **Do not concur – 7 ft sounding is insignificant amongst surrounding soundings.**
3	30° 06’ 44.18”	089° 36’ 46.79”	2.28 (7)	N/A	OBSTN **Do not concur – obstr is far from channel and only 1 ft off bottom.**
4	30° 07’ 57.39”	089° 37’ 20.70”			PLATFORM
6	30° 09’ 41.51”	089° 33’ 38.58”	2.29 (7)	N/A	OBSTN **Do not concur – feature is less than 0.5 ft off bottom, insignificant amongst surrounding soundings.**
7	30° 09’ 20.89”	089° 31’ 29.78”	1.29 (4)	0.459	OBSTN **Concur – submitted as DtoN by AHB on 03JUL2008.**

Feature Number	Feature Position (NAD83)		Least Depth Meters (Feet)	Uncertainty (Meters)	Object
	Latitude (N)	Longitude (W)			
8	30° 08’ 28.70”	089° 35’ 37.63”	3.72 (12)	N/A	OBSTN **Do not concur – 12 ft sounding not significant amongst surrounding depths, and 12 ft is project depth for the Intracoastal Waterway.**
9	30° 08’ 29.26”	089° 35’ 50.23”	3.88 (12)	N/A	OBSTN **Concur.**
10	30° 10’ 56.71”	089° 31’ 25.78”	3.50 (11)	N/A	OBSTN **Do not concur – obstr is less than 1 ft off bottom and insignificant amongst surrounding depths. LD sounding designated, AHB recommends no further action.**
11*	30° 09’ 45.46”	089° 33’ 37.48”	1.37 (4)	N/A	OBSTN **Concur. 4 ft sounding (deemed from SSS) is very significant amongst surrounding soundings, and since LD cannot be designated, recommend charting obstr.**
13*	30° 08’ 23.22”	089° 30’ 47.87”	3.28 (11)	N/A	OBSTN **Do not concur – 11 ft sounding (deemed from SSS) is far from channel and not significant amongst surrounding soundings.**
15*	30° 09’ 14.79”	089° 37’ 23.38”	13.27	N/A	OBSTN **Do not concur – insignificant.**
16*	30° 09’ 20.14”	089° 37’ 41.05”	13.41 (44)	N/A	OBSTN **Do not concur – 44 ft sounding (deemed from SSS) is far from channel and not significant amongst surrounding soundings).**

Feature Number	Feature Position (NAD83)		Least Depth Meters (Feet)	Uncertainty (Meters)	Object
	Latitude (N)	Longitude (W)			
17*	30° 08’ 27.00”	089° 31’ 48.07”	2.45 (8)	N/A	OBSTN **Do not concur – 8 ft sounding (deemed from SSS) is far from channel and not significant amongst surrounding soundings).**
18*	30° 11’ 11.26”	089° 31’ 33.52”	6.20 (20)	N/A	OBSTN **Concur.**
20*	30° 08’ 39.42”	089° 36’ 53.89”	3.93 (13)	N/A	OBSTN **Do not concur – insignificant.**
21*	30° 08’ 27.99”	089° 32’ 37.65”	2.20 (7)	N/A	OBSTN **Concur.**
22*	30° 09’ 17.51”	089° 37’ 33.77 “	14.17 (46)	N/A	OBSTN **Do not concur – insignificant.**
23*	30° 06’ 27.62”	089° 31’ 36.92”	2.37 (8)	N/A	OBSTN **Concur. Sounding (deemed from SSS) is significant amongst surrounding depths.**
24*	30° 08’ 47.51”	089° 37’ 07.64”	3.87 (12)	N/A	OBSTN **Concur. 12 ft sounding (deemed from SSS) is in close proximity to channel.**
25*	30° 09’ 18.61”	089° 37’ 15.50”	2.84 (9)	N/A	OBSTN **Do not concur – insignificant amongst surrounding soundings.**
26*	30° 09’ 25.84”	089° 37’ 31.50”	2.67 (9)	N/A	OBSTN **Do not concur – insignificant amongst surrounding soundings.**
27*	30° 09’ 25.39”	089° 37’ 37.77”	3.99 (13)	N/A	OBSTN **Concur, 13 ft significant in this area.**
28*	30° 09’ 23.76”	089° 37’ 39.37”	10.46 (34)	N/A	OBSTN **Do not concur – insignificant amongst surrounding soundings.**
29*	30° 09’ 21.81”	089° 37’ 43.47”	9.89 (32)	N/A	OBSTN **Do not concur – insignificant amongst surrounding soundings.**

Feature Number	Feature Position (NAD83)		Least Depth Meters (Feet)	Uncertainty (Meters)	Object
	Latitude (N)	Longitude (W)			
30*	30° 09’ 21.81”	089° 37’ 43.47”	12.91 (42)	N/A	OBSTN **Do not concur – insignificant amongst surrounding soundings.**
31*	30° 09’ 14.85”	089° 37’ 52.56”	4.58 (15)	N/A	OBSTN **Concur. 15 ft sounding (deemed from SSS) is significant amongst surrounding soundings and is in close proximity to channel.**
32*	30° 09’ 16.69”	089° 37’ 47.74”	5.58(18)	N/A	OBSTN **Concur.**
33	30° 08’ 09.64”	089° 37’ 13.48”			PILE
34	30° 08’ 09.08”	089° 37’ 12.44”			OBSTN **Concur, but should be “Pile”, not “OBSTN”.**
37*	30° 05’ 52.57”	089° 37’ 05.05”	2.21 (7)	N/A	OBSTN **Do not concur – insignificant amongst surrounding soundings.**
38*	30° 09’ 06.81”	089° 36’ 40.72”	1.69 (5)	N/A	OBSTN **Concur. 5 ft sounding (deemed from SSS) is significant amongst surrounding soundings and is in close proximity to channel.**
39*	30° 08’ 12.19”	089° 32’ 11.48”	2.67 (9)	N/A	OBSTN **Do not concur – insignificant amongst surrounding soundings.**
42*	30° 06’ 19.49”	089° 36’ 09.40”	2.37 (8)	N/A	OBSTN **Do not concur – insignificant amongst surrounding soundings.**
43*	30° 09’ 05.12”	089° 36’ 19.52”	1.57 (5)	N/A	OBSTN **Do not concur – 5 ft sounding (deemed from SSS) is insignificant amongst surrounding soundings.**
57	30° 07’ 54.81”	089° 35’ 35.92”			OBSTN **Concur.**

* Found by sidescan sonar only, least depth estimated from sidescan data.

Recommend that the chart be updated with the results of this survey.

D.1.1 AWOIS Item Investigations

There were no AWOIS investigations assigned for H11612. However, all charted wrecks, rocks and obstructions were to be verified during main-scheme survey operations and a 2nd 100% coverage for a radius of 100 meters around the charted position was required to verify or disprove the item.

The Statement of Work states that the 50 most significant items for the survey be investigated (SAIC assumed 50 per sheet). On H11612, 50 items were deemed significant and investigated. This methodology was discussed with the COTR prior to item investigations being performed. See Appendix V Supplemental Survey Records and Correspondence for more information.

D.1.2 Navigational Aids

Table D-4 lists the found navigational aids within the H11612 survey bounds that are listed on the USCG Light List, Volume 4, Gulfport Ship Channel, MS to Lakes Pontchartrain and Maurepas, LA.

Table D-4. Aids to Navigation

Name	Confirmed Position (NAD83)		Feature Number
	Latitude (N)	Longitude (W)	
Fl G 4s 17ft 4M “21”	30° 08’ 39.67”N	089° 36’ 54.11”W	19
Fl G 4s 17ft 4M “15”	30° 08’ 44.74”N	089° 33’ 35.33”W	52
Fl G 4s 17ft 5M “11”	30° 09’ 00.98”N	089° 31’ 48.38”W	44
Fl R 4s 17ft 3M “8” Ra Ref	30° 11’ 00.33”N	089° 31’ 28.10”W	49
Fl G 6s 17ft 4M “7A” Ra Ref	30° 10’ 58.23”N	089° 31’ 39.03”W	54
Fl G 4s 17ft 4M “1” Ra Ref	30° 09’ 20.97”N	089° 31’ 29.69”W	76
G “19”	30° 08’ 29.16”N	089° 35’ 49.08”W	75
Q R 17ft 3M “WR2” Ra Ref	30° 06’ 37.17”N	089° 30’ 44.44”W	59
R “20”	30° 08’ 36.72”N	089° 35’ 35.70”W	74
R “18” Ra Ref	30° 08’ 42.16”N	089° 34’ 36.09”W	41
R “16” Ra Ref	30° 08’ 50.77”N	089° 33’ 34.19”W	50
G “23” Ra Ref	30° 08’ 42.97”N	089° 37’ 21.29”W	53
G “7”	30° 09’ 10.01”N	089° 31’ 05.40”W	45
G “7” Ra Ref	30° 10’ 20.57”N	089° 31’ 26.03”W	48
G “5” Ra Ref	30° 09’ 52.89”N	089° 31’ 27.69”W	47
G “3” Ra Ref	30° 09’ 37.30”N	089° 31’ 29.12”W	46

The following charted navigational aids were not found during this survey:

- Daybeacon (33040) R "14" Ra Ref. This beacon was listed as Missing in the USCG District 8 Weekly Notice to Mariners Week 01/06, 4 January 2006.
- Daybeacon (33035) R "12" Ra Ref. This beacon was listed as Missing in the USCG District 8 Weekly Notice to Mariners Week 01/06, 4 January 2006.

Daybeacon (33070) Fl G 4s 17ft 4M "21" (Feature 19) was found to be damaged and slightly submerged. This beacon was listed as Missing in the USCG District 8 Weekly Notice to Mariners Week 01/06, 4 January 2006. The beacon is listed as TRLB (Temporarily Replaced by Lighted Buoy) in the USCG District 8 Weekly Notice to Mariners Week 32/07, 8 August 2007.

Daybeacon (33065) R "20" Ra Ref was replaced by Buoy R"20" (Feature 74). This beacon was listed as Missing/TRUB (Temporarily Replaced by Unlighted Buoy in the USCG District 8 Weekly Notice to Mariners Week 01/06, 4 January 2006.

Daybeacon (33060) Q G 17ft 4M "19" was replaced by buoy G"19" (Feature 75). This beacon was listed as Missing in the USCG District 8 Weekly Notice to Mariners Week 01/06, 4 January 2006. The beacon was listed as TRLB (Temporarily Replaced by Lighted Buoy in the USCG District 8 Weekly Notice to Mariners Week 01/07, 3 January 2007.

D.1.3 Danger to Navigation Reports

Five Dangers to Navigation Reports were submitted during this survey and can be found in Appendix I.

D.2 Additional Results

Comparison with prior surveys was not required under this task order. See Section 4.1 for comparison to the nautical charts.

E. APPROVAL SHEET

18 January 2008

LETTER OF APPROVAL

REGISTRY NUMBER: H11612

This report and the accompanying digital data for project S-J977-KR-SAIC, Lake Borgne, Louisiana are respectfully submitted.

Field operations and data processing contributing to the accomplishment of this survey, H11612, were conducted under supervision of myself and lead hydrographer Paul L. Donaldson with frequent personal checks of progress and adequacy. This Descriptive Report, digital data, and all accompanying records are approved and are submitted as complete and adequate in compliance with the Statement of Work.

Reports previously submitted to NOAA for this project include:

Report	Submission Date
Data Acquisition and Processing Report, SAIC Doc 07-TR-005	09 November 2007
Descriptive Report H11613	09 November 2007

Reports concurrently submitted to NOAA for this project include:

Report	Submission Date
Data Acquisition and Processing Report, SAIC Doc 07-TR-005	18 January 2008

This report replaces the Data Acquisition and Processing Report submitted on 09 November 2007.

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

Gary R. Davis
Chief Hydrographer
Science Applications International Corporation
Friday, 18 January 2008

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

REPORT OF DANGERS TO NAVIGATION H11612 #1

Hydrographic Survey Registry Number: H11612
Survey Title: State: Louisiana
Locality: Lake Borgne
Sub-locality: North

Project Number: OPR-S-J977-KR-SAIC

Field Unit: Science Applications International Corporation (SAIC)

Survey Date: January 23, 2007 and On Going

Depths are reduced to Mean High Water using *preliminary* water levels and *Preliminary Tidal Zoning*. Positions are referenced from USCG DGPS beacon and horizontal datum is North America Datum 83 (NAD83).

Charts affected:

- 11367_1 34th Edition August 1, 2006 1:40,000 scale, Corrected through NM 01/20/07
  Corrected through LNM 01/16/07
- 11371_1 37th Edition October 10, 2004 1:40,000 scale, Corrected through NM 01/20/07
  Corrected through LNM 01/16/07

ENC affected:
US4MS10M 2nd Edition Chart 11371 Lake Borgne and Approaches Cat Island to Point Aux Herbes
Update Application Date: 12/06/06 Issue Date: 01/18/07

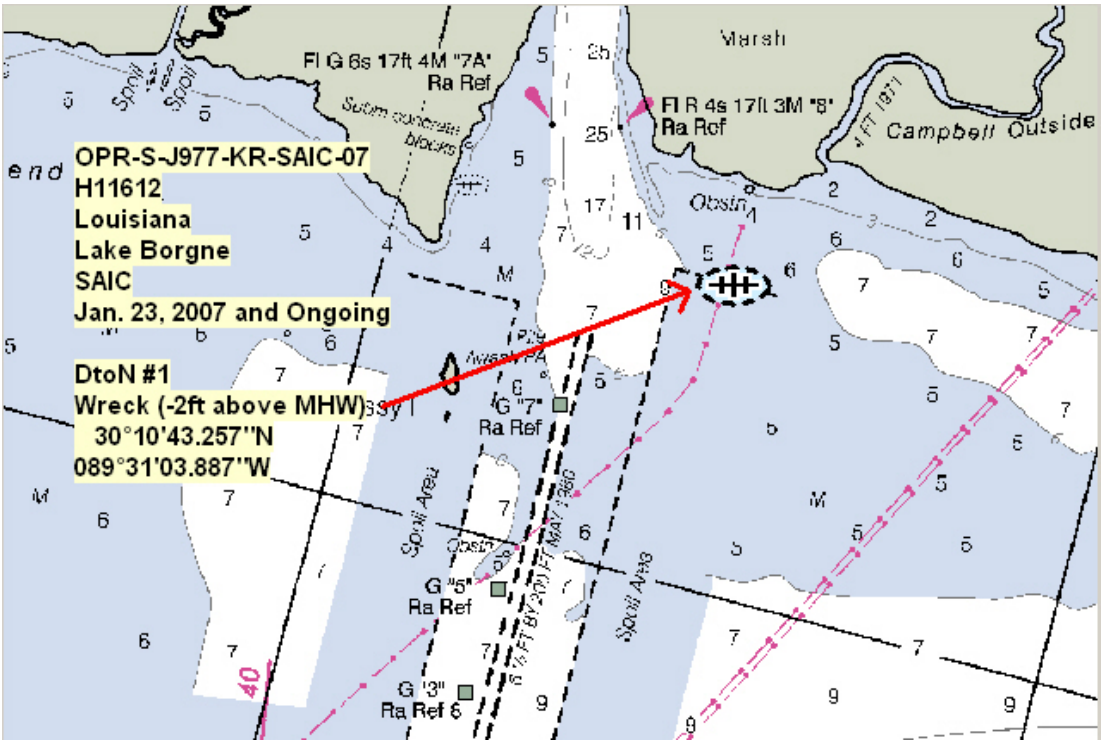
The following item was found during hydrographic survey operations:

DANGERS TO NAVIGATION #1

	Feature	Depth (FT)	Latitude (N)	Longitude (W)
1.1	Wreck (baring)	-2.0	30°10’43.257”	089°31’03.887”

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


01/23/2007 17:50


OPR-S-J977-KR-SAIC-07
H11612
Louisiana
Lake Borgne
SAIC
Jan. 23, 2007 and Ongoing
DtoN #1
Wreck (-2ft above MHW)
30°10'43.257"N
089°31'03.887"W
Fl G 6s 17ft 4M "7A"
Ra Ref
Fl R 4s 17ft 3M "8"
Ra Ref
Marsh
Campbell Outside
Spoil Area
G "7"
Ra Ref
G "5"
Ra Ref
G "3"
Ra Ref 6

REPORT OF DANGERS TO NAVIGATION H11612 #2

Registry Number: H11612
State: Louisiana
Locality: Lake Borgne
Sub-locality: North
Project Number: OPR-S-J977-KR-SAIC
Survey Date: 02/01/2007

Charts Affected

Number	Version	Date	Scale
11367	34th Ed.	08/01/2006	1:40000
11371	37th Ed.	10/01/2004	1:80000
11366	10th Ed.	05/01/2006	1:250000
1116A	71st Ed.	09/01/2006	1:458596
11340	71st Ed.	09/01/2006	1:458596
11006	32nd Ed.	08/01/2005	1:875000
411	51st Ed.	12/01/2006	1:2160000

Features

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	DtoN2 Obstn (pile awash) reported	GP	-0.30 m	030° 08' 06.650" N	89° 37' 25.207" W	---
1.2	DtoN2 Platform	GP	[None]	030° 08' 08.288" N	89° 37' 12.316" W	---

1.1) DtoN2 Obstn (pile awash) reported

DANGER TO NAVIGATION

Survey Summary

Survey Position: 030° 08' 06.650" N, 89° 37' 25.207" W

Least Depth: -0.30 m

Timestamp: 2007-032.21:32:00.000 (02/01/2007)

GP Dataset: H11612_dtoN#2_Pydro_import.txt

GP No.: 1

Charts Affected: 11367_1, 11371_1, 11366_1, 1116A_1, 11340_1, 11006_1, 411_1

Remarks:

The feature is reported and submitted as an uncharted dangerous visible obstruction (pile awash).

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11612_dtoN#2_Pydro_import.txt	1	0.00	000.0	Primary

Hydrographer Recommendations

Chart a dangerous obstruction (reported) -1 ft (awash)(MLLW) at the given location.

Cartographically-Rounded Depth (Affected Charts):
-1ft (11367_1, 11371_1)
0fm (1116A_1, 11340_1, 11006_1, 411_1)
0fm 1ft (11366_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: CONDTN - 2:ruined

NATCON - 6:wooden

OBJNAM - Dangerous obstruction (pile awash)

QUASOU - 8,9:value reported (not surveyed),value reported (not confirmed)

RECDAT - 20070201

SORDAT - 20070201

SORIND - US,US,SAIC,H11612

TECSOU - 2:found by side scan sonar

VALSOU - -0.3048 m

VERDAT - 12:Mean lower low water

WATLEV - 5:awash

Office Notes

Danger submission is preliminary. No data have been submitted nor verified by AHB. Data will be verified once the survey has been submitted to AHB.

Comment [s1]:

Figure 1 Photograph of awash piling within H11612

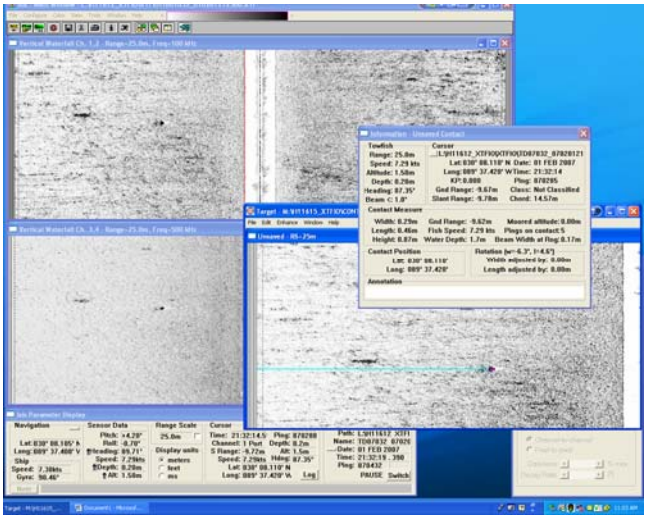


Figure 3 Side scan image of awash piling located within H11612

1.2) DtoN2 Platform

DANGER TO NAVIGATION

Survey Summary

Survey Position: 030° 08' 08.288" N, 89° 37' 12.316" W

Least Depth: [None]

Timestamp: 2007-032.17:13:00.000 (02/01/2007)

GP Dataset: H11612_dtoN#2_Pydro_import.txt

GP No.: 3

Charts Affected: 11367_1, 11371_1, 11366_1, 1116A_1, 11340_1, 11006_1, 411_1

Remarks:

The feature is reported and submitted as a visible platform.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11612_dtoN#2_Pydro_import.txt	3	0.00	000.0	Primary

Hydrographer Recommendations

Chart object as a "platform" in the given location.

S-57 Data

Geo object 1: Offshore platform (OFSPLF)

Attributes:

CATOFP - 2:production platform

CONVIS - 1:visual conspicuous

NATCON - 7:metal

OBJNAM - Oil platform structure

RECDAT - 20070201

SORDAT - 20070201

SORIND - US,US,SAIC,H11612

VERDAT - 12:Mean lower low water

Office Notes

Danger submission is preliminary. No data have been submitted nor verified by AHB. Data will be verified once the survey has been submitted to AHB.

Comment [s2]:

Figure 2 Photograph of platform within H11612.

Figure 4 Side scan image of submerged piling and platform located within H11612

REPORT OF DANGERS TO NAVIGATION H11612 #3

Registry Number: H11612

State: Louisiana

Locality: Lake Borgne

Sub-locality: North

Project Number: OPR-S-J977-KR-SAIC

Survey Date: 03/09/2007

Charts Affected

Number	Version	Date	Scale
11367	34th Ed.	08/01/2006	1:40000
11371	37th Ed.	10/01/2004	1:80000
11366	10th Ed.	05/01/2006	1:250000
1116A	71st Ed.	09/01/2006	1:458596
11340	71st Ed.	09/01/2006	1:458596
11006	32nd Ed.	08/01/2005	1:875000
411	51st Ed.	12/01/2006	1:2160000

Features

No	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Submerged_piling_1	GP	0.61 m	030° 08' 24.362" N	89° 36' 43.882" W	---
1.2	Submerged_piling_2	GP	0.61 m	030° 08' 24.180" N	89° 36' 40.320" W	---
1.3	Platform	GP	[None]	030° 08' 21.969" N	89° 36' 38.053" W	---

1 – DtoNs

1.1) Submerged_piling_1

DANGER TO NAVIGATION

Survey Summary

Survey Position: 030° 08' 24.362" N, 89° 36' 43.882" W

Least Depth: 0.61 m

Timestamp: 2007-068.00:00:00.000 (03/09/2007)

GP Dataset: H11612_dtn3.txt

GP No.: 1

Charts Affected: 11367_1, 11371_1, 11366_1, 1116A_1, 11340_1, 11006_1, 411_1

Remarks:

Field unit located a dangerous submerged pile; no bathy or sounding data has been acquired at this time. Submerged pile's geographic location sources the processed side scan sonar data. Feature should be submitted as DtoN#3 and applied to chart as "reported".

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11612_dtn3.txt	1	0.00	000.0	Primary

Hydrographer Recommendations

Chart dangerous submerged pile(reported) in Latitude 30°08'24.362"N, Longitude 089°36'43.882"W. Submit as Danger to Navigation to Marine Chart Division, Nautical Data Branch.

Cartographically-Rounded Depth (Affected Charts):

2ft (11367_1, 11371_1)

0 ¼fm (1116A_1, 11340_1, 11006_1, 411_1)

0fm 2ft (11366_1)

S-57 Data

Geo object 1: Pile (PILPNT)

Attributes: CATPLE - 3:post

CONVIS - 2:not visual conspicuous

HEIGHT - 0.61 m

INFORM - Submerged Pile (Reported); the feature has not been developed for least depths at the time of Danger submission.

OBJNAM - Submerged Piling

RECDAT-

20070312

SORDAT-

20070309

SORIND - US,US,SAIC,H11612

Office Notes

Danger submission is preliminary. No data have been submitted nor verified by AHB. Data will be verified once the survey has been submitted to AHB.

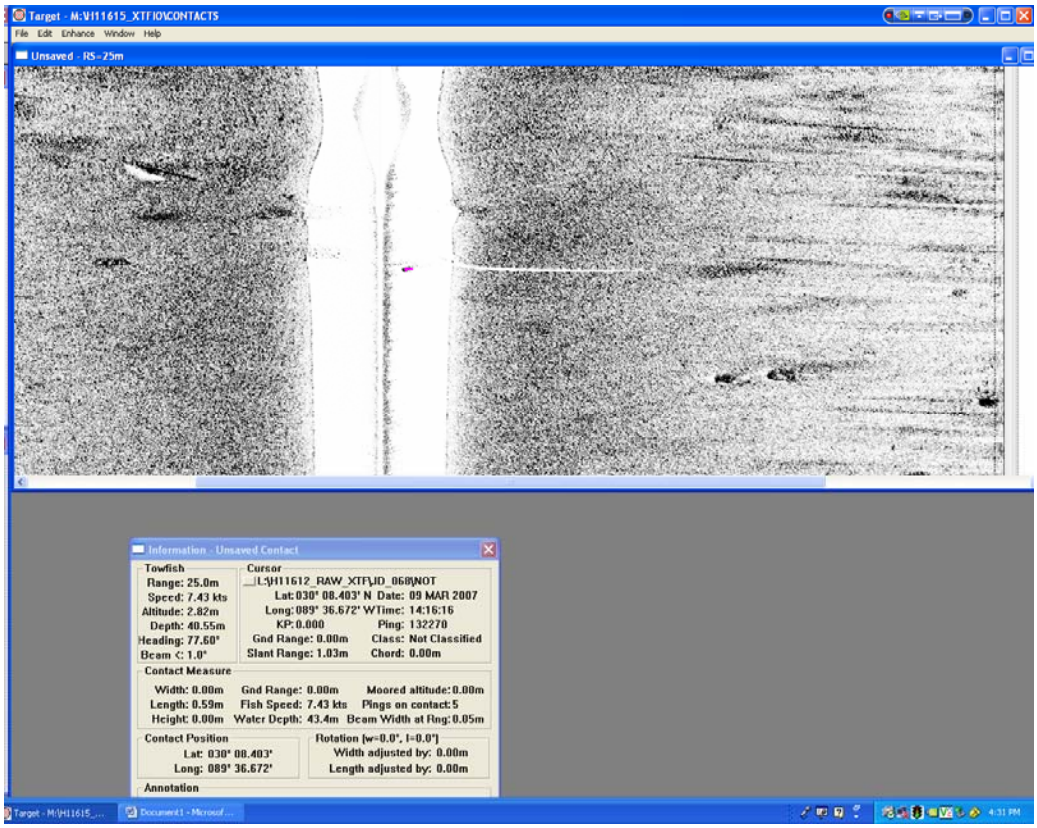


Figure 2 Side scan image of submerged piling located within H11612.

1.2) Submerged_piling_2

DANGER TO NAVIGATION

Survey Summary

Survey Position: 030° 08' 24.180" N, 89° 36' 40.320" W

Least Depth: 0.61 m

Timestamp: 2007-068.00:00:00.000 (03/09/2007)

GP Dataset: H11612_dtn3.txt

GP No.: 2

Charts Affected: 11367_1, 11371_1, 11366_1, 1116A_1, 11340_1, 11006_1, 411_1

Remarks:

Field unit located dangerous submerged pile; no bathy or sounding data has been acquired at this time. Submerged pile's geographic location sources the processed side scan sonar data. Feature should be submitted as DtoN#3 and applied to chart as "reported".

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11612_dtn3.txt	2	0.00	000.0	Primary

Hydrographer Recommendations

Chart dangerous submerged pile (reported) at given location. Submit as Danger to Navigation to Marine Chart Division, Nautical Data Branch.

Cartographically-Rounded Depth (Affected Charts):

2ft (11367_1, 11371_1)

0 ¼fm (1116A_1, 11340_1, 11006_1, 411_1)

0fm 2ft (11366_1)

S-57 Data

Geo object 1: Pile (PILPNT)

Attributes: CATPLE - 3:post

CONVIS - 2:not visual conspicuous

HEIGHT - .61 m

INFORM - Submerged Pile (Reported); the feature has not been developed for least depths at the time of Danger submission.

OBJNAM - Submerged Piling

RECDAT-
20070312

SORDAT-
20070309

SORIND - US,US,SAIC,H11612

Office Notes

Danger submission is preliminary. No data have been submitted nor verified by AHB. Data will be verified once the survey has been submitted to AHB.

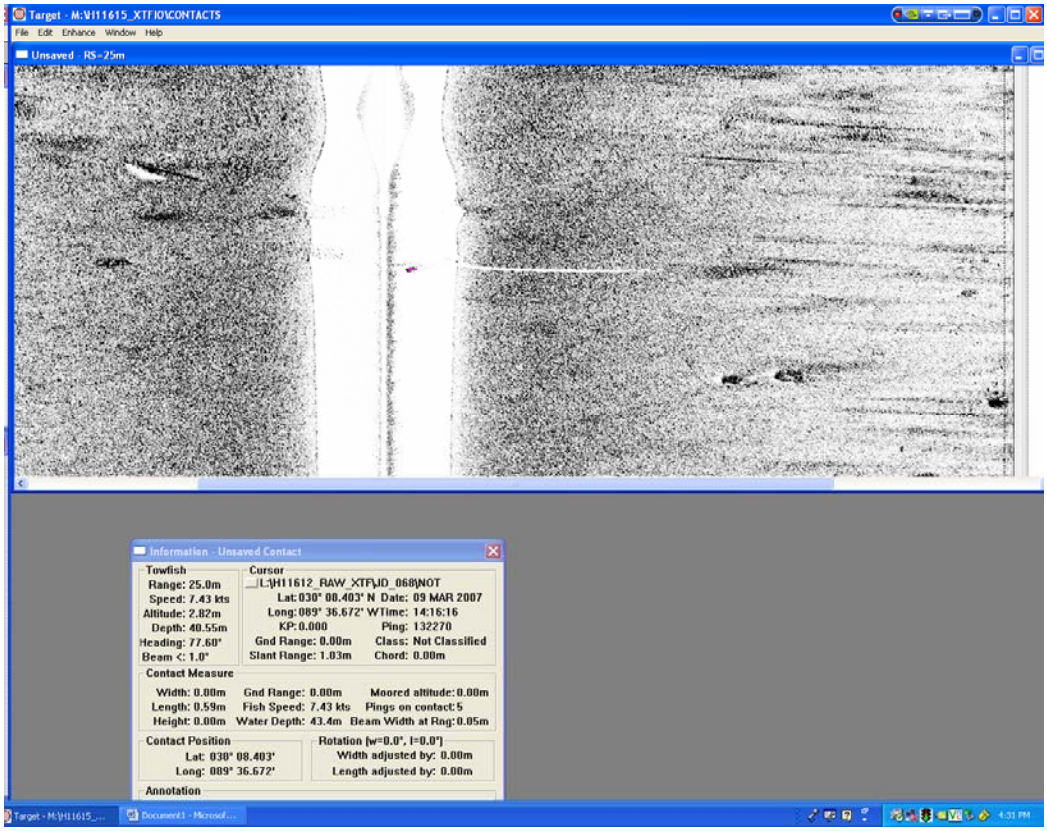


Figure 2. Side scan image of submerged piling located within H11612.

1.3) Platform

DANGER TO NAVIGATION

Survey Summary

Survey Position: 030° 08' 21.969" N, 89° 36' 38.053" W
Least Depth: [None]
Timestamp: 2007-068.00:00:00.000 (03/09/2007)
GP Dataset: H11612_dtn3.txt
GP No.: 3
Charts Affected: 11367_1, 11371_1, 11366_1, 1116A_1, 11340_1, 11006_1, 411_1
Remarks:
[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11612_dtn3.txt	3	0.00	000.0	Primary

Hydrographer Recommendations

Chart a platform at the given location and label "Platform".

S-57 Data

Geo object 1: Offshore platform (OFSPLF)
Attributes: CATOFP - 2:production platform
CONVIS - 1:visual conspicuous
NATCON - 7:metal
OBJNAM - Platform
RECDAT - 20070312
SORDAT - 20070309
SORIND - US,US,SAIC,H11612
STATUS - 1:permanent
VERDAT - 12:Mean lower low water

Office Notes

Danger submission is preliminary. No data have been submitted nor verified by AHB. Data will be verified once the survey has been submitted to AHB.

Figure 1. Photograph of platform within H11612.

REPORT OF DANGERS TO NAVIGATION H11612 #4

Registry Number: H11612

State: Louisiana

Locality: Lake Borgne

Sub-locality: North

Project Number: OPR-S-J977-KR-SAIC

Survey Date: 03/25/2007

Charts Affected

Number	Version	Date	Scale
11371	37th Ed.	10/01/2004	1:80000
11366	10th Ed.	05/01/2006	1:250000
1116A	71st Ed.	09/01/2006	1:458596
11340	71st Ed.	09/01/2006	1:458596
11006	32nd Ed.	08/01/2005	1:875000
411	51st Ed.	12/01/2006	1:2160000

Features

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	DtoN 4	GP	2.21 m	30° 05’ 06.485”N	089° 35’ 46.559”W	---

1 - Dangers to Navigation

1.1) DtoN 4

DANGER TO NAVIGATION

Survey Summary

Survey Position: 030° 05' 06.485" N, 89° 35' 46.559" W

Least Depth: 2.21 m

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

GP Dataset: H11612_dtn4.txt

GP No.: 1

Charts Affected: 11371_1, 11366_1, 1116A_1, 11340_1, 11006_1, 411_1

Remarks:

Field unit located a submerged obstruction with measured depth of 2.21 meters (7.25 ft) below MLLW. The obstruction measures approximately 14 meters (45 feet) in length and 2 meters (7 feet) wide and rises 1.1 meters
(3.6 feet) above the seafloor.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11612_dtn4.txt	1	0.00	000.0	Primary

Hydrographer Recommendations

Chart DtoN #4 as a dangerous submerged obstruction with a depth of 7 feet below MLLW at the submitted location.

Cartographically-Rounded Depth (Affected Charts):

7ft (11371_1)

1 ¼fm (1116A_1, 11340_1, 11006_1, 411_1)

1fm 1ft (11366_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 8,9:value reported (not surveyed),value reported (not confirmed)

SORDAT - 20070325

SORIND - US,US,surve,H11612

TECSOU - 1,2:found by echo-sounder,found by side scan sonar

VALSOU - 2.21 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

No data has been provided to AHB for verification. Feature will be reviewed and verified once the survey data hasbeen submitted. This Danger submission is preliminary and has been reviewed based upon the submitted documentation.

Feature Images

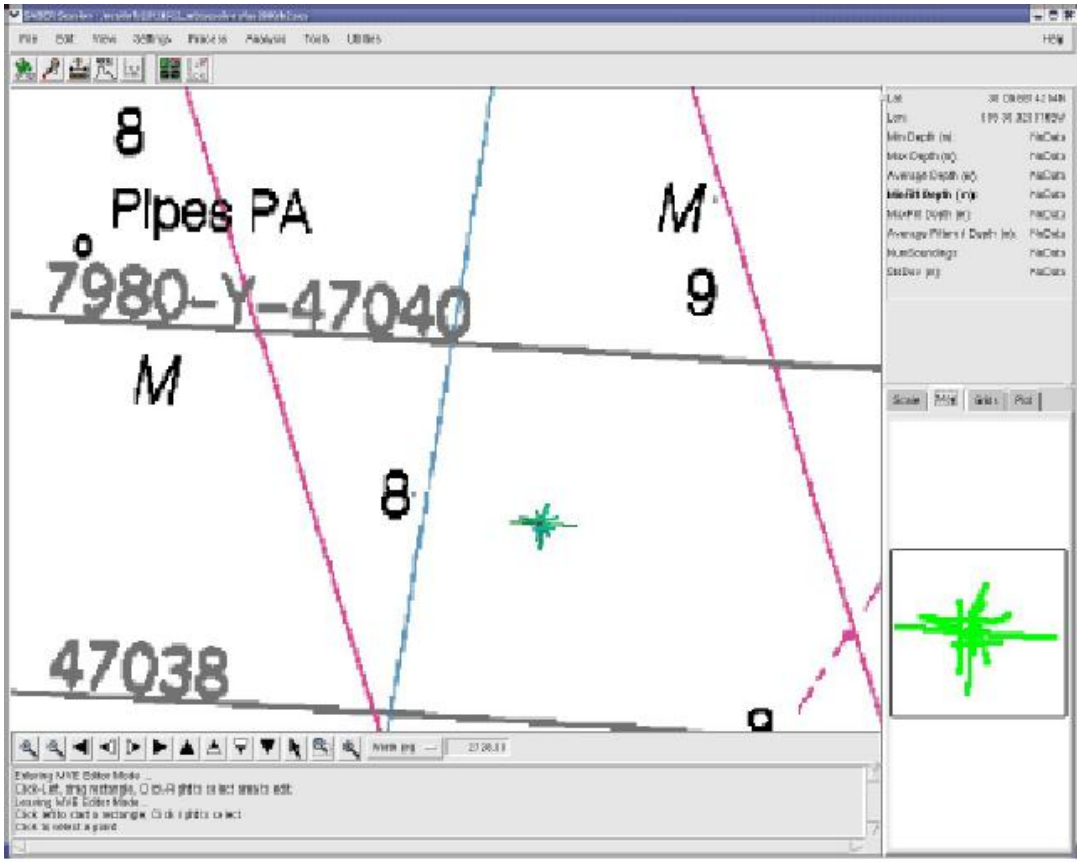


Figure 1.1.1

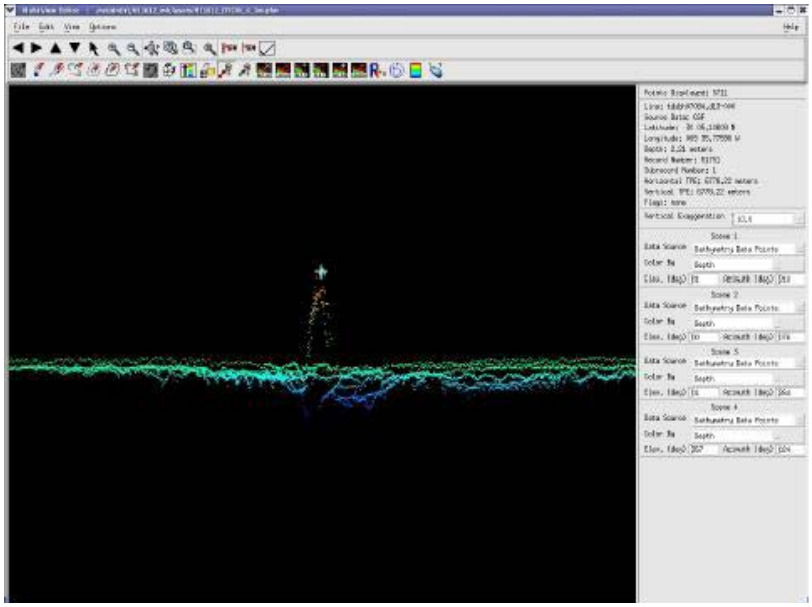


Figure 1.1.2

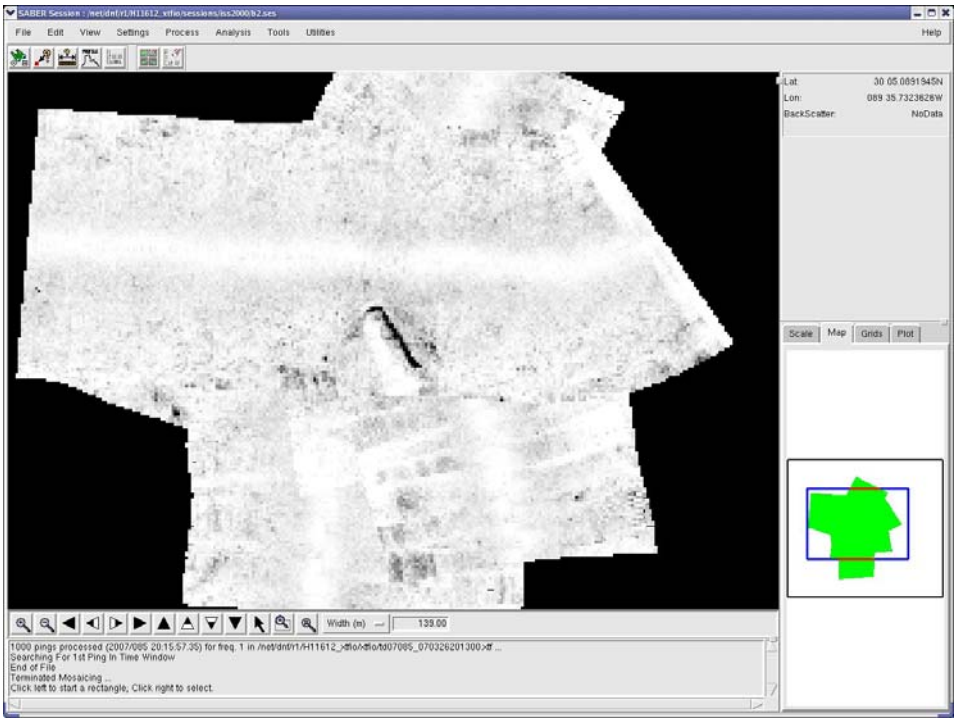


Figure 1.1.3

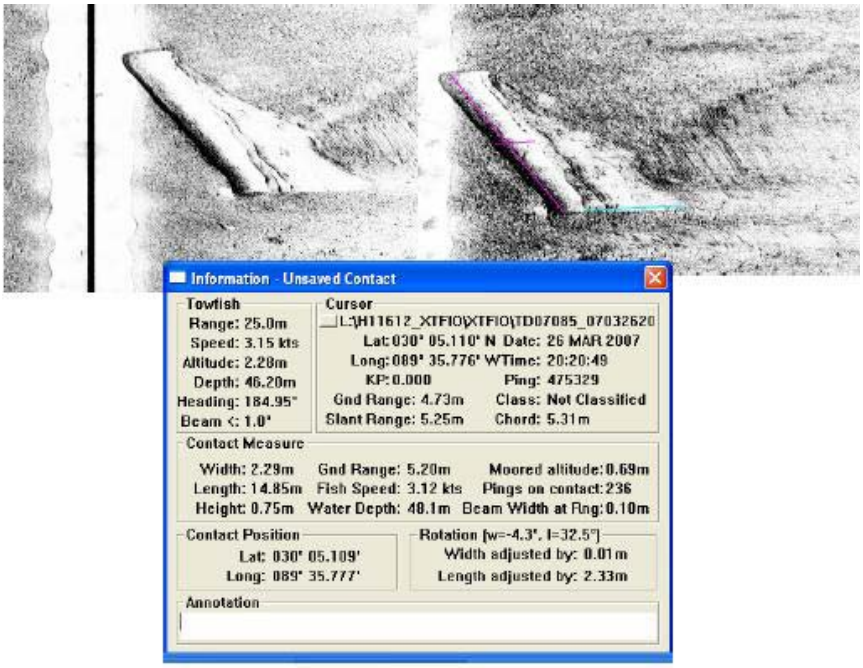


Figure 4. Side scan target file of obstruction located within H11612.

Figure 1.1.4

Danger to Navigation Report 5

Hydrographic Survey Registry Number: H11612

State: Louisiana

Locality: Lake Borgne

Sublocality: North

Project Number: S-J977-KR-SAIC

Survey Date: 2 June 2007

The following items were found during hydrographic survey operations:

Exposed Obstruction (exposed 1 feet)

Chart Number	Edition		Exposed Height (HW)	Charted Horiz. Datum	Geographic Position	
	No.	Date			Latitude	Longitude
11367	34	1/08/06	6 feet	NAD 83	30° 10.792'N	089° 33.030'W
11371	37	1/10/04				

Awash Piling

Chart Number	Edition		Exposed Height (HW)	Charted Horiz. Datum	Geographic Position	
	No.	Date			Latitude	Longitude
11367	34	1/08/06	1 feet	NAD 83	30° 07.286'N	089° 34.625'W
11371	37	1/10/04				

RECOMMENDATIONS:
Chart a snag (K43.2) in 30° 10.792'N 089° 33.030'W (NAD 83) and label "Snag".

Chart submerged pilings (K43.1) in 30° 07.286'N 089° 34.625'W (NAD 83) and label "Subm Piles".

Figure 1 Photograph of exposed snag (tree) within H11612.

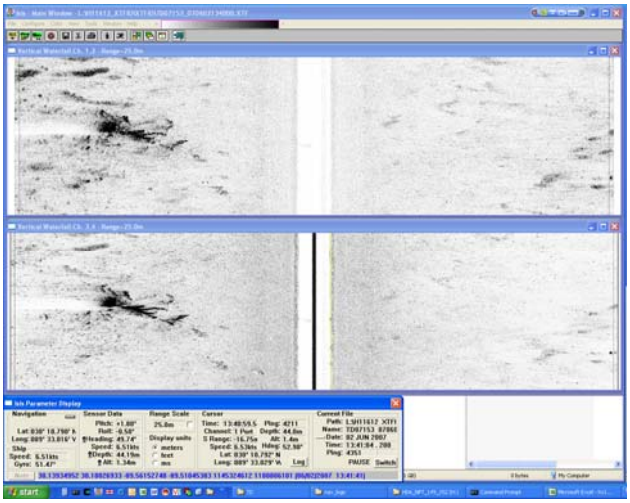


Figure 2 Side scan image of exposed snag (tree) located within H11612.

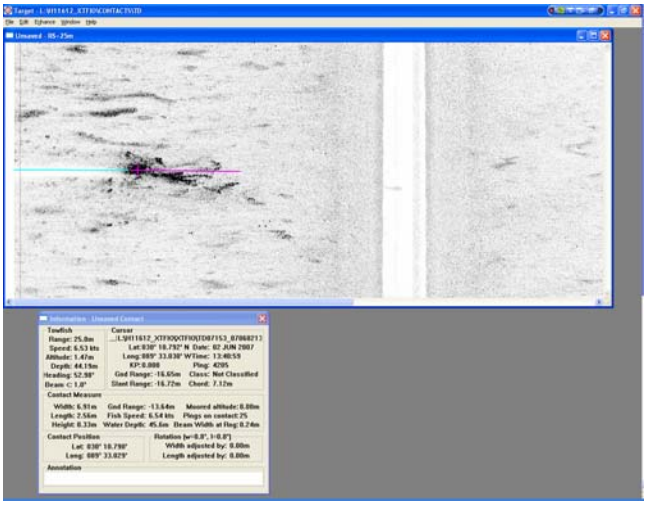


Figure 3 Side scan image of exposed snag (tree) located within H11612.

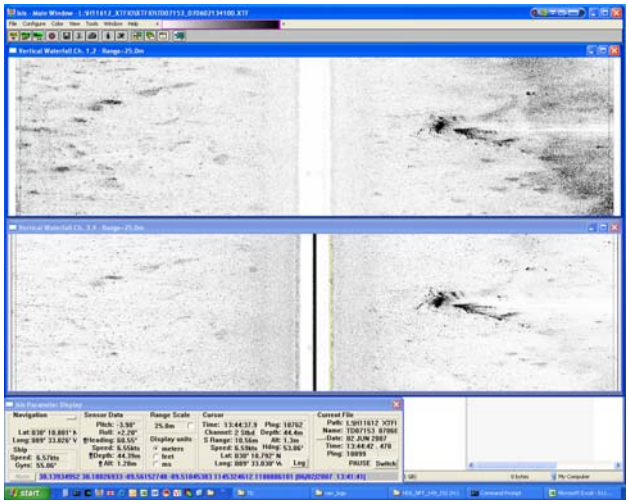


Figure 4 Side scan image of exposed snag (tree) located within H11612.

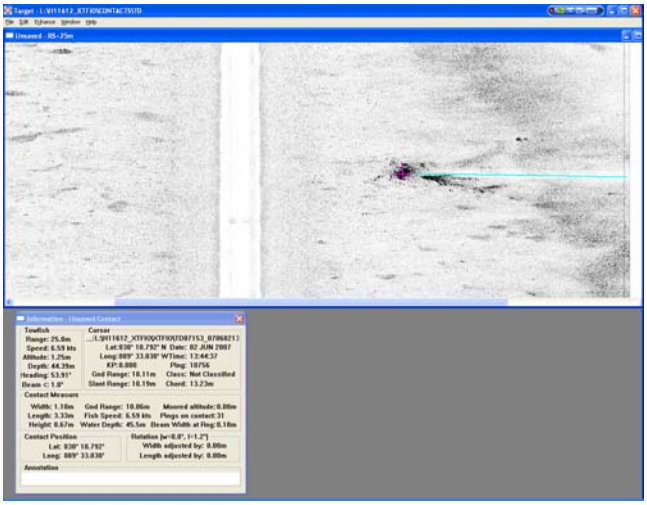


Figure 5 Side scan image of exposed snag (tree) located within H11612.

Figure 6 Photograph of awash Pilings within H11612.

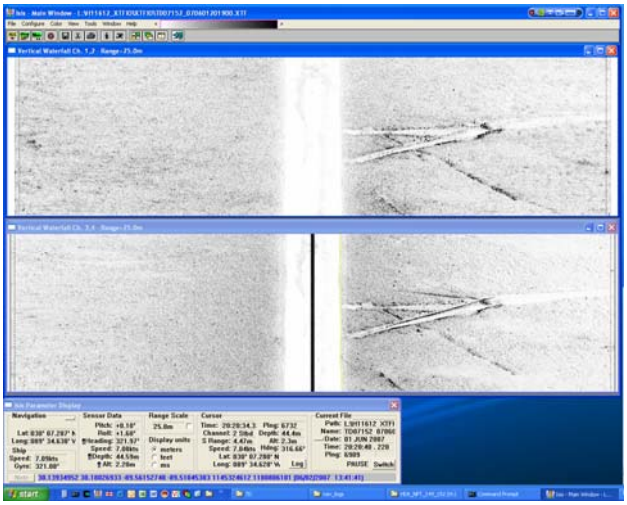


Figure 7 Side scan image of awash pilings located within H11612.

Figure 8 Side scan image of awash pilings located within H11612.

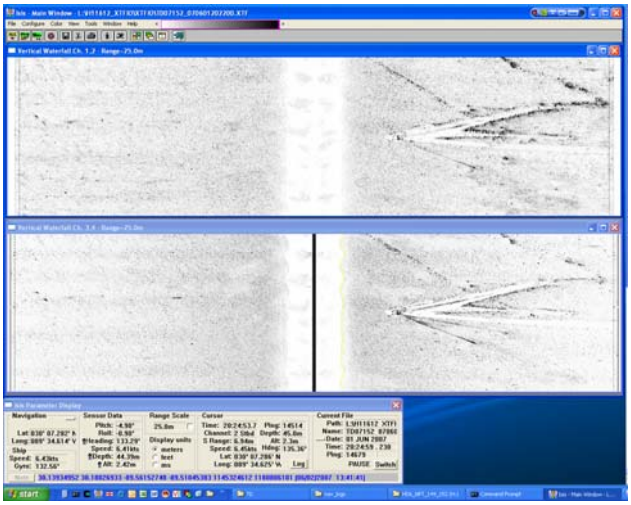


Figure 9 Side scan image of awash pilings located within H11612.

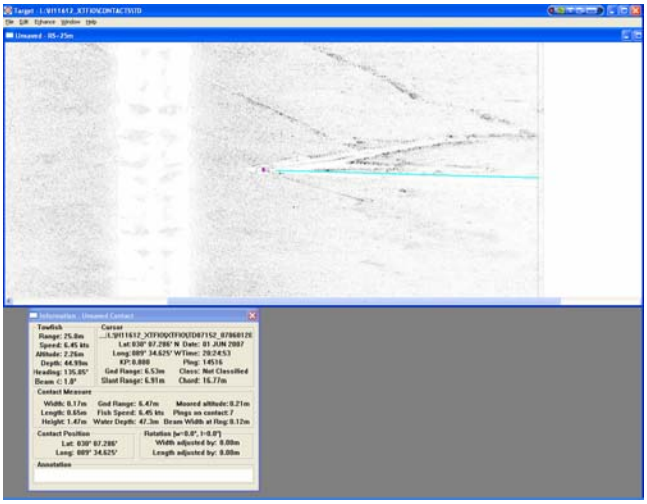


Figure 10 Side scan image of awash pilings located within H11612.

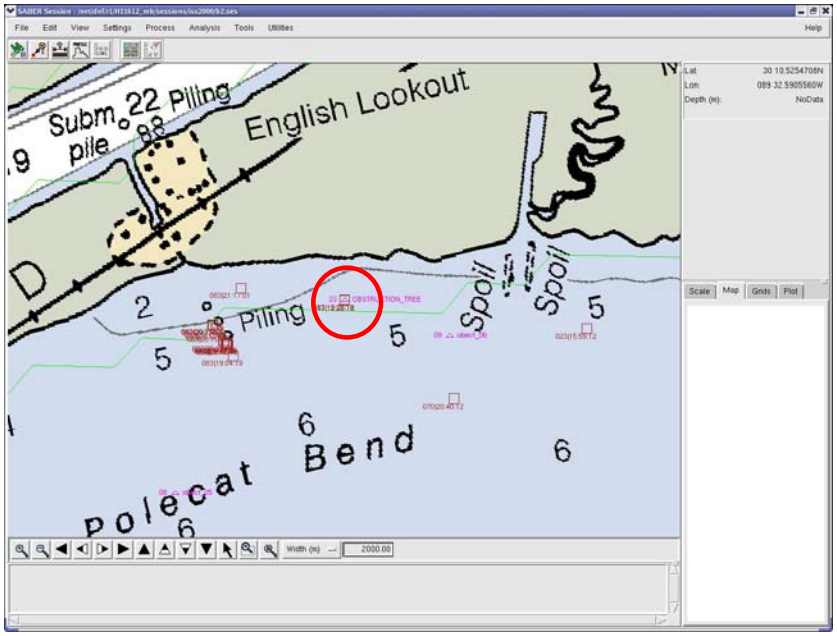


Figure 11 Chart 11367 showing location of exposed snag (tree) within H11612.

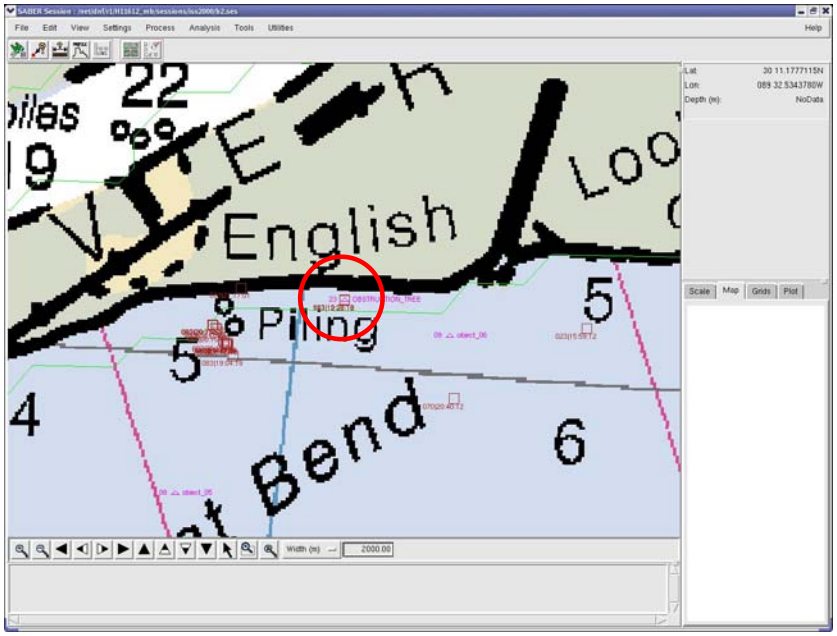


Figure 12 Chart 11371 showing location exposed sang (tree) within H11612.

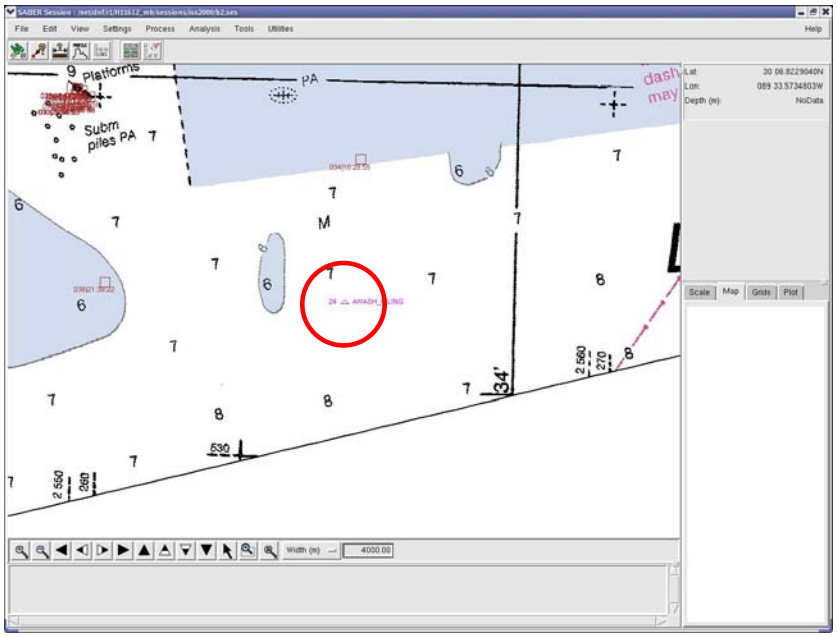


Figure 13 Chart 11367 showing location of awash pilings within H11612.

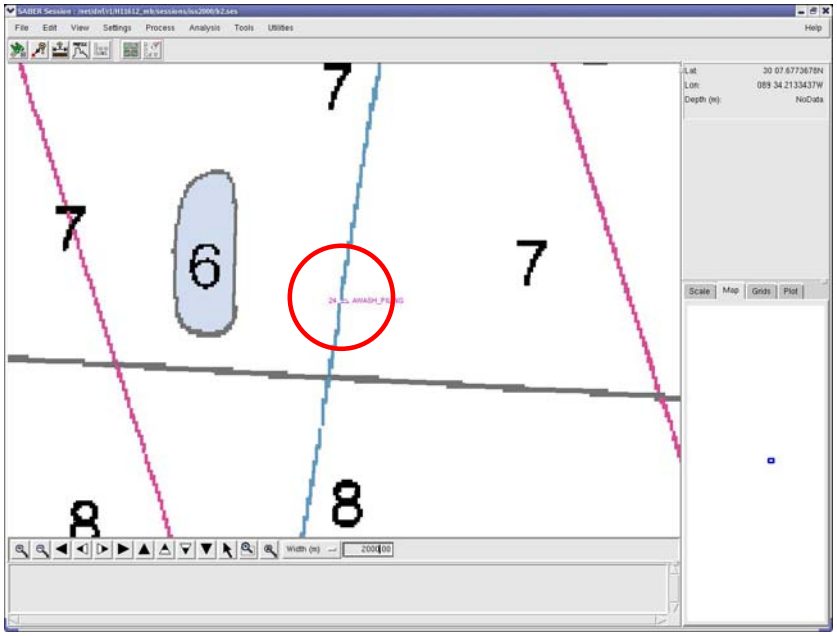


Figure 14 Chart 11367 showing location of awash pilings within H11612.

APPENDIX II. SURVEY FEATURE REPORT

This survey feature report consists of 79 files, including:

- One excel spreadsheet and one corresponding PDF file, titled *H11612_Bathymetry_Feature_List.xls*, describing all bathymetry features that can be observed in the S-57 feature file,
- One excel spreadsheet and one corresponding PDF file, titled *H11612_Side_Scan_Contacts_List.xls*, describing all side scan contacts identified on H11612.
- Seventy Seven PDF files containing feature correlator sheets, listed below:

H11612_F01.pdf	H11612_F27.pdf	H11612_F53.pdf
H11612_F02.pdf	H11612_F28.pdf	H11612_F54.pdf
H11612_F03.pdf	H11612_F29.pdf	H11612_F55.pdf
H11612_F04.pdf	H11612_F30.pdf	H11612_F56.pdf
H11612_F05.pdf	H11612_F31.pdf	H11612_F57.pdf
H11612_F06.pdf	H11612_F32.pdf	H11612_F58.pdf
H11612_F07.pdf	H11612_F33.pdf	H11612_F59.pdf
H11612_F08.pdf	H11612_F34.pdf	H11612_F60.pdf
H11612_F09.pdf	H11612_F35.pdf	H11612_F61.pdf
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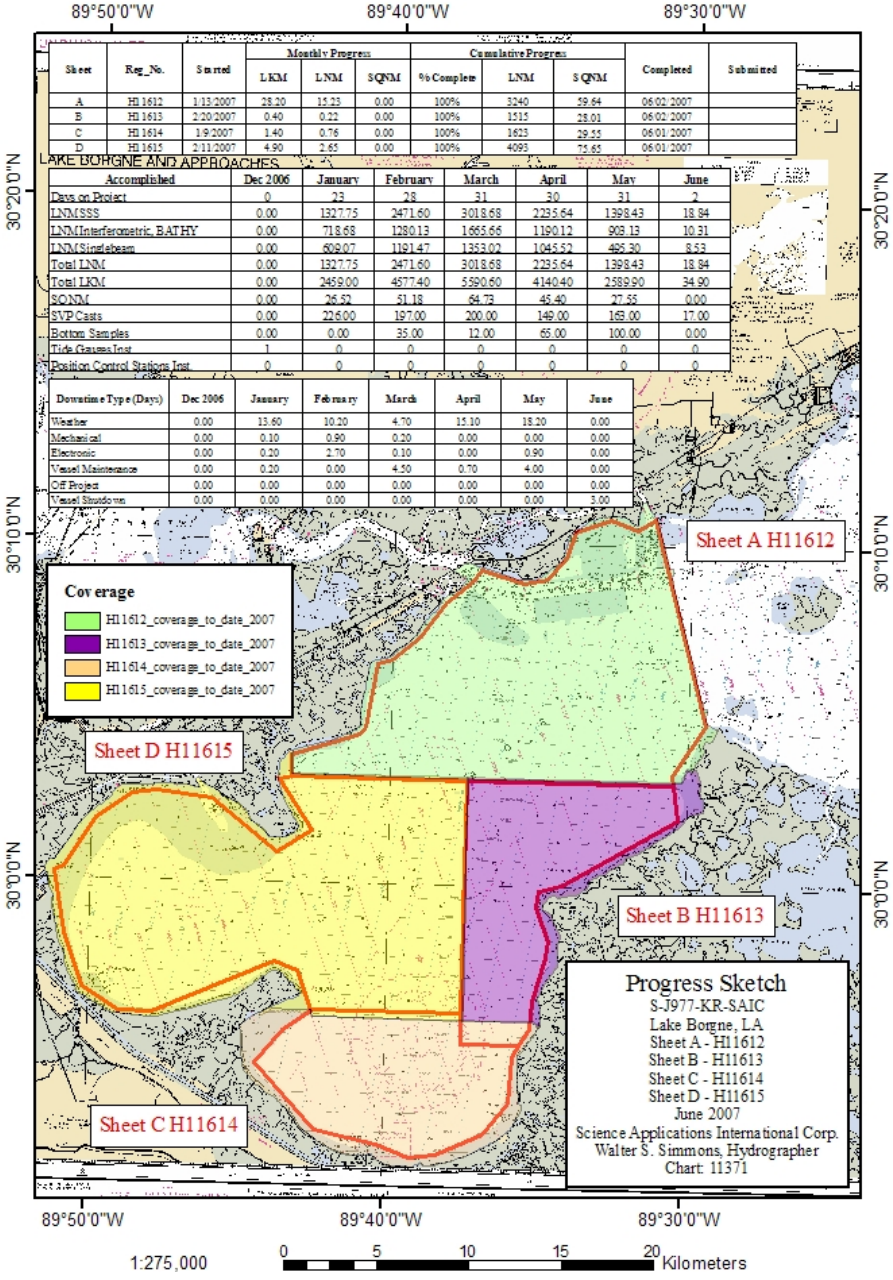
H11612_F22.pdf	H11612_F48.pdf	H11612_F74.pdf
H11612_F23.pdf	H11612_F49.pdf	H11612_F75.pdf
H11612_F24.pdf	H11612_F50.pdf	H11612_F76.pdf
H11612_F25.pdf	H11612_F51.pdf	H11612_F77.pdf
H11612_F26.pdf	H11612_F52.pdf	

APPENDIX III. FINAL PROGRESS SKETCH AND SURVEY OUTLINE



Sheet	Reg_No.	Started	Monthly Progress LKM	LNM	SQNM	Cumulative Progress %Complete	LNM	SQNM	Completed	Submitted
A	HI 1612	1/13/2007	28.20	15.23	0.00	100%	3240	59.64	06/02/2007	
B	HI 1613	2/20/2007	0.40	0.22	0.00	100%	1515	28.01	06/02/2007	
C	HI 1614	1/9/2007	1.40	0.76	0.00	100%	1623	29.55	06/01/2007	
D	HI 1615	2/11/2007	4.90	2.65	0.00	100%	4093	75.65	06/01/2007	

Accomplished	Dec 2006	January	February	March	April	May	June
Days on Project	0	23	28	31	30	31	2
LNM SSS	0.00	1327.75	2471.60	3018.68	2235.64	1398.43	18.84
LNM Interferometric, BATHY	0.00	718.68	1280.13	1665.66	1190.12	908.13	10.31
LNM Singlebeam	0.00	609.07	1191.47	1353.02	1045.52	495.30	8.53
Total LNM	0.00	1327.75	2471.60	3018.68	2235.64	1398.43	18.84
Total LKM	0.00	2459.00	4577.40	5590.60	4140.40	2589.90	34.90
SQNM	0.00	26.52	51.18	64.73	45.40	27.55	0.00
SVP Casts	0.00	226.00	197.00	200.00	149.00	169.00	17.00
Bottom Samples	0.00	0.00	35.00	12.00	65.00	100.00	0.00
Tide Gauges Inst	1	0	0	0	0	0	0
Position Control Stations Inst	0	0	0	0	0	0	0

Downtime Type (Days)	Dec 2006	January	February	March	April	May	June
Weather	0.00	13.60	10.20	4.70	15.10	18.20	0.00
Mechanical	0.00	0.10	0.90	0.20	0.00	0.00	0.00
Electronic	0.00	0.20	2.70	0.10	0.00	0.90	0.00
Vessel Maintenance	0.00	0.20	0.00	4.50	0.70	4.00	0.00
Off Project	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vessel Shutdown	0.00	0.00	0.00	0.00	0.00	0.00	3.00

Figure App. III-1. Final Progress Sketch

The Survey Outline for H11612 was delivered to the COTR, on 13 June 2007 in file H11612_H11613_H11614_H11615_Survey_outline.zip. The WinZip file contained four DXF format survey outlines (one for each sheet) in lat/lon format for import into MapInfo. The Sheet H11612 survey outline is part of this delivery in file H11612_Survey_Outline_lat_long.dxf (Figure App. III-2).

Figure App. III-2. Survey Outline for H11612

APPENDIX IV. TIDES AND WATER LEVELS

The on-line times for acquisition of valid hydrographic data are presented in Table App. IV-1. H11612 Abstract Times of Hydrography.

Project: S-J977-KR-SAIC
Registry No.: H11612
Contractor Name: Science Applications International Corporation
Date: 02 June 2007
Sheet Letter: A
Inclusive Dates: 13 January 2007 – 02 June 2007

Field work is complete.

Table App. IV-1. H11612 Abstract Times of Hydrography

Begin Julian Day	Begin Date	Begin Time	End Time
013	13-January-2007	15:39:17	22:54:29
014	14-January-2007	15:27:18	23:08:29
015	15-January-2007	14:20:04	23:06:02
018	18-January-2007	14:35:11	22:56:18
019	19-January-2007	15:07:13	16:29:51
022	20-January-2007	13:59:48	22:43:05
023	23-January-2007	14:10:16	22:40:36
024	24-January-2007	14:43:54	23:19:55
025	25-January-2007	13:37:36	23:24:07
026	26-January-2007	14:47:53	23:14:51
027	27-January-2007	15:17:40	17:39:01
029	29-January-2007	14:00:25	22:10:39
030	30-January-2007	14:13:05	23:09:04
032	1-February-2007	13:47:09	23:12:52
033	2-February-2007	14:26:12	23:16:48
034	3-February-2007	14:17:03	23:22:26
035	4-February-2007	15:00:16	23:23:24
036	5-February-2007	13:19:59	15:48:28
037	6-February-2007	13:47:40	15:42:07
038	7-February-2007	13:31:06	23:29:49
039	8-February-2007	14:26:29	23:12:00
040	9-February-2007	13:37:06	23:14:59
043	12-February-2007	15:27:46	18:07:43
050	19-February-2007	13:24:27	23:15:59
051	20-February-2007	13:07:01	23:23:57
052	21-February-2007	13:11:21	23:26:27
053	22-February-2007	13:18:48	23:11:48
054	23-February-2007	13:55:45	17:32:30
055	24-February-2007	13:37:05	14:30:22
056	25-February-2007	13:37:04	16:46:58

Begin Julian Day	Begin Date	Begin Time	End Time
057	26-February-2007	13:27:56	23:24:09
058	27-February-2007	12:59:34	23:18:25
059	28-February-2007	12:58:53	17:46:11
064	5-March-2007	13:14:10	14:13:10
066	7-March-2007	13:03:46	20:05:46
068	9-March-2007	13:13:26	14:06:13
069	10-March-2007	20:08:12	23:31:05
070	11-March-2007	12:26:42	22:12:03
072	13-March-2007	21:37:46	22:20:10
077	18-March-2007	15:56:42	22:03:39
083	24-March-2007	12:32:00	22:29:46
084	25-March-2007	13:13:18	22:25:29
085	26-March-2007	13:08:25	22:23:56
087	28-March-2007	12:42:37	22:05:34
088	29-March-2007	12:27:46	17:51:12
091	1-April-2007	11:51:53	17:00:19
092	2-April-2007	15:00:53	21:53:53
093	3-April-2007	12:46:23	21:49:54
107	17-April-2007	11:51:51	22:13:48
113	23-April-2007	17:44:36	18:44:18
114	24-April-2007	18:33:47	22:25:16
116	26-April-2007	14:32:32	22:22:04
117	27-April-2007	12:25:56	15:08:06
118	28-April-2007	18:40:29	22:25:46
119	29-April-2007	12:17:20	22:20:44
120	30-April-2007	14:25:56	22:00:39
121	1-May-2007	12:43:06	21:47:53
122	2-May-2007	12:36:41	22:03:32
123	3-May-2007	14:44:28	22:18:13
124	4-May-2007	12:42:38	17:27:12
126	6-May-2007	18:37:49	22:22:51
128	8-May-2007	12:22:43	22:42:48
132	12-May-2007	13:41:44	21:34:17
133	13-May-2007	12:58:06	21:00:35
134	14-May-2007	12:54:20	18:34:32
135	15-May-2007	12:33:02	17:42:05
139	19-May-2007	21:23:18	21:58:39
140	20-May-2007	11:59:15	22:26:56
141	21-May-2007	12:01:25	22:31:05
142	22-May-2007	12:22:15	21:15:57
145	25-May-2007	12:41:30	14:21:46
146	26-May-2007	11:50:48	19:21:15
147	27-May-2007	12:14:30	21:52:44
148	28-May-2007	12:08:34	21:52:16
149	29-May-2007	12:56:37	16:59:15
151	31-May-2007	22:01:57	22:41:10
152	1-June-2007	12:38:54	22:02:51
153	2-June-2007	11:41:41	15:38:04

Final Tide Note

Subordinate tide station 8761529 (Martello Castle, LA) was the source of verified water level heights for corrections to soundings. 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.

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APPENDIX V. SUPPLEMENTAL SURVEY RECORDS & CORRESPONDENCE

This appendix contains four sections. The first section contains the Danger to Navigation Reports as originally delivered. The second section contains five email correspondences, the third section contains the bottom composition results, and the fourth section contains text files which list the nodes from the two Bathymetric Attributed Grids that exceed uncertainties for IHO Order 1 uncertainty.

Danger to Navigation Reports

Danger to Navigation Report 1

Hydrographic Survey Registry Number: H11612

State: Louisiana

Locality: Lake Borgne

Sublocality: North

Project Number: S-J977-KR-SAIC

Survey Date: 23 January 2007

The following item was found during hydrographic survey operations:

Exposed Wreck (2 feet at High Water)

Chart Number	Edition		Exposed Height (HW)	Charted Horiz. Datum	Geographic Position	
	No.	Date			Latitude	Longitude
11367	34	1/08/06	2 foot	NAD 83	30° 10.72095’ N	089° 31.06479’ W
11371	37	1/10/04				

RECOMMENDATIONS:
Chart a wreck showing masts above chart datum (K25) with danger circle in
30° 10.72095’ N 089° 31.06479’ W

Figure 15. Photograph of wreck showing exposed masts within H11612.

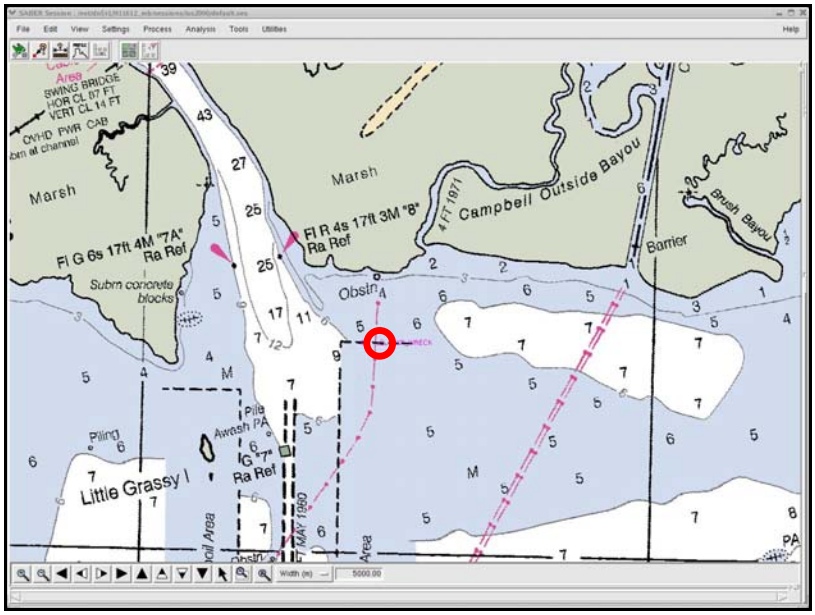


Figure 16. Chart 11367 showing location of wreck showing exposed masts located within H11612.

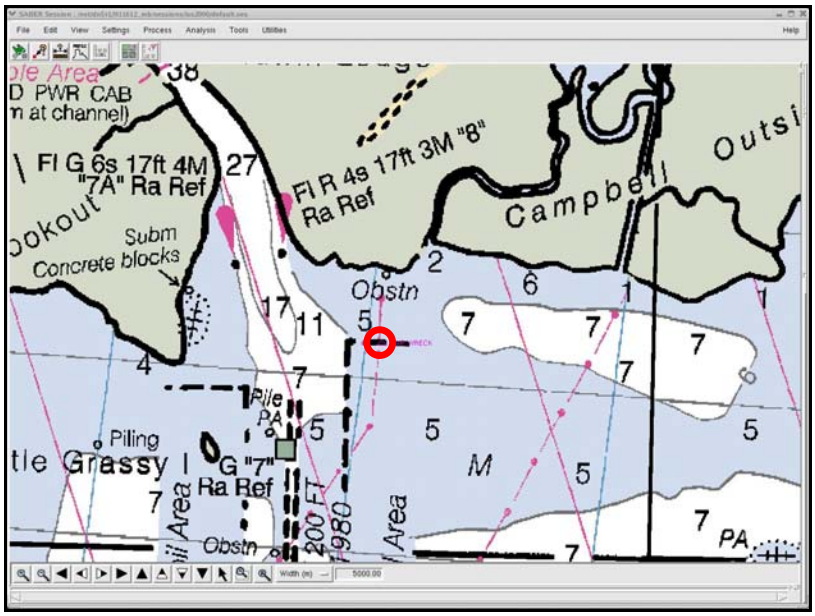


Figure 17. Chart 11371 showing location of wreck showing exposed masts located within H11612.

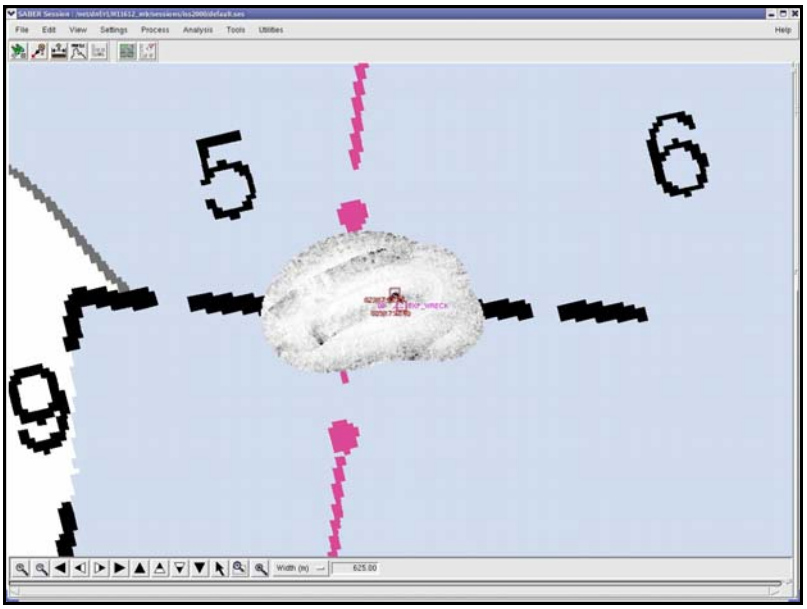


Figure 18. Side scan mosaic of wreck showing exposed masts located within H11612.

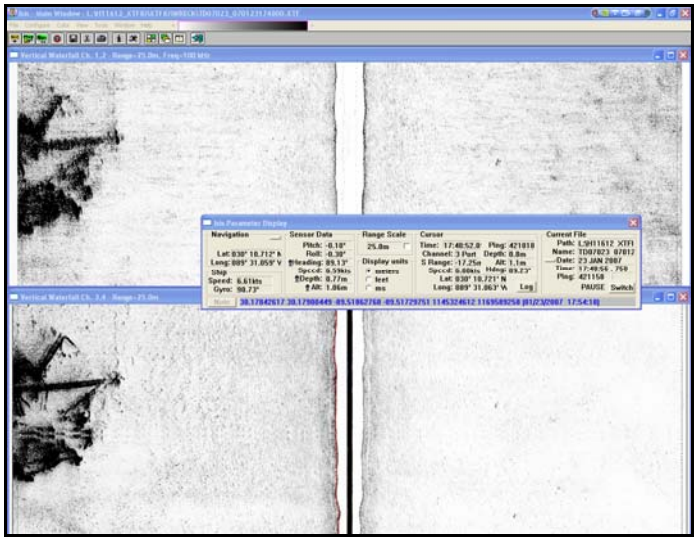


Figure 19. Side scan image of wreck showing exposed masts located within H11612.

Danger to Navigation Report 2

Hydrographic Survey Registry Number: H11612

State: Louisiana

Locality: Lake Borgne

Sublocality: North

Project Number: S-J977-KR-SAIC

Survey Date: 1 February 2007

The following items were found during hydrographic survey operations:

Awash Piling (exposed 1 foot)

Chart Number	Edition		Exposed Height (HW)	Charted Horiz. Datum	Geographic Position	
	No.	Date			Latitude	Longitude
11367	34	1/08/06	1 foot	NAD 83	30° 08’ 06.650”N	089° 37’ 25.207”W
11371	37	1/10/04				

Submerged Piling

Chart Number	Edition		Estimated Depth feet (MLLW)	Charted Horiz. Datum	Geographic Position	
	No.	Date			Latitude	Longitude
11367	34	1/08/06	2 feet	NAD 83	30° 08’ 09.090”N	089° 37’ 12.480”W
11371	37	1/10/04				

Oil Platform

Chart Number	Edition		Charted Horiz. Datum	Geographic Position	
	No.	Date		Latitude	Longitude
11367	34	1/08/06	NAD 83	30° 08’ 08.288”N	089° 37’ 12.316”W
11371	37	1/10/04			

These items are located adjacent to a charted obstruction in 30° 08’ 10.006”N 089° 37’ 09.583”W (NAD 83)

RECOMMENDATIONS:
Chart 11367: Remove the charted obstruction in 30° 08’ 09.46”N 089° 37’ 11.97”W (NAD 83), and label “Obstn”.

Chart 11371: Remove the charted obstruction in 30° 08’ 10.006”N 089° 37’ 09.583”W (NAD 83), danger circle and label “Obstn PA”.

Chart exposed piling in 30° 08’ 06.650”N 089° 37’ 25.207”W (NAD 83) (NAD 83) label “Pile exposed 1 foot”.

Chart submerged piling (K43.1) in 30° 08’ 09.090”N 089° 37’ 12.480”W (NAD 83) and label “Subm Pile”.

Chart a platform (L10) in 30° 08’ 08.288”N 089° 37’ 12.316”W (NAD 83) and label “Platform”.

Figure 20 Photograph of awash piling within H11612.

Figure 21 Photograph of platform within H11612.

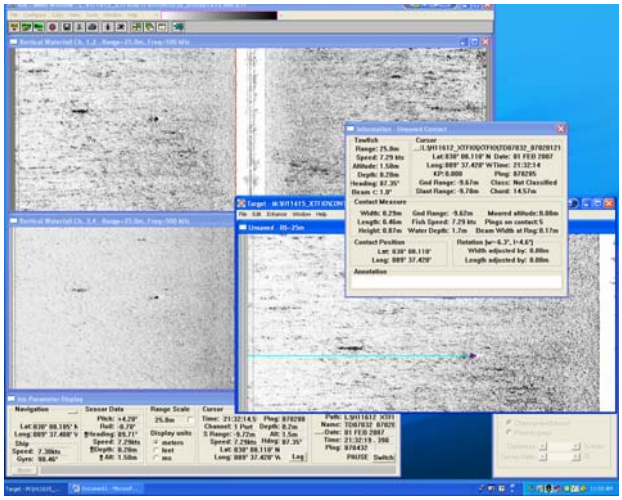


Figure 22 Side scan image of awash piling located within H11612.

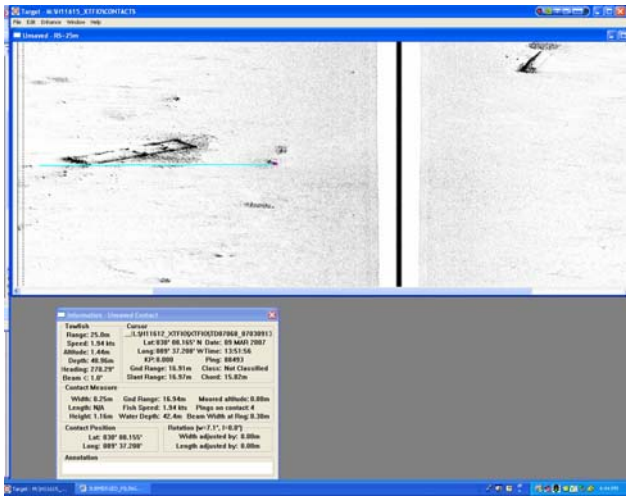


Figure 23 Side scan image of submerged piling and platform located within H11612

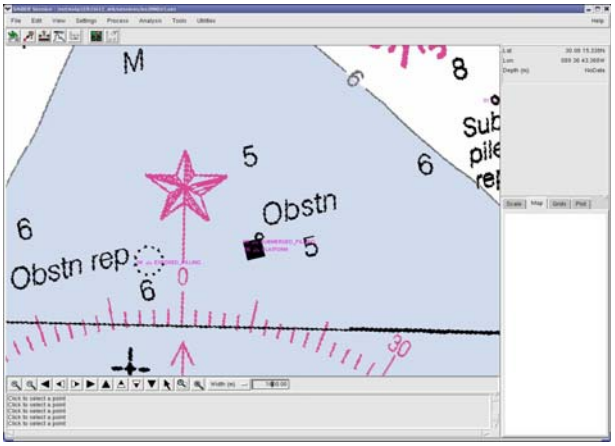


Figure 24 Chart 11367 showing location of pilings and platform within H11612.

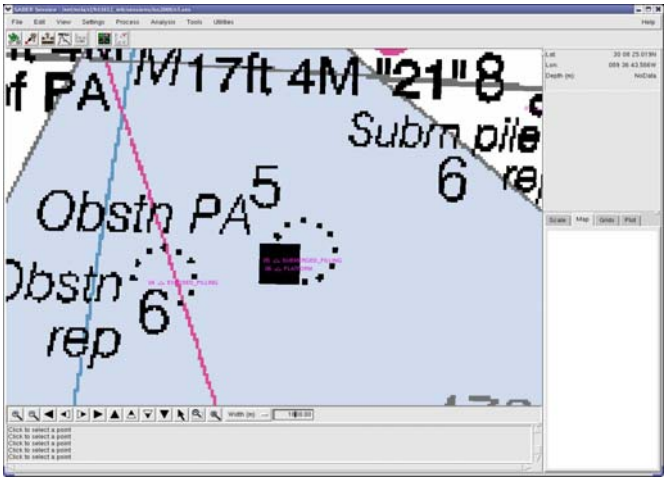


Figure 25 Chart 11371 showing location of awash piling and platform within H11612.

Danger to Navigation Report 3

Hydrographic Survey Registry Number: H11612

State: Louisiana

Locality: Lake Borgne

Sublocality: North

Project Number: S-J977-KR-SAIC

Survey Date: 9 March 2007

The following items were found during hydrographic survey operations:

Submerged Pilings

Chart Number	Edition		Charted Horiz. Datum	Estimated depth feet (MLLW)	Geographic Position	
	No.	Date			Latitude	Longitude
11367	34	1/08/06	NAD 83	2	30°08’ 24.362”N	089° 36’ 43.882”W
11371	37	1/10/04			30° 08’ 24.180”N	089° 36’ 40.320”W

Oil Platform

Chart Number	Edition		Charted Horiz. Datum	Geographic Position	
	No.	Date		Latitude	Longitude
11367	34	1/08/06	NAD 83	30° 08’ 22.103”N	089° 36’ 30.358”W
11371	37	1/10/04			

RECOMMENDATIONS:

Chart submerged pilings (K43.1) in 30°08’ 24.362”N 089° 36’ 43.882”W (NAD 83) and 30° 08’ 24.180”N 089° 36’ 40.320”W (NAD 83) label “Subm Piles”.

Chart a platform (L10) in 30° 08’ 22.103”N 089° 36’ 30.358”W (NAD 83) and label “Platform”.

Figure 26 Photograph of platform within H11612.

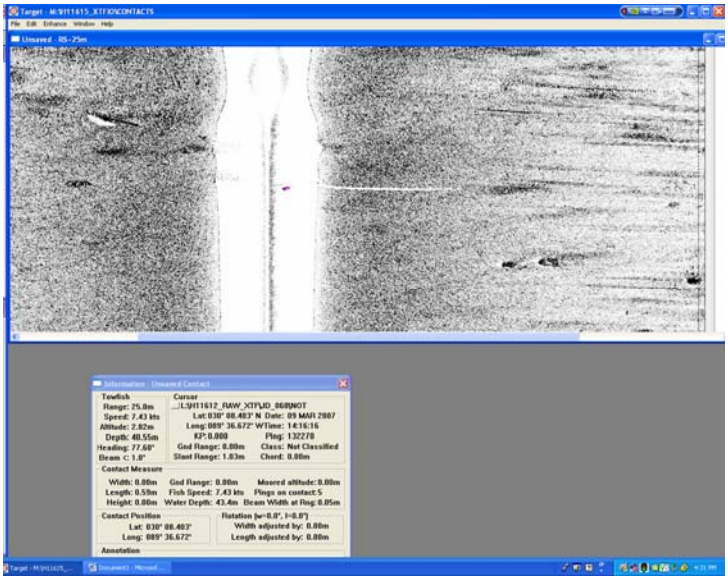


Figure 27 Side scan image of submerged piling located within H11612.

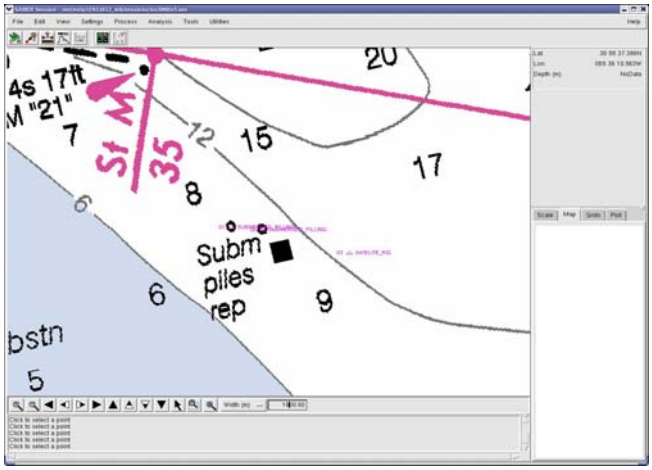


Figure 28 Chart 11367 showing location of submerged pilings and platform within H11612.

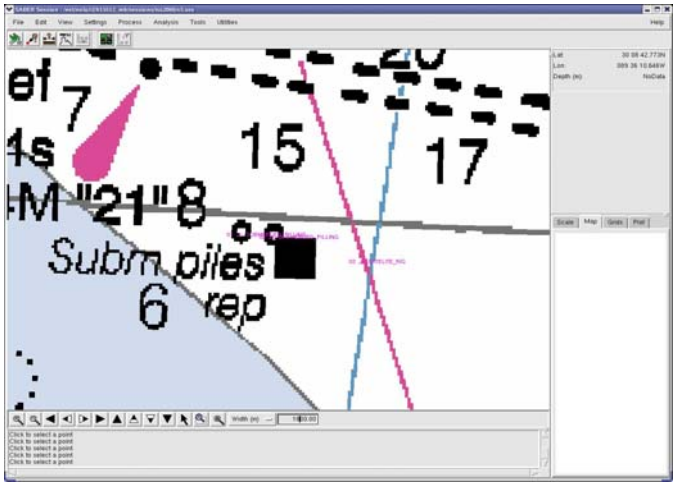


Figure 29 Chart 11371 showing location of submerged pilings and platform within H11612.

Danger to Navigation Report 4

Hydrographic Survey Registry Number: H11612

State: Louisiana

Locality: Lake Borgne

Sublocality: North

Project Number: S-J977-KR-SAIC

Survey Date: 26 March 2007

The following items were found during hydrographic survey operations:

Submerged Obstruction

Chart Number	Edition		Charted Horiz. Datum	Estimated depth feet (MLLW)	Geographic Position	
	No.	Date			Latitude	Longitude
11371	37	10/01/04	NAD 83	7.25	30° 05’ 06.485”N	089° 35’ 46.559”W

The obstruction is located in 3.3 meters of water and is approximately 1.1 meters high with a measured depth of 2.21 meters. The obstruction measures approximately 14 m in length and 2 meters wide. It is oriented in a south southeast by north northwest direction.

RECOMMENDATIONS:

Chart 7 foot sounding, symbol Obstn and danger circle with blue tint (K-41) in 30° 05’ 06.485”N 089° 35’ 46.559”W.

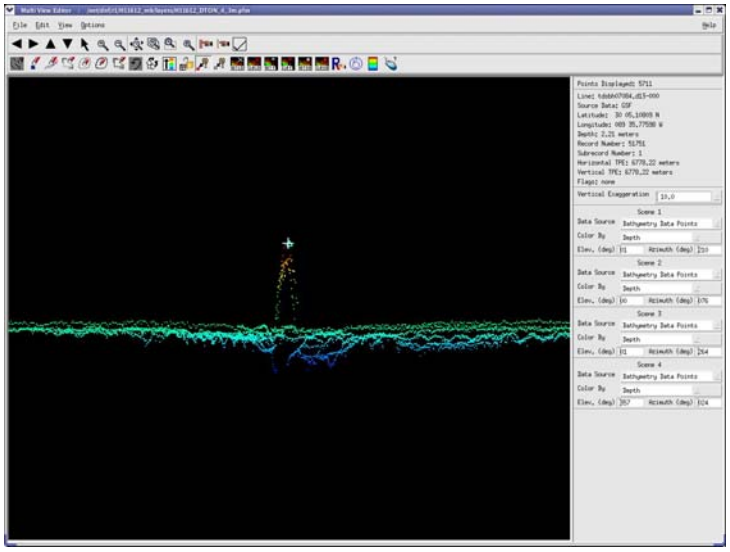


Figure 30. PFM of single beam data viewed in Multi View Editor over obstruction within H11612.

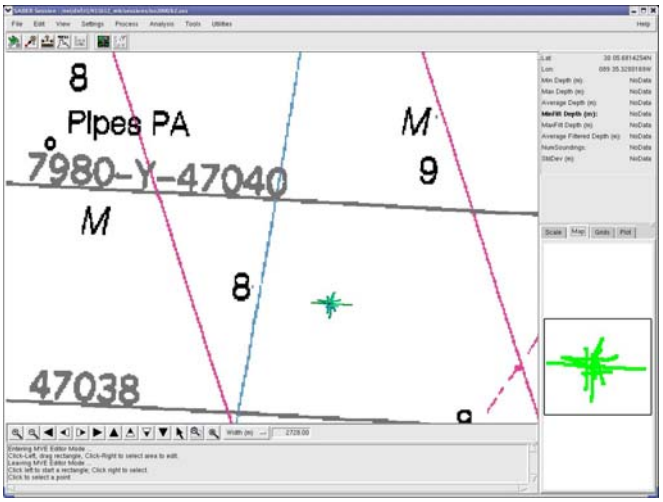


Figure 31. Chart 11371 showing location of obstruction within H11612.

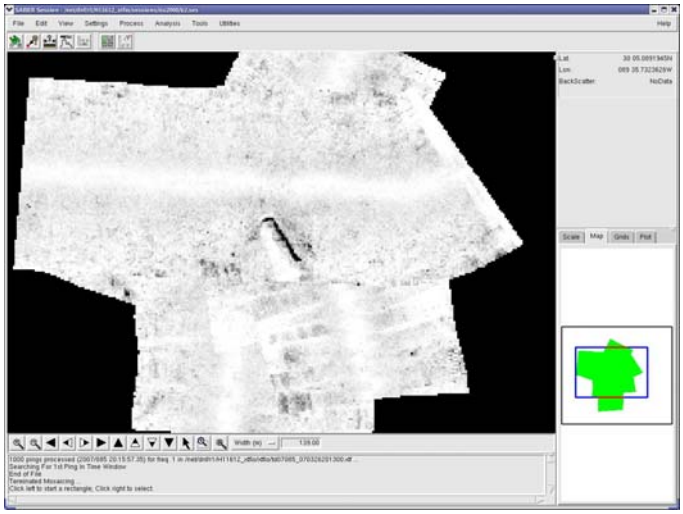


Figure 32. Side scan mosaic of obstruction located within H11612.

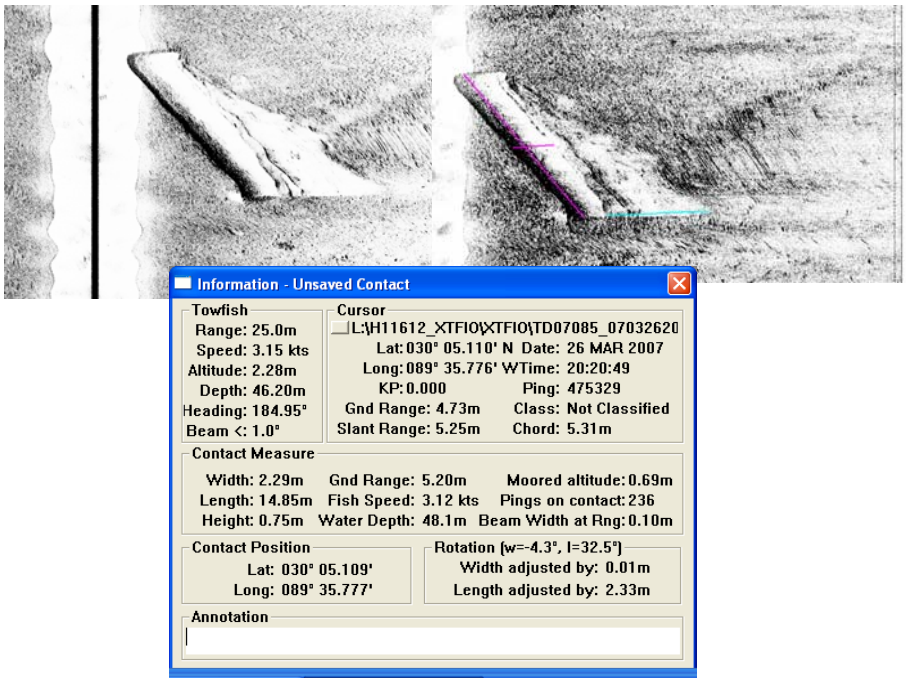


Figure 33. Side scan target file of obstruction located within H11612.

Danger to Navigation Report 5

Hydrographic Survey Registry Number: H11612

State: Louisiana

Locality: Lake Borgne

Sublocality: North

Project Number: S-J977-KR-SAIC

Survey Date: 2 June 2007

The following items were found during hydrographic survey operations:

Exposed Obstruction (exposed 1 feet)

Chart Number	Edition		Exposed Height (HW)	Charted Horiz. Datum	Geographic Position	
	No.	Date			Latitude	Longitude
11367	34	1/08/06	6 feet	NAD 83	30° 10.792'N	089° 33.030'W
11371	37	1/10/04				

Awash Piling

Chart Number	Edition		Exposed Height (HW)	Charted Horiz. Datum	Geographic Position	
	No.	Date			Latitude	Longitude
11367	34	1/08/06	1 feet	NAD 83	30° 07.286'N	089° 34.625'W
11371	37	1/10/04				

RECOMMENDATIONS:
Chart a snag (K43.2) in 30° 10.792'N 089° 33.030'W (NAD 83) and label "Snag".

Chart submerged pilings (K43.1) in 30° 07.286'N 089° 34.625'W (NAD 83) and label "Subm Piles".

Figure 34 Photograph of exposed snag (tree) within H11612.

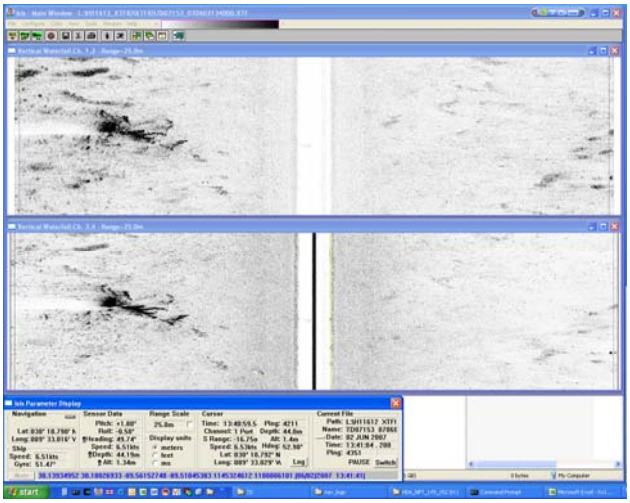


Figure 35 Side scan image of exposed snag (tree) located within H11612.

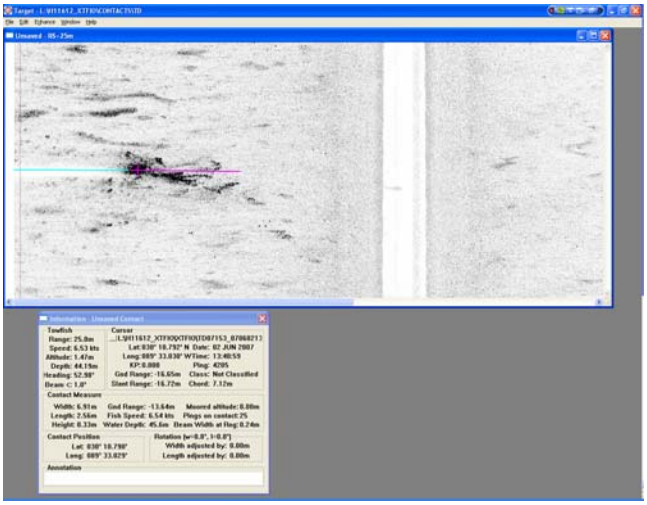


Figure 36 Side scan image of exposed snag (tree) located within H11612.

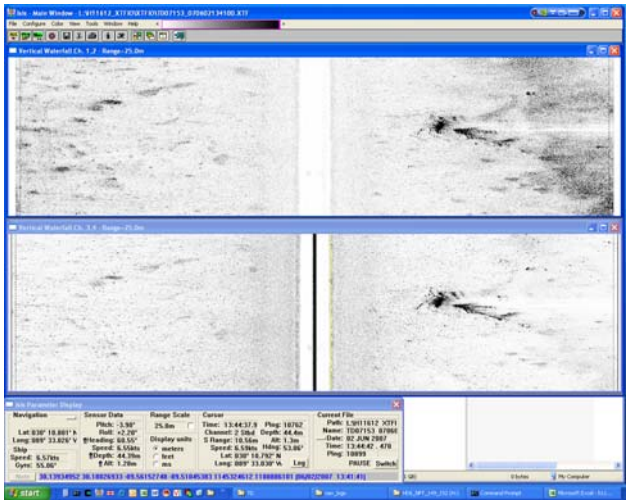


Figure 37 Side scan image of exposed snag (tree) located within H11612.

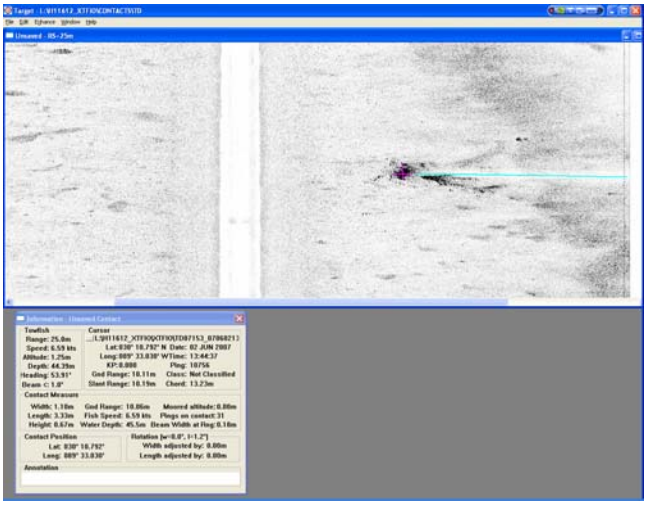


Figure 38 Side scan image of exposed snag (tree) located within H11612.

Figure 39 Photograph of awash Pilings within H11612.

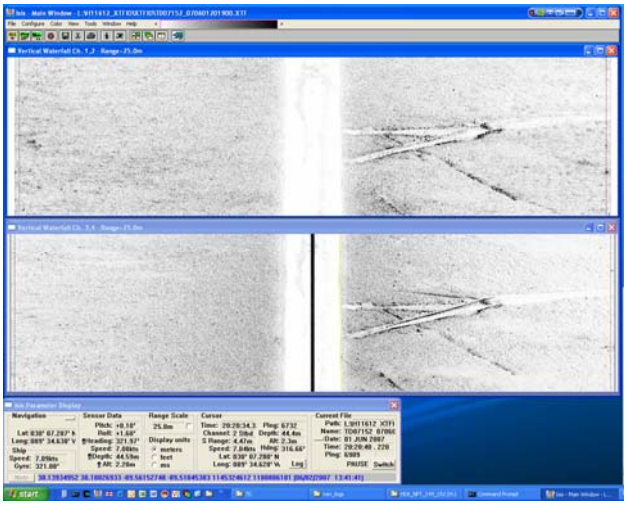


Figure 40 Side scan image of awash pilings located within H11612.

Figure 41 Side scan image of awash pilings located within H11612.

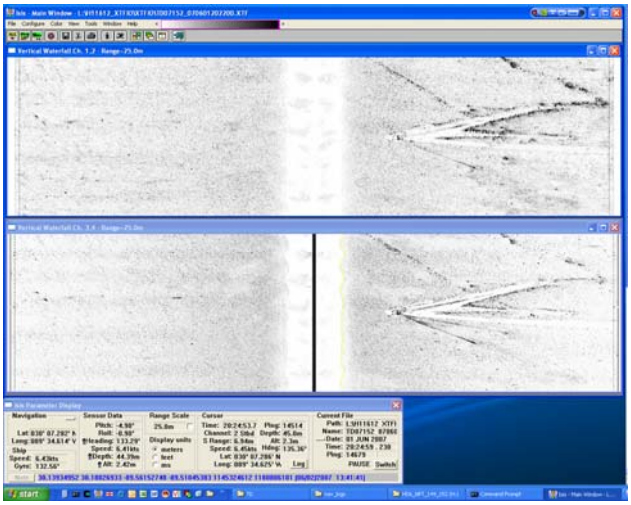


Figure 42 Side scan image of awash pilings located within H11612.

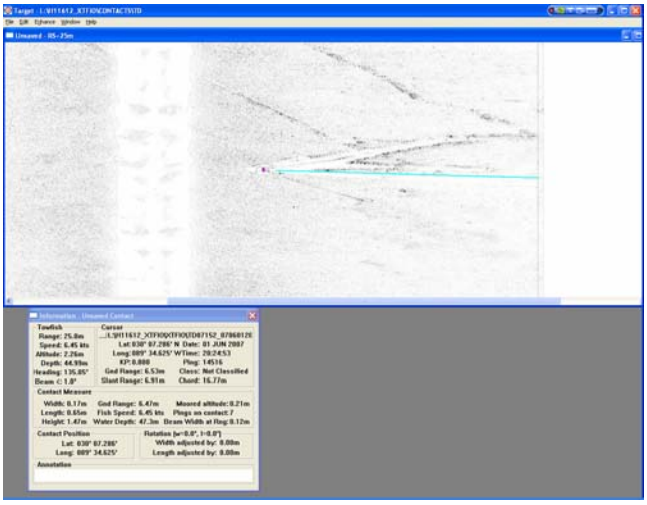


Figure 43 Side scan image of awash pilings located within H11612.

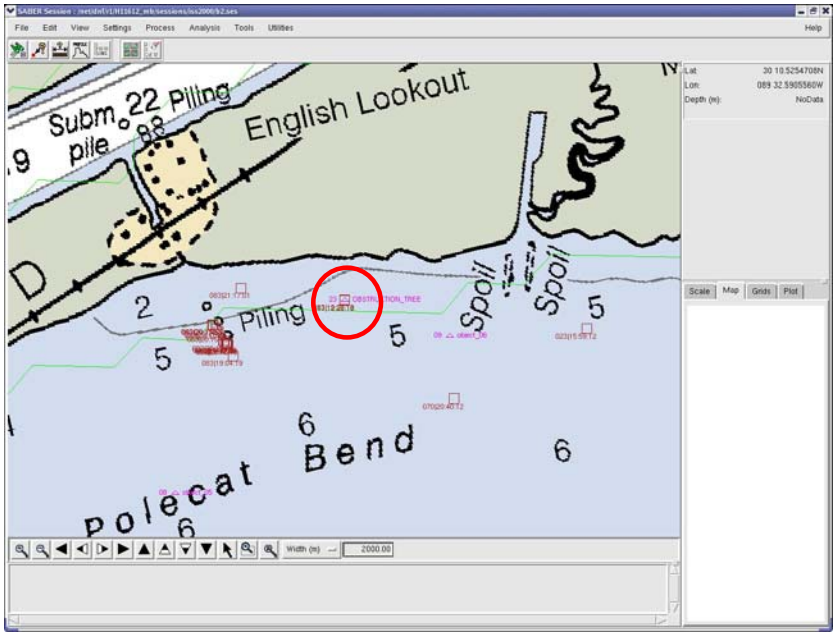


Figure 44 Chart 11367 showing location of exposed snag (tree) within H11612.

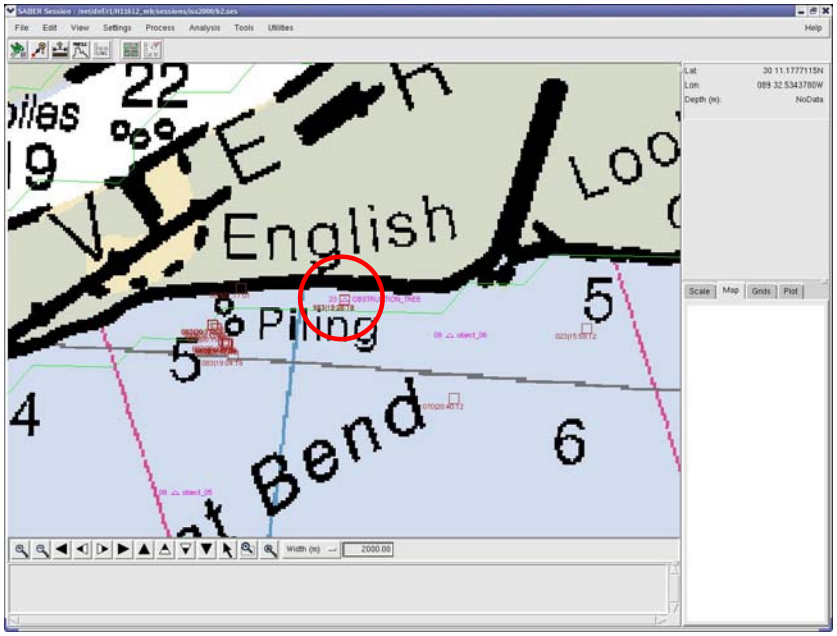


Figure 45 Chart 11371 showing location exposed sang (tree) within H11612.

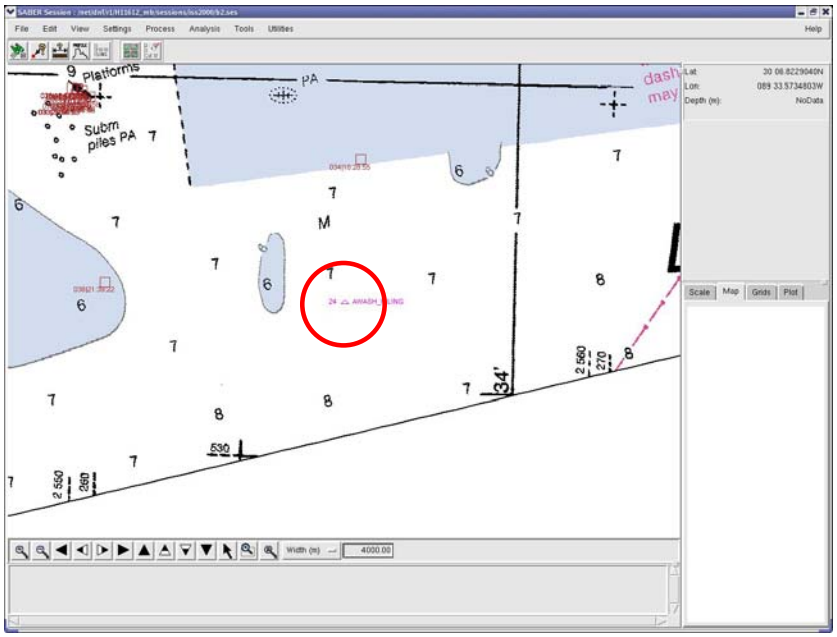


Figure 46 Chart 11367 showing location of awash pilings within H11612.

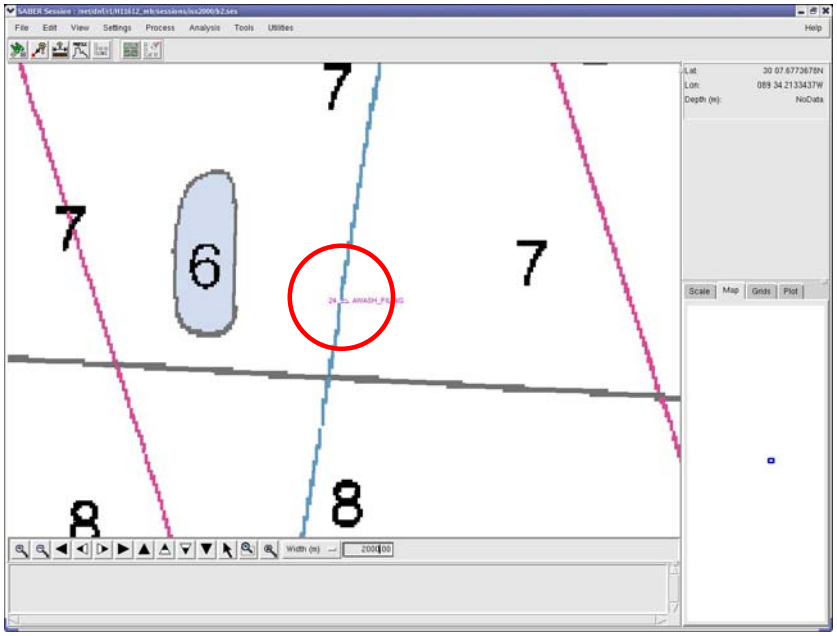


Figure 47 Chart 11367 showing location of awash pilings within H11612.

Correspondence

The email correspondence presented below are: 1) 03 October 2007 Rebecca Quintal to Crescent Moegling and Mark Lathrop regarding SAICs September 2007 visit to AHB and the proposed Lake Borgne deliverables; 2) 30 May 2007 Crescent Moegling to Rod Evans regarding item investigations; 3) 09 January 2007 Crescent Moegling to Rod Evans regarding the format of images in the SOW; 4) 16 November 2006 Crescent Moegling to Rod Evans discussing the SOW and bottom samples; and 5) 25 October 2006 Crescent Moegling to Rebecca Quintal on changes to the SOW.

From: Quintal, Rebecca T.
Sent: Wednesday, October 03, 2007 1:38 PM
To: 'Crescent.Moegling@noaa.gov'; Mark.T.Lathrop@noaa.gov
Cc: 'Evans, Rhodri E.'; PAUL.L.DONALDSON@saic.com; 'gene_parker'; 'Shep.Smith@noaa.gov'
Subject: 25 September 2007 Meeting - AHB and SAIC

Mark and Crescent,

On Tuesday, 25 September 2007, SAIC and AHB had a very productive meeting regarding general data processing flow and specific questions about the Lake Borgne Debris Mapping deliveries and the DELMARVA deliveries. Below is a synopsis of our specific questions / discussions. Please advise if you concur with the conclusions which we collectively came to (AHB and SAIC personnel). If you have any questions or need more information we would be happy to set up a telecom to discuss.

Thank you,
-Rebecca

Lake Borgne Questions/Answers:

1. For contacts with no least depth (i.e. we don't have bathy but are estimating the depth from side scan instead) should use a QUASOU of 9 (Value reported, not confirmed).

2. MCOVR and MQUAL will be made from the outer perimeter of the bathy (GS+ and SB).

3. A single MQUAL will be made for an entire sheet. MQUAL will have a CATZOC of 2 (ZOC A2 - Full seafloor ensonification or sweep. All significant seafloor features detected and depths measured.) We decided on this because we do have full ensonification via the side scan and all features do have depths measured except where noted (see QUASOU of 9 above). Note that the S&D states that we should use a CATZOC of 6 (not assessed), but AHB have started accessing and would like us to as well.

4. The single MQUAL for an entire sheet will also have a TECSOU of 1, 2 and 3 (found by echo sounder, found by side scan and found by multi-beam, respectively).

5. Regarding Section 6.2 of the SOW below:
If an interferometric side scan is used, final depth data from the side scan shall be submitted as a Bathymetric Attributed Grid (BAG). The DR shall discuss the uncertainty and total propagated error (TPE) of the data and describe what portions of the swath (if any) meet IHO Order 1 specifications. The single beam soundings shall be submitted separately as part of the S-57 feature file.

We asked if they really wanted every valid sounding of every singlebeam file to be populated in the S-57 feature file. Shep ended up calling Gerd Glang and Jeff Ferguson about this issue to see what their true intentions were for the data as stated in the SOW. They stated that their intention was to have selected soundings of the SB data at survey scale be in the S-57 feature file. So we came to a conclusion that we would build 5-meter binned minimum grids of the SB data, build selected soundings at survey scale (same

as we did for smooth sheets), then deliver the XYZ file from the minimum grid and the selected soundings in the S-57 file. This approach precludes delivering every valid sounding of all SB files to be in the S-57 file.

We discussed Section 5.2.3 (Gridded Data Specifications) in the June 2006 S&D which states:

An example distribution of grid resolution;
- 0 to 15 meter depths; 0.5 meter grid resolution,
- 14 to 30 meter depths; 1.0 meter grid resolution,
- 29 to 60 meter depths; 2.0 meter grid resolution,
- 59 to 150 meter depths; 5.0 meter grid resolution,
- deeper than 149 meter depths; 10.0 meter grid resolution.

The hydrographer may adjust these values based on the bathymetry of the survey area, the type of multibeam sonar used and other factors.

All four Lake Borgne sheets fall in the water depths where the example node spacing is 0.5 meters. This will create very large grids representing a relatively flat seafloor. We discussed possibly delivering the Lake Borgne sheets at 1 meter node spacing due to the "bathymetry of the survey area".

DELMARVA Questions/Answers:

1. We discussed that depth contours and depth areas had been added into the S-57 feature file in the April 2007 S&D. We asked about contour interval and were given guidelines to make the contours and depth areas based on the depth intervals used in H-Cells (0, 3, 6, 12, 18 feet etc., only the metric equivalent (using the 0.75 rounding rule).

2. We should include the swim buoys encountered in DELMARVA in the S-57 feature file as BOYSPP (Buoy special purpose) and attribute them with CATSPM = 13 (private mark).

3. For the swim buoys we should try to get some images even if they are from Google Earth or something similar. We should also add as much information to the inform field about when they are out (ex: Memorial Day through Labor Day) etc.

General things we should/can change for all submissions:

1. We can just include the AWOIS descriptions in the AWOIS database in Appendix 2 of the DR. In Section D of the DR we will just say "see AWOIS database in Appendix 2". That way the information is only presented once. We do not need to include the Uncertainty value for the sounding in the AWOIS data base if it is presented elsewhere (in the Excel list of features for example).

2. We should put the DTN reports that AHB submit to MCD in Appendix 1 (Danger to Navigation Reports). We may (should) include our original DTN reports in Appendix 5 (Supplemental survey Records and Correspondence). AHB would like us to do this since they have to add in their submissions if we don't.

3. We discussed that all four Lake Borgne sheets fall in the water depths where the recommended node spacing is 0.5 meters. This will create very large grids. AHB are OK with us having to break up sheets due to grid file sizes. They stated that we should break our survey areas down to what ever size works for us, and if AHB have to they can break them down even further.

_____

Rebecca Quintal
Data Processing Manager
Science Applications International Corporation
221 Third Street

Newport, RI 02840 USA
401.847.4210
401.849.1585 (fax)

From: Crescent Moegling [Crescent.Moegling@noaa.gov]
Sent: Wednesday, May 30, 2007 5:02 PM
To: Evans, Rhodri E.
Cc: Mark.T.Lathrop@noaa.gov; Davis, Gary R.; Donaldson, Paul L.;
Quintal, Rebecca T.; Jeffrey Ferguson
Subject: Re: Item investigations: Lake Borgne Debris Survey

Hi Rod,

This approach is acceptable. Be sure to address in the Descriptive Report.

Crescent

Evans, Rhodri E. wrote:
Crescent,

On the Lake Borgne debris mapping survey we have the item surveys complied and we have put together a summary of the contacts versus additional item investigations (see attached file please).

In general we have not seen as much debris as we expected that is significant under the definition within the SOW, or what we would consider significant.

The SOW states that the 50 most significant items for the survey be investigated (we assume per sheet). The fewer than expected significant items identified leads to somewhat less than 50 items per sheet in general.

In general we have 58 items (76 contacts) for sheet A, 30 items (30 contacts) for sheet B, 14 items (14 contacts) on sheet C, and 45 items (54 contacts) for sheet D. This is an average of 36.75 items per sheet.

As we are now in the closing few days of survey, please confirm that this methodology is acceptable to you at your earliest convenience.

Regards, RE.

From: Crescent Moegling [Crescent.Moegling@noaa.gov]
Sent: Tuesday, January 09, 2007 9:55 AM
To: Evans, Rhodri E.
Cc: Quintal, Rebecca T.; PARKER, GARY C.
Subject: Re: Request for Proposal

Rod,

Either image format is acceptable. I apologize for the confusion.

Regards,

Crescent Moegling
NOAA Hydrographic Surveys Division
Physical Scientist
301.713.2698 x114

Evans, Rhodri E. wrote:
Crescent,

Please see the attached two files in Word format.

1.. The logistics and contact details for the SAIC operation in Slidell and Shell Beach, LA to aid you in your field visit;
2.. SoW comparison: prior to receipt of yesterday's SoW dated October 18th 2006, the only modified draft SoW SAIC had received was transmitted by you and dated September 25th 2006. Attached is a comparison of the differences between the two SoW's. The latest Oct 18th SOW includes the additional mosaic or survey boundary weekly submission. Also, the image format has changed to state jpeg now when we had discussed tiff images previously in place of geotiff. We can either put in a task to convert each image to jpg or ask you to confirm that tiff images are acceptable. Please advise us ASAP so that we can finalize the proposed costs.

I will try to call you shortly.

Regards, RE

Rod Evans Ph.D.,
Assistant Vice President,
Marine Survey Manager,
SAIC Marine Science and Technology Division,
221 Third Street,
Newport RI 02840
USA.
Tel (401) 848.4783.
Mobile (401) 439.1037.
Email: evansrh@saic.com
http://www.saic.com

From: Crescent Moegling [mailto:Crescent.Moegling@noaa.gov]
Sent: Monday, January 08, 2007 4:40 PM
To: Evans, Rhodri E.
Cc: Quintal, Rebecca T.; Linda D Brainard
Subject: Request for Proposal

Rod,

Please find attached the modified Statement of Work for S-J977-KR-SAIC. The only changes are to section 6.3. Please review and provide a cost estimate for the additional reporting requirements at your earliest convenience. For your information I have also attached the format sample for the weekly submission requirement.

Regards,
Crescent Moegling
NOAA Hydrographic Surveys Division
Physical Scientist
301.713.2698 x114

From: Crescent.Moegling@noaa.gov on behalf of Crescent Moegling [Crescent.Moegling@noaa.gov]
Sent: Thursday, November 16, 2006 5:55 PM
To: Evans, Rhodri E.
Cc: Mark.T.Lathrop@noaa.gov; PARKER, GARY C.; Donaldson, Paul L.; Quintal, Rebecca T.
Subject: Re: Lake Borgne SoW
Rod,

1. We will not require the collection of single-beam during interferometric acquisition.
2. We ask that you keep the bottom samples as other offices within NOAA have requested them for habitat mapping purposes. We are asking they be either refrigerated or frozen prior to shipping. A shipment address will be provided once survey operations begin.

Regards,

Crescent

PS: I trust the request for tide supplies has been addressed by Larry Neeson?

Evans, Rhodri E. wrote:
Crescent,

We have a couple of technical SoW questions in relation to the Lake Borgne survey:

1.. We will mobilize two vessels: One is equipped with a Klein side scan sonar and Odom single-beam echo sounder. The second vessel will deploy the GeoAcoustics interferometer (note that this system is equipped with a single beam transducer. However, we do not intend to log this separately due to the non-disciplined time tagging of the data) The second vessel will have a Klein side scan and Odom single beam available in case the GeoAcoustics system performance is not satisfactory (as described in our Work Plan that accompanied our proposal).

Our question: do we need to acquire time tagged single beam echo sounder data when we are acquiring the copious GeoAcoustics interferometer bathy data (which covers nadir as well)?;

2.. On past Task Orders, we have usually been given relief on storage of the bottom samples, and permitted to dispose of the samples immediately after recovering and describing the samples.

Our question: May we dispose of the bottom samples during the Lake Borgne survey, or should we be making arrangements to store these sample for future inspection by the COTR?

Many thanks, RE,

Regards, RE.
Rod Evans Ph.D.,

Assistant Vice President,
Marine Survey Manager,
SAIC Marine Science and Technology Division,
221 Third Street,
Newport RI 02840
USA.
Tel (401) 848.4783.
Mobile (401) 439.1037.
Email: evansrh@saic.com
http://www.saic.com

From: Crescent.Moegling@noaa.gov on behalf of Crescent Moegling [Crescent.Moegling@noaa.gov]
Sent: Wednesday, October 25, 2006 11:05 AM
To: Quintal, Rebecca T.
Cc: Evans, Rhodri E.; Mark Lathrop
Subject: Re: FW: Updated SOW
Rebecca,

Thank you for your patience in responding on the changes to the SOW for S-J977. I have reviewed your minutes and find them acceptable. Please find my comments and clarifications below:

1. While I have agreed that the Line Name is not required for the weekly feature submission, please include the field in your submission as the formatting of the spreadsheet is set up for a database which will require the column. You can use the entry NA for the column. I concur that the Search Track Number will not be required for the final deliverable.

2. I concur Towfish Layback field will not be required in the final deliverable.

3. I concur Contact Range field will not be required in the final deliverable.

4. I concur that the length and width for SAIC's images will not be the longest and shortest edge but rather the along and across track values.

5. An indication of scale will not be required for each contact image. This is addressed in the SOW. The requirement states that you can either indicate scale or include the center and outer edge of the waterfall so as to give the reviewer some indication of scale.

I would like to reiterate that these changes only apply to this project. Any data submissions outside of project S-J977 will require the submission as outlined in the SOW.

Regards,

Crescent Moegling
NOAA Hydrographic Surveys Division
Physical Scientist
301.713.2698 x114

Quintal, Rebecca T. wrote:
Crescent,

Hello. I am just checking in with you regarding the teleconference we had last week and the email of the minutes reproduced below. Please let me know if you have any questions or comments regarding this meeting summary.

Thanks,
-Rebecca

From: Quintal, Rebecca T.
Sent: Thursday, October 05, 2006 5:12 PM
To: 'Crescent.Moegling@noaa.gov'; 'Mark.T.Lathrop@noaa.gov'
Cc: 'RHODRI.E.EVANS@saic.com'; 'WALTER.S.SIMMONS@saic.com'
Subject: FW: Updated SOW

Crescent,

Thank you for discussing the new SOW and Specifications for the Debris Mapping work with us yesterday. Please find below minutes to the teleconference. Please make changes and/or additions if you feel I have missed something or stated it incorrectly.

A teleconference was held between NOAA and SAIC on Wednesday, 4 October 2006 at 5:00 PM Eastern time. In attendance were:

Crescent Moegling (NOAA)
Rod Evans (SAIC)
Walter Simmons (SAIC)
Rebecca Quintal (SAIC)

The topic of discussion was the string of emails reproduced below regarding the updated SOW for S-J977 Lake Borgne and, in addition, the Side Scan Sonar Contact file required for final delivery in the June 2006 Specifications and Deliverables.

Regarding Item #1 in the below email from Rebecca Quintal to Crescent Moegling (Monday, October 02, 2006 10:56 AM)

1. In both the FeatureFileFormat weekly submission and the Side Scan Sonar Contact List final deliverable, SAIC request that the Line Name (FeatureFileFormat) and the Search Track Number (Side Scan Sonar Contact List) column not be required. The contact number is annotated by Julian Day and time so a reviewer can always correlate a contact to a certain survey line, corresponding bathymetry file, etc.

It was discussed that SAIC do not name their data files after the search track number (line name). SAIC discussed that since all data files and contact files are named after Julian Day and time and the line names are not, that this column does not seem necessary. Crescent discussed that the assumption was that the search track (survey line name) and the data file names are the same. Crescent took the action item to decide whether this field in both the FeatureFileFormat weekly submission and the Side Scan Sonar Contact List final deliverable is indeed required for SAIC's deliverables.

To provide more clarification than was possible over the telephone, we have provided more information regarding our logs below.

SAIC name their bathymetry files with a 2 digit vessel ID, 3 digit sensor ID, 2 digit year and 3 digit Julian Day. For example in the example Navigation Log below the vessel was the: Atlantic Surveyor (AS), the sensor was: multibeam a (for single beam files this would be sba, etc.), the year was 2006 and the Julian Day was 105. SAIC typically name the side scan files (exact naming convention depends upon the acquisition system) with vessel ID, year, JD and 6 digit time or as in the case below vessel ID, year, JD, year, date and 6 digit time.

UTC TIME
LB/LE
SURVEY LINE
MB FILE
RPM
SS FILE
SURVEY LINE AZ.
NOTES

23:19:16
LB
K-205
ASMBA06105.D12
319.2
AS06105_060415231700

186.7
MAIN: FORCE ACQUIRED: PICKING UP PARTIAL LINE GOING SOUTH.

23:50:29
LE
K-205

23:54:55
LB
K_ITEM_06-26
ASMBA06105.D14
319.2
AS06105_060415235400
0.6
ITEM

23:55:20
LE
K_ITEM_06-26

Regarding Item #2 in the below email from Rebecca Quintal to Crescent Moegling (Monday, October 02, 2006 10:56 AM)

2. In the Side Scan Sonar Contact List, SAIC request that Towfish Layback column not be required. This seems to be a left over from when the contact positions were calculated by hand. For example, shadow length used to be required as well.

SAIC explained that the ping positions within the side scan files, and therefore the contact positions, are already corrected for layback by the acquisition system and therefore the layback information does not provide useful information. Crescent stated that layback was not required in the Side Scan Sonar Contact List as long as the method of towfish positioning was fully explained the DAPR.

Regarding Item #3 in the below email from Rebecca Quintal to Crescent Moegling (Monday, October 02, 2006 10:56 AM)

3. In the Side Scan Sonar Contact List, SAIC request that Contact Range column not be required. Since this information is not required in the FeatureFileFormat, SAIC would like to not include it for final submission as part of the Side Scan Contact List for simplicity.

Crescent stated that range was still required in the Side Scan Sonar Contact List.

Regarding Item #4 in the below email from Rebecca Quintal to Crescent Moegling (Monday, October 02, 2006 10:56 AM)

4. In the FeatureFileFormat weekly submission, SAIC request that the Target Length not be required to be the longest side and likewise that the Target Width not be required to be the shortest side. SAIC uses Isis to review side scan data. In Isis the length is always the along track dimension and the width is always the across track dimension. Therefore you can have a width measurement that is longer than the length measurement.

Crescent stated that Target Length will not be required to be the longest side, and likewise that the Target Width will not be required to be the shortest side, in the FeatureFileFormat.xls file due to limitations of the Isis sonar processing software as long as this methodology was fully explained in the DAPR. She also stated that the column headers will remain as indicated in the sample FeatureFileFormat.xls she provided on Monday, September 25, 2006.

Regarding the topic of whether the contact images to be delivered as part of the weekly delivery were required to have any geographic information associated with them (i.e. a geotiff or a tiff with a world file), Crescent stated that simple tiff images (containing no geographic information) would be acceptable as long as the image name was exactly the same as the contact name in the FeatureFileFormat.xls file.

Regarding the question of what was really being asked for in the Estimated Clearance columns in the FeatureFileFormat.xls file, Crescent explained that this column is really asking for the same information that is being requested in the Estimated Depth columns. Therefore the Estimated Least Depth and Estimated Clearance should always contain the same information. Crescent also stated that if an echosounder depth was not available "N/A" should be put in the Echosounder Depth columns and both of the Estimated Least Depth and Estimated Clearance columns should then be filled out. If an echosounder depth is available, then all three of the Echosounder Depth, Estimated Least Depth and Estimated Clearance columns should contain the same information.

Crescent also stated that the Associated Image Name column of the FeatureFileFormat.xls file does not have to contain a hotlink to the image as long as the image name is the same as the contact name in the Contact Name column.

One topic that was brought up in the email from Rebecca Quintal to Crescent Moegling (Wednesday, October 04, 2006 12:30 PM) that was not discussed in the teleconference yesterday was the requirement the tiff image have an indication of scale. This was called out in the email from Crescent Moegling (Friday, September 15, 2006 5:45 PM) but was not called out in the email from Crescent Moegling (Monday, September 25, 2006 2:09 PM). Crescent, can you please confirm that the indication of scale on the contact image is indeed not required?

We have attached a new FeatureFileFormat_Contact_List_Comment.xls document which outlines the changes discussed above. Note that the resolutions discussed above are in RED text.

Please let us know if you agree with these minutes or have any changes or additions to make.

Thank you,
-Rebecca

From: Quintal, Rebecca T.
Sent: Wednesday, October 04, 2006 1:32 PM
To: Crescent.Moegling@noaa.gov
Cc: Evans, Rhodri E.
Subject: RE: Updated SOW

Crescent,

We can make that time but may only be able to meet for 30-45 minutes. Hopefully that is plenty of time. We will have Walter Simmons calling in remotely so I will set up a telecon line for us all to call into. I'll email you with that info once it is set up.

Thanks,
-Rebecca

From: Crescent.Moegling@noaa.gov [mailto:Crescent.Moegling@noaa.gov]
Sent: Wednesday, October 04, 2006 12:30 PM
To: Quintal, Rebecca T.
Cc: Evans, Rhodri E.
Subject: Re: Updated SOW

Rebecca,

I know this is short notice but are you available for a telecon this afternoon at 5pm? I agree it would be easier to discuss these matters as you suggested.

Regards,

Crescent Moegling
NOAA Hydrographic Surveys Division
Physical Scientist
301.713.2698 x114

Quintal, Rebecca T. wrote:
Crescent,

Hello. SAIC has reviewed the updated SOW and the new FeatureFileFormat.xls spreadsheet that you sent out on Monday, 25 September. We have several questions. First we note that the FeatureFileFormat.xls spreadsheet differs from the Side Scan Sonar Contact List in section 8.4.2 in the Specifications and Deliverables. We also note that section 8.4.2 in the Specifications and Deliverables states: Suggested column entries are described below, along with a brief discussion of how each is to be derived. Specific entries may vary by hydrographer. The format should be reviewed by the COTR and/or Processing Branch before data collection is conducted. Likewise we note that your email of 25 September states: The Contractor is encouraged to present alternate means of quality assurance and quality control products in lieu of what is presented here. With the new SOW, this seems like a good time to discuss both deliverables. In the attached Excel file and outlined below we have suggestions for what SAIC would like to exclude from submission, or change, in both the weekly FeatureFileFormat and final deliverable Side Scan Sonar Contact List for simplicity. There is also one request for clarification in the FeatureFileFormat.xls file. We are still not exactly sure what is being requested in the Estimated Clearance columns. Is this really the drying height?

a.. In both the FeatureFileFormat weekly submission and the Side Scan Sonar Contact List final deliverable, SAIC request that the Line Name (FeatureFileFormat) and the Search Track Number (Side Scan Sonar Contact List) column not be required. The contact number is annotated by Julian Day and time so a reviewer can always correlate a contact to a certain survey line, corresponding bathymetry file, etc.

b.. In the Side Scan Sonar Contact List, SAIC request that Towfish Layback column not be required. This seems to be a left over from when the contact positions were calculated by hand. For example, shadow length used to be required as well.

c.. In the Side Scan Sonar Contact List, SAIC request that Contact Range column not be required. Since this information is not required in the FeatureFileFormat, SAIC would like to not include it for final submission as part of the Side Scan Contact List for simplicity.

d.. In the FeatureFileFormat weekly submission, SAIC request that the Target Length not be required to be the longest side and likewise that the Target Width not be required to be the shortest side. SAIC uses Isis to review side scan data. In Isis the length is always the along track dimension and the width is always the across track dimension. Therefore you can have a width measurement that is longer than the length measurement.

It is our hope that we can come to an agreeable format for both the weekly FeatureFileFormat submissions and final deliverable Side Scan Sonar Contact List that requires little reworking to go from one to the other. We are suggesting that the final deliverable Side Scan Sonar Contact List look very much like the weekly submissions only with the final bathymetry information and a statement about if the contact is included in the S-57 Feature File.

In addition to questions regarding the deliverable spreadsheets, we have a question regarding the tiff images of the contacts. SAIC does not currently produce geotiff images of the contacts, but rather simple tiff images (with no geographic information). Providing the geographic information would require a software modification. Would it be acceptable to deliver simple tiff images like the one I have attached (note the image is named 3 digit JD and 6 digit time)? Note that this type of tiff image was the agreed upon deliverable on past NOAA contracts such as TimeCharter. If geographic information is required, would a tiff image and associated world file be acceptable? Or is a Geotiff the only acceptable format? Also we

note that your email of 25 September did not require the tiff image have an indication of scale. Is this correct?

Please let us know if you would like to discuss any of these topics via a telecom as it might be easier than discussing via email. Thank you for considering these suggested changes to the deliverables. We look forward to working with you on this. Once we have agreed upon deliverables, SAIC can determine if the added scope of the weekly FeatureFileFormat.xls submissions can be achieved under current funding or if additional funding will be necessary.

-Rebecca

From: Crescent.Moegling@noaa.gov [mailto:Crescent.Moegling@noaa.gov]
Sent: Monday, September 25, 2006 2:09 PM
To: Evans, Rhodri E.; Quintal, Rebecca T.; Lepore, Christine A.
Subject: Updated SOW

Hello,

Please find attached an updated SOW for S-J977 Lake Borgne. Note changes to sections 6.3 with an added attachment #14 indicating the required Excel spreadsheet format which I've attached separately to this email. The sharepoint is being set up this week and I will be passing along information as soon as it comes available. In the meantime send all updates to me via email. The person I have listed to be given a login for you is Rod Evans and NOAA will require he perform an online security training prior to being given access to the Sharepoint.

6.3 Interim Deliverables

Interim deliverables are data analysis tools utilized by the COTR to evaluate and monitor the Contractor's field work and processing. These tools may include image files or graphics showing preliminary soundings, swath contours, multibeam and side scan coverage, and/or preliminary contacts. The Contractor shall make these products available to the COTR on a weekly basis. The weekly update shall include an Excel spreadsheet of all features noted the week prior. A sample of this format can be found in Appendix 14 with a key for each required field. In addition, Geotifs (or photos if the feature is above the water line) of these features shall be submitted and each Geotif hotlinked back to the Excel spreadsheet entry. The Geotifs or images shall be the same unique name as the feature in the Excel spreadsheet. The weekly update shall be made each Monday and placed on a web-based NOAA Share Point. The Contractor is encouraged to present alternate means of quality assurance and quality control products in lieu of what is presented here.

A few brief reminders this field season:

<!--[if !supportLists]-->- <!--[endif]-->All DTONs are to be sent to Atlantic Hydrographic Branch as stated in SOW Section 2.4.6.2. The email address is Castle.E.Parker@noaa.gov. Use the guidelines in the Specifications and Deliverables when determining a DTON and submit as soon as possible.
<!--[if !supportLists]-->- <!--[endif]-->Please send all completed survey outlines as stated in SOW Section 6.5. This should be done for all surveys completed under your contract with NOAA.

If you have any questions don't hesitate to contact me. I am out of the office Tuesday and Thursday until December so Monday, Wednesday or Friday is the best day to get in touch.

Regards,
--
Crescent Moegling
NOAA Hydrographic Surveys Division
Physical Scientist
301.713.2698 x114

Bottom Composition

There were 63 bottom samples taken to verify the bottom types charted for H11612 (Table App V-1). It is recommended that the bottom type charted be updated where necessary based on the information collected during the latest survey. Note that three bottom samples (161, 179 and 196) were collected outside of the survey boundaries and these samples were therefore not included in the S-57 Feature file. The results of these bottom samples are presented in the table below.

Table App. V-1. H11612 Bottom Sample Characteristics

H11612 Bottom Sample Position (NAD83)								
JD	**Sample Number**	**Latitude (N)**	**Longitude (W)**	**Observed Bottom Type**	**Depth of Bottom Sample (M)**	**Chart # 11371**	**Chart # 11367_1**	**In S-57 Feature File?**
055	td_055_bs_185	30º 07' 36.8"	089º 36' 49.6"	M	2.37	**x**	**x**	Yes
055	td_055_bs_186	30º 07' 35.4"	089º 38' 03.2"	M	2.58	**x**	**x**	Yes
055	td_055_bs_189	30º 08' 31.8"	089º 37' 28.6"	M	2.42	**x**	**x**	Yes
055	td_055_bs_190	30º 09' 04.8"	089º 36' 52.7"	M	4.19	**x**	**x**	Yes
055	td_055_bs_191	30º 08' 33.2"	089º 36' 14.2"	M Sh	5.90	**x**	**x**	Yes
091	lm_091_bs_154	30º 04' 53.2"	089º 37' 21.4"	M	3.17	**x**		Yes
091	td_091_bs_152	30º 04' 52.5"	089º 39' 47.6"	M	3.20	**x**		Yes
091	td_091_bs_153	30º 04' 51.4"	089º 38' 34.9"	M Sh	3.25	**x**		Yes
112	td_112_bs_140	30º 04' 00.3"	089º 30' 32.9"	M	3.14	**x**		Yes
112	td_112_bs_141	30º 03' 58.6"	089º 31' 45.2"	M	3.15	**x**		Yes
112	td_112_bs_142	30º 03' 56.6"	089º 33' 00.5"	M	3.43	**x**		Yes
112	td_112_bs_143	30º 03' 56.2"	089º 34' 14.9"	M	3.53	**x**		Yes
112	td_112_bs_144	30º 03' 53.7"	089º 35' 29.2"	M	3.50	**x**		Yes
112	td_112_bs_159	30º 04' 56.0"	089º 31' 09.8"	M	3.71	**x**		Yes
112	td_112_bs_160	30º 04' 57.4"	089º 29' 56.9"	M	4.93	**x**		Yes
112	td_112_bs_163	30º 05' 51.0"	089º 31' 51.1"	M	3.62	**x**		Yes
112	td_112_bs_177	30º 06' 45.0"	089º 32' 27.5"	M S	3.84	**x**		Yes
112	td_112_bs_182	30º 07' 40.0"	089º 33' 09.2"	M	3.20	**x**	**x**	Yes
112	td_112_bs_183	30º 07' 38.0"	089º 34' 20.7"	M	2.84	**x**	**x**	Yes
112	td_112_bs_192	30º 08' 34.0"	089º 34' 53.1"	M	3.91	**x**	**x**	Yes
132	td_132_bs_145	30º 03' 52.9"	089º 36' 43.3"	M	3.43	**x**		Yes
132	td_132_bs_146	30º 03' 51.0"	089º 37' 58.0"	M	3.36	**x**		Yes
132	td_132_bs_147	30º 03' 49.8"	089º 39' 12.1"	M	3.34	**x**		Yes
132	td_132_bs_148	30º 03' 48.6"	089º 40' 26.0"	M Sh	3.30	**x**		Yes
132	td_132_bs_149	30º 03' 46.8"	089º 41' 41.7"	M	2.82	**x**		Yes
132	td_132_bs_150	30º 03' 44.9"	089º 42' 57.3"	M	2.45	**x**		Yes
132	td_132_bs_151	30º 04' 30.4"	089º 40' 57.6"	M	3.13	**x**		Yes
132	td_132_bs_155	30º 04' 50.1"	089º 36' 09.5"	M	3.35	**x**		Yes
132	td_132_bs_156	30º 04' 50.9"	089º 34' 53.2"	M	2.73	**x**		Yes
132	td_132_bs_157	30º 04' 52.4"	089º 33' 38.2"	M	3.55	**x**		Yes
132	td_132_bs_158	30º 04' 54.4"	089º 32' 22.1"	M	3.49	**x**		Yes
132	td_132_bs_161	30º 05' 53.3"	089º 29' 18.5"	M Sh	3.47	**x**		No

H11612 Bottom Sample Position (NAD83)								
JD	**Sample Number**	**Latitude (N)**	**Longitude (W)**	**Observed Bottom Type**	**Depth of Bottom Sample (M)**	**Chart # 11371**	**Chart # 11367_1**	**In S-57 Feature File?**
132	td_132_bs_162	30º 05' 51.8"	089º 30' 32.9"	M Sh	3.23	**x**		Yes
132	td_132_bs_164	30º 05' 50.1"	089º 33' 02.4"	M	3.42	**x**		Yes
132	td_132_bs_165	30º 05' 49.0"	089º 34' 17.3"	M	3.24	**x**		Yes
132	td_132_bs_166	30º 05' 47.7"	089º 35' 32.2"	M	3.01	**x**		Yes
132	td_132_bs_167	30º 05' 45.2"	089º 36' 45.8"	M	2.77	**x**		Yes
132	td_132_bs_168	30º 05' 43.9"	089º 37' 59.8"	M	2.88	**x**		Yes
132	td_132_bs_169	30º 05' 42.5"	089º 39' 14.3"	M Sh	2.91	**x**		Yes
132	td_132_bs_170	30º 05' 41.0"	089º 40' 29.8"	M	2.31	**x**	**x**	Yes
132	td_132_bs_171	30º 06' 37.0"	089º 39' 55.0"	M	2.42	**x**	**x**	Yes
132	td_132_bs_172	30º 06' 39.1"	089º 38' 41.2"	M	2.65	**x**	**x**	Yes
132	td_132_bs_173	30º 06' 41.0"	089º 37' 26.4"	M	2.75	**x**	**x**	Yes
132	td_132_bs_174	30º 06' 42.5"	089º 36' 10.6"	M	2.81	**x**	**x**	Yes
132	td_132_bs_175	30º 06' 43.4"	089º 34' 57.2"	M	2.74	**x**		Yes
132	td_132_bs_176	30º 06' 44.6"	089º 33' 42.3"	M	3.65	**x**		Yes
132	td_132_bs_178	30º 06' 47.9"	089º 31' 11.8"	M	3.93	**x**		Yes
132	td_132_bs_179	30º 06' 49.3"	089º 29' 56.4"	M Sh	4.05	**x**		No
132	td_132_bs_180	30º 07' 44.3"	089º 30' 35.9"	M Sh	4.40	**x**	**x**	Yes
132	td_132_bs_181	30º 07' 43.8"	089º 31' 50.5"	M	4.05	**x**	**x**	Yes
132	td_132_bs_184	30º 07' 39.0"	089º 35' 34.4"	M	2.37	**x**	**x**	Yes
132	td_132_bs_187	30º 07' 35.3"	089º 38' 49.8"	M	2.29	**x**	**x**	Yes
132	td_132_bs_188	30º 08' 06.5"	089º 38' 05.1"	M	2.61	**x**	**x**	Yes
132	td_132_bs_193	30º 08' 36.5"	089º 33' 43.8"	M	2.71	**x**	**x**	Yes
132	td_132_bs_194	30º 08' 37.9"	089º 32' 30.0"	M	3.02	**x**	**x**	Yes
132	td_132_bs_195	30º 08' 39.6"	089º 31' 15.4"	M	3.42	**x**	**x**	Yes
132	td_132_bs_196	30º 09' 36.3"	089º 30' 38.7"	M	4.11	**x**	**x**	No
132	td_132_bs_197	30º 09' 35.4"	089º 31' 53.4"	M	2.70	**x**	**x**	Yes
132	td_132_bs_198	30º 09' 34.3"	089º 33' 08.6"	M	2.57	**x**	**x**	Yes
132	td_132_bs_199	30º 09' 32.9"	089º 34' 08.0"	M	2.95	**x**	**x**	Yes
132	td_132_bs_200	30º 10' 29.9"	089º 33' 47.0"	M	1.83	**x**	**x**	Yes
132	td_132_bs_201	30º 10' 30.8"	089º 32' 32.5"	M	2.17	**x**	**x**	Yes
132	td_132_bs_202	30º 10' 31.5"	089º 31' 18.2"	M	2.86	**x**	**x**	Yes

Bathymetric Attributed Grid Nodes that Fail IHO Order 1

There were two 1-meter BAGs created for Sheet H11612. Some nodes in these BAGs have uncertainties that exceed IHO Order 1 uncertainty. Information for each of these nodes is presented in two text files (one for each BAG). These text files are:

- H11612_1_of_2_Uncertainty_Exceeds.txt
- H11612_2_of_2_Uncertainty_Exceeds.txt

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0077 Least Depth: 6(ft), 2.04(m) Lat: 30 10 54.32N Lon: 089 31 48.78W Ping: Beam:

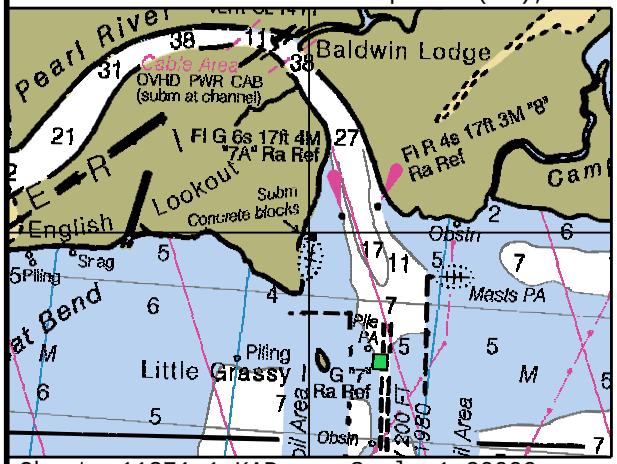


Chart: 11371_1.KAP Scale 1:20000

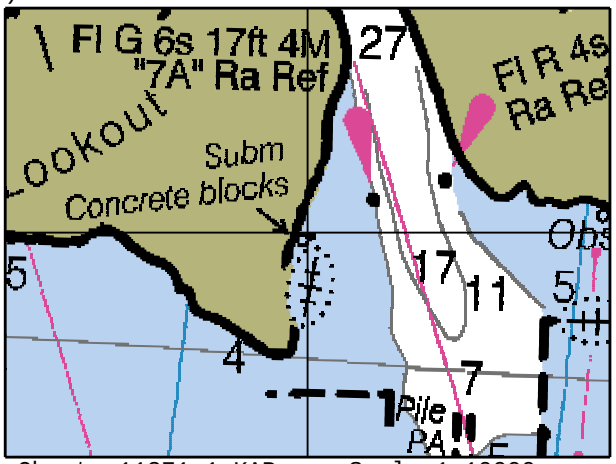
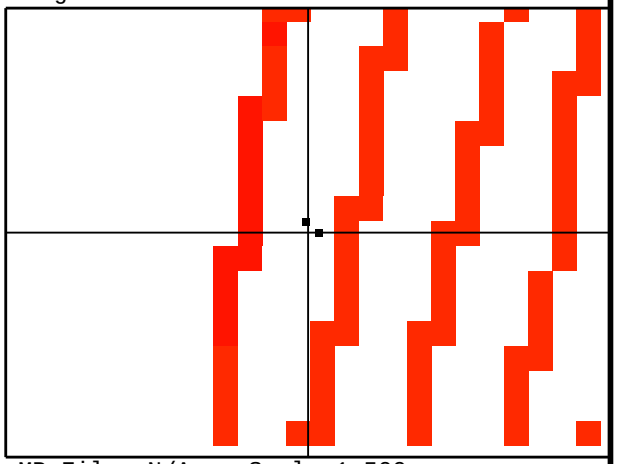
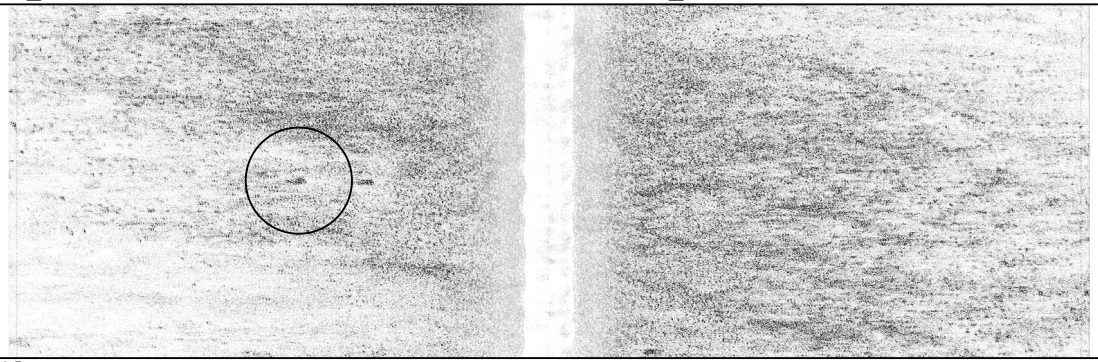


Chart: 11371_1.KAP Scale 1:10000

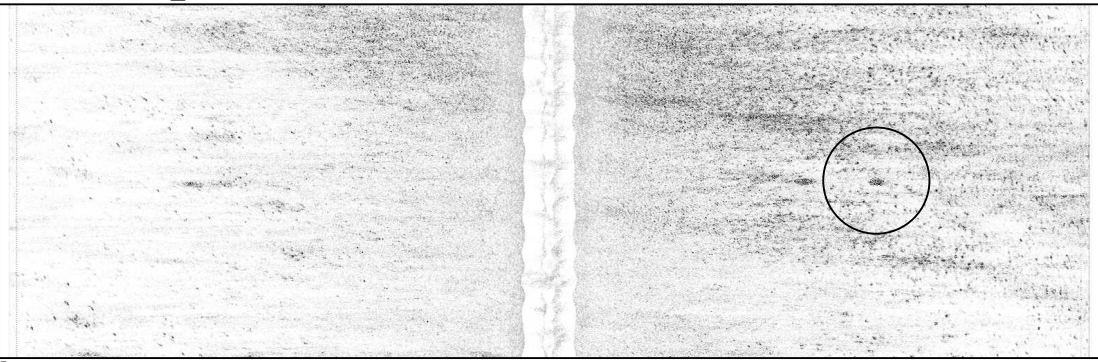


MB File: N/A Scale 1:500



ID: 156 File: TD07070_070311185600.XTF 30 10 54.34N 089 31 48.73W RNG: -11.38 HGT: 0.20 HDG: 186

COMMENT:
OBSTRS Plot symbol Obstr and label Subm concrete blocks



ID: 79 File: TD07029_070129175100.XTF 30 10 54.42N 089 31 48.83W RNG: 14.75 HGT: 0.25 HDG: 188

CORRELATED SS CONTACTS:

Contact	Range/Height
070185755	-11.38/0.20
029175456	14.75/0.25

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0076 Least Depth: Lat: 30 09 20.97N Lon: 089 31 29.69W Ping: Beam:

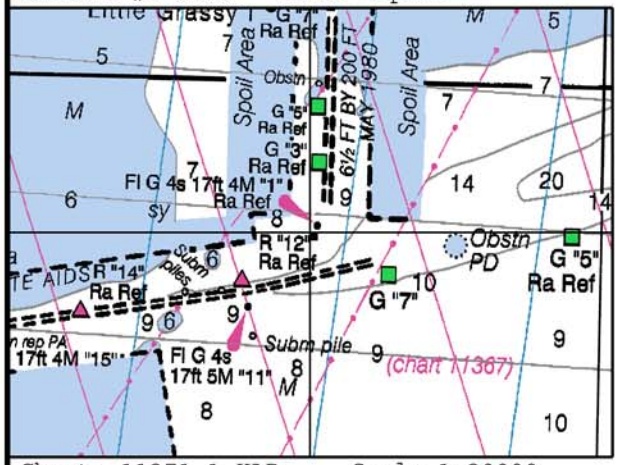


Chart: 11371_1.KAP Scale 1:20000

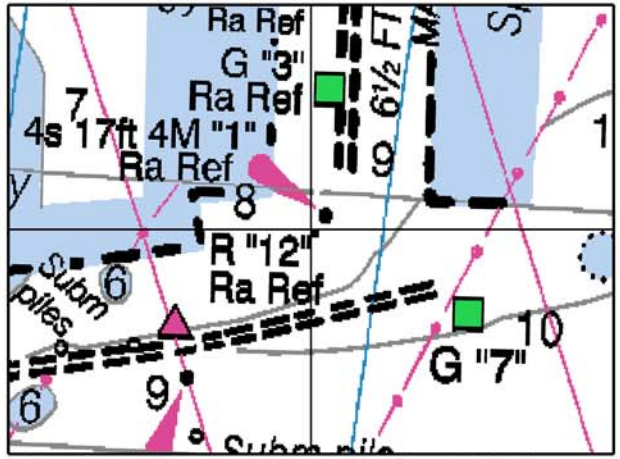
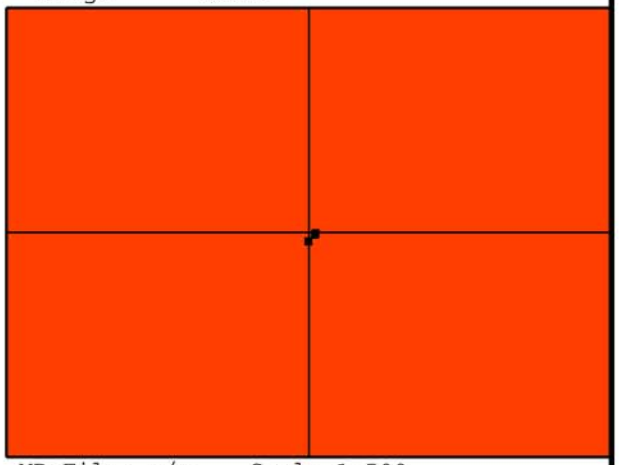
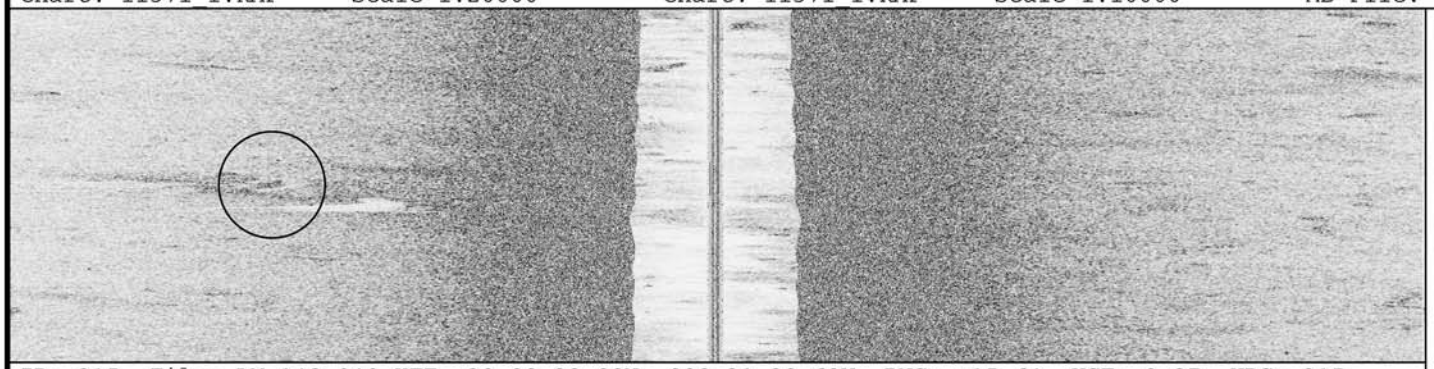


Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500



ID: 315 File: LM 148 040.XTF 30 09 20.98N 089 31 29.68W RNG: -15.64 HGT: 0.87 HDG: 315

COMMENT:
DAYBEACON Plot Daybeacon symbol and label Fl G 4s 17ft 4M '1' Ra Ref

CORRELATED SS CONTACTS:

Contact	Range/Height
148193218	-15.64/0.87
148192112	-14.45/0.92
014192251	-4.44/1.44

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0075 Least Depth: Lat: 30 08 29.64N Lon: 089 35 39.84W Ping: Beam:

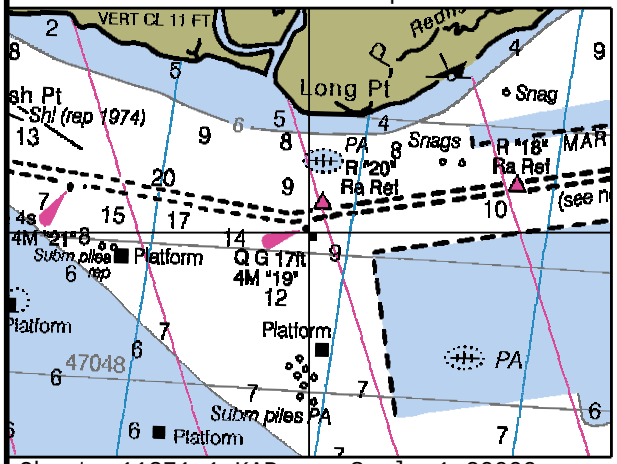


Chart: 11371_1.KAP Scale 1:20000

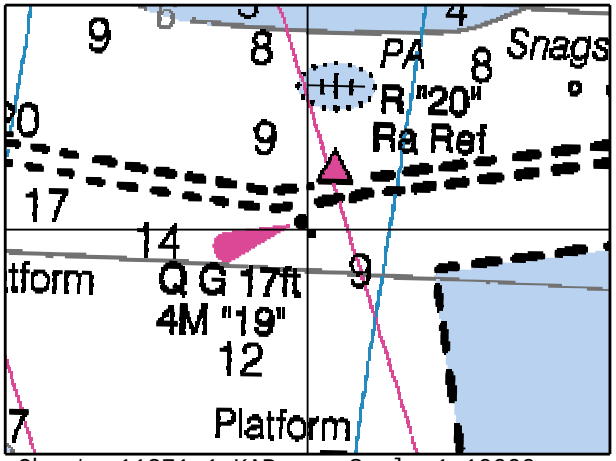
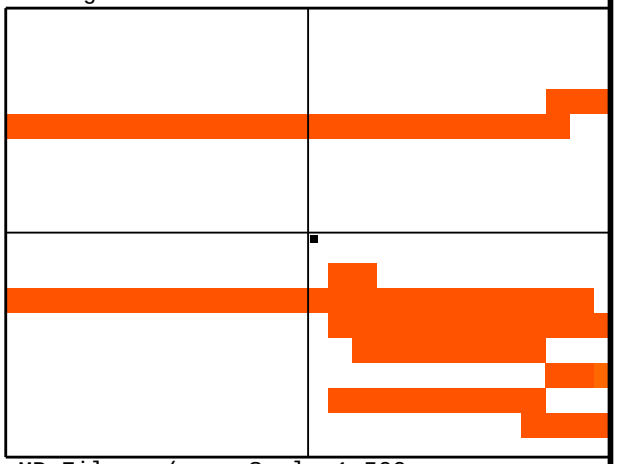
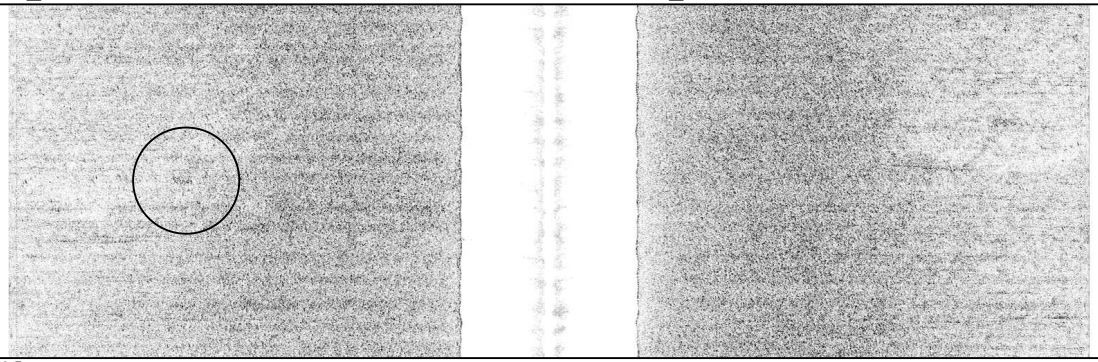


Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500



ID: 319 File: TD07026_070126212000.XTF 30 08 29.63N 089 35 39.82W RNG: -16.47 HGT: 0.24 HDG: 092

COMMENT:
BUOY Plot Buoy symbol and label G '19'

CORRELATED SS CONTACTS:

Contact	Range/Height
026213921	-16.47/0.24

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0074 Least Depth: Lat: 30 08 36.72N Lon: 089 35 35.70W Ping: Beam:

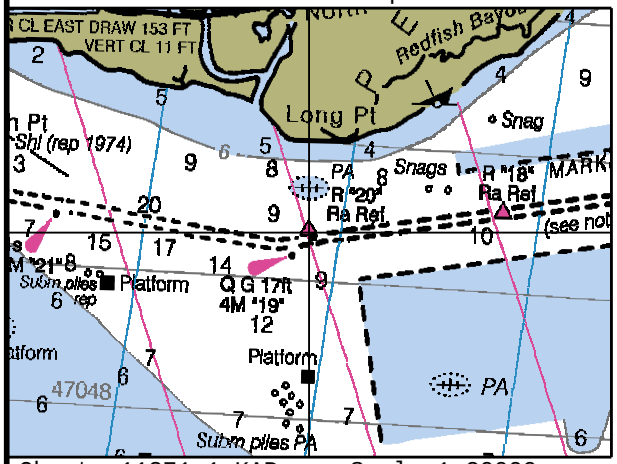


Chart: 11371_1.KAP Scale 1:20000

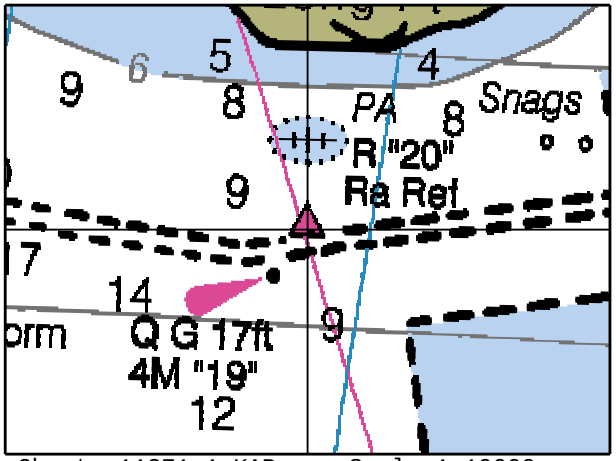
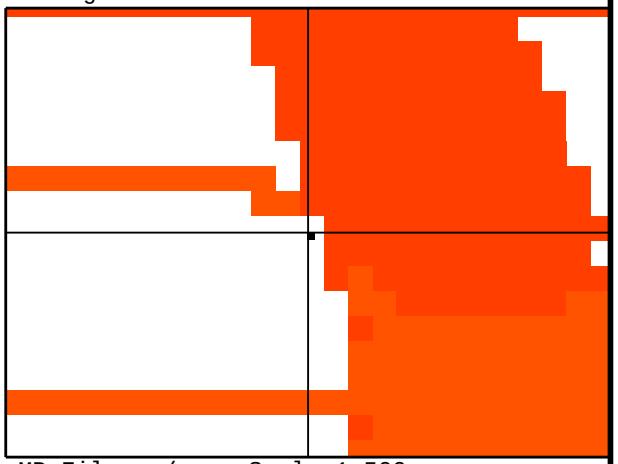
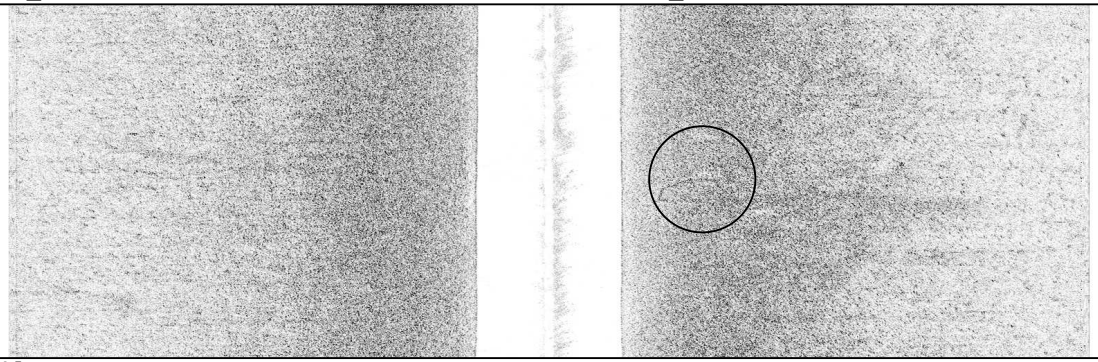


Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500



ID: 320 File: TD07025_070125184200.XTF 30 08 36.72N 089 35 35.71W RNG: 6.88 HGT: 0.05 HDG: 091

COMMENT:
BUOY Plot Buoy symbol and label R ’20’

CORRELATED SS CONTACTS:

Contact	Range/Height
025185725	6.88/0.05

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0073 Least Depth: Lat: 30 05 39.48N Lon: 089 39 50.22W Ping: Beam:

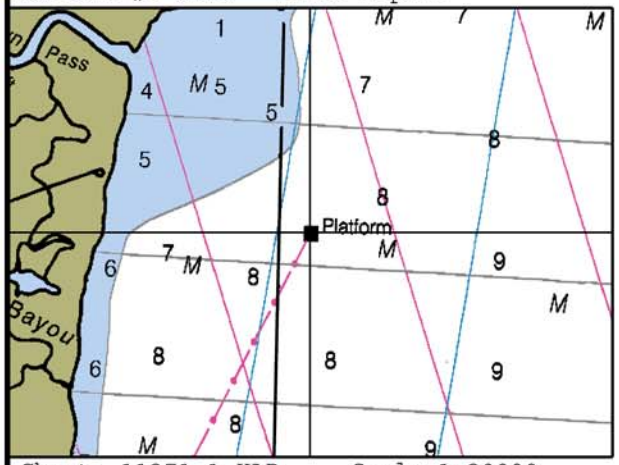


Chart: 11371_1.KAP Scale 1:20000

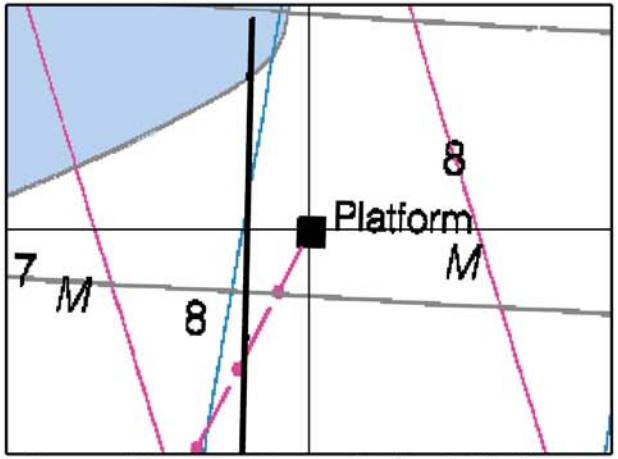
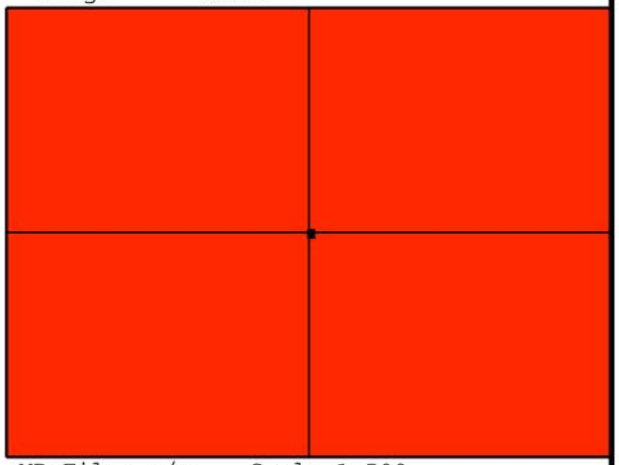
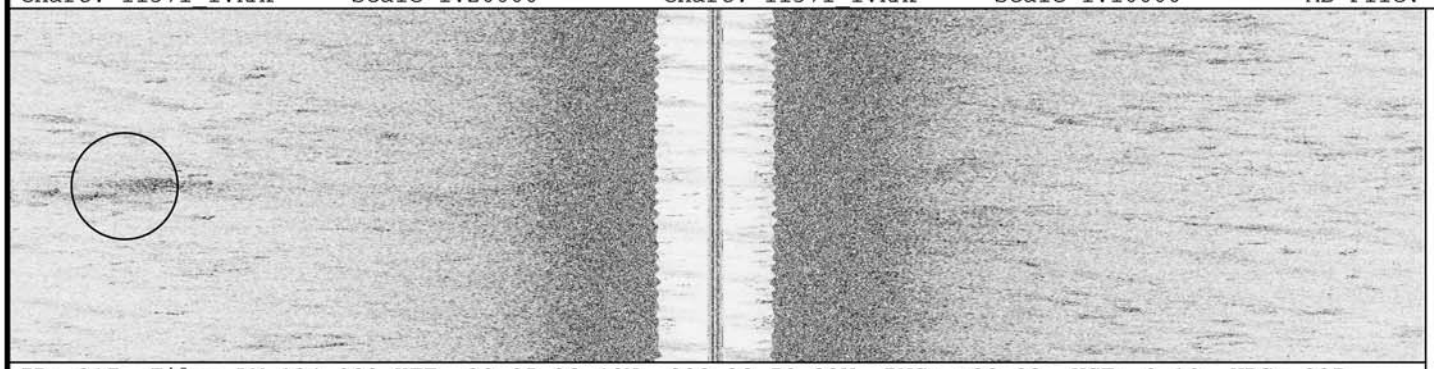


Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500



ID: 317 File: LM 134 002.XTF 30 05 39.49N 089 39 50.23W RNG: -20.92 HGT: 0.10 HDG: 095

COMMENT:
PLATFORM Plot platform symbol

CORRELATED SS CONTACTS:

Contact	Range/Height
134134025	-20.92/0.10
134173025	-19.53/0.16

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0072 Least Depth: Lat: 30 07 17.05N Lon: 089 34 37.52W Ping: Beam:

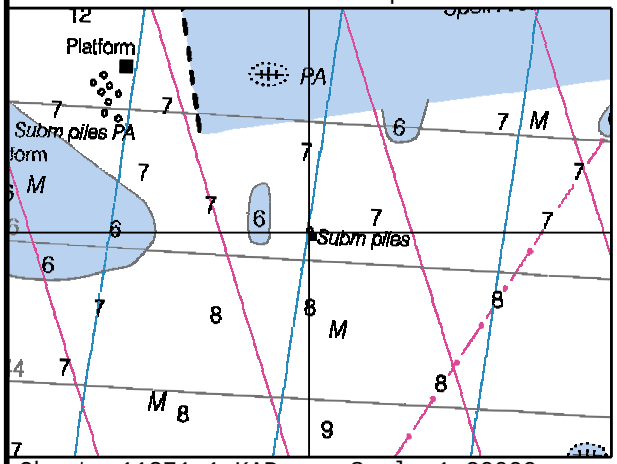


Chart: 11371_1.KAP Scale 1:20000

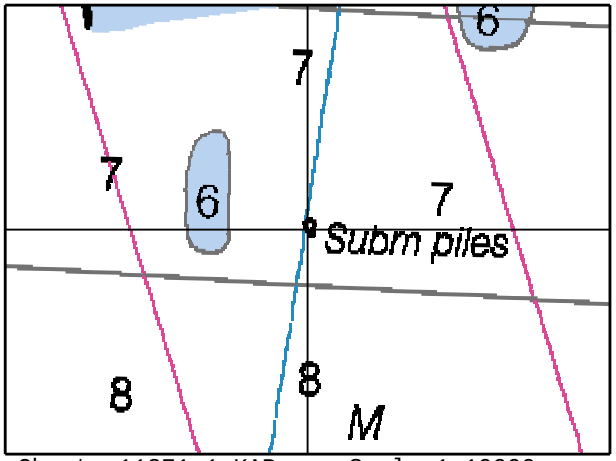
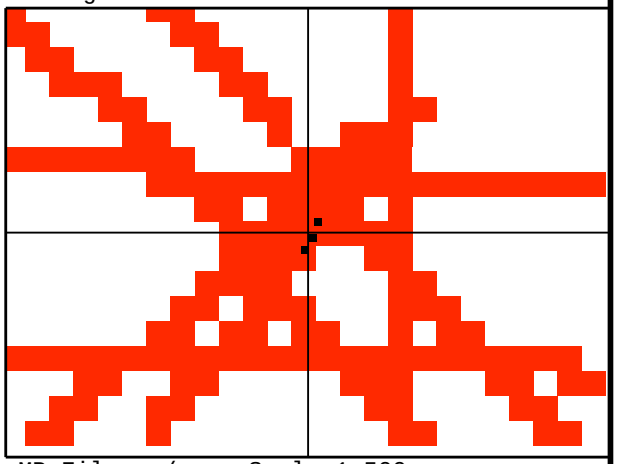
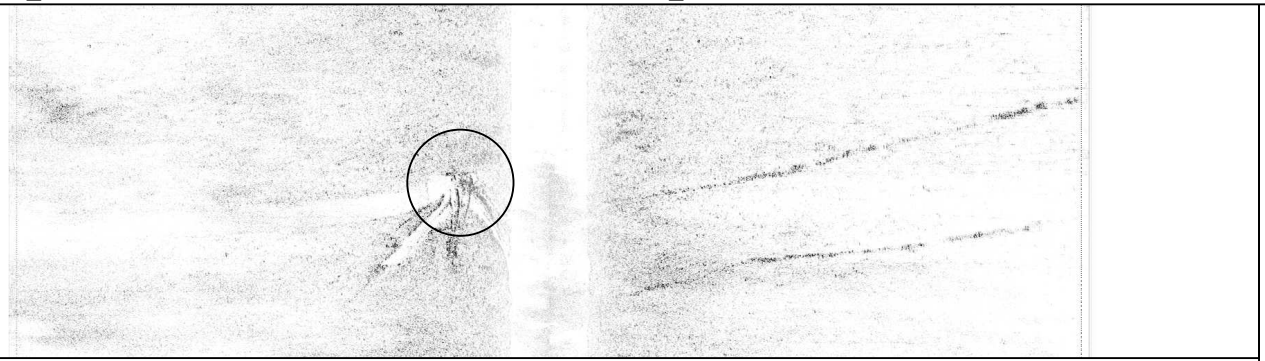


Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500



ID: 269 File: TD07141_070521141900.XTF 30 07 17.04N 089 34 37.52W RNG: -4.06 HGT: 1.61 HDG: 036

COMMENT:
SUBM PILES Plot Pile symbol and label Subm piles

ID: 268 File: TD07141_070521141900.XTF 30 07 16.96N 089 34 37.57W RNG: -2.69 HGT: 1.56 HDG: 233

CORRELATED SS CONTACTS:

Contact	Range/Height
141142225	-4.06/1.61
141142044	-2.69/1.56
152202453	6.97/1.59

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0071 Least Depth: Lat: 30 08 06.57N Lon: 089 37 25.21W Ping: Beam:

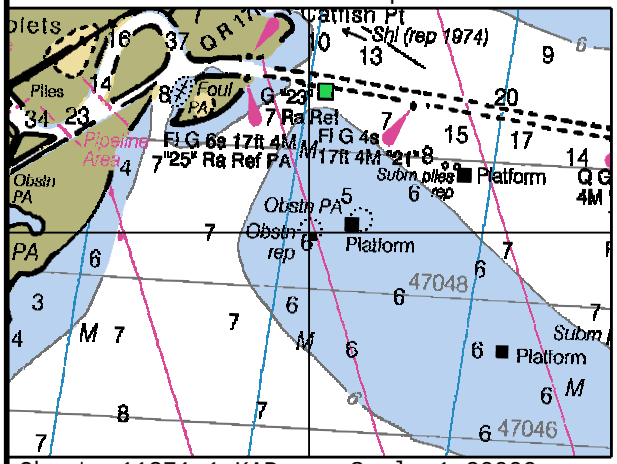


Chart: 11371_1.KAP Scale 1:20000

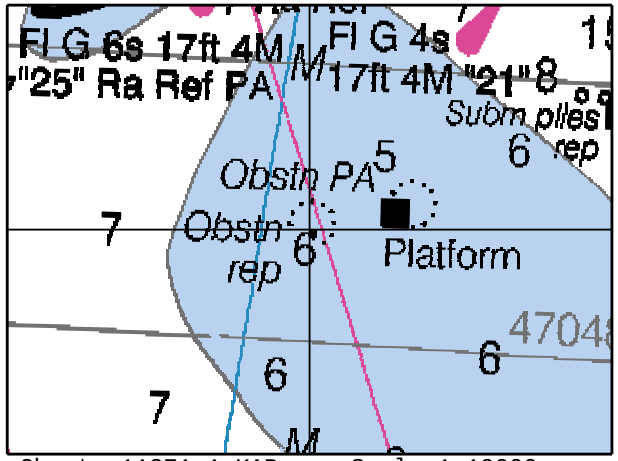
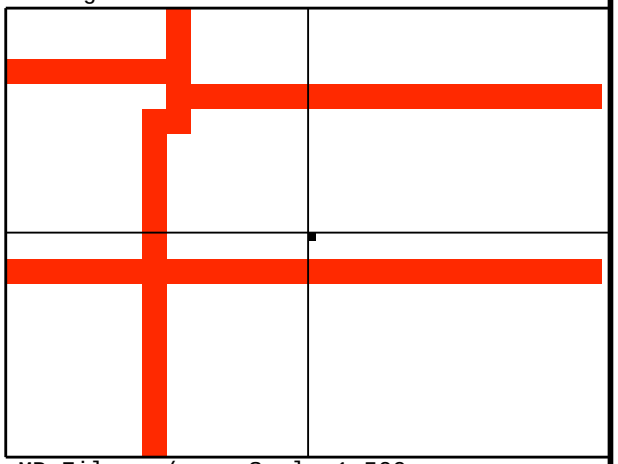
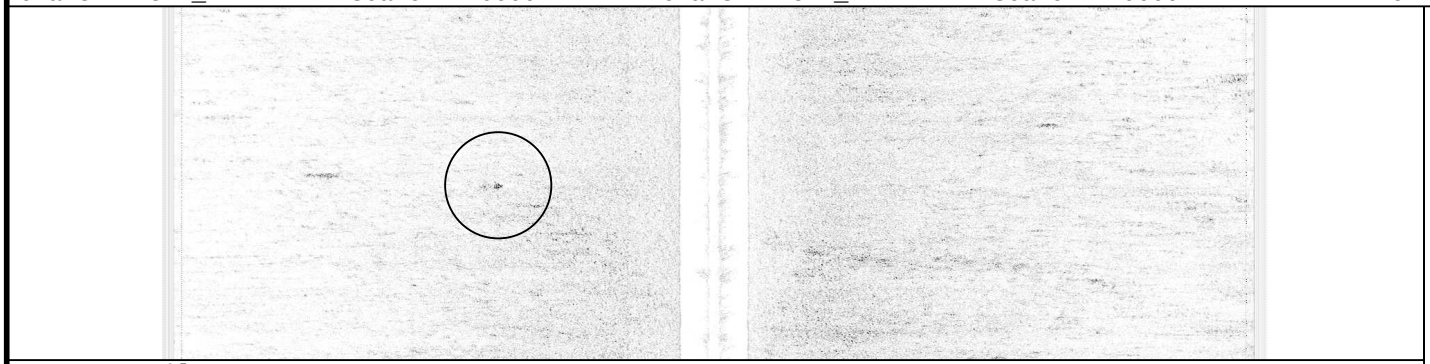


Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500



ID: 108 File: TD07032_070201212500.XTF 30 08 06.57N 089 37 25.21W RNG: -9.81 HGT: 0.86 HDG: 087

COMMENT:
PILE Plot Pile symbol

CORRELATED SS CONTACTS:

Contact	Range/Height
032213214	-9.81/0.86

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0070 Least Depth: Lat: 30 10 48.44N Lon: 089 33 13.25W Ping: Beam:

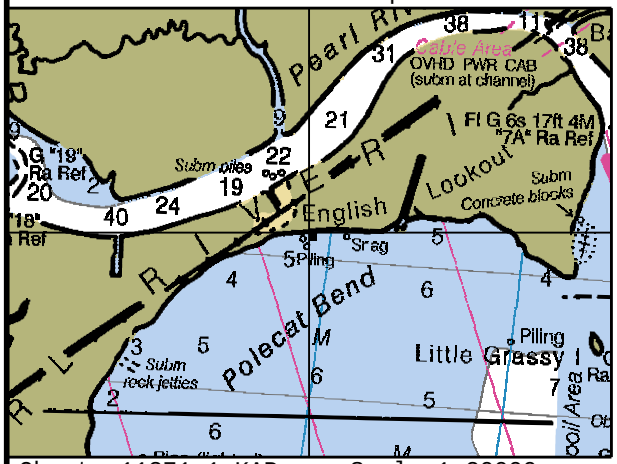


Chart: 11371_1.KAP Scale 1:20000

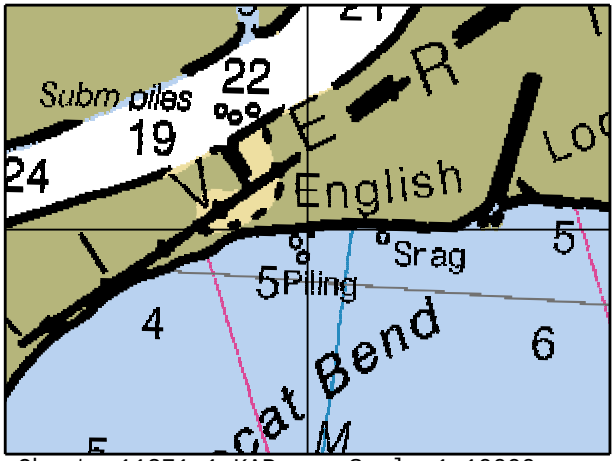
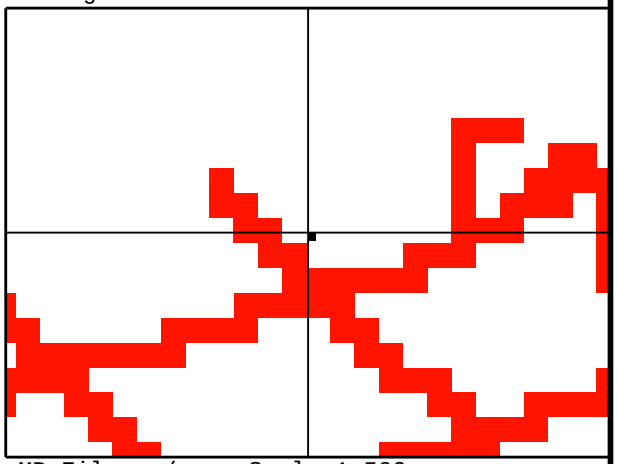
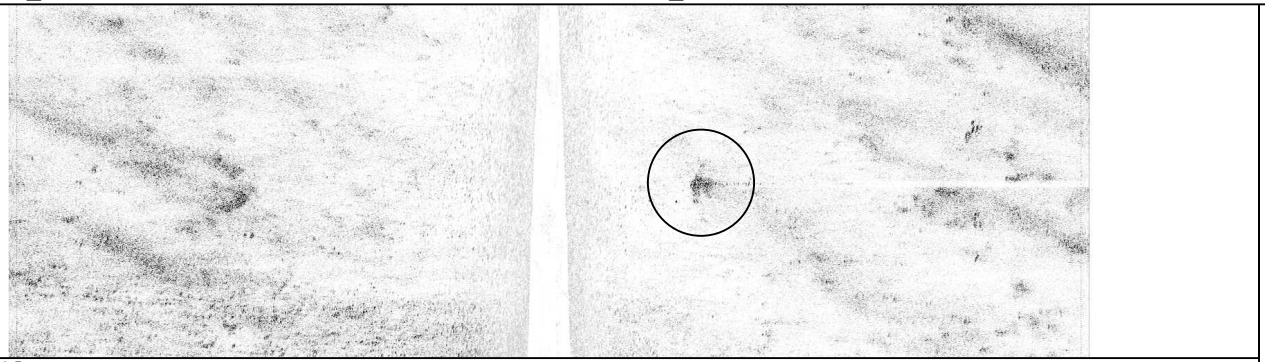


Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500



ID: 190 File: TD07083_070324211300.XTF 30 10 48.44N 089 33 13.25W RNG: 6.81 HGT: 0.46 HDG: 315

COMMENT:
SUBM PILES Plot Pile symbol
(see Feature 66)

CORRELATED SS CONTACTS:

Contact	Range/Height
083211700	6.81/0.46

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0069 Least Depth: Lat: 30 10 44.80N Lon: 089 33 16.28W Ping: Beam:

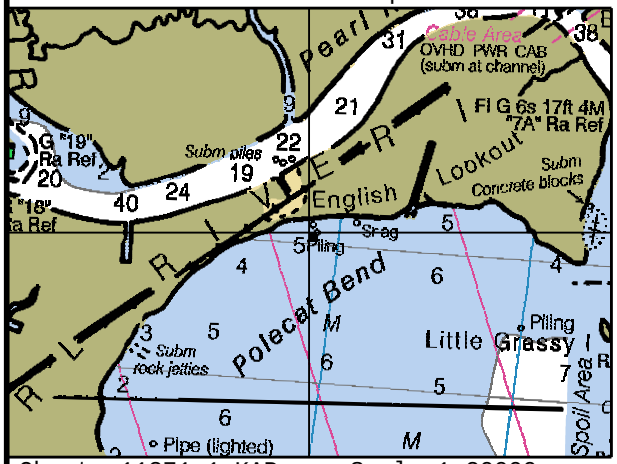


Chart: 11371_1.KAP Scale 1:20000

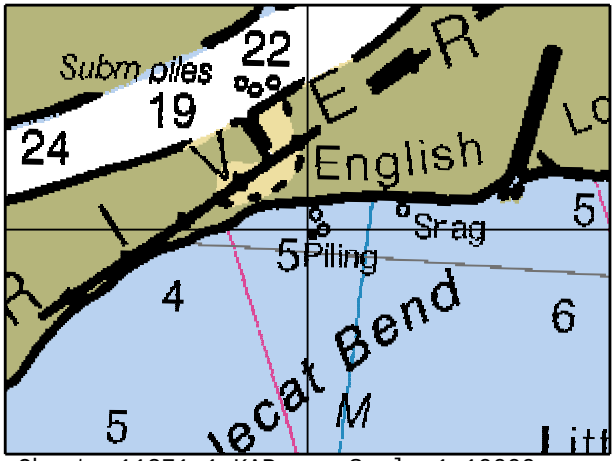
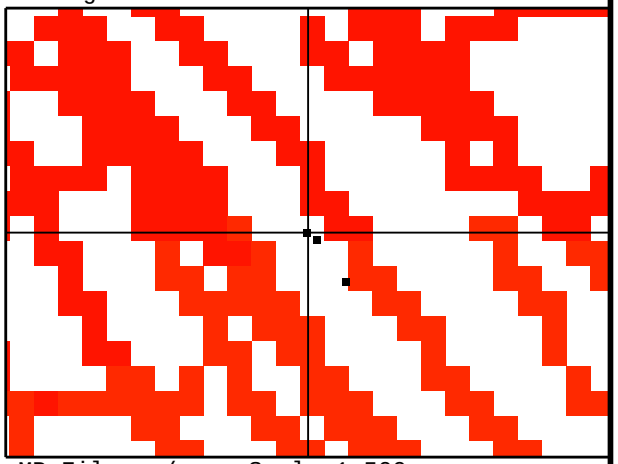
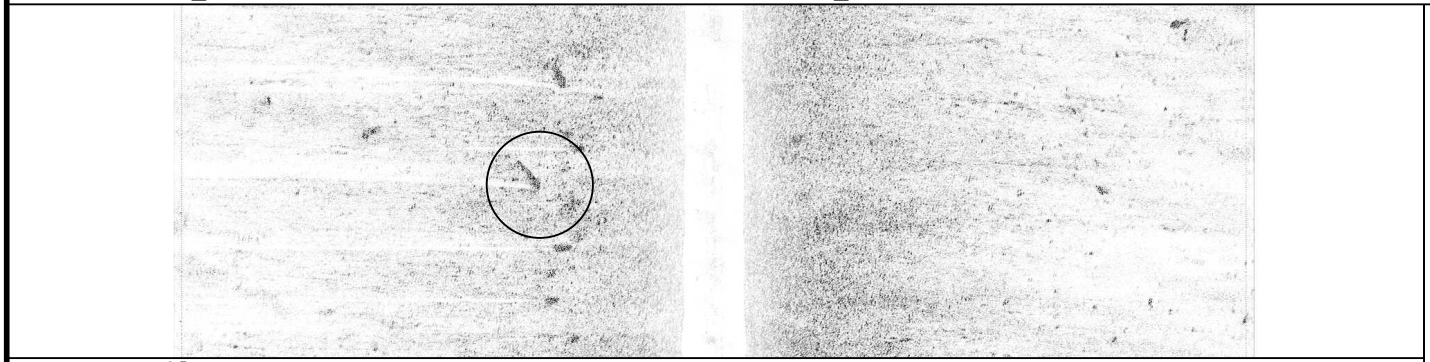


Chart: 11371_1.KAP Scale 1:10000

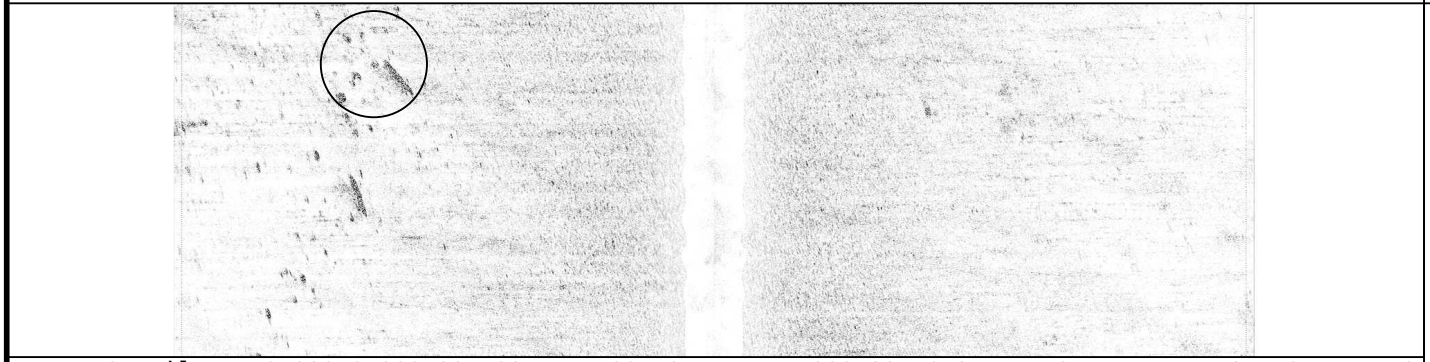


MB File: n/a Scale 1:500



ID: 187 File: TD07083_070324201200.XTF 30 10 44.82N 089 33 16.32W RNG: -7.94 HGT: 0.88 HDG: 319

COMMENT:
SUBM PILES Plot Pile symbol
(see Feature 66)



ID: 179 File: TD07083_070324201100.XTF 30 10 44.77N 089 33 16.25W RNG: -15.44 HGT: 0.51 HDG: 136

CORRELATED SS CONTACTS:

Contact	Range/Height
083201554	-7.94/0.88
083201152	-15.44/0.51
083201159	-15.09/0.54

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0068 Least Depth: Lat: 30 10 44.08N Lon: 089 33 15.75W Ping: Beam:

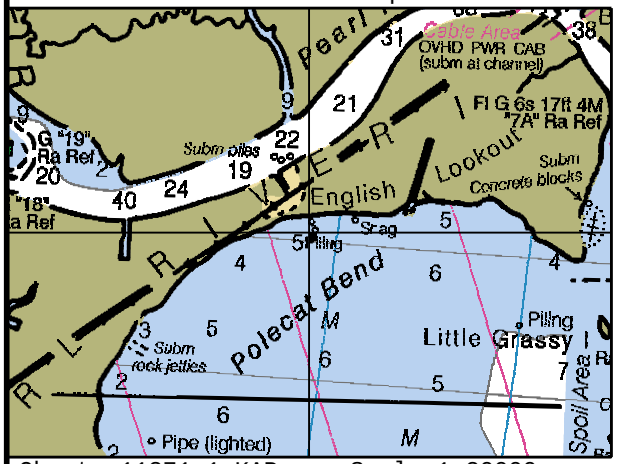


Chart: 11371_1.KAP Scale 1:20000

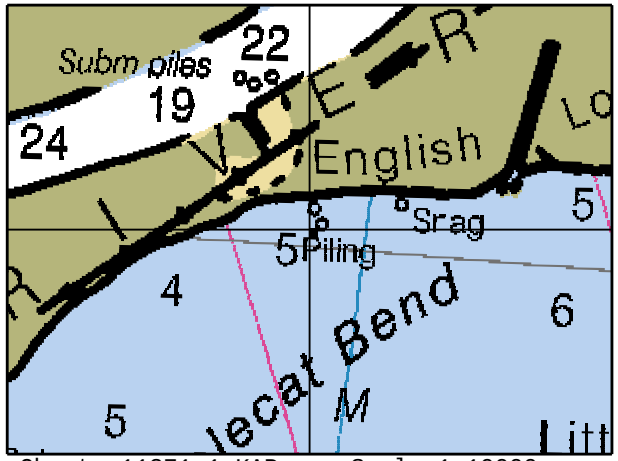
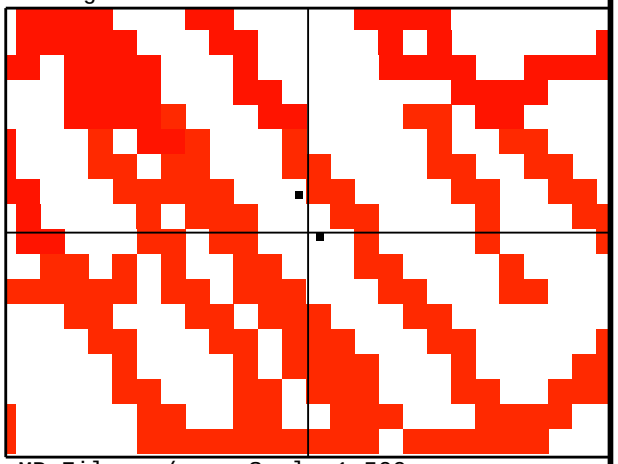
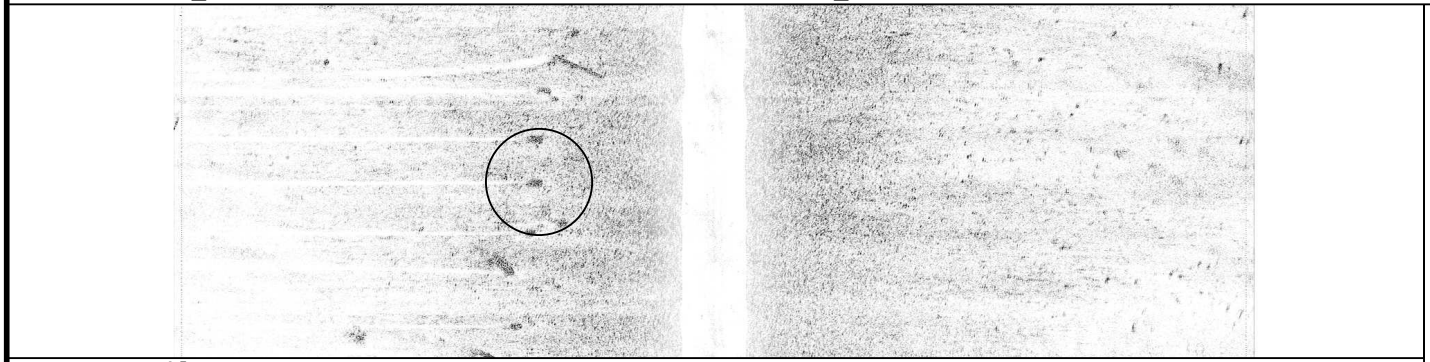


Chart: 11371_1.KAP Scale 1:10000

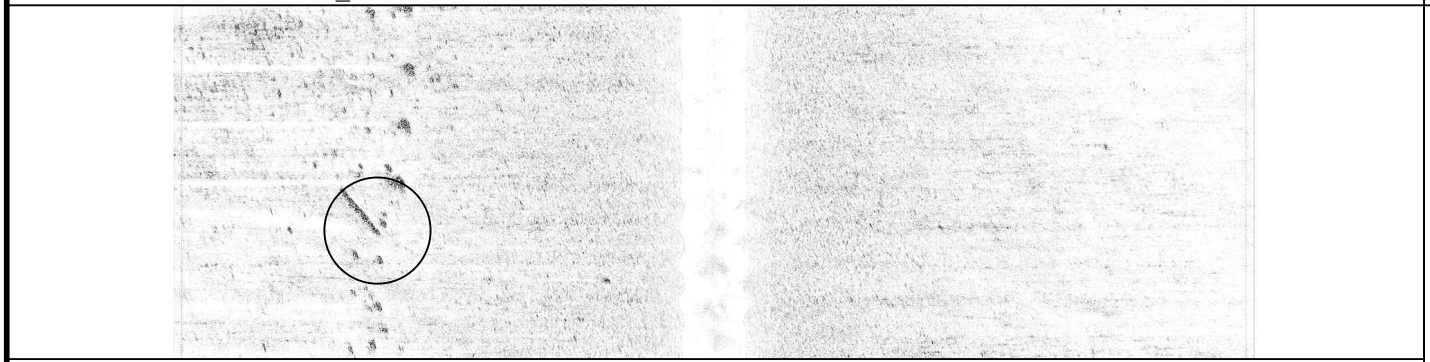


MB File: n/a Scale 1:500



ID: 186 File: TD07083_070324201200.XTF 30 10 44.08N 089 33 15.69W RNG: -7.97 HGT: 0.88 HDG: 323

COMMENT:
SUBM PILES Plot Pile symbol
(see Feature 66)



ID: 181 File: TD07083_070324201100.XTF 30 10 44.35N 089 33 15.86W RNG: -15.28 HGT: 0.51 HDG: 141

CORRELATED SS CONTACTS:

Contact	Range/Height
083201540	-7.97/0.88
083201203	-15.28/0.51

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0067 Least Depth: Lat: 30 10 43.04N Lon: 089 33 14.78W Ping: Beam:

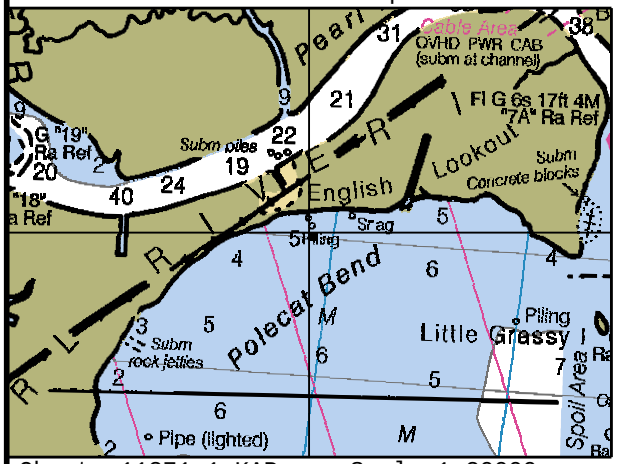


Chart: 11371_1.KAP Scale 1:20000

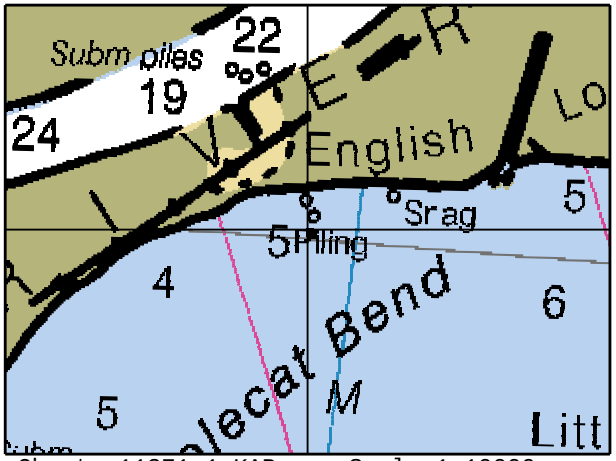
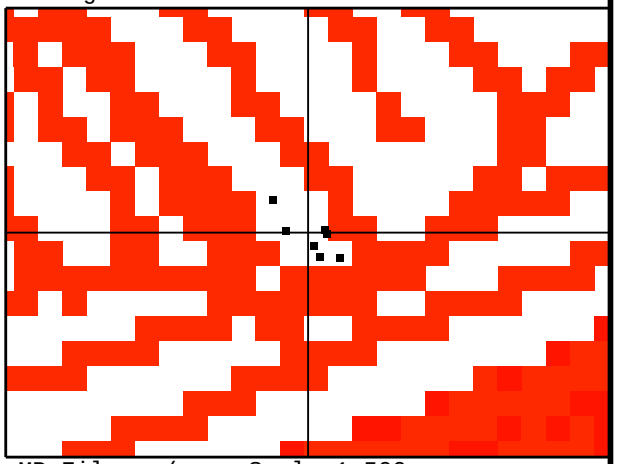
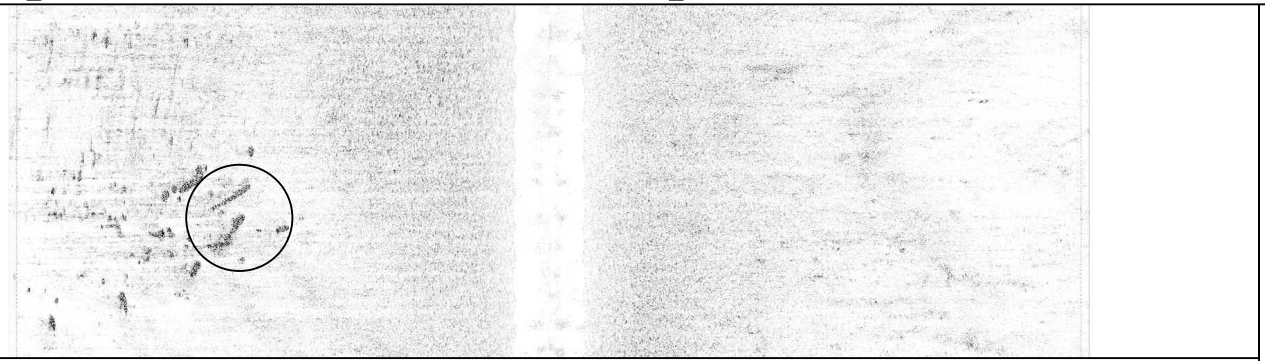


Chart: 11371_1.KAP Scale 1:10000

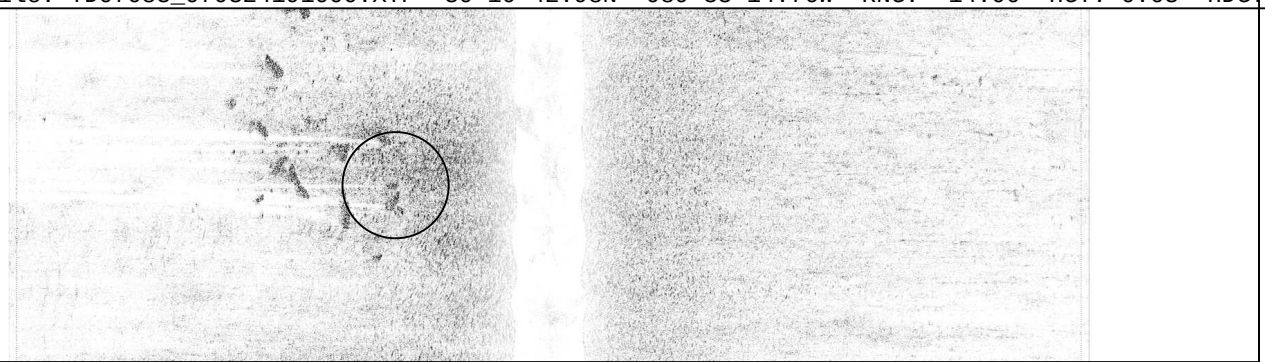


MB File: n/a Scale 1:500



ID: 177 File: TD07083_070324191000.XTF 30 10 42.98N 089 33 14.76W RNG: -14.06 HGT: 0.63 HDG: 099

COMMENT:
SUBM PILES Plot Pile symbol
(see Feature 66)



ID: 185 File: TD07083_070324201200.XTF 30 10 43.09N 089 33 14.68W RNG: -7.00 HGT: 1.06 HDG: 327

CORRELATED SS CONTACTS:

Contact	Range/Height
083192030	-14.06/0.63
083201518	-7.00/1.06
083204901	13.09/0.74
083201239	-13.91/0.70
083204904	16.41/0.45
083201515	-7.69/0.65
083201229	-12.56/0.73

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0066 Least Depth: Lat: 30 10 41.80N Lon: 089 33 13.97W Ping: Beam:

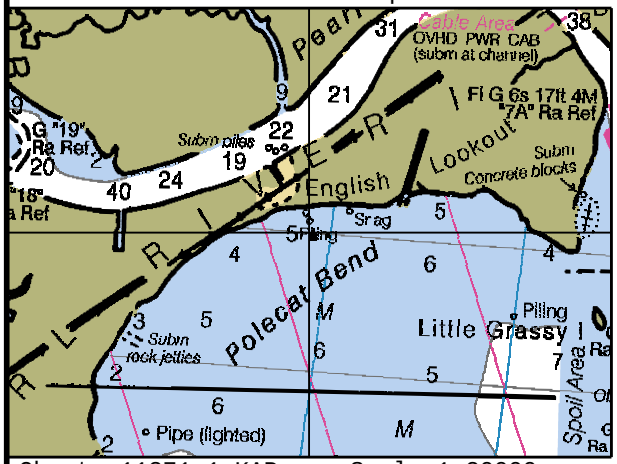


Chart: 11371_1.KAP Scale 1:20000

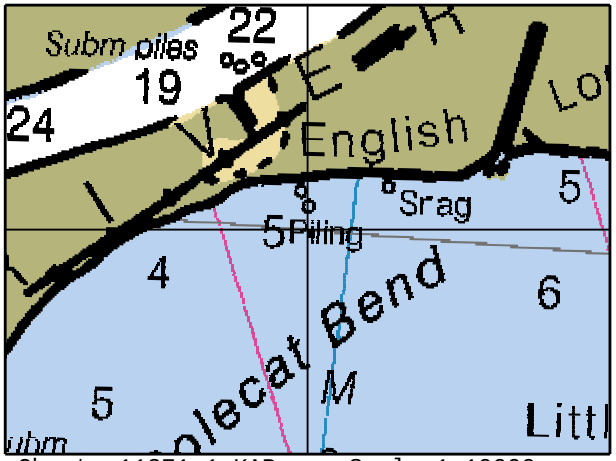
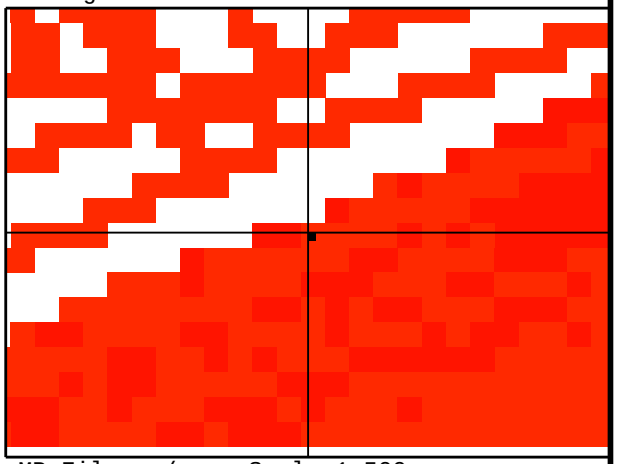
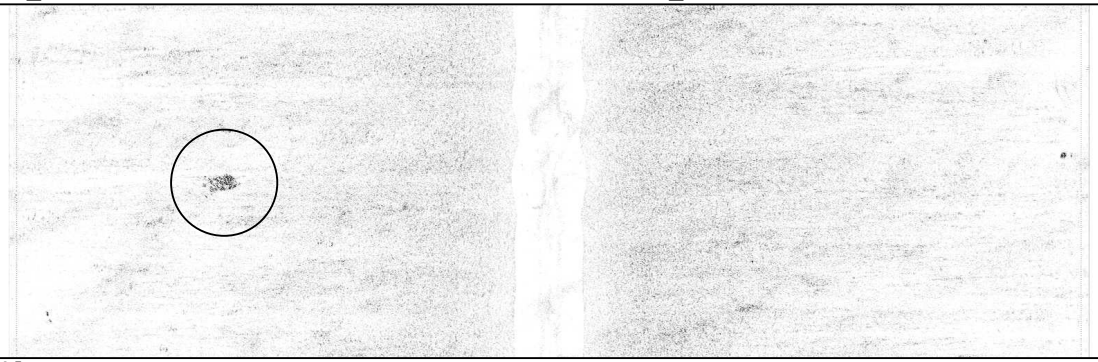


Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500



ID: 181 File: TD07083_070324185800.XTF 30 10 41.80N 089 33 13.97W RNG: -14.75 HGT: 0.57 HDG: 253

COMMENT:
SUBM PILES Plot Pile symbol and label Subm piles (see Feature 67, 68, 69 and 70)

CORRELATED SS CONTACTS:

Contact	Range/Height
083190419	-14.75/0.57

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0065 Least Depth: Lat: 30 03 39.68N Lon: 089 39 33.50W Ping: Beam:

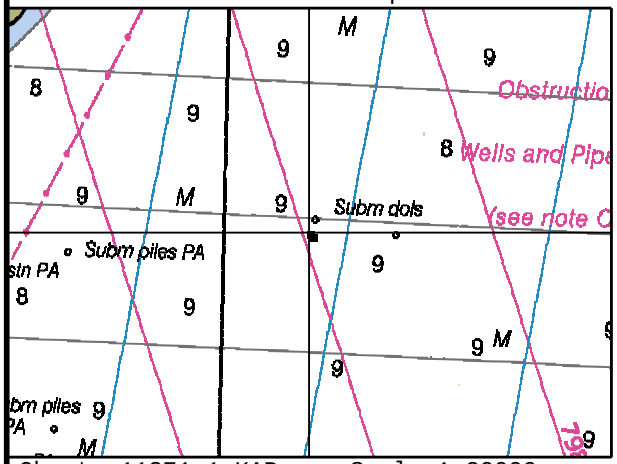


Chart: 11371_1.KAP Scale 1:20000

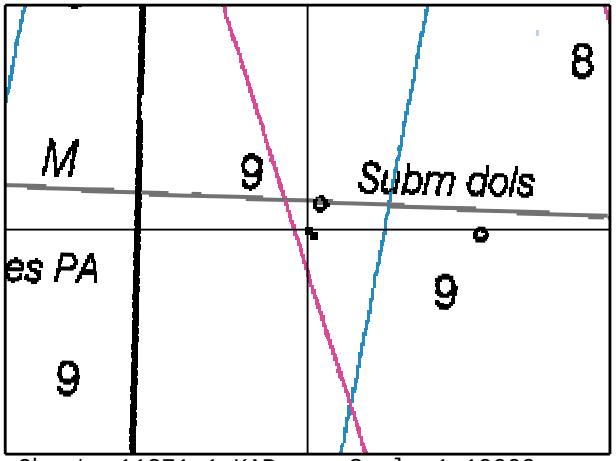
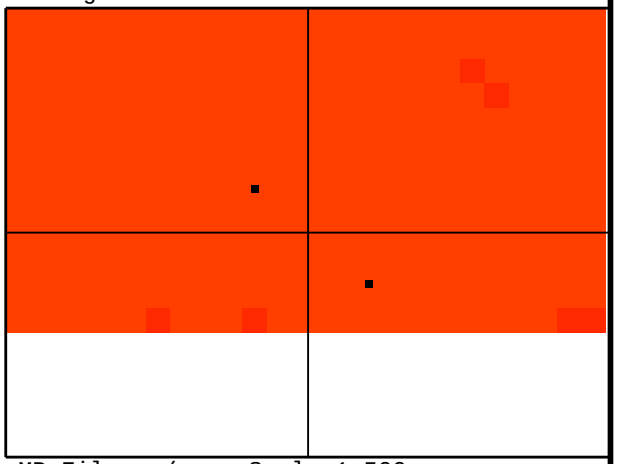


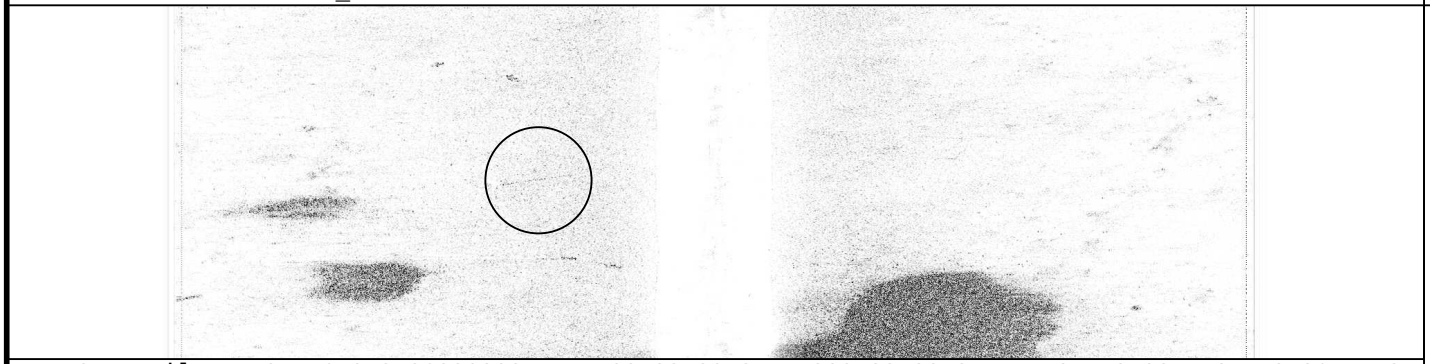
Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500

ID: 173 File: TD07077_070318212300.XTF 30 03 39.98N 089 39 33.95W RNG: -16.72 HGT: 0.54 HDG: 266

COMMENT:
SUBM PILES Plot Pile symbol and label Subm piles



ID: 255 File: TD07116_070426200800.XTF 30 03 39.37N 089 39 33.05W RNG: -8.00 HGT: 0.86 HDG: 091

CORRELATED SS CONTACTS:

Contact	Range/Height
077212403	-16.72/0.54
116203411	-8.00/0.86

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0064 Least Depth: Lat: 30 07 55.93N Lon: 089 35 34.95W Ping: Beam:

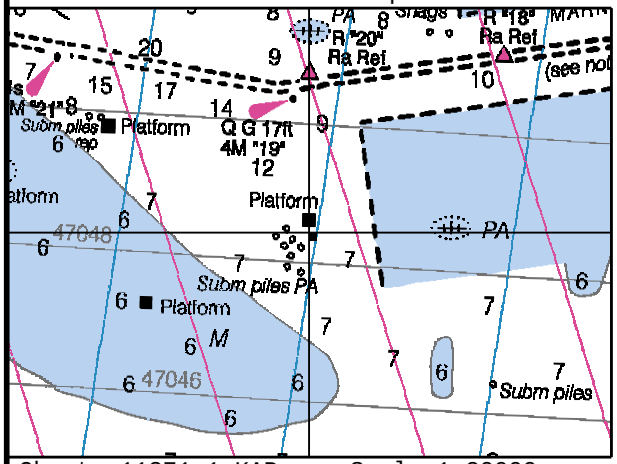


Chart: 11371_1.KAP Scale 1:20000

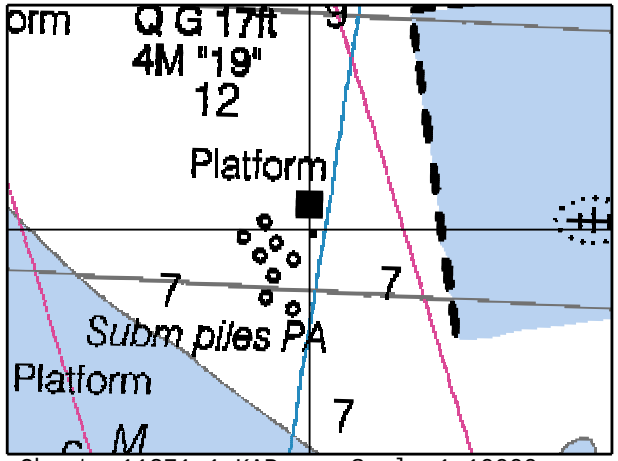
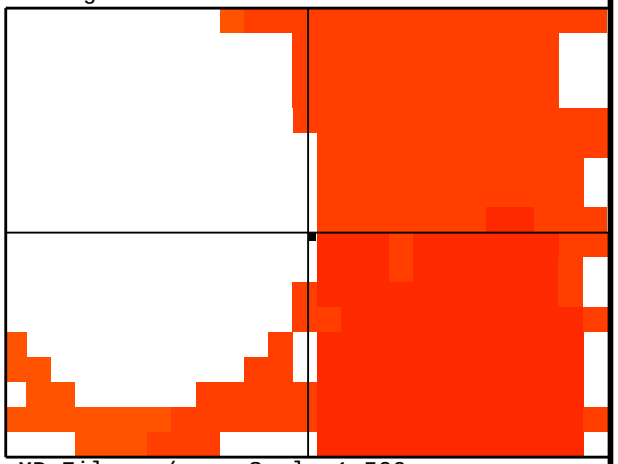
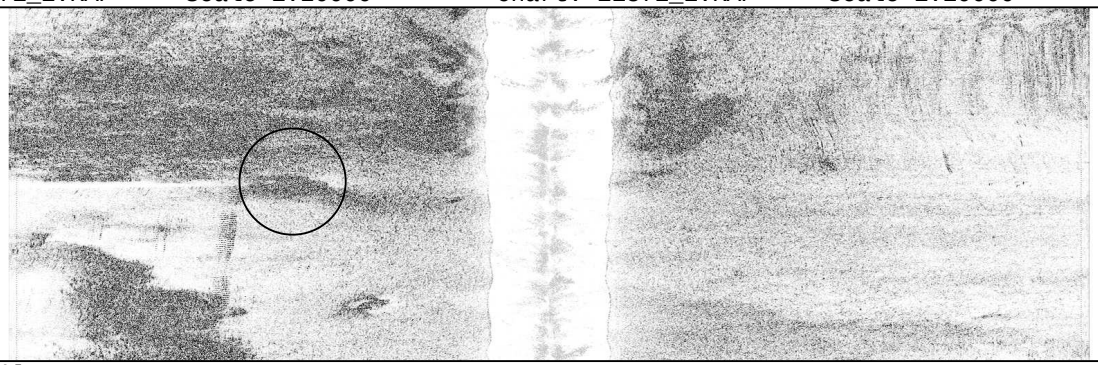


Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500



ID: 167 File: TD07070_070311220400.XTF 30 07 55.93N 089 35 34.95W RNG: -11.66 HGT: 1.30 HDG: 028

COMMENT:
DOLPHIN Plot Dolphin symbol
(see Feature 63)

CORRELATED SS CONTACTS:

Contact	Range/Height
070220756	-11.66/1.30

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0063 Least Depth: Lat: 30 07 55.11N Lon: 089 35 36.31W Ping: Beam:

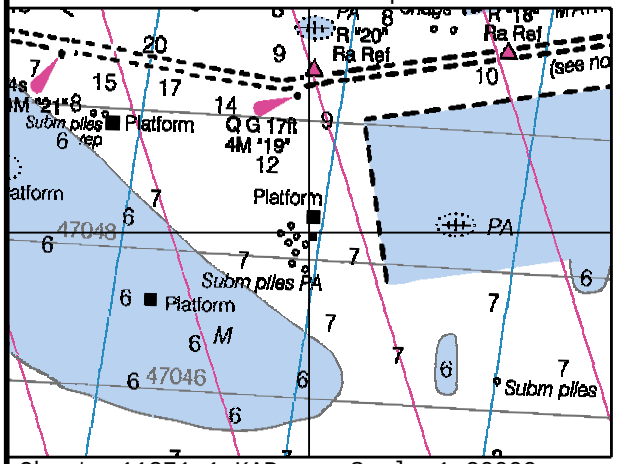


Chart: 11371_1.KAP Scale 1:20000

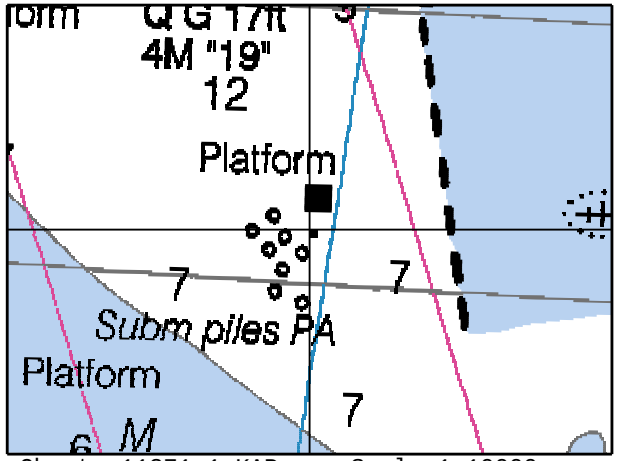
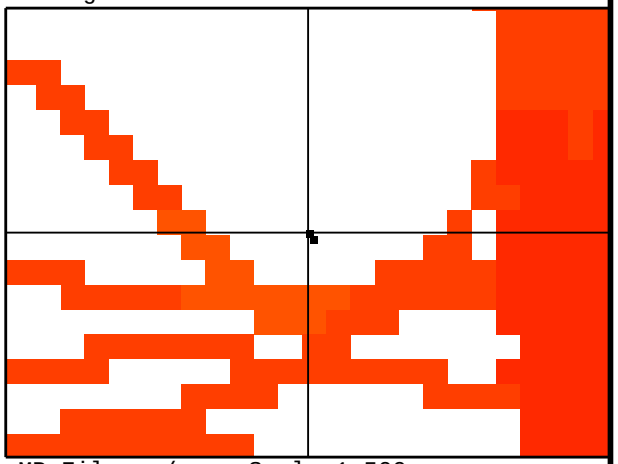
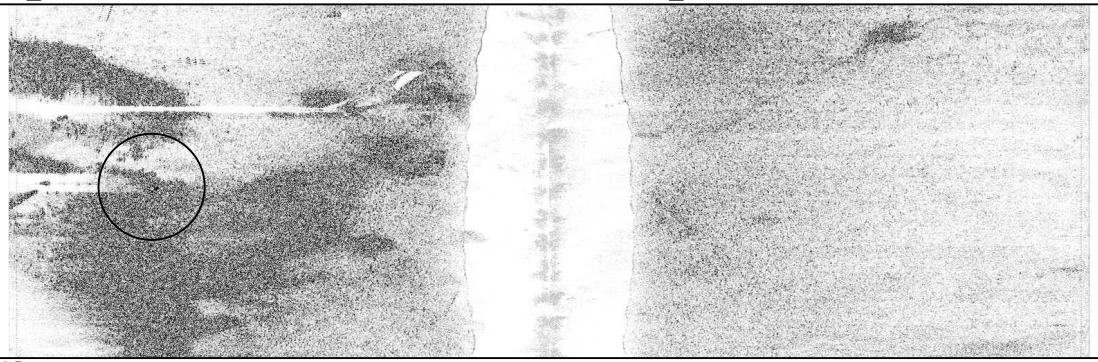


Chart: 11371_1.KAP Scale 1:10000

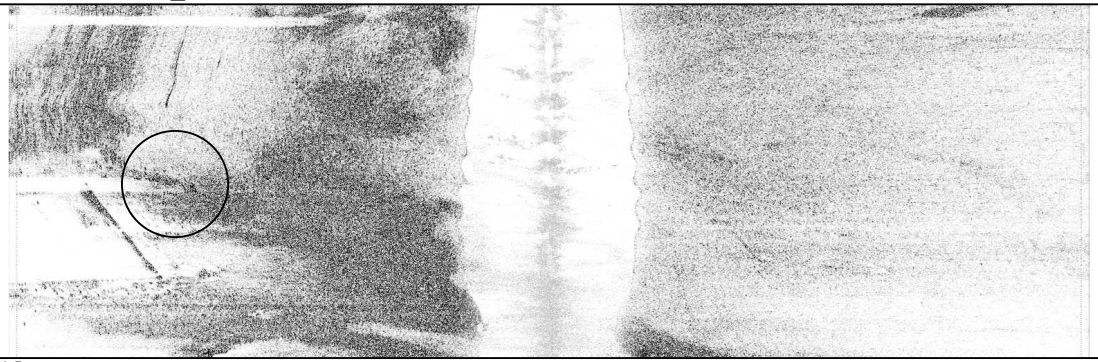


MB File: n/a Scale 1:500



ID: 160 File: TD07070_070311214700.XTF 30 07 55.12N 089 35 36.33W RNG: -18.03 HGT: 0.95 HDG: 098

COMMENT:
DOLPHIN Plot Dolphin symbol and label Dols (see Features 61, 62 and 64)



ID: 170 File: TD07070_070311220400.XTF 30 07 55.09N 089 35 36.29W RNG: -16.97 HGT: 0.95 HDG: 131

CORRELATED SS CONTACTS:

Contact	Range/Height
070215334	-18.03/0.95
070220734	-16.97/0.95

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0062 Least Depth: Lat: 30 07 55.73N Lon: 089 35 37.17W Ping: Beam:

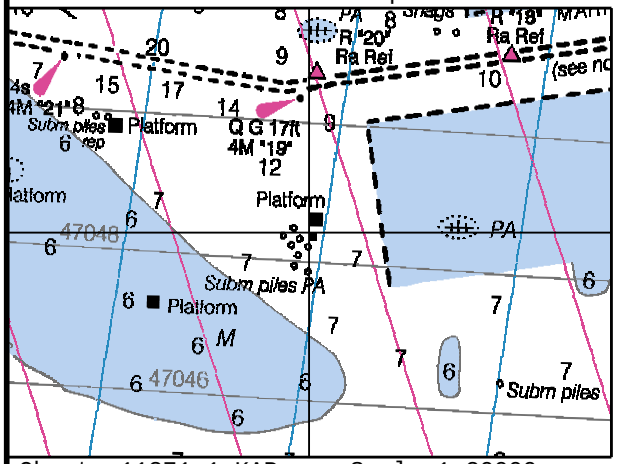


Chart: 11371_1.KAP Scale 1:20000

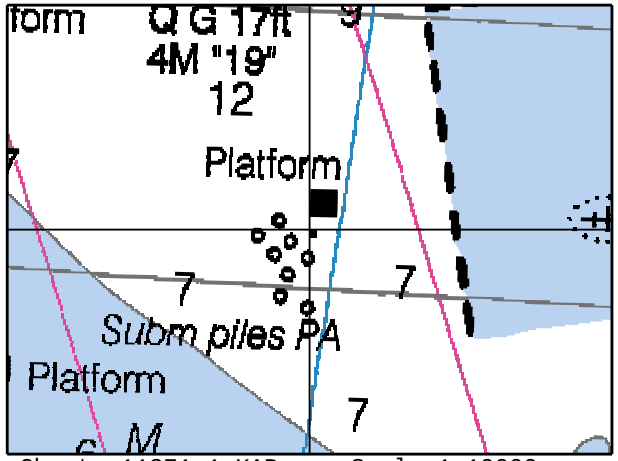
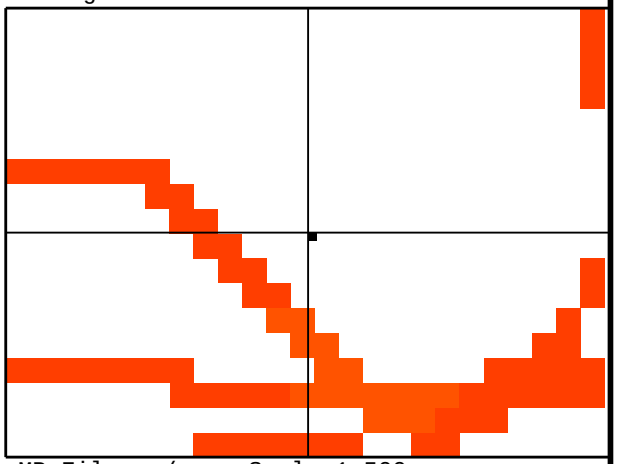
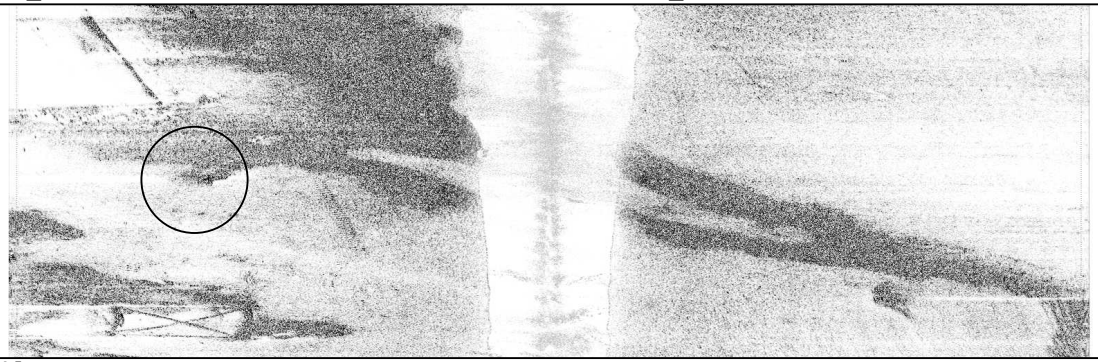


Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500



ID: 163 File: TD07070_070311220400.XTF 30 07 55.73N 089 35 37.16W RNG: -16.09 HGT: 0.91 HDG: 133

COMMENT:
DOLPHIN Plot Dolphin symbol
(see Feature 63)

CORRELATED SS CONTACTS:

Contact	Range/Height
070220726	-16.09/0.91

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0061 Least Depth: Lat: 30 07 55.53N Lon: 089 35 38.57W Ping: Beam:

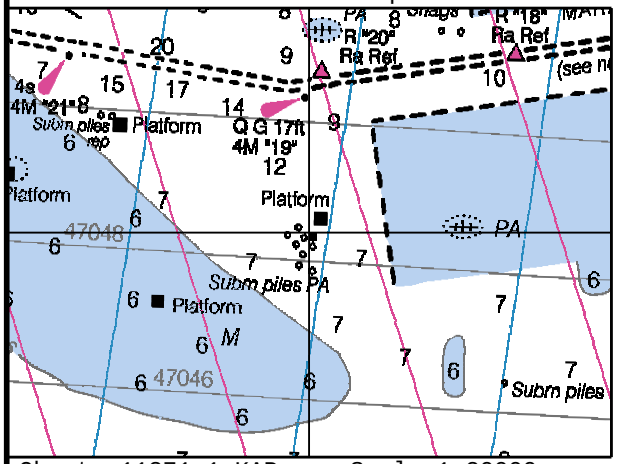


Chart: 11371_1.KAP Scale 1:20000

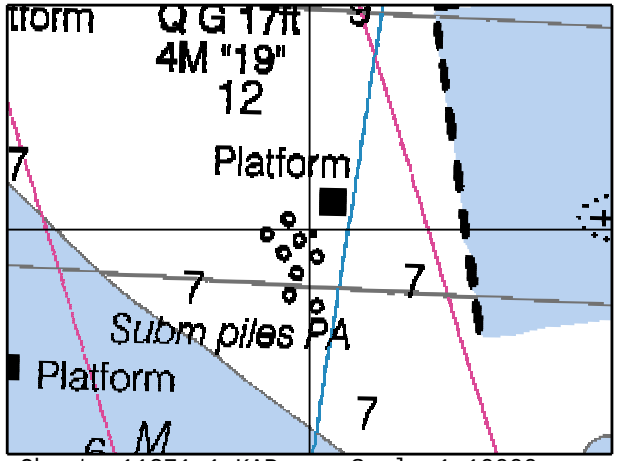
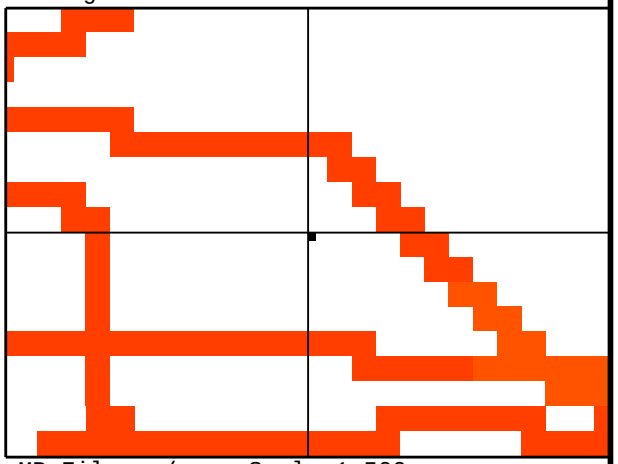
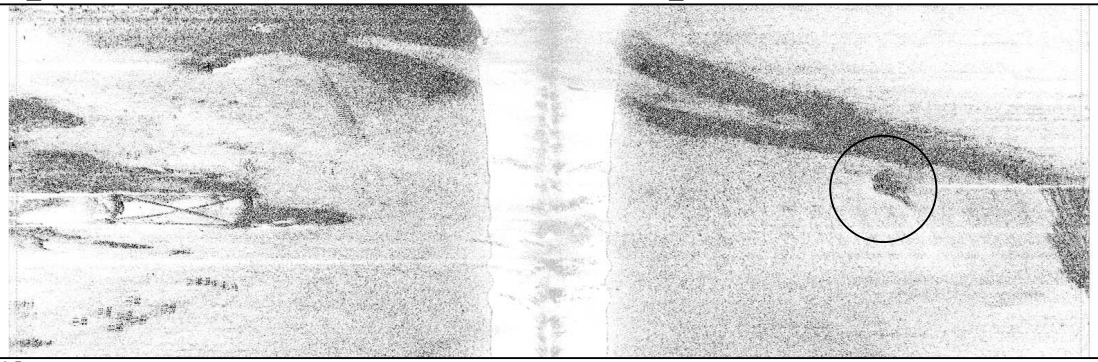


Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500



ID: 162 File: TD07070_070311220400.XTF 30 07 55.53N 089 35 38.57W RNG: 15.06 HGT: 0.93 HDG: 133

COMMENT:
DOLPHIN Plot Dolphin symbol
(see Feature 63)

CORRELATED SS CONTACTS:

Contact	Range/Height
070220720	15.06/0.93

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0060 Least Depth: 11(ft), 3.43(m) Lat: 30 06 37.32N Lon: 089 30 44.86W Ping: 6809 Beam: 1

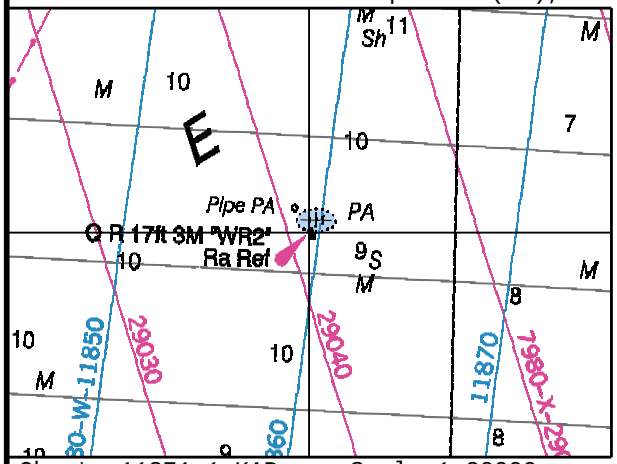


Chart: 11371_1.KAP Scale 1:20000

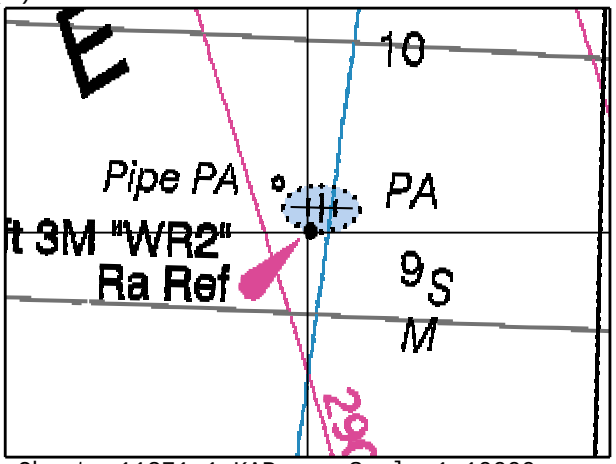
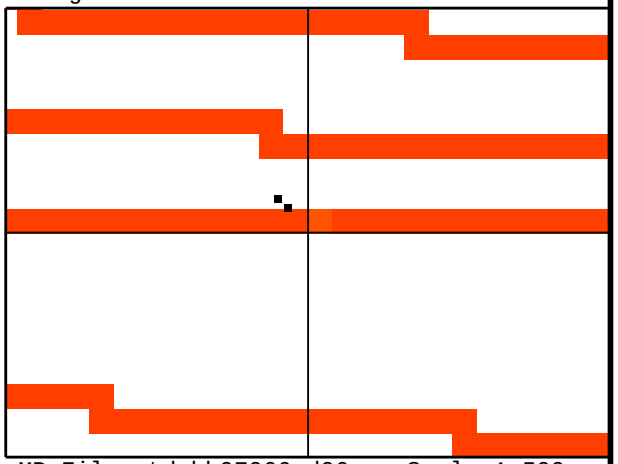
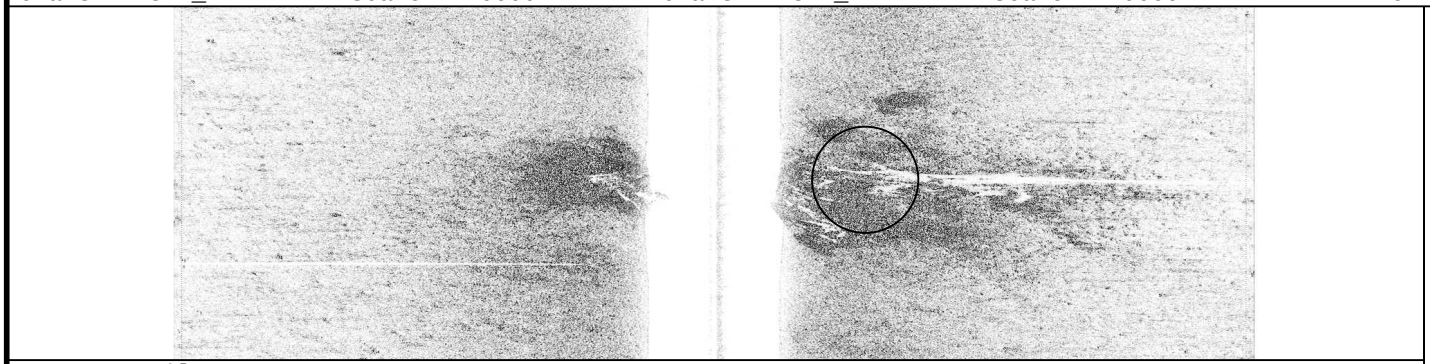


Chart: 11371_1.KAP Scale 1:10000

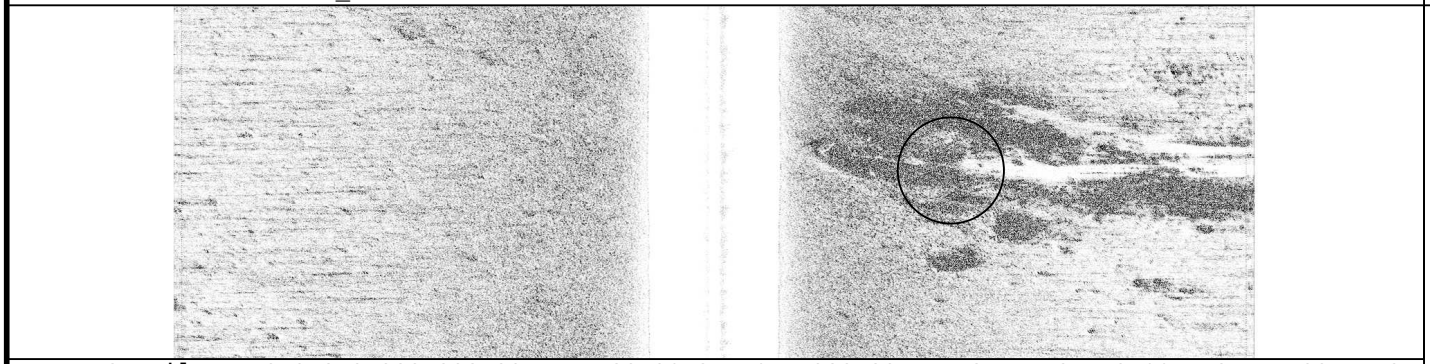


MB File: tdsbh07066.d06 Scale 1:500



ID: 148 File: TD07066_070307161000.XTF 30 06 37.50N 089 30 45.05W RNG: 6.78 HGT: 1.61 HDG: 269

COMMENT:
WRECK Plot sounding and symbol Wk



ID: 143 File: TD07058_070227203100.XTF 30 06 37.56N 089 30 45.13W RNG: 10.66 HGT: 1.20 HDG: 093

CORRELATED SS CONTACTS:

Contact	Range/Height
066161624	6.78/1.61
058203305	10.66/1.20

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0059 Least Depth: Lat: 30 06 37.17N Lon: 089 30 44.44W Ping: Beam:

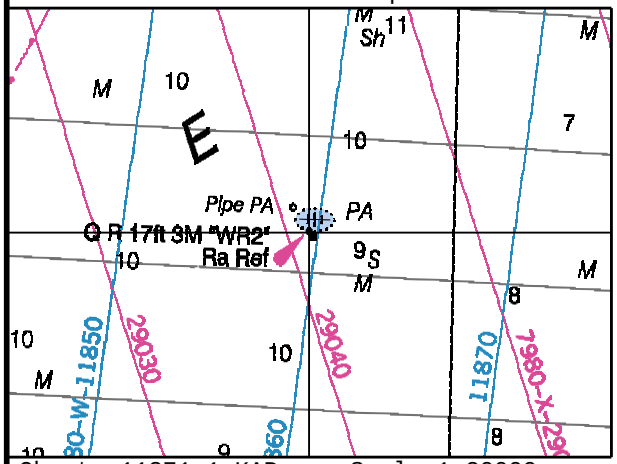


Chart: 11371_1.KAP Scale 1:20000

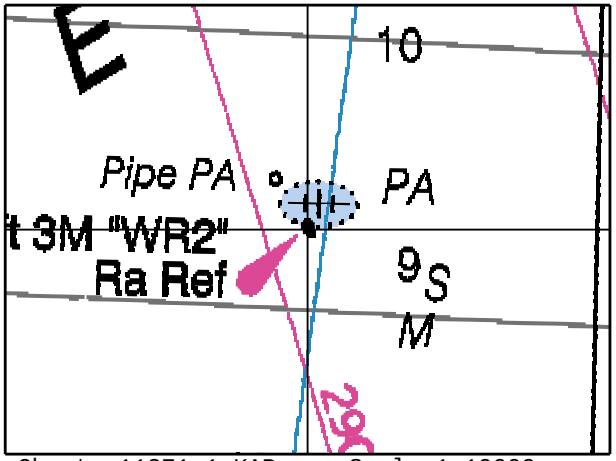
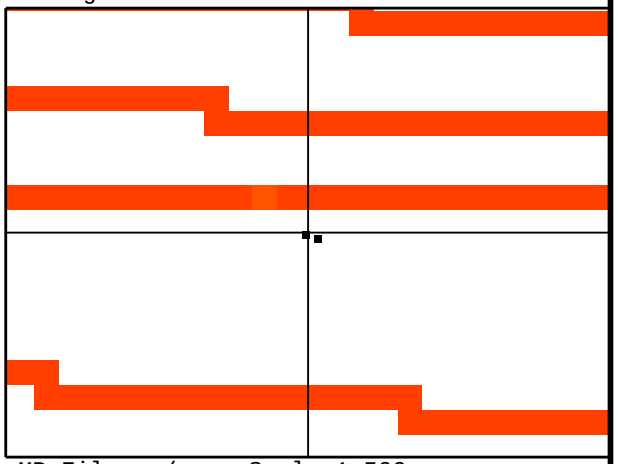
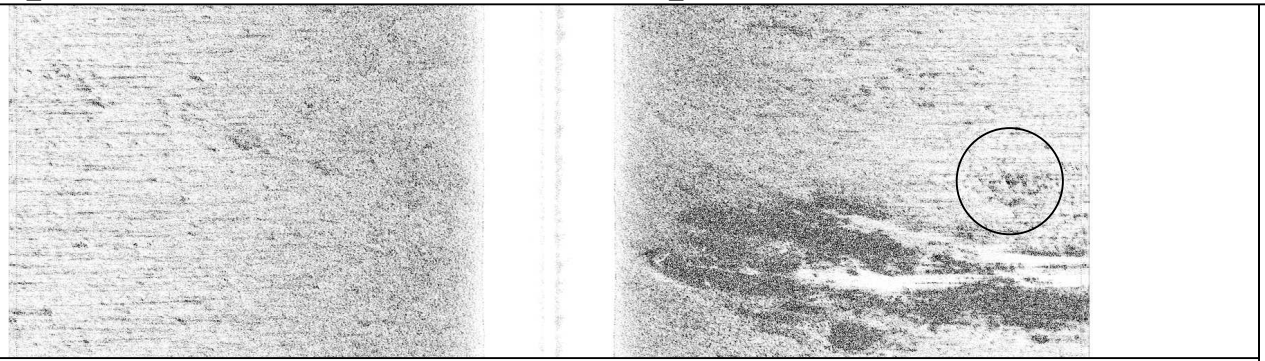


Chart: 11371_1.KAP Scale 1:10000

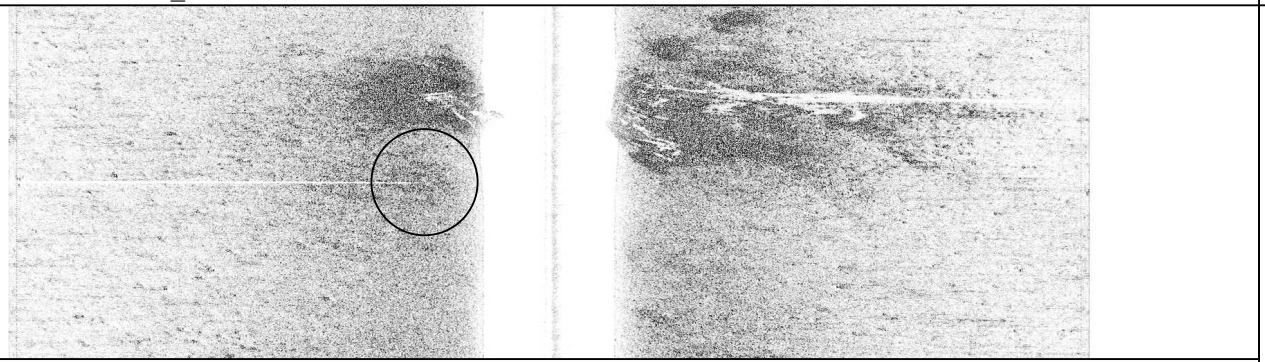


MB File: n/a Scale 1:500



ID: 144 File: TD07058_070227203100.XTF 30 06 37.18N 089 30 44.48W RNG: 20.78 HGT: 0.38 HDG: 094

COMMENT:
DAYBEACON Plot Daybeacon symbol and label QR 17ft 3M 'WR2' Ra Ref



ID: 147 File: TD07066_070307161000.XTF 30 06 37.16N 089 30 44.39W RNG: -5.69 HGT: 2.31 HDG: 269

CORRELATED SS CONTACTS:

Contact	Range/Height
058203310	20.78/0.38
066161620	-5.69/2.31

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0058 Least Depth: Lat: 30 07 54.34N Lon: 089 35 39.43W Ping: Beam:

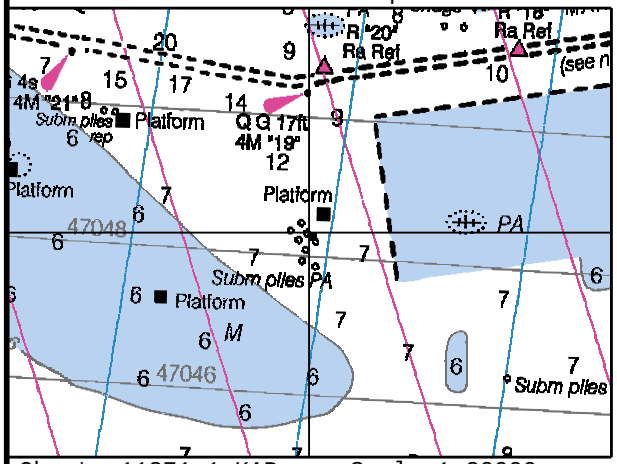


Chart: 11371_1.KAP Scale 1:20000

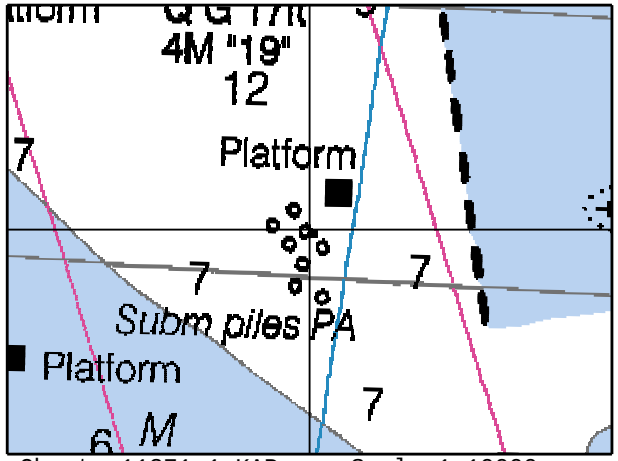
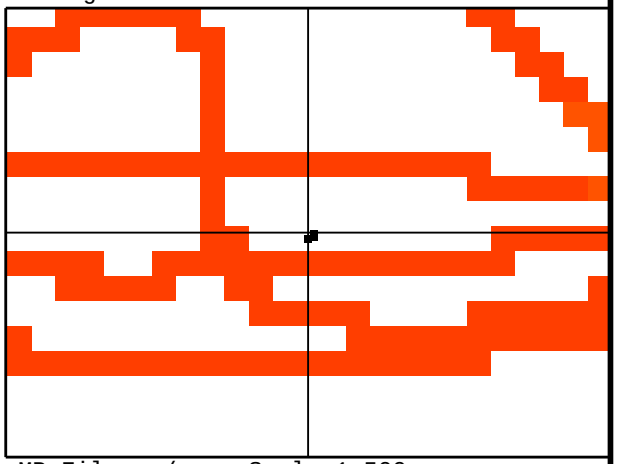
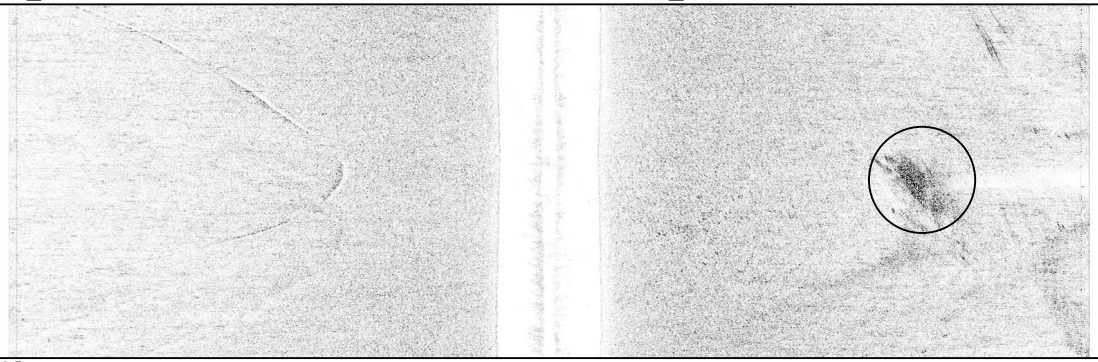


Chart: 11371_1.KAP Scale 1:10000

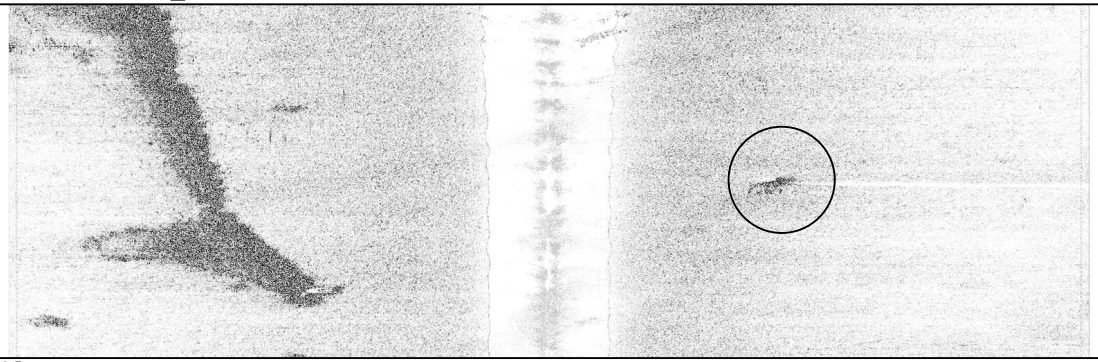


MB File: n/a Scale 1:500



ID: 117 File: TD07033_070202200800.XTF 30 07 54.34N 089 35 39.41W RNG: 16.81 HGT: 0.66 HDG: 320

COMMENT:
PILES Plot Pile symbol and label Piles



ID: 154 File: TD07070_070311214700.XTF 30 07 54.36N 089 35 39.41W RNG: 10.47 HGT: 1.61 HDG: 092

CORRELATED SS CONTACTS:

Contact	Range/Height
033205622	16.81/0.66
070215312	10.47/1.61
033224657	10.03/1.28

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0057 Least Depth: Lat: 30 07 54.81N Lon: 089 35 35.92W Ping: Beam:

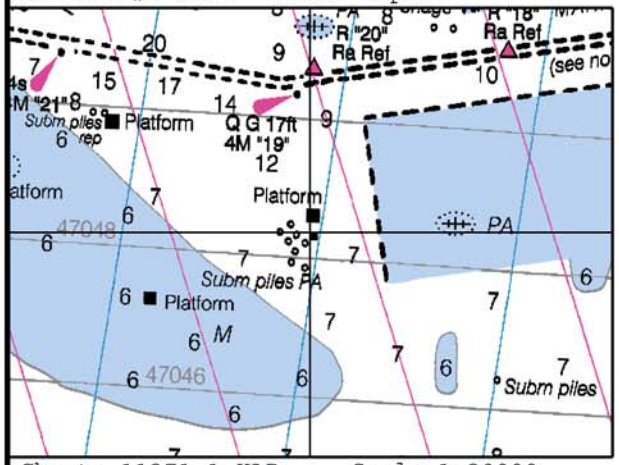


Chart: 11371_1.KAP Scale 1:20000

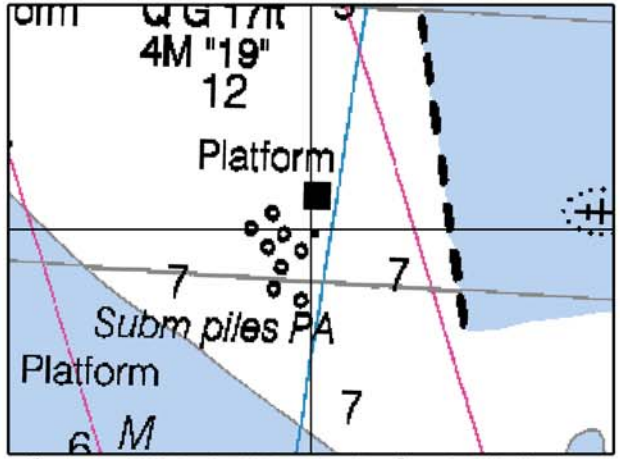
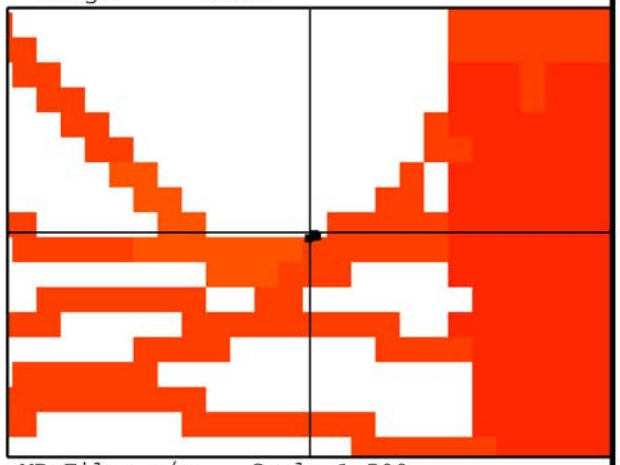
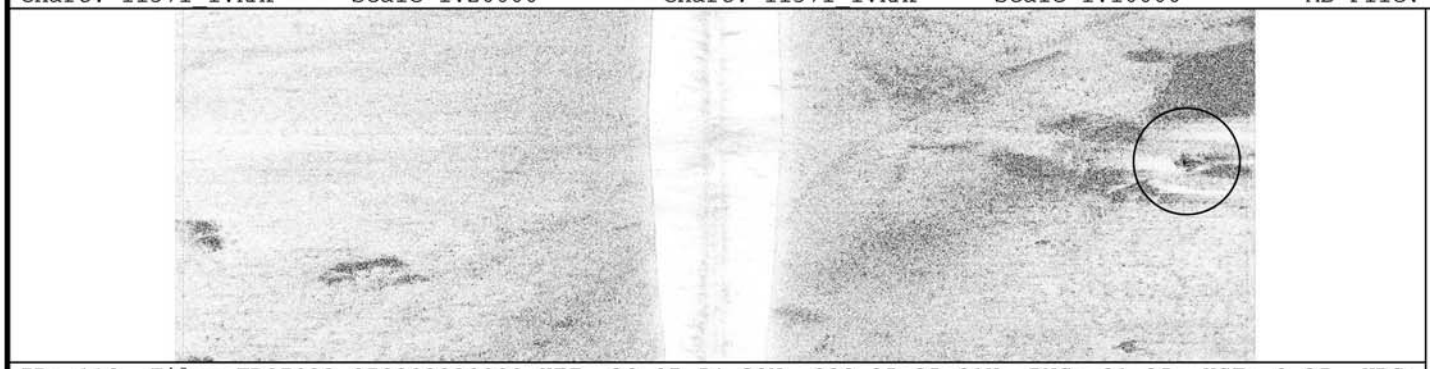


Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500



ID: 119 File: TD07033 070202220900.XTF 30 07 54.80N 089 35 35.91W RNG: 21.25 HGT: 0.27 HDG: 277

COMMENT:
PIPES EXPOSED No Plot (see Feature 63)

CORRELATED SS CONTACTS:

Contact	Range/Height
033224634	21.25/0.27
070215338	-9.03/2.11
033205551	11.50/1.34
070220742	-9.41/1.94

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0056 Least Depth: Lat: 30 07 57.46N Lon: 089 35 38.90W Ping: Beam:

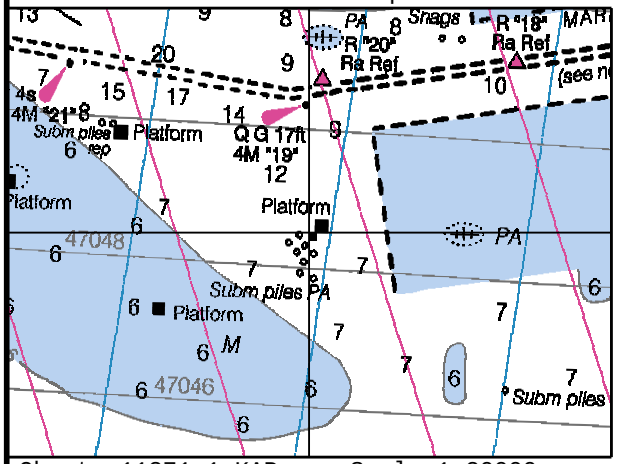


Chart: 11371_1.KAP Scale 1:20000

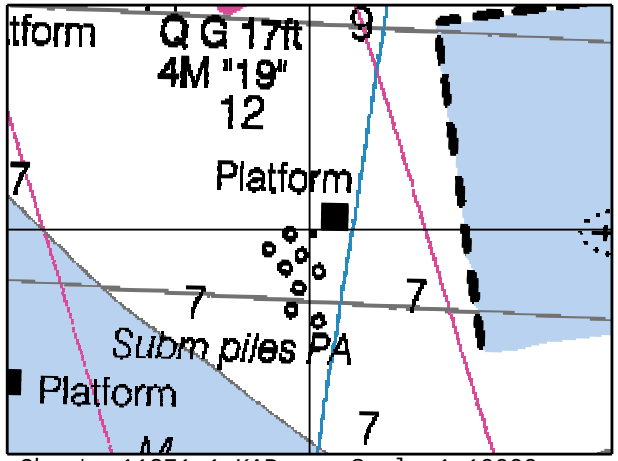
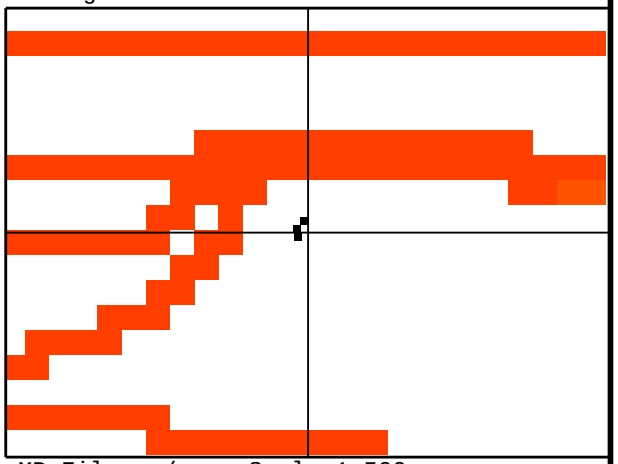
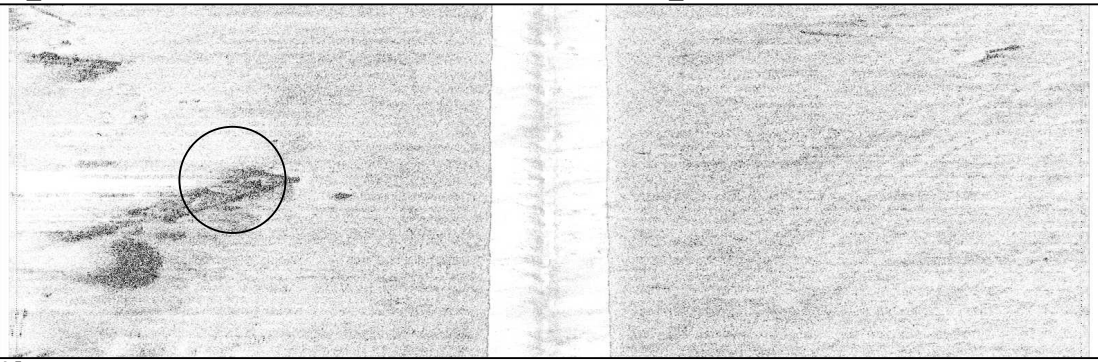


Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500



ID: 112 File: TD07033_070202153400.XTF 30 07 57.46N 089 35 39.01W RNG: -14.38 HGT: 0.99 HDG: 266

COMMENT:
PLATFORM Plot platform symbol and label Platforms (see Feature 55)

ID: 160 File: TD07070_070311215400.XTF 30 07 57.51N 089 35 39.02W RNG: -11.62 HGT: 1.59 HDG: 245

CORRELATED SS CONTACTS:

Contact	Range/Height
033161653	-14.38/0.99
070215605	-11.62/1.59
033183123	-8.94/1.24

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0055 Least Depth: Lat: 30 07 56.77N Lon: 089 35 37.60W Ping: Beam:

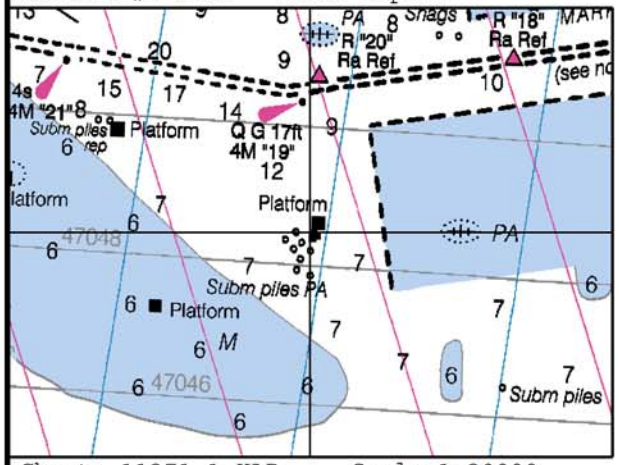


Chart: 11371_1.KAP Scale 1:20000

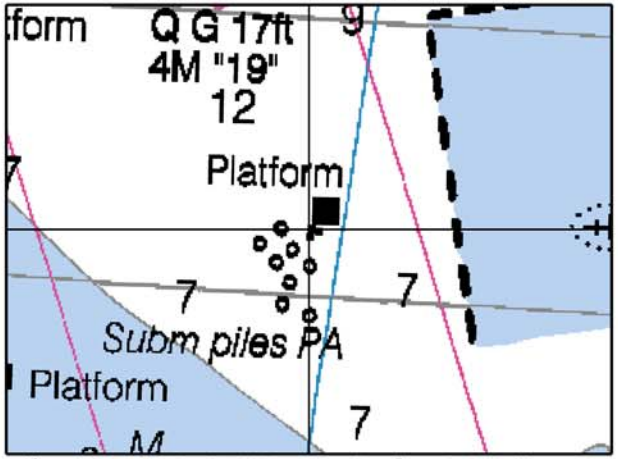
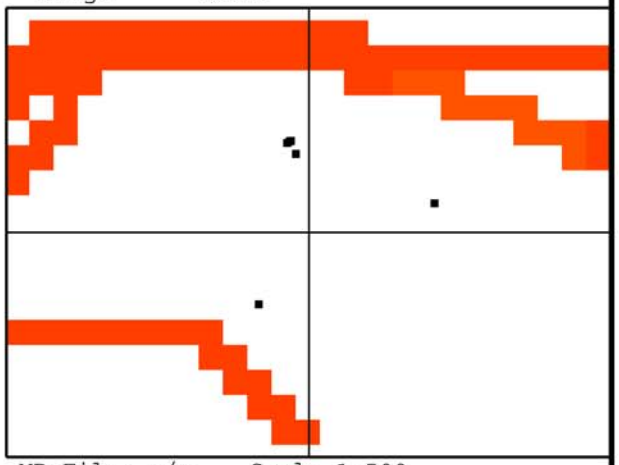
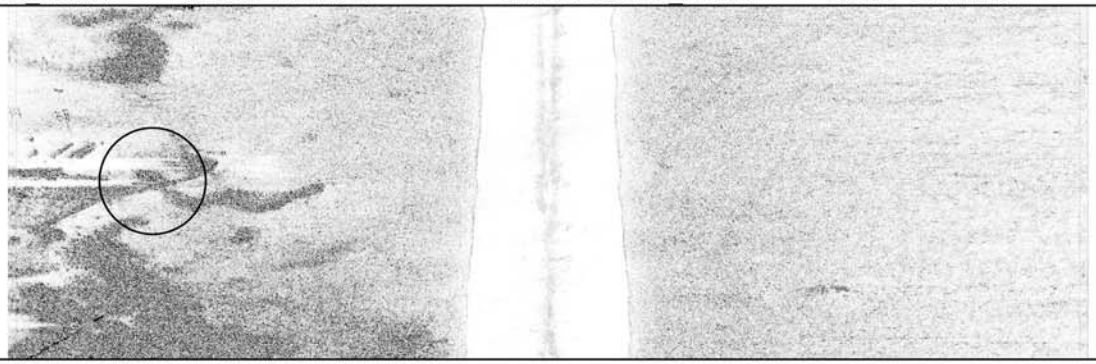


Chart: 11371_1.KAP Scale 1:10000

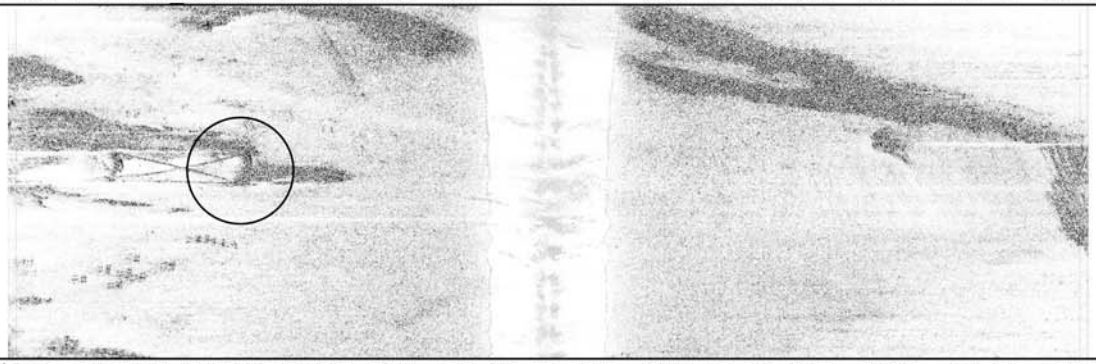


MB File: n/a Scale 1:500



ID: 158 File: TD07070_070311215400.XTF 30 07 57.30N 089 35 37.75W RNG: -17.94 HGT: 0.70 HDG: 285

COMMENT:
PLATFORM No Plot (see Feature 56)



ID: 161 File: TD07070_070311220400.XTF 30 07 56.32N 089 35 38.01W RNG: -13.97 HGT: 0.95 HDG: 119

CORRELATED SS CONTACTS:

Contact	Range/Height
070215555	-17.94/0.70
070220719	-13.97/0.95
070215556	-16.25/0.93
033161643	-17.38/0.78
033183109	-13.94/1.05
070215548	-19.75/0.61

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0054 Least Depth: Lat: 30 10 58.23N Lon: 089 31 39.03W Ping: Beam:

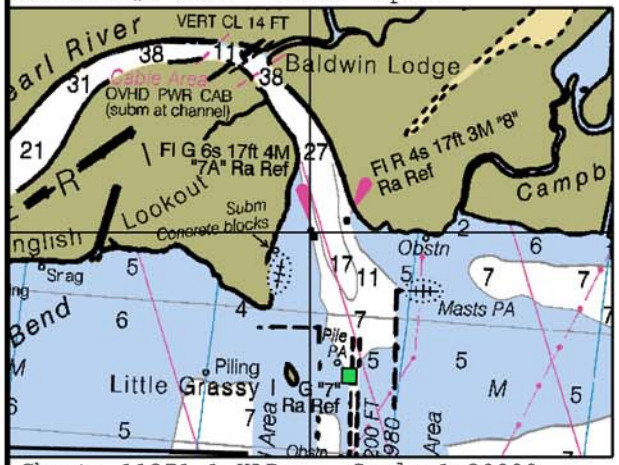


Chart: 11371_1.KAP Scale 1:20000

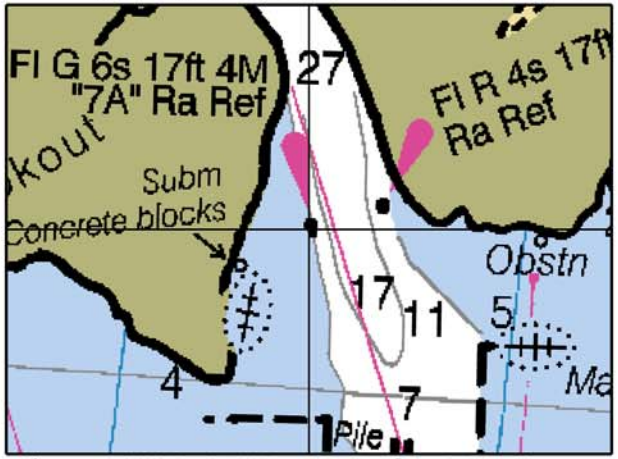
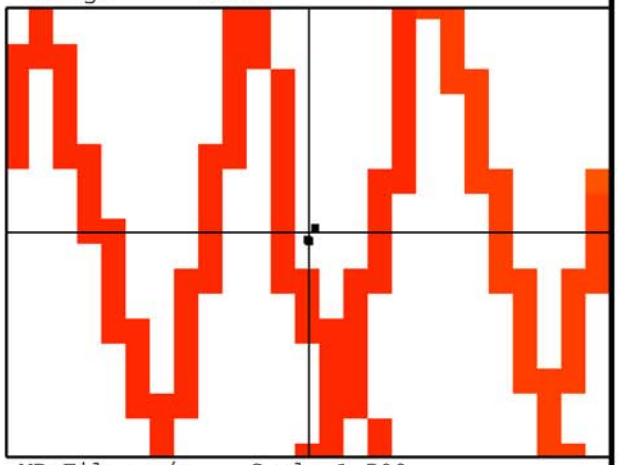
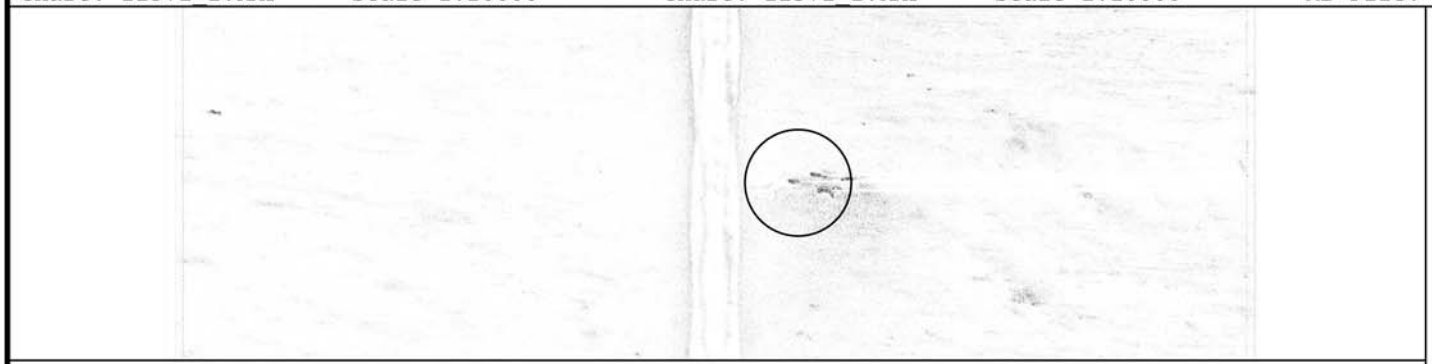


Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500



ID: 79 File: TD07029 070129185200.XTF 30 10 58.20N 089 31 39.06W RNG: 3.69 HGT: 0.76 HDG: 350

COMMENT:
DAYBEACON Plot Daybeacon symbol and label Fl G 6s 17ft 4M '7A' Ra Ref

CORRELATED SS CONTACTS:

Contact	Range/Height
029190025	3.69/0.76
029170016	17.09/0.29
029163026	17.25/0.40

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0053 Least Depth: Lat: 30 08 42.97N Lon: 089 37 21.29W Ping: Beam:

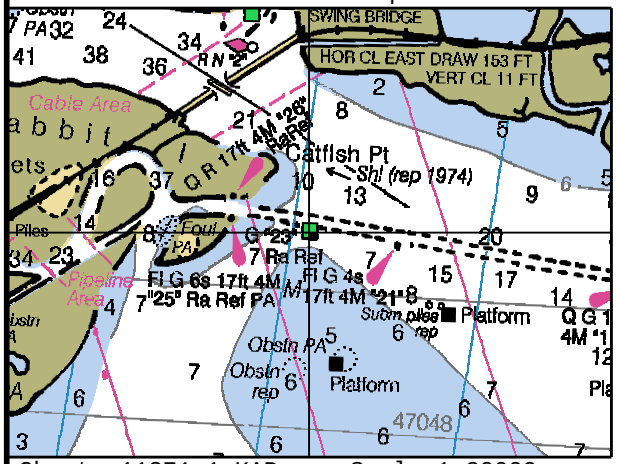


Chart: 11371_1.KAP Scale 1:20000

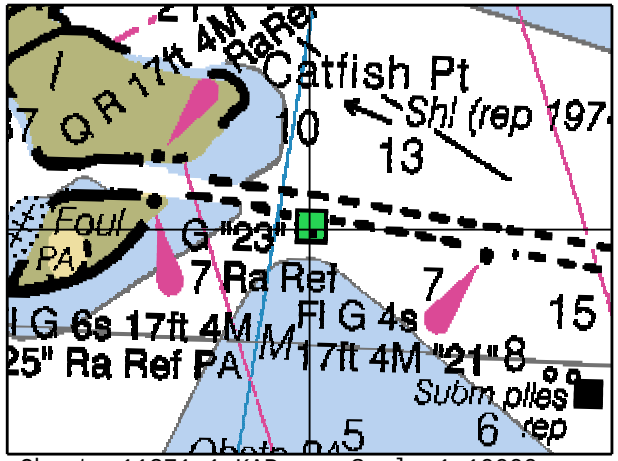
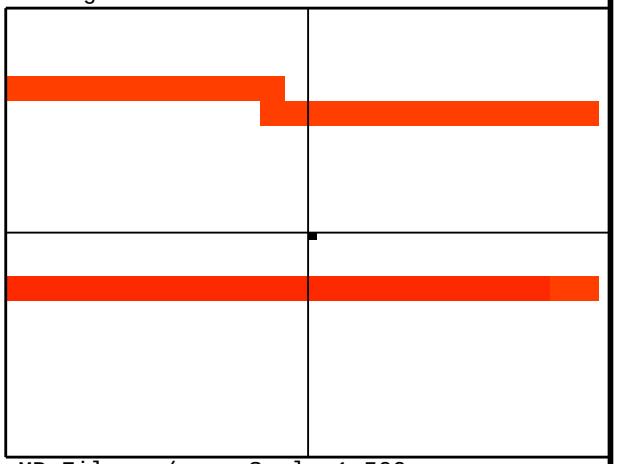
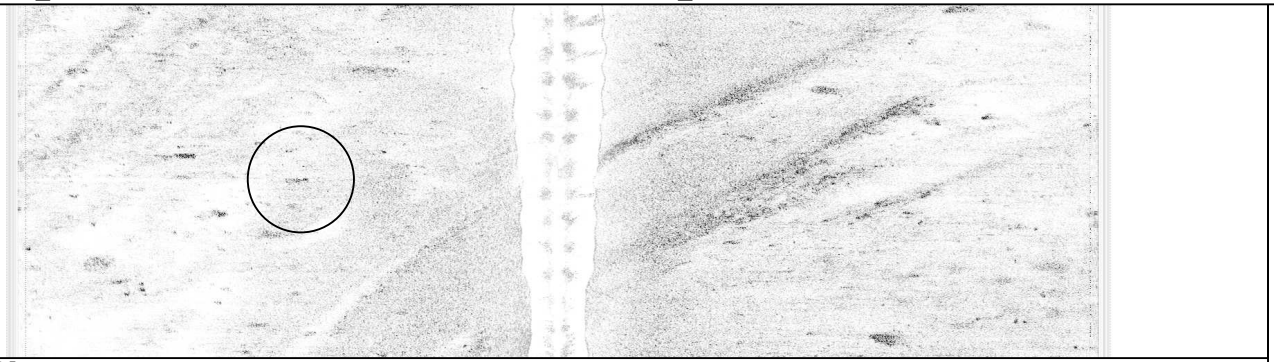


Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500



ID: 51 File: TD07026_070126144700.XTF 30 08 42.97N 089 37 21.28W RNG: -11.69 HGT: 0.74 HDG: 085

COMMENT:
DAYBEACON Plot Daybeacon symbol and label G ’23’ Ra Ref

CORRELATED SS CONTACTS:

Contact	Range/Height
026144944	-11.69/0.74

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0052 Least Depth: Lat: 30 08 44.74N Lon: 089 33 35.33W Ping: Beam:

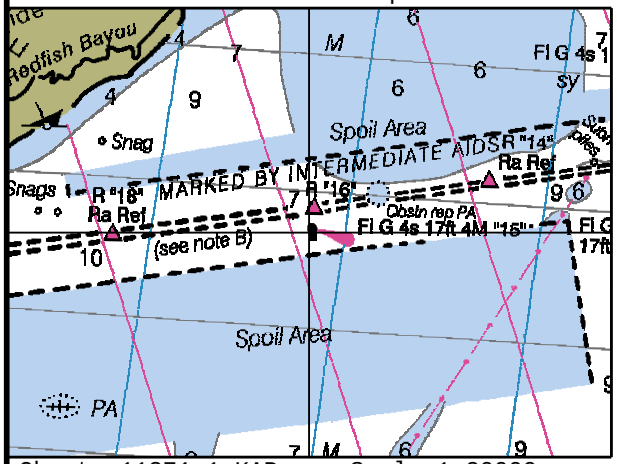


Chart: 11371_1.KAP Scale 1:20000

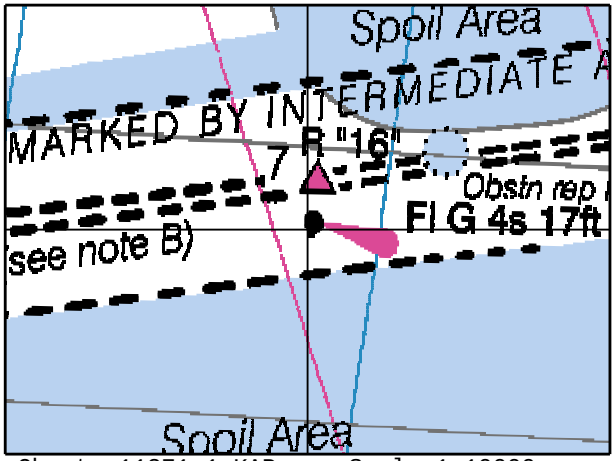
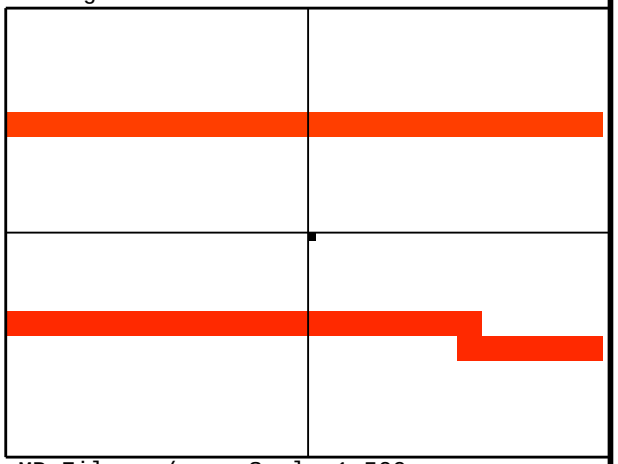
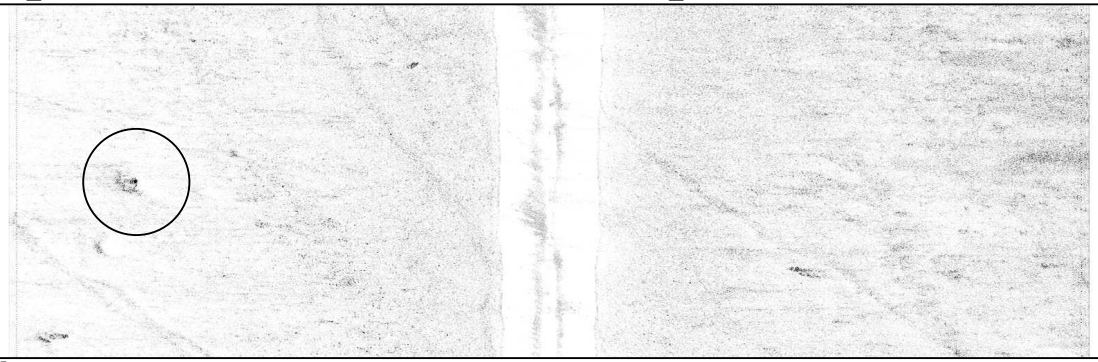


Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500



ID: 42 File: TD07025_070125143500.XTF 30 08 44.74N 089 33 35.33W RNG: -18.72 HGT: 0.46 HDG: 273

COMMENT:
DAYBEACON Plot Daybeacon symbol and label Fl G 4s 17ft 4M '15'

CORRELATED SS CONTACTS:

Contact	Range/Height
025145533	-18.72/0.46

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0051 Least Depth: 8(ft), 2.67(m) Lat: 30 08 51.02N Lon: 089 35 38.85W Ping: 1964 Beam: 1191

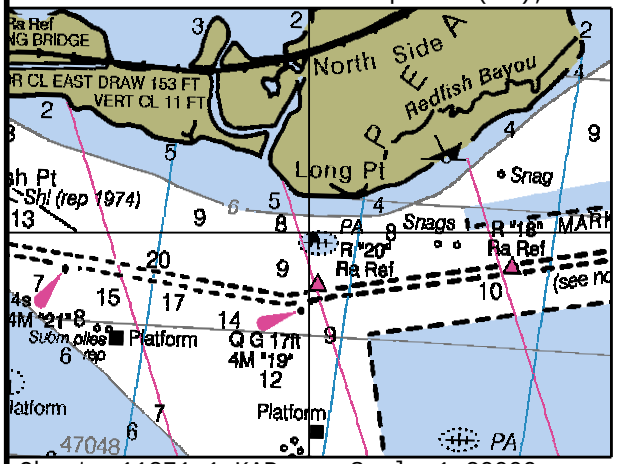


Chart: 11371_1.KAP Scale 1:20000

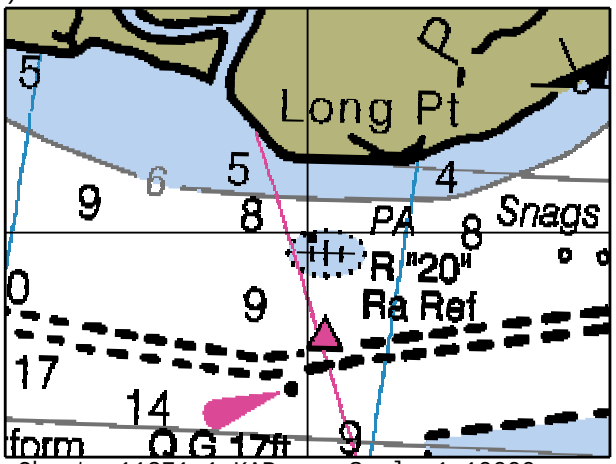
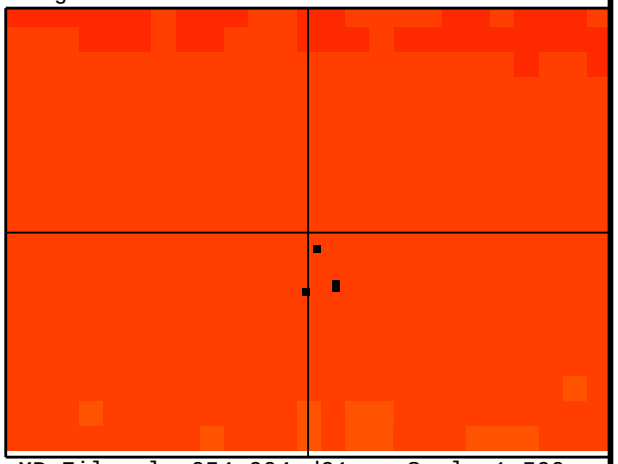
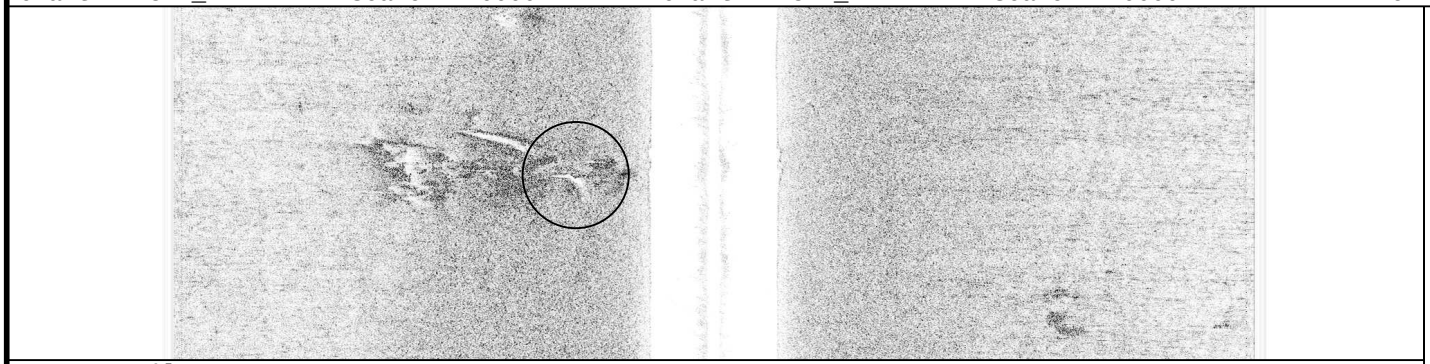


Chart: 11371_1.KAP Scale 1:10000

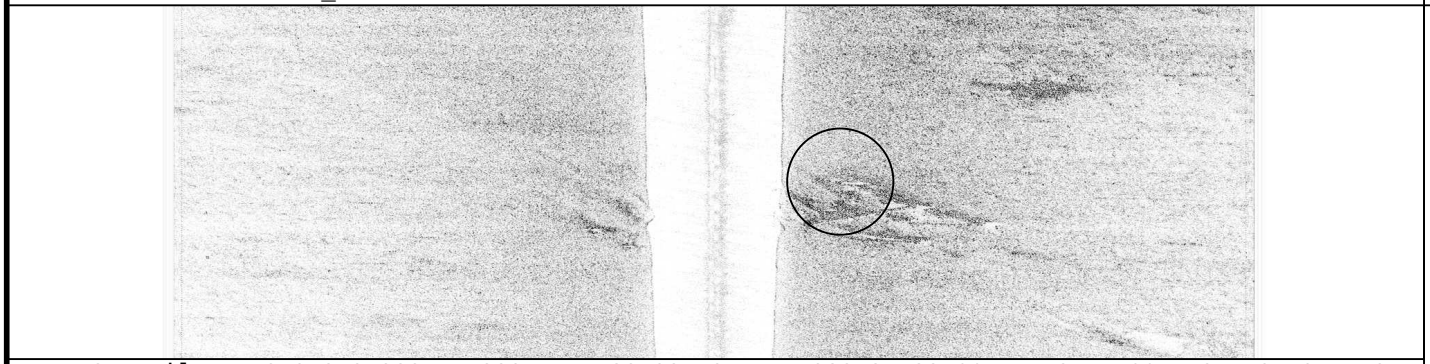


MB File: lm_054_004.d01 Scale 1:500



ID: 23 File: TD07024_070124174300.XTF 30 08 50.94N 089 35 38.82W RNG: -6.31 HGT: 0.47 HDG: 271

COMMENT:
WRECK Plot sounding and symbol Wk



ID: 137 File: TD07052_070221144200.XTF 30 08 50.71N 089 35 38.66W RNG: 5.66 HGT: 0.70 HDG: 119

CORRELATED SS CONTACTS:

Contact	Range/Height
024181730	-6.31/0.47
052144546	5.66/0.70
054154830	6.97/0.66
052141103	9.31/0.72

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0050 Least Depth: Lat: 30 08 50.77N Lon: 089 33 34.19W Ping: Beam:

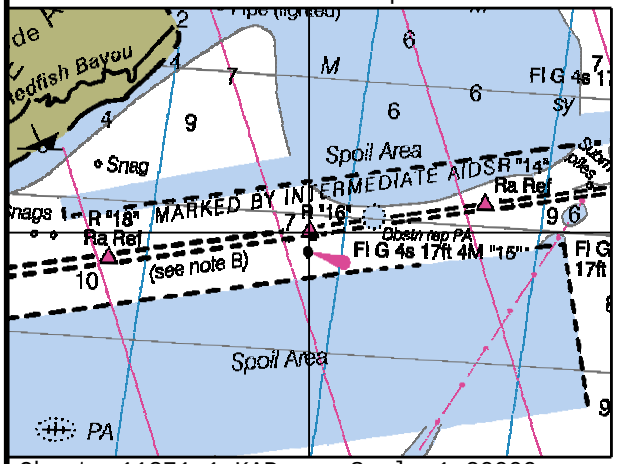


Chart: 11371_1.KAP Scale 1:20000

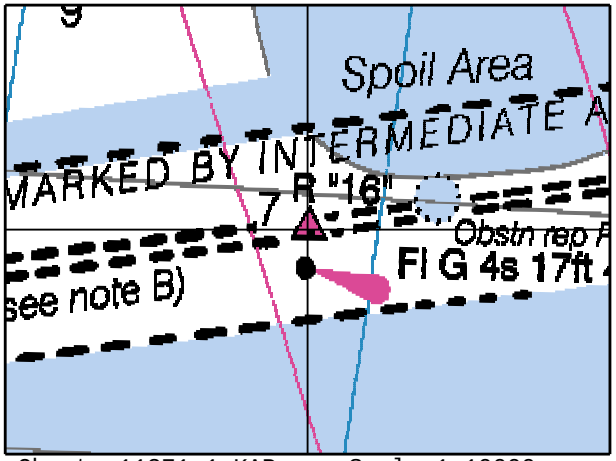
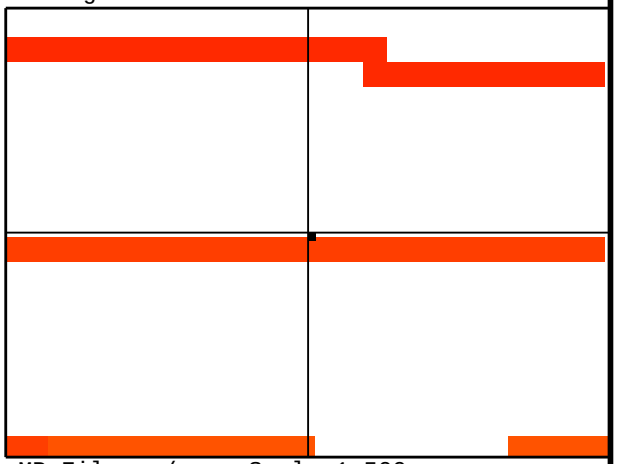
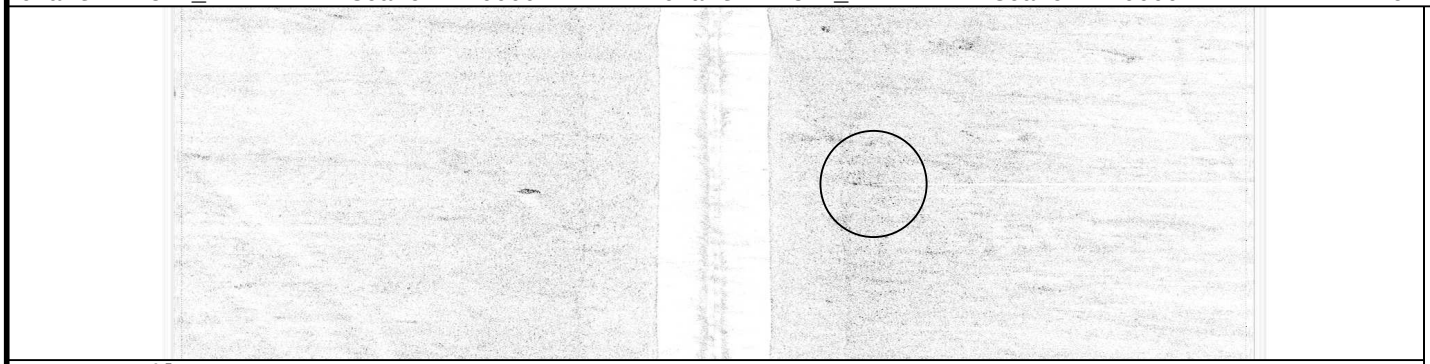


Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500



ID: 22 File: TD07024_070124174300.XTF 30 08 50.77N 089 33 34.19W RNG: 7.16 HGT: 1.77 HDG: 272

COMMENT:
DAYBEACON Plot Daybeacon symbol and label R ’16’

CORRELATED SS CONTACTS:

Contact	Range/Height
024180352	7.16/1.77

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0049 Least Depth: Lat: 30 11 00.33N Lon: 089 31 28.10W Ping: Beam:

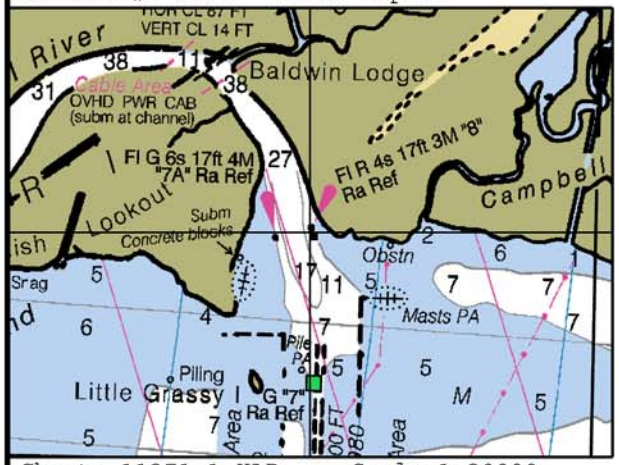


Chart: 11371_1.KAP Scale 1:20000

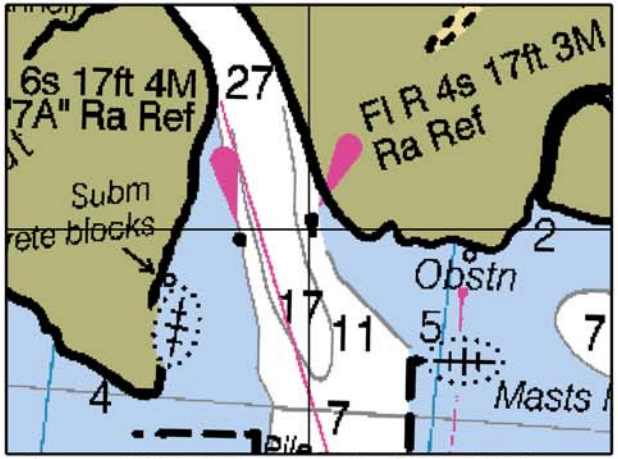
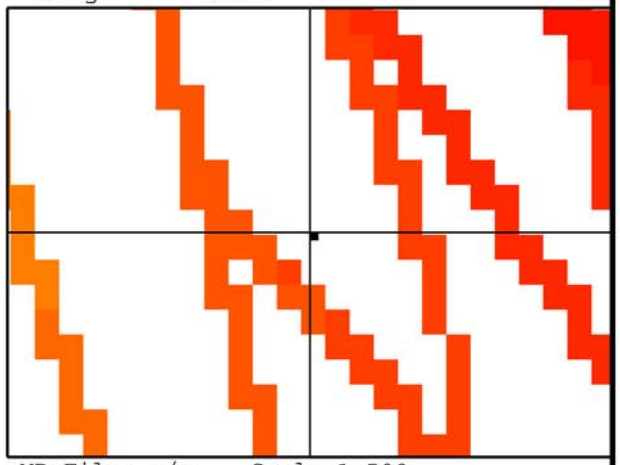
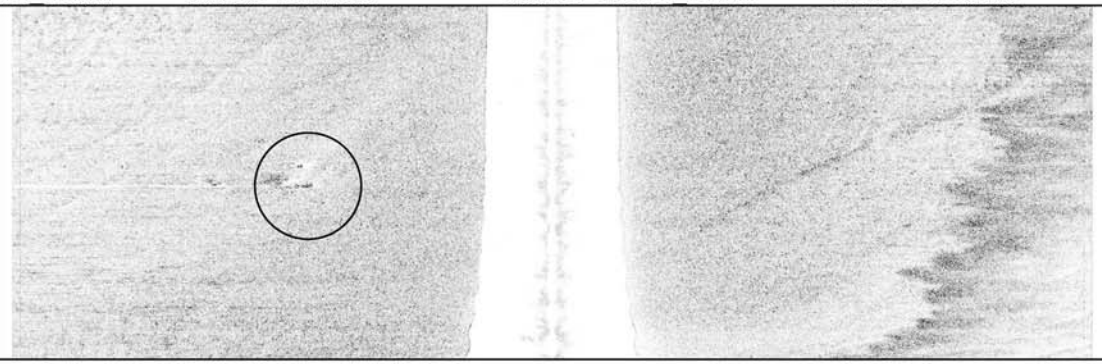


Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500



ID: 19 File: TD07029 070129181400.XTF 30 11 00.33N 089 31 28.10W RNG: -11.09 HGT: 0.88 HDG: 133

COMMENT:
DAYBEACON Plot Daybeacon symbol and label Fl R 4s 17ft 3M '8' Ra Ref

CORRELATED SS CONTACTS:

Contact	Range/Height
029181535	-11.09/1.56
023215047	17.88/0.88

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0048 Least Depth: Lat: 30 10 20.57N Lon: 089 31 26.03W Ping: Beam:

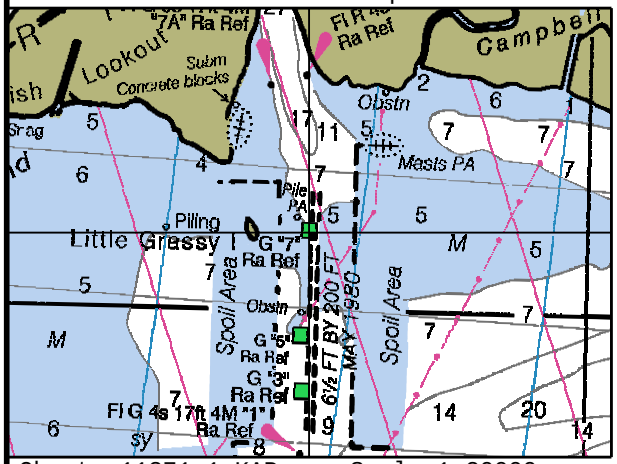


Chart: 11371_1.KAP Scale 1:20000

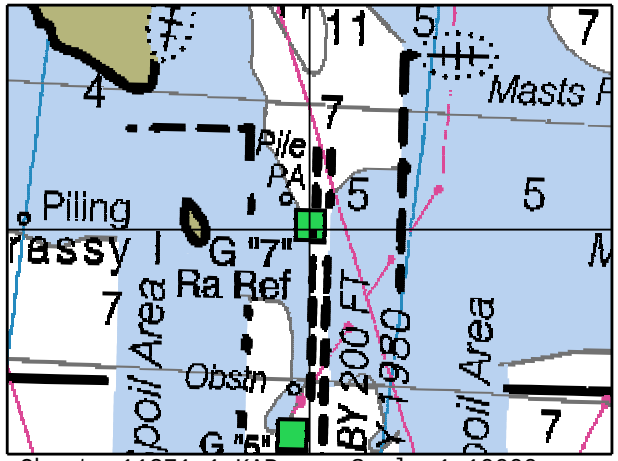
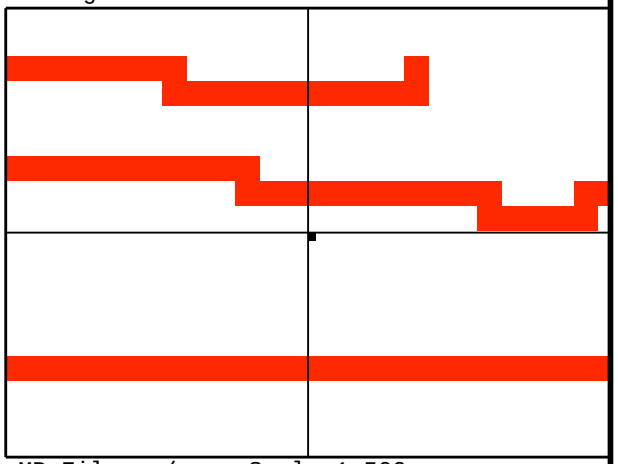
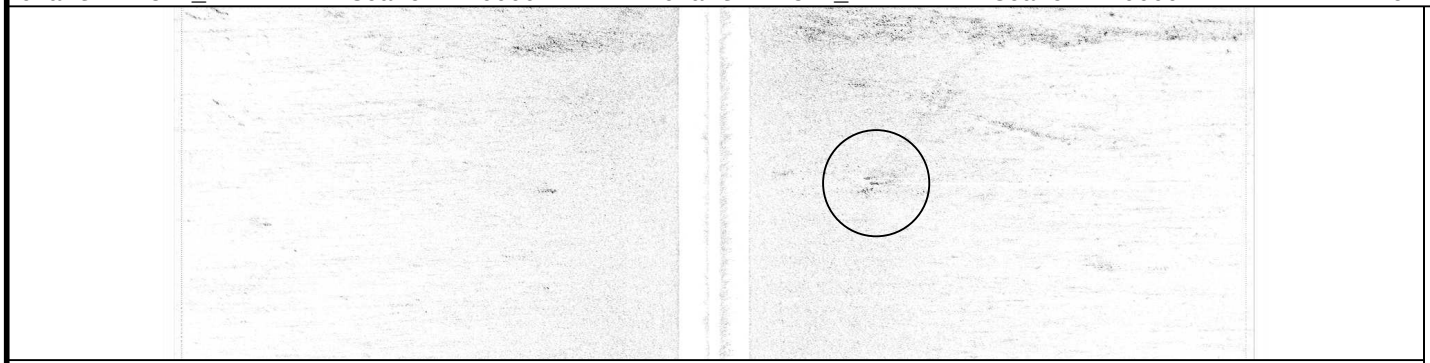


Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500



ID: 16 File: TD07022_070122184600.XTF 30 10 20.57N 089 31 26.03W RNG: 7.28 HGT: 1.03 HDG: 094

COMMENT:
DAYBEACON Plot Daybeacon symbol and label G ’7’ Ra Ref

CORRELATED SS CONTACTS:

Contact	Range/Height
022190417	7.28/1.03

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0047 Least Depth: Lat: 30 09 52.89N Lon: 089 31 27.69W Ping: Beam:

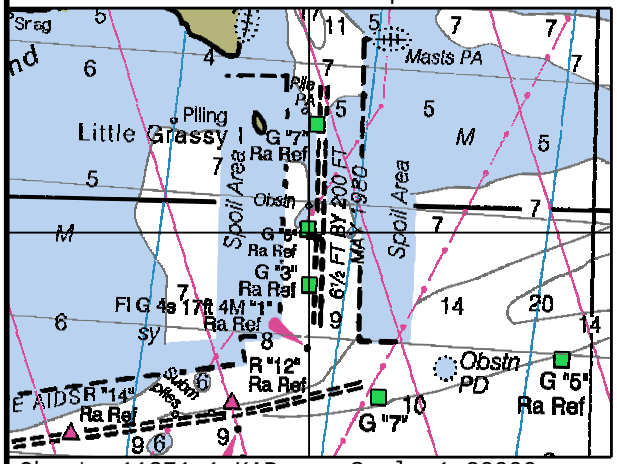


Chart: 11371_1.KAP Scale 1:20000

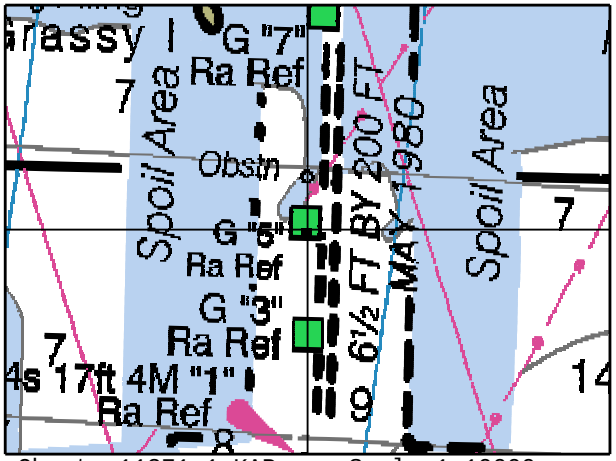
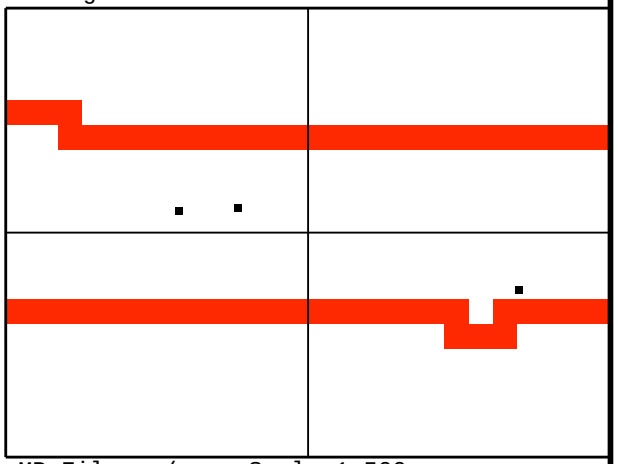
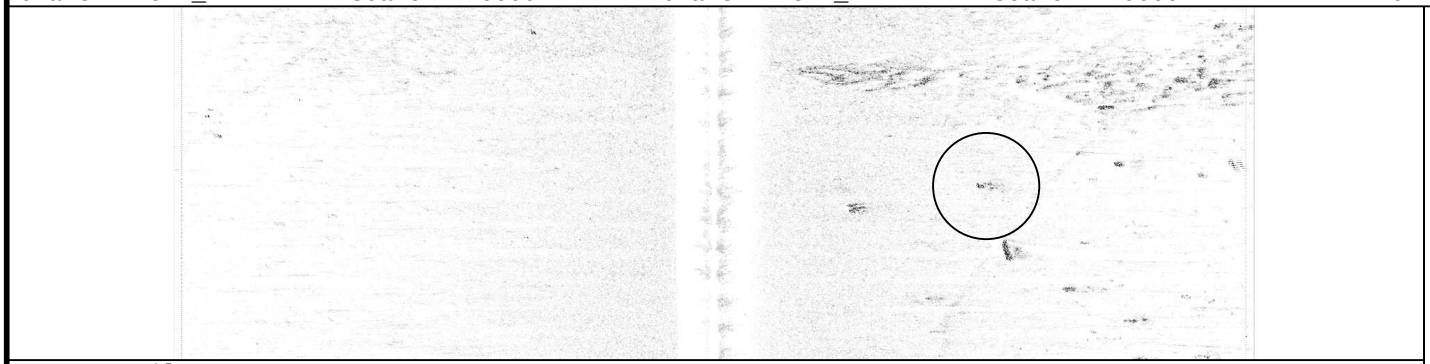


Chart: 11371_1.KAP Scale 1:10000

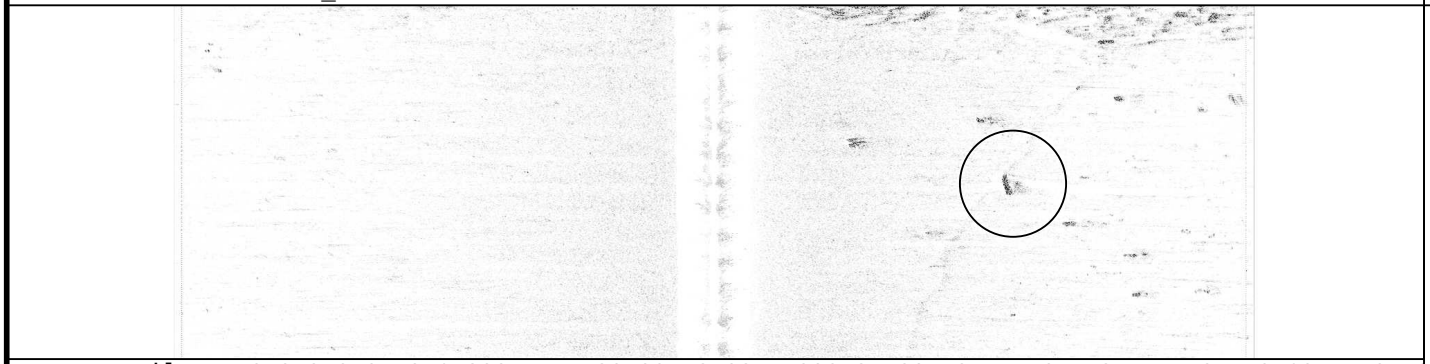


MB File: n/a Scale 1:500



ID: 15 File: TD07018_070118165800.XTF 30 09 53.06N 089 31 28.26W RNG: 12.25 HGT: 0.87 HDG: 094

COMMENT:
DAYBEACON Plot Daybeacon symbol and label G '5' Ra Ref



ID: 14 File: TD07018_070118165800.XTF 30 09 53.03N 089 31 28.72W RNG: 13.47 HGT: 0.62 HDG: 091

CORRELATED SS CONTACTS:

Contact	Range/Height
018171720	12.25/0.87
018171717	13.47/0.62
018153659	10.47/0.82

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0046 Least Depth: Lat: 30 09 37.30N Lon: 089 31 29.12W Ping: Beam:

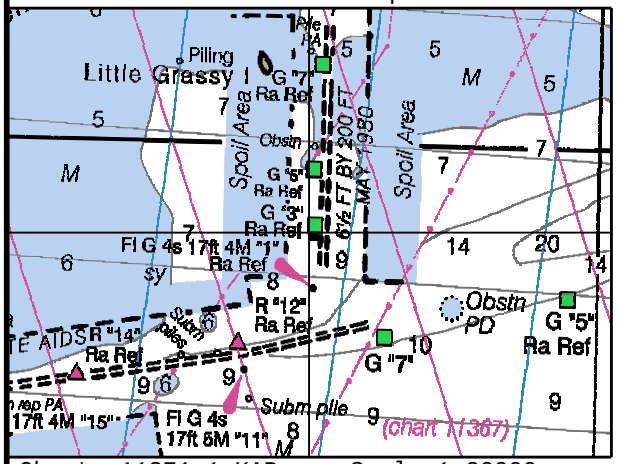


Chart: 11371_1.KAP Scale 1:20000

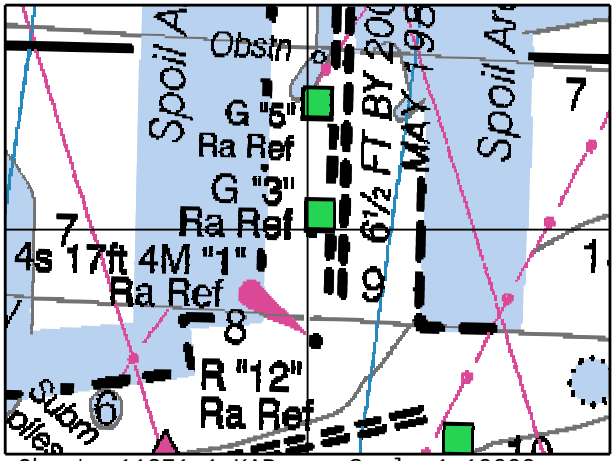
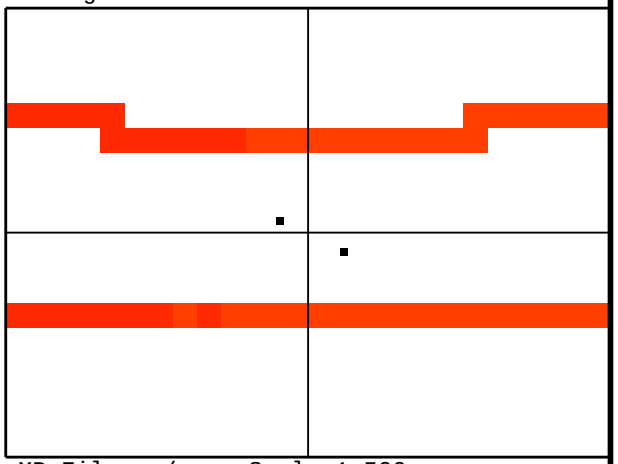
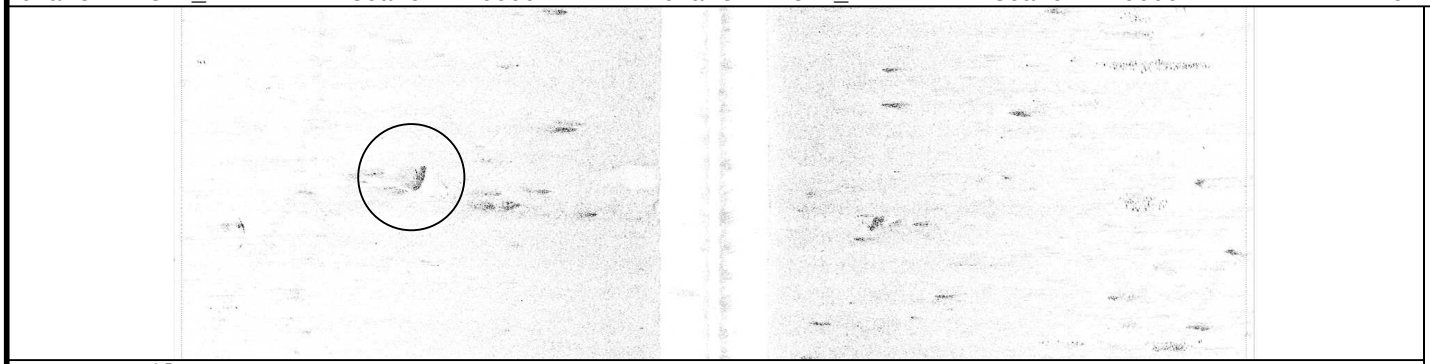


Chart: 11371_1.KAP Scale 1:10000

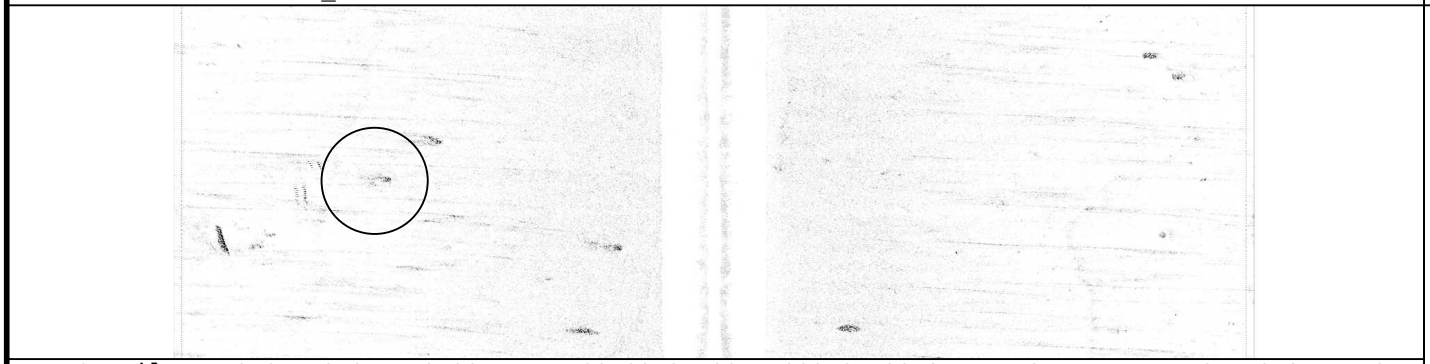


MB File: n/a Scale 1:500



ID: 12 File: TD07015_070115203100.XTF 30 09 37.39N 089 31 29.37W RNG: -13.75 HGT: 0.99 HDG: 268

COMMENT:
DAYBEACON Plot Daybeacon symbol and label G ’3’ Ra Ref



ID: 9 File: TD07015_070115191901.XTF 30 09 37.20N 089 31 28.87W RNG: -15.41 HGT: 0.85 HDG: 087

CORRELATED SS CONTACTS:

Contact	Range/Height
015203635	-13.75/0.99
015193917	-15.41/0.85

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0045 Least Depth: Lat: 30 09 10.01N Lon: 089 31 05.40W Ping: Beam:

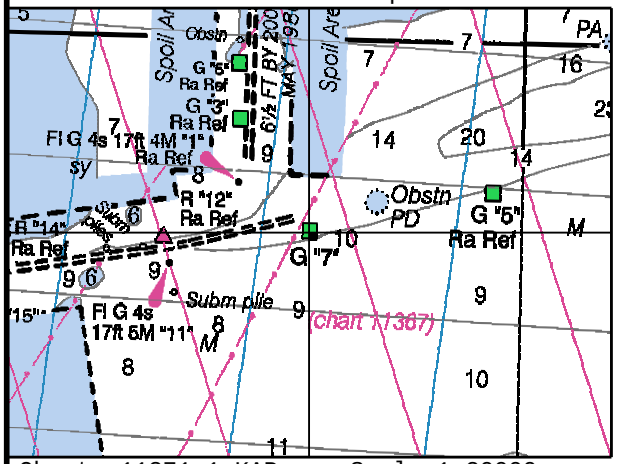


Chart: 11371_1.KAP Scale 1:20000

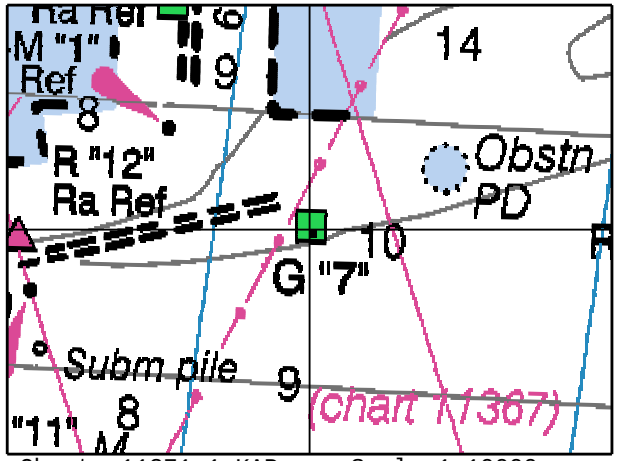
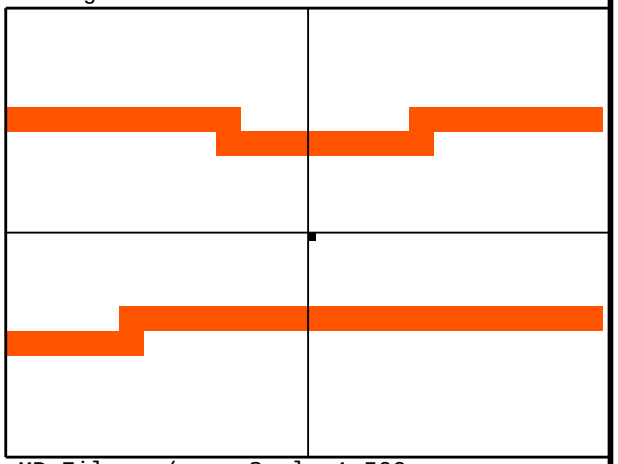


Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500

ID: 5 File: TD07013_070113222400.XTF 30 09 10.01N 089 31 05.40W RNG: 15.56 HGT: 1.22 HDG: 099

COMMENT:
DAYBEACON Plot Daybeacon symbol and label G '7'

CORRELATED SS CONTACTS:

Contact	Range/Height
013225152	15.56/1.22

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0044 Least Depth: Lat: 30 09 00.98N Lon: 089 31 48.38W Ping: Beam:

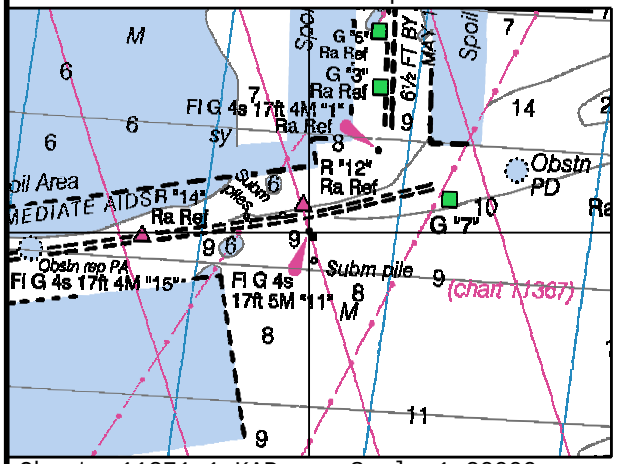


Chart: 11371_1.KAP Scale 1:20000

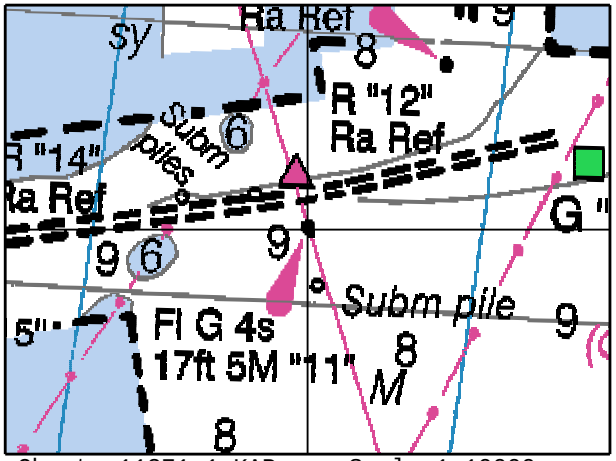
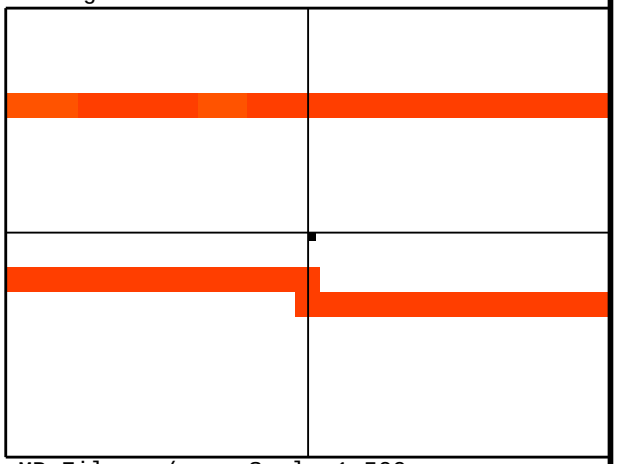
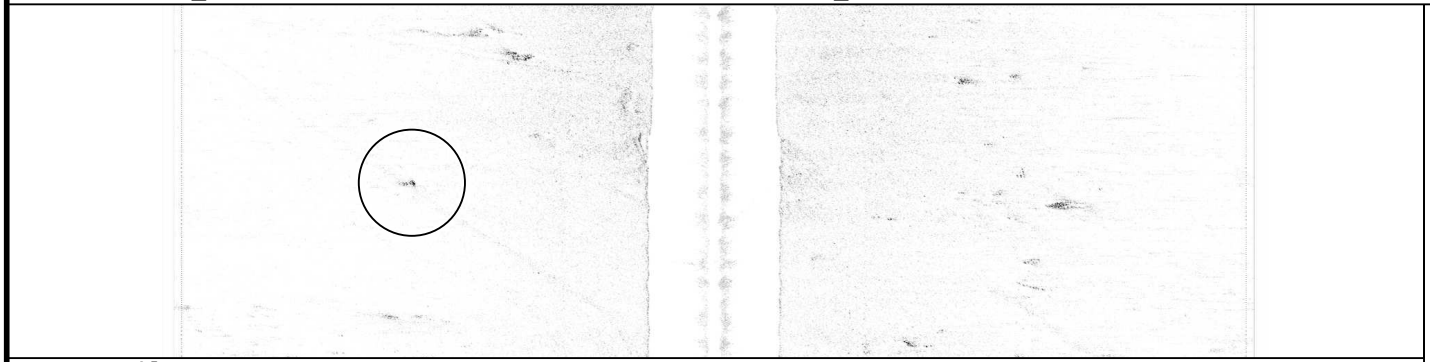


Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500



ID: 3 File: TD07013_070113175600.XTF 30 09 00.98N 089 31 48.38W RNG: -13.72 HGT: 1.15 HDG: 096

COMMENT:
DAYBEACON Plot Daybeacon symbol and label Fl G 4s 17ft 5M '11'

CORRELATED SS CONTACTS:

Contact	Range/Height
013182051	-13.72/1.15

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0043 Least Depth: 5(ft), 1.57(m) Lat: 30 09 05.12N Lon: 089 36 19.52W Ping: Beam:

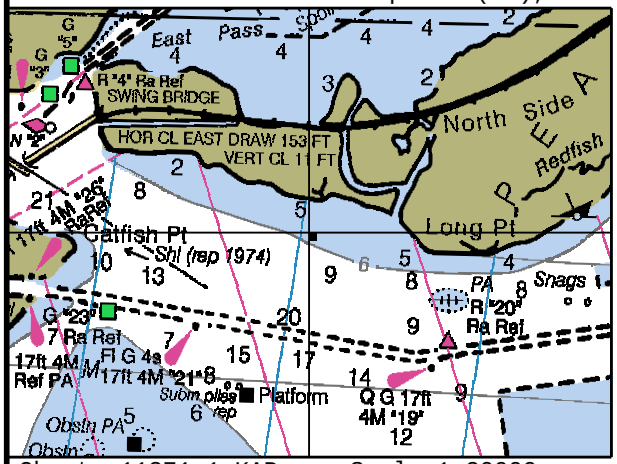


Chart: 11371_1.KAP Scale 1:20000

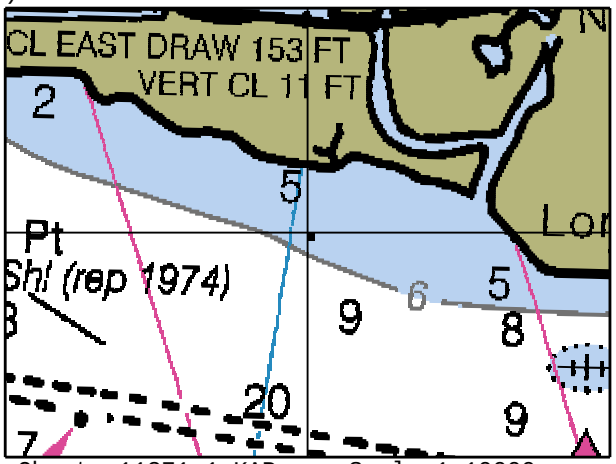
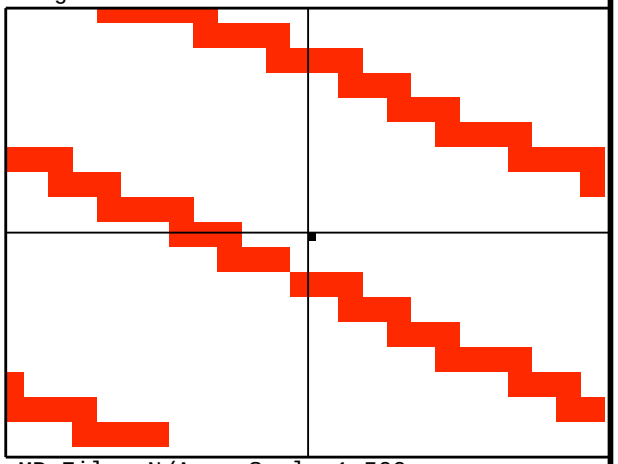
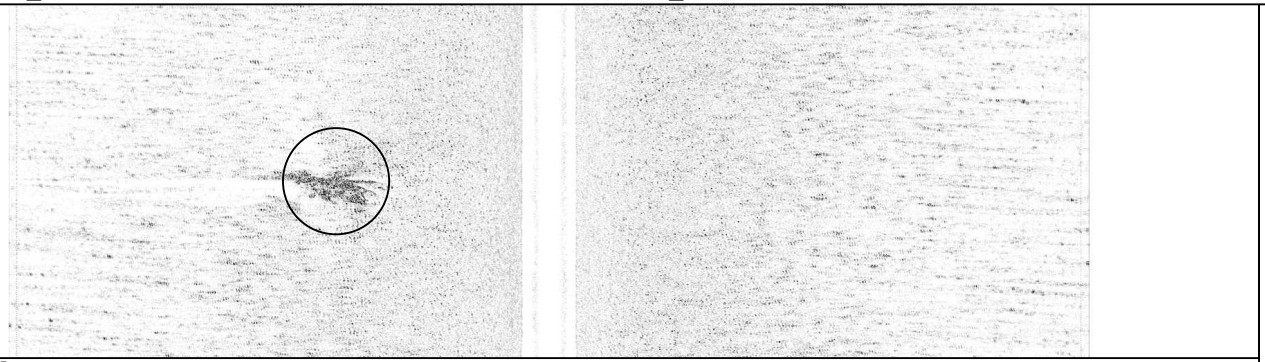


Chart: 11371_1.KAP Scale 1:10000



MB File: N/A Scale 1:500



ID: 50 File: TD07025_070125225300.XTF 30 09 05.12N 089 36 19.52W RNG: -9.69 HGT: 0.53 HDG: 112

COMMENT:
OBSTR Plot sounding and symbol Obstr (least depth estimated from side scan)

CORRELATED SS CONTACTS:

Contact	Range/Height
025230453	-9.69/0.53

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0042 Least Depth: 8(ft), 2.37(m) Lat: 30 06 19.49N Lon: 089 36 09.40W Ping: Beam:

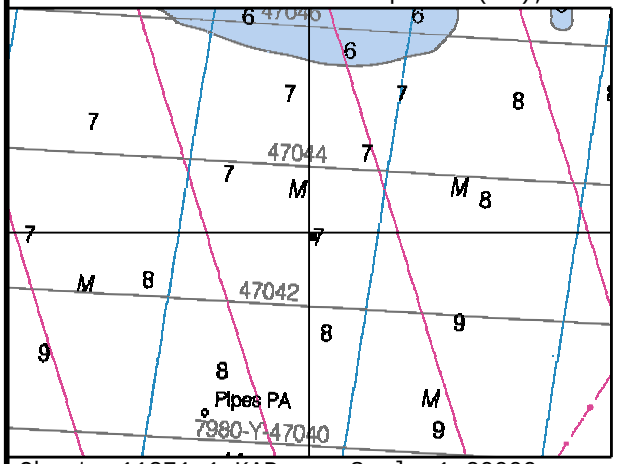


Chart: 11371_1.KAP Scale 1:20000

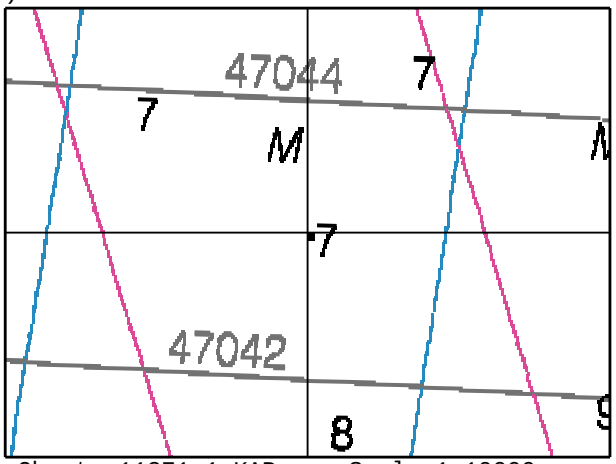
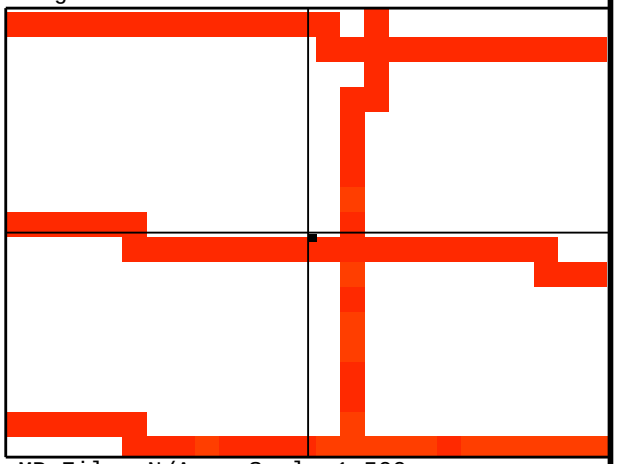
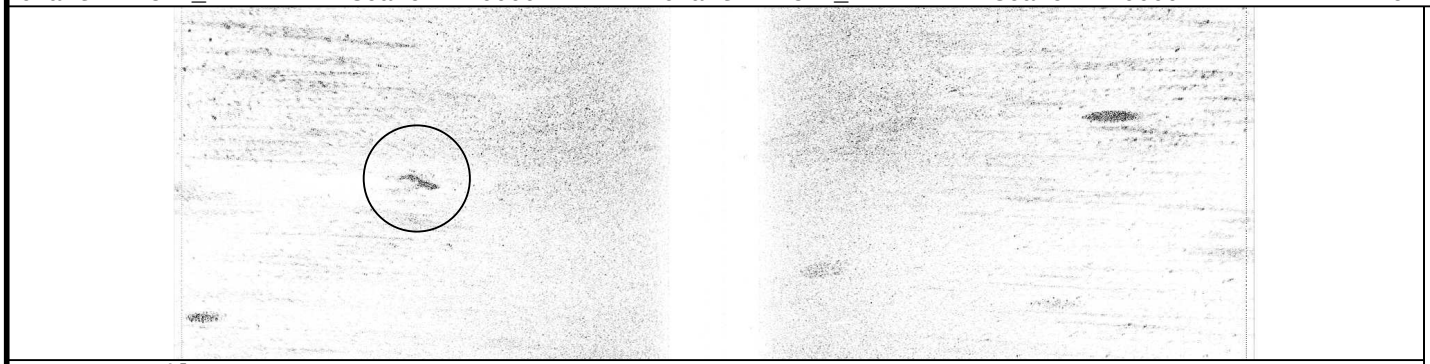


Chart: 11371_1.KAP Scale 1:10000



MB File: N/A Scale 1:500



ID: 258 File: TD07119_070429161500.XTF 30 06 19.48N 089 36 09.39W RNG: -13.50 HGT: 0.58 HDG: 000

COMMENT:
OBSTR No Plot Non Sig (least depth estimated from side scan)

CORRELATED SS CONTACTS:

Contact	Range/Height
119162625	-13.50/0.58

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0041 Least Depth: Lat: 30 08 42.16N Lon: 089 34 36.09W Ping: Beam:

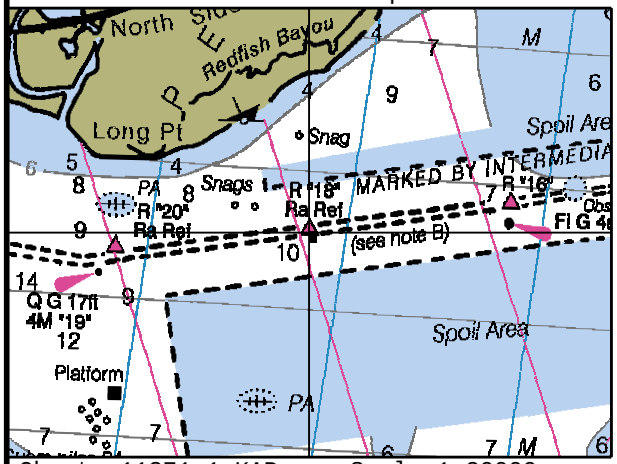


Chart: 11371_1.KAP Scale 1:20000

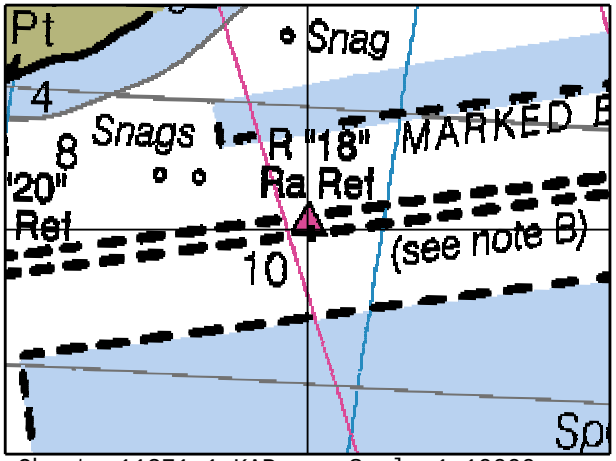
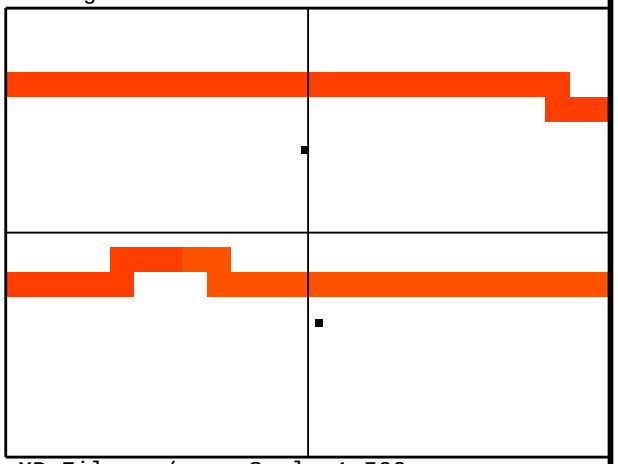
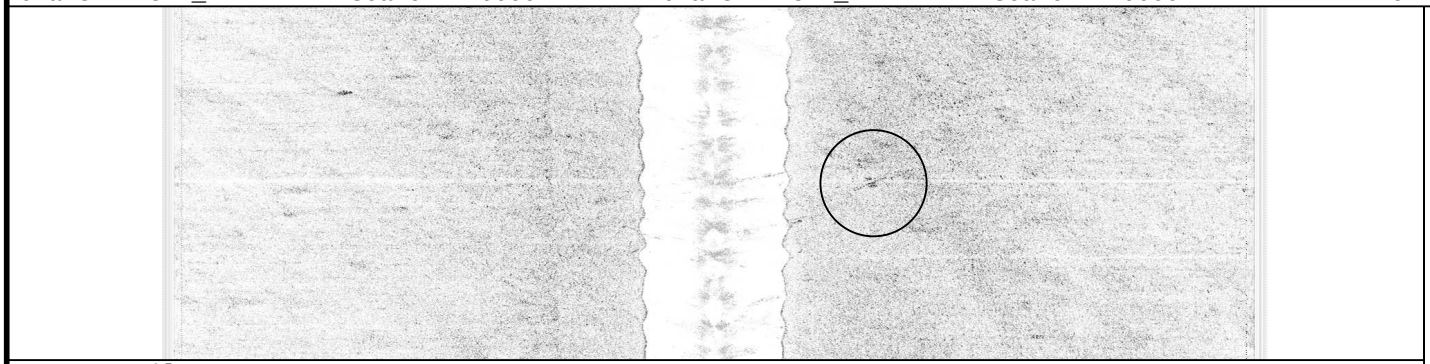


Chart: 11371_1.KAP Scale 1:10000

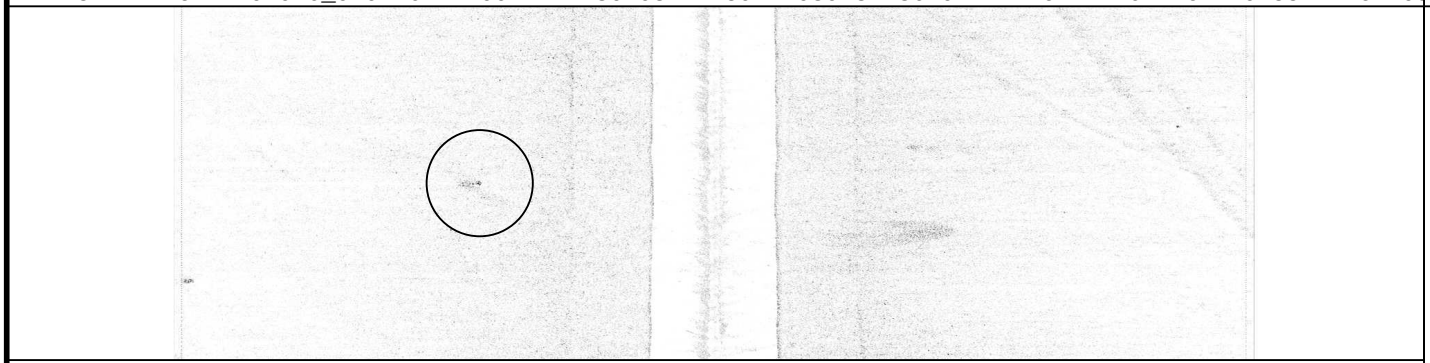


MB File: n/a Scale 1:500



ID: 54 File: TD07026_070126144700.XTF 30 08 41.59N 089 34 36.02W RNG: 7.16 HGT: 0.55 HDG: 094

COMMENT:
DAYBEACON Plot Daybeacon symbol and label R ’18’ Ra Ref



ID: 43 File: TD07025_070125194100.XTF 30 08 42.72N 089 34 36.16W RNG: -10.66 HGT: 1.47 HDG: 271

CORRELATED SS CONTACTS:

Contact	Range/Height
026150704	7.16/0.55
025200652	-10.66/1.47

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0040 Least Depth: Lat: 30 08 22.07N Lon: 089 36 29.85W Ping: Beam:

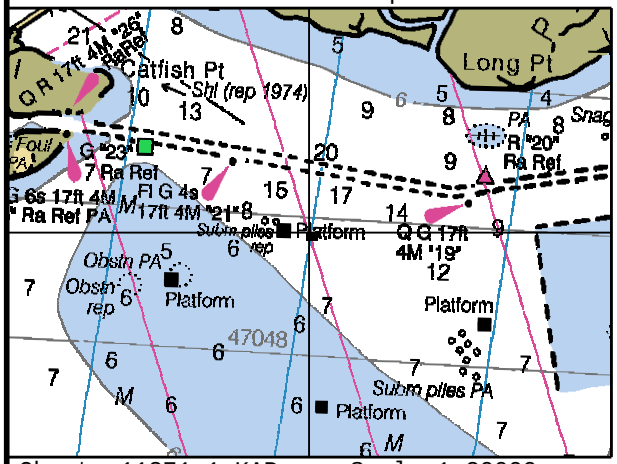


Chart: 11371_1.KAP Scale 1:20000

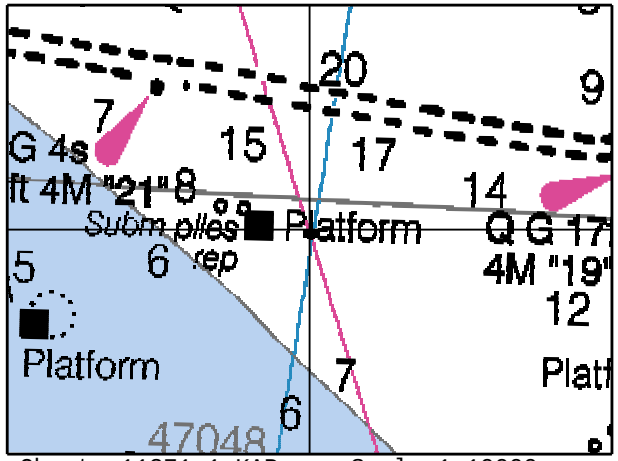
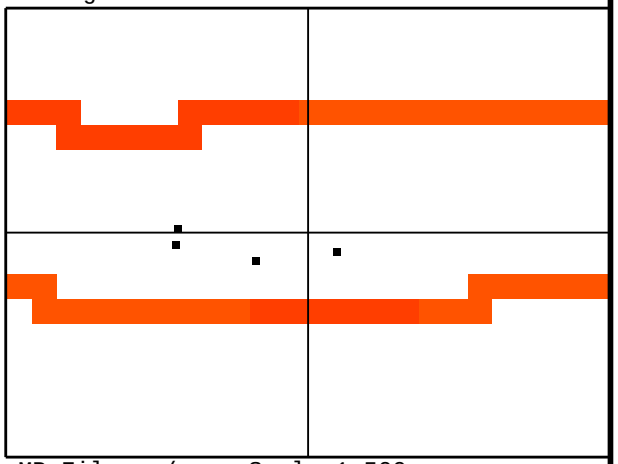
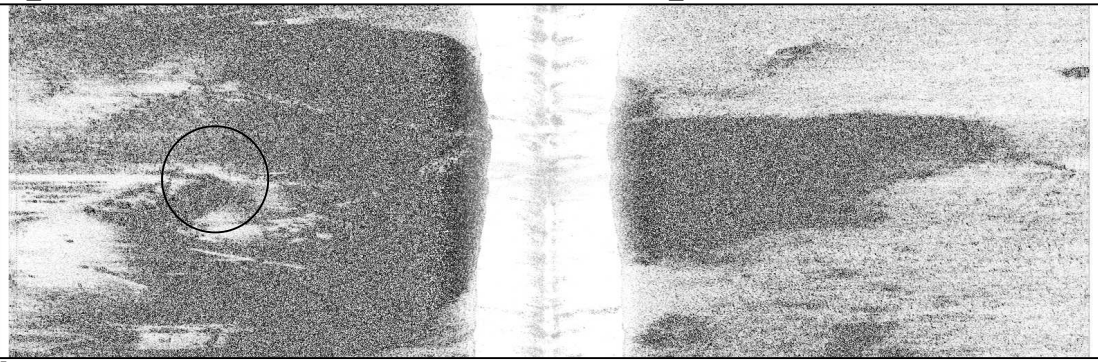


Chart: 11371_1.KAP Scale 1:10000

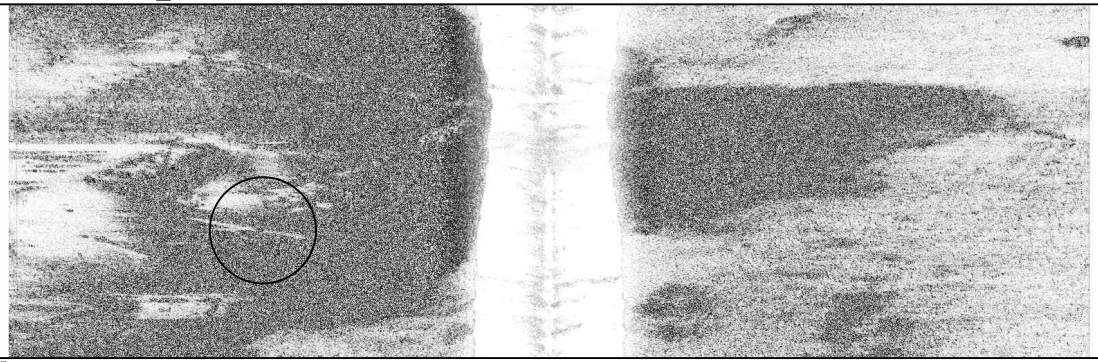


MB File: n/a Scale 1:500



ID: 84 File: TD07029_070129203600.XTF 30 08 21.97N 089 36 29.65W RNG: -15.16 HGT: 1.02 HDG: 090

COMMENT:
PLATFORM Plot platform symbol



ID: 83 File: TD07029_070129203600.XTF 30 08 21.90N 089 36 30.28W RNG: -13.00 HGT: 0.58 HDG: 090

CORRELATED SS CONTACTS:

Contact	Range/Height
029205033	-15.16/1.02
029205029	-13.00/0.58
026210855	-16.94/0.71
029205025	-15.19/0.62

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0039 Least Depth: 8(ft), 2.67(m) Lat: 30 08 12.19N Lon: 089 32 11.48W Ping: Beam:

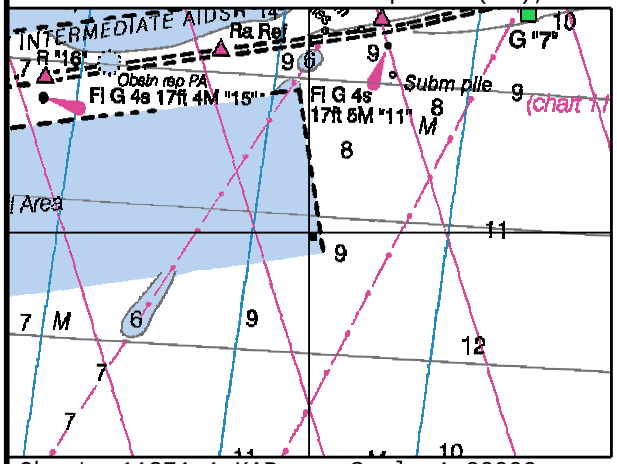


Chart: 11371_1.KAP Scale 1:20000

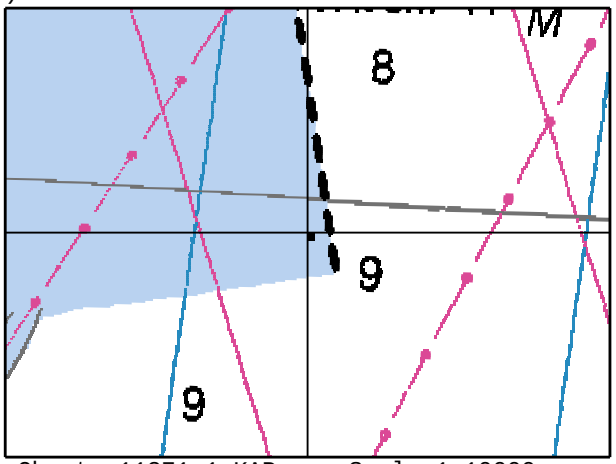
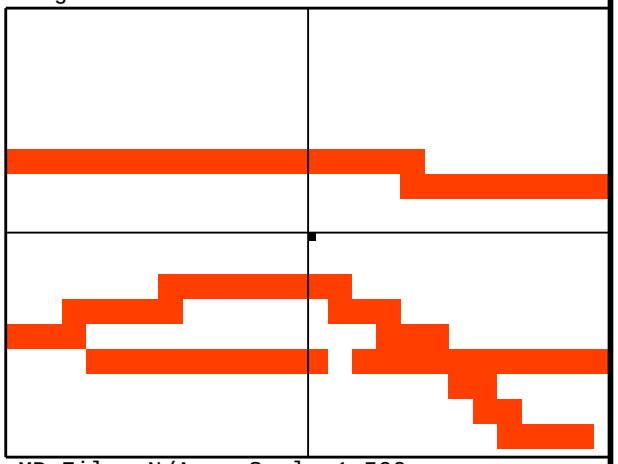
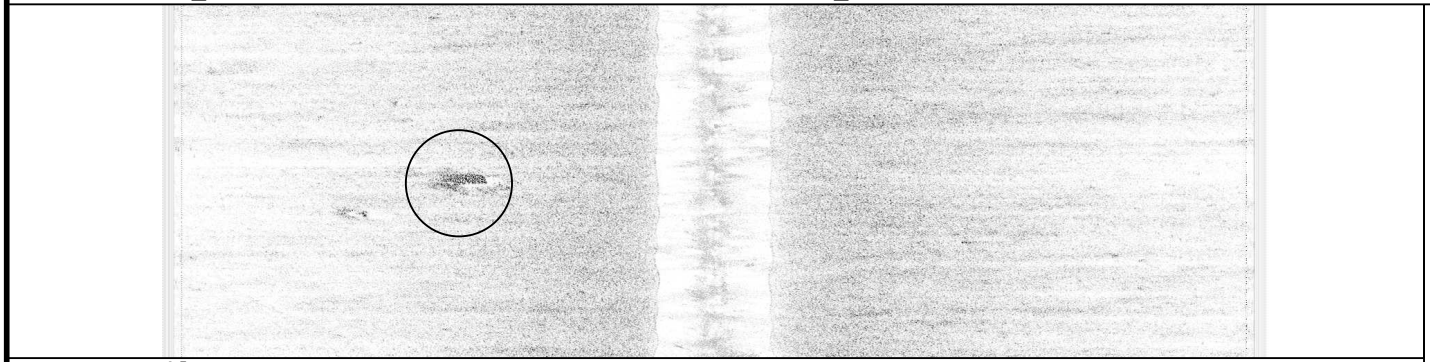


Chart: 11371_1.KAP Scale 1:10000



MB File: N/A Scale 1:500



ID: 103 File: TD07032_070201142200.XTF 30 08 12.19N 089 32 11.48W RNG: -11.59 HGT: 0.63 HDG: 274

COMMENT:
OBSTR No Plot Non Sig (least depth estimated from side scan)

CORRELATED SS CONTACTS:

Contact	Range/Height
032143627	-11.59/0.63

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0038 Least Depth: 5(ft), 1.69(m) Lat: 30 09 06.81N Lon: 089 36 40.72W Ping: Beam:

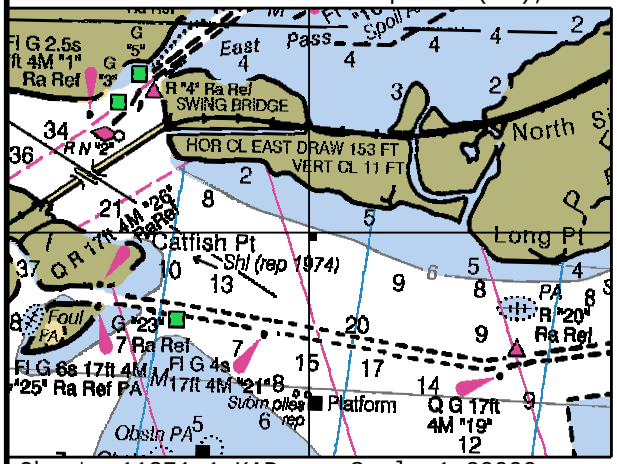


Chart: 11371_1.KAP Scale 1:20000

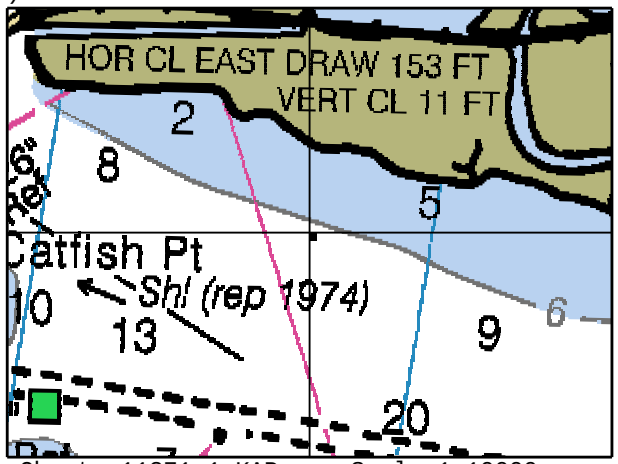
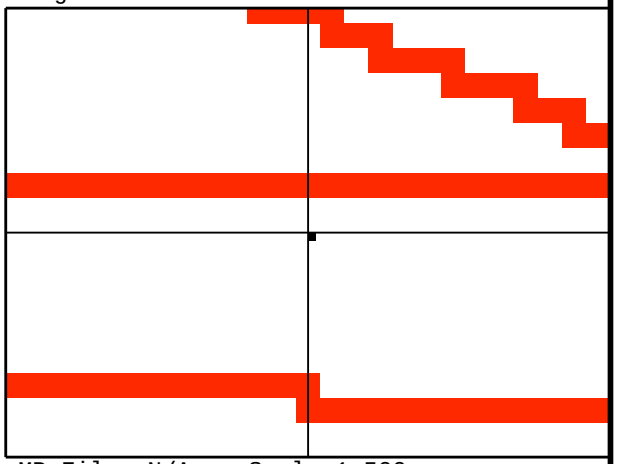
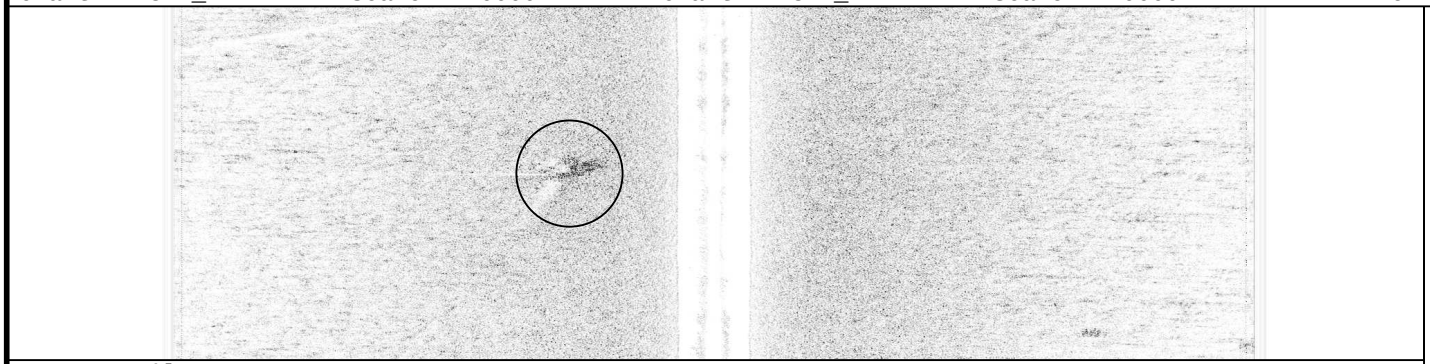


Chart: 11371_1.KAP Scale 1:10000



MB File: N/A Scale 1:500



ID: 21 File: TD07024_070124160000.XTF 30 09 06.81N 089 36 40.72W RNG: -6.59 HGT: 0.69 HDG: 273

COMMENT:
OBSTR Plot sounding and symbol Obstr (least depth estimated from side scan)

CORRELATED SS CONTACTS:

Contact	Range/Height
024160332	-6.59/0.69

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0037 Least Depth: 7(ft), 2.21(m) Lat: 30 05 52.57N Lon: 089 37 05.05W Ping: Beam:

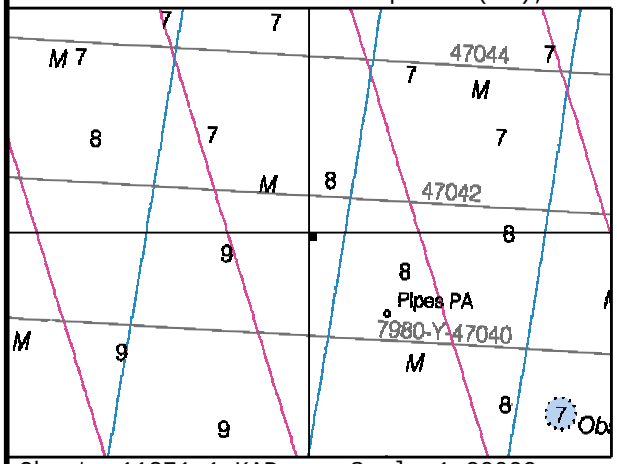


Chart: 11371_1.KAP Scale 1:20000

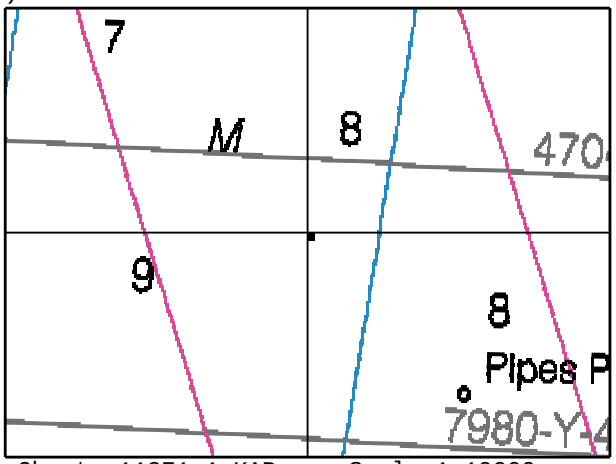
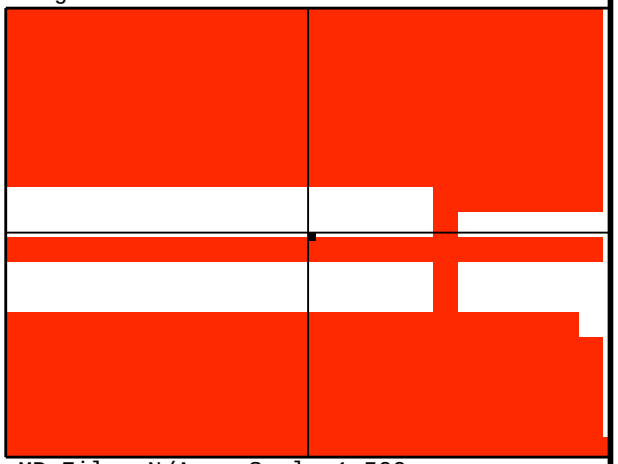
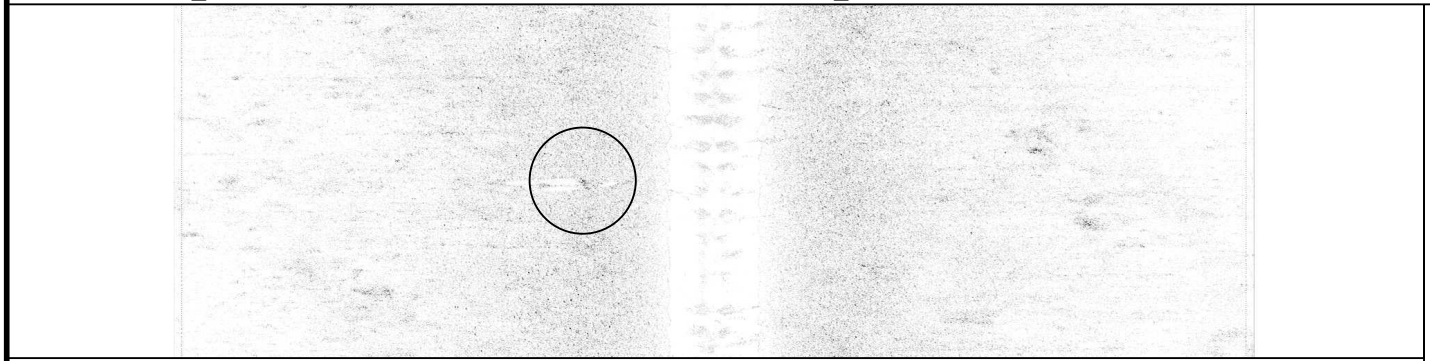


Chart: 11371_1.KAP Scale 1:10000



MB File: N/A Scale 1:500



ID: 192 File: TD07084_070325180500.XTF 30 05 52.57N 089 37 05.05W RNG: -6.00 HGT: 0.71 HDG: 087

COMMENT:
OBSTR No Plot Non Sig (least depth estimated from side scan)

CORRELATED SS CONTACTS:

Contact	Range/Height
084183530	-6.00/0.71

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0036 Least Depth: Lat: 30 08 08.78N Lon: 089 37 12.52W Ping: Beam:

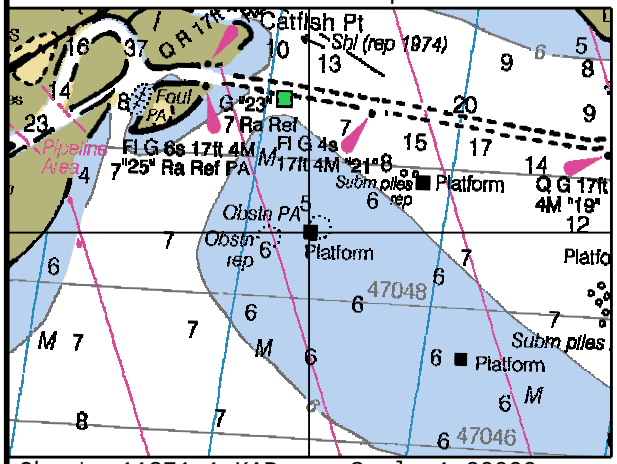


Chart: 11371_1.KAP Scale 1:20000

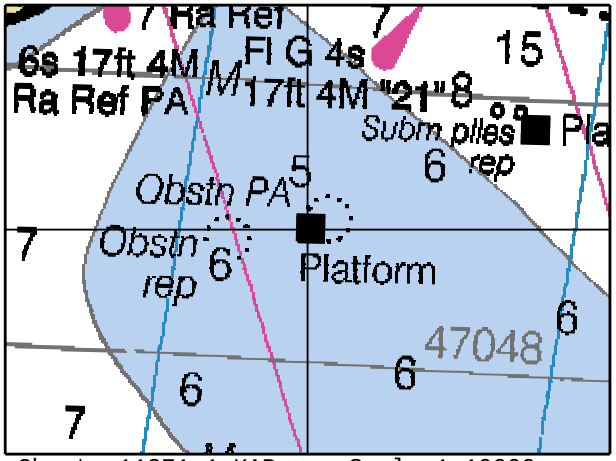
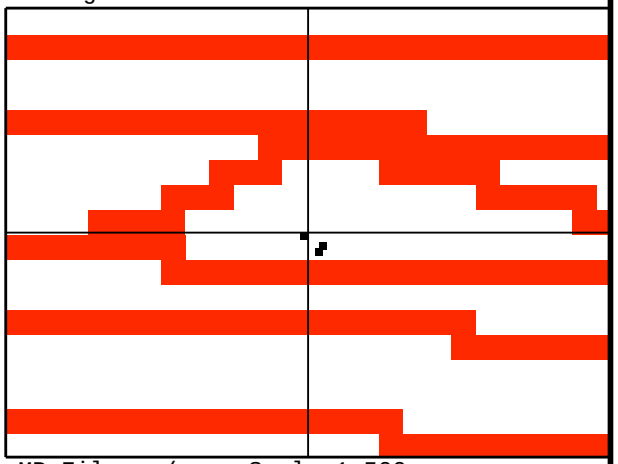
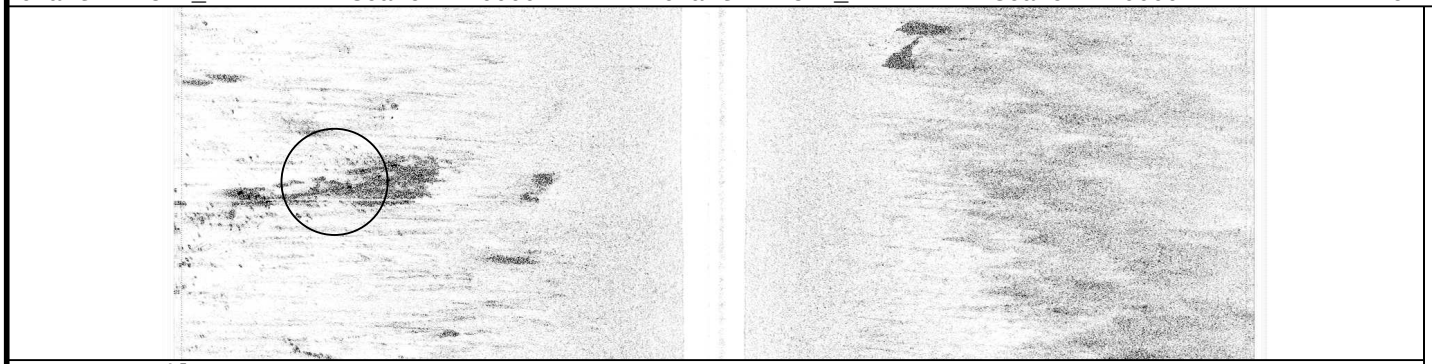


Chart: 11371_1.KAP Scale 1:10000

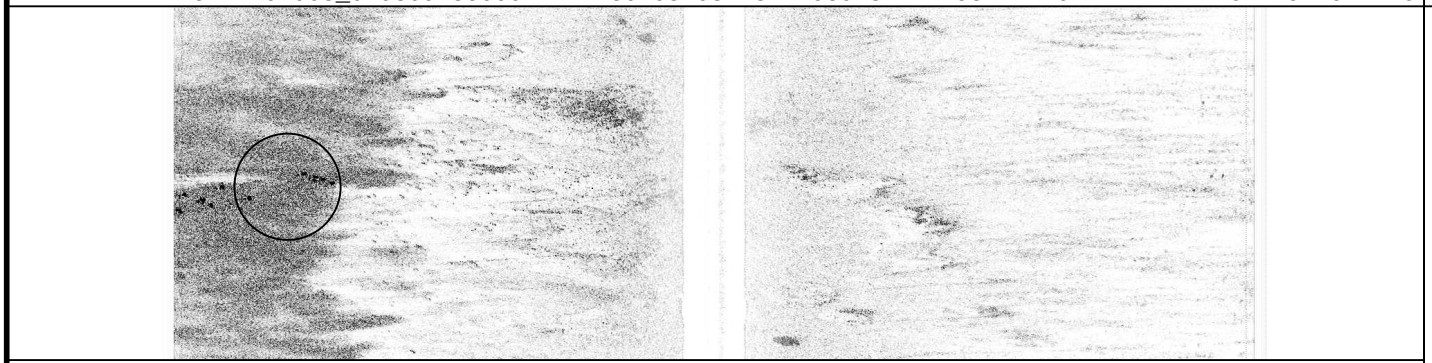


MB File: n/a Scale 1:500



ID: 147 File: TD07068_070309135000.XTF 30 08 08.78N 089 37 12.58W RNG: -17.22 HGT: 0.10 HDG: 270

COMMENT:
PLATFORM Plot platform symbol and label Platforms (see Feature 4)



ID: 149 File: TD07068_070309135200.XTF 30 08 08.72N 089 37 12.44W RNG: -19.34 HGT: 0.00 HDG: 091

CORRELATED SS CONTACTS:

Contact	Range/Height
068135157	-17.22/0.10
068135403	-19.34/0.00
126184450	-6.69/1.05

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0035 Least Depth: 6(ft), 1.83(m) Lat: 30 08 08.34N Lon: 089 37 12.61W Ping: Beam:

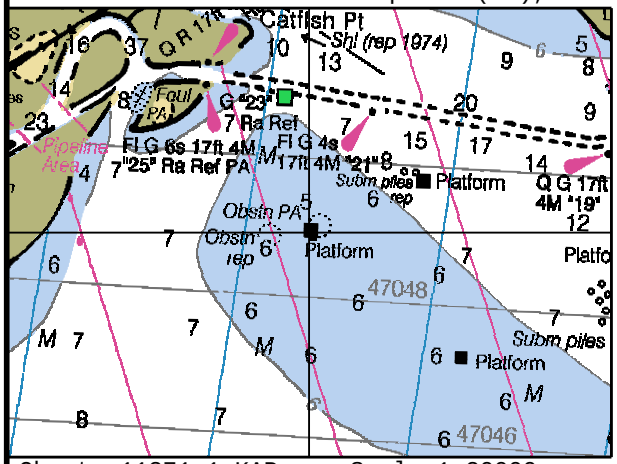


Chart: 11371_1.KAP Scale 1:20000

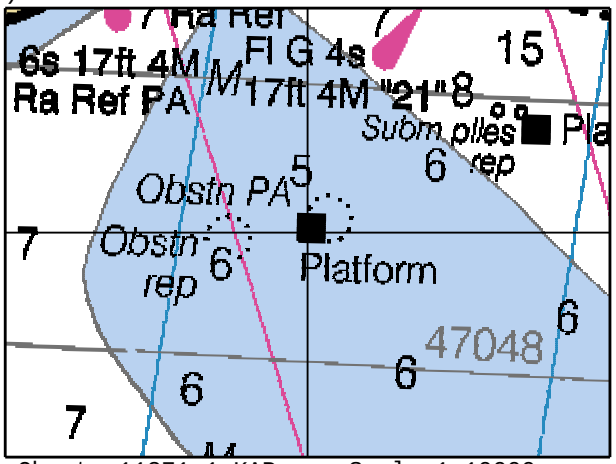
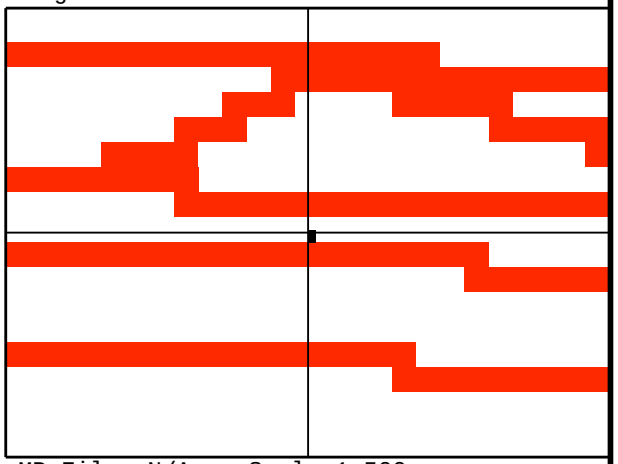
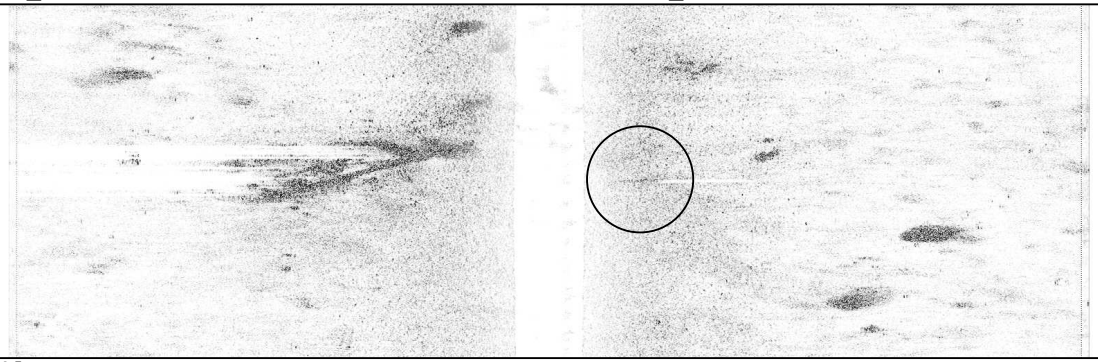


Chart: 11371_1.KAP Scale 1:10000

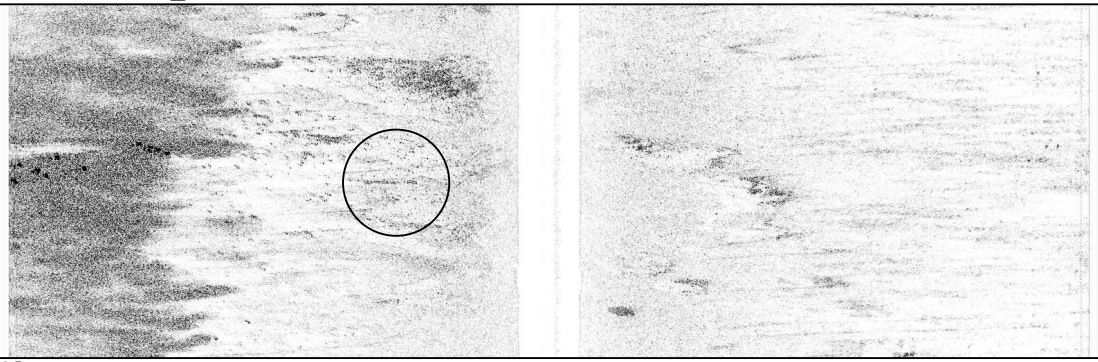


MB File: N/A Scale 1:500



ID: 266 File: TD07126_070506184300.XTF 30 08 08.36N 089 37 12.61W RNG: 4.06 HGT: 0.60 HDG: 093

COMMENT:
OBSTR No Plot (see Feature 36, least depth estimated from side scan)



ID: 152 File: TD07068_070309135200.XTF 30 08 08.32N 089 37 12.61W RNG: -6.97 HGT: 0.54 HDG: 091

CORRELATED SS CONTACTS:

Contact	Range/Height
126184449	4.06/0.60
068135402	-6.97/0.54

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0034 Least Depth: Lat: 30 08 09.08N Lon: 089 37 12.44W Ping: Beam:

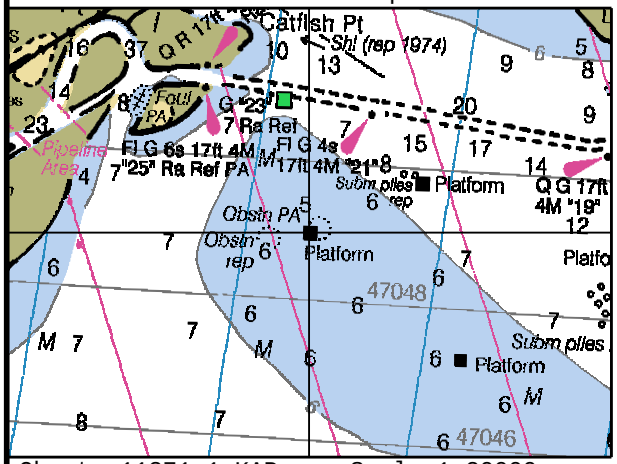


Chart: 11371_1.KAP Scale 1:20000

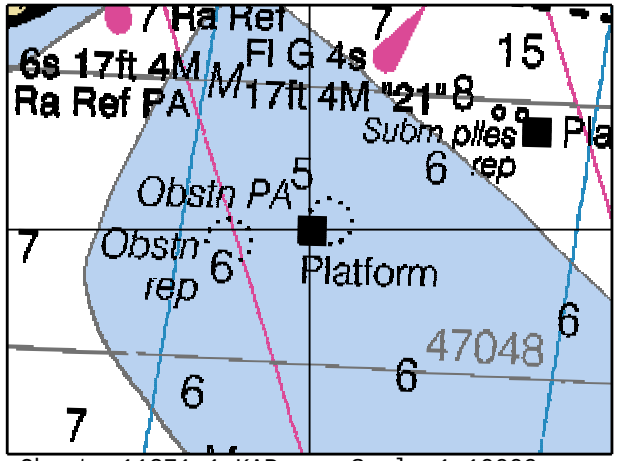
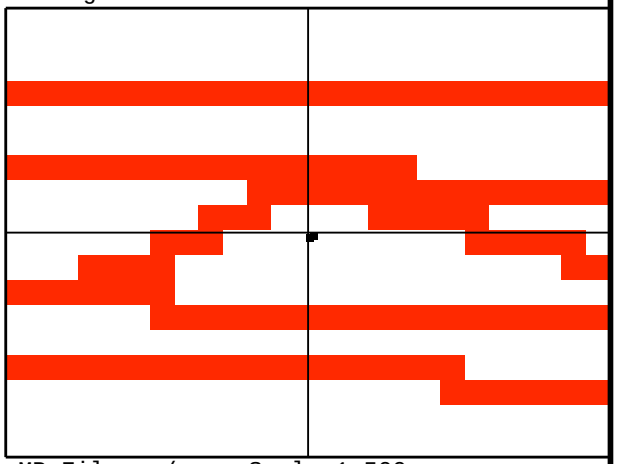
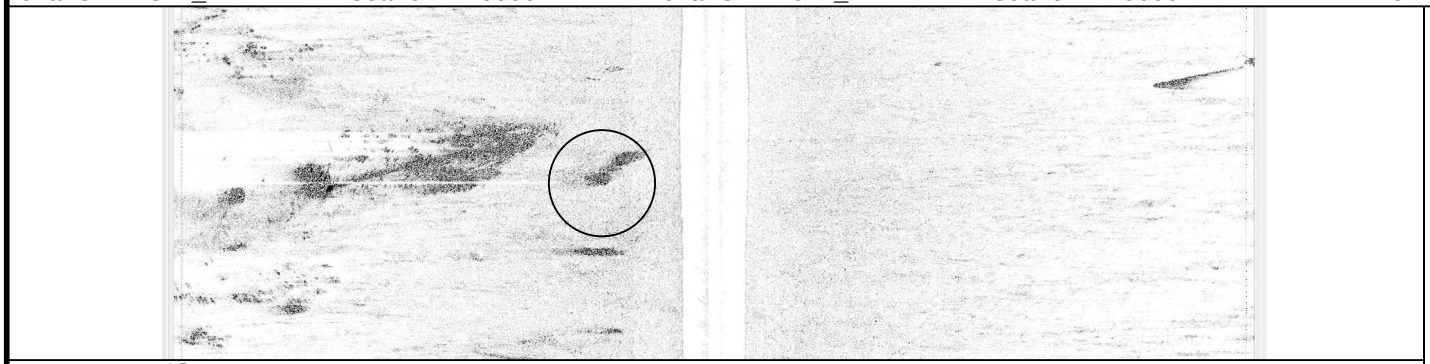


Chart: 11371_1.KAP Scale 1:10000

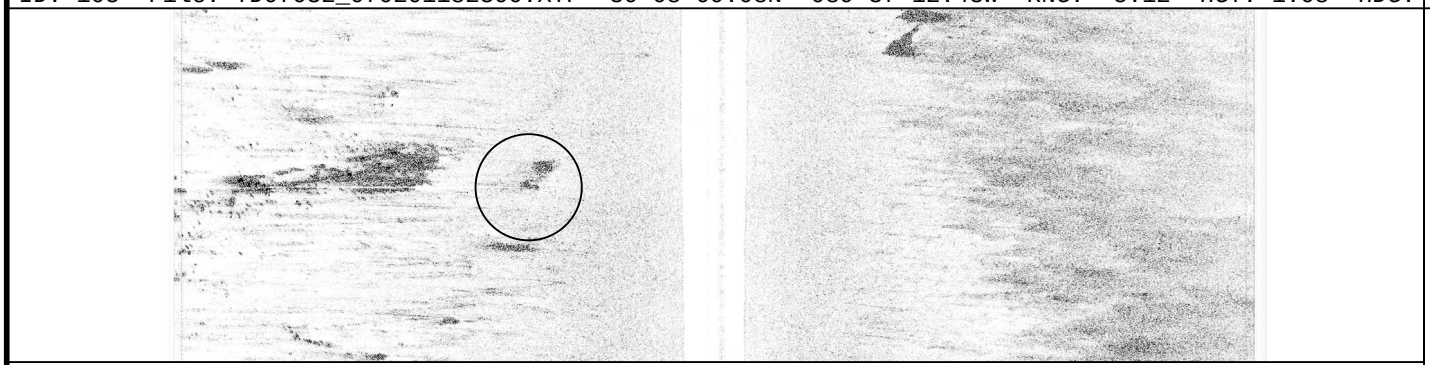


MB File: n/a Scale 1:500



ID: 105 File: TD07032_070201182300.XTF 30 08 09.08N 089 37 12.43W RNG: -5.12 HGT: 1.08 HDG: 268

COMMENT:
PILE No plot (see Feature 36)



ID: 146 File: TD07068_070309135000.XTF 30 08 09.07N 089 37 12.46W RNG: -8.44 HGT: 0.87 HDG: 270

CORRELATED SS CONTACTS:

Contact	Range/Height
032191339	-5.12/1.08
068135156	-8.44/0.87

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0033 Least Depth: Lat: 30 08 09.64N Lon: 089 37 13.48W Ping: Beam:

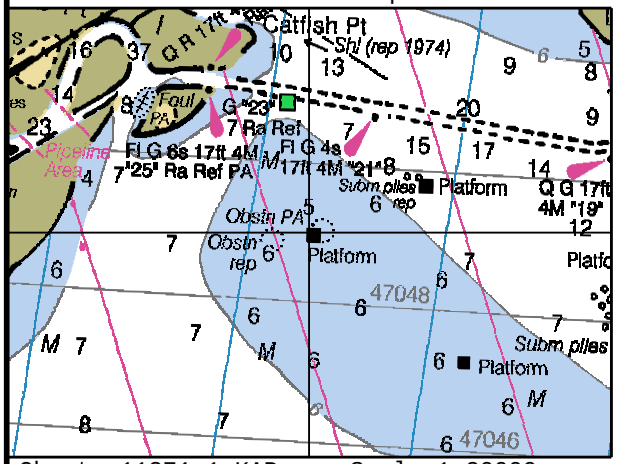


Chart: 11371_1.KAP Scale 1:20000

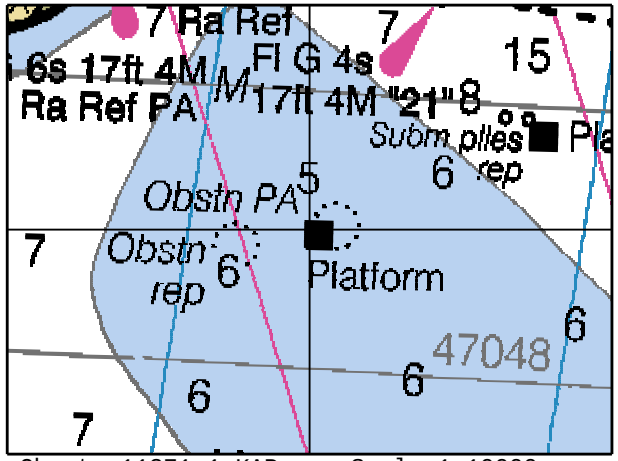
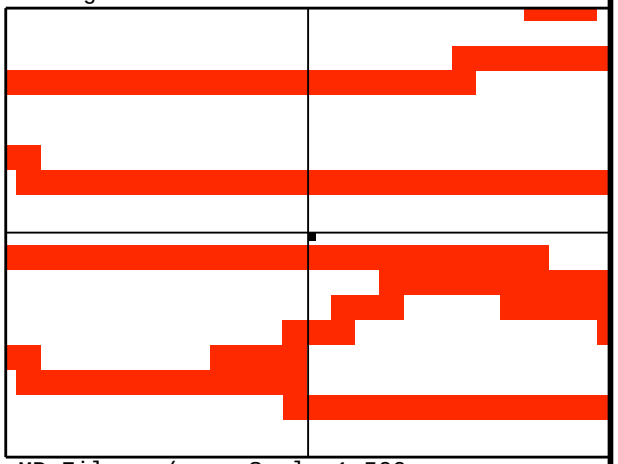
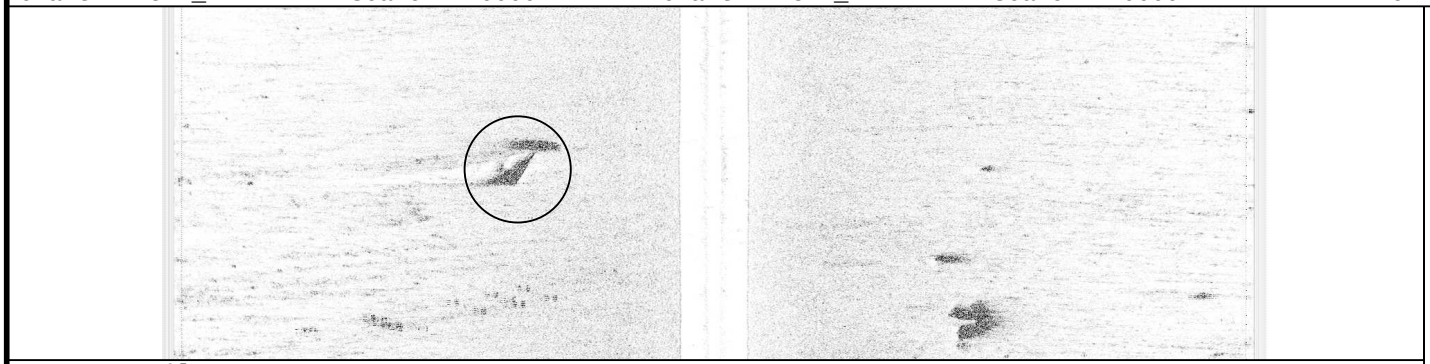


Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500



ID: 107 File: TD07032_070201204400.XTF 30 08 09.64N 089 37 13.48W RNG: -8.94 HGT: 0.54 HDG: 267

COMMENT:
PILES No plot (see Feature 36)

CORRELATED SS CONTACTS:

Contact	Range/Height
032211549	-8.94/0.54

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0032 Least Depth: 18(ft), 5.58(m) Lat: 30 09 16.69N Lon: 089 37 47.74W Ping: Beam:

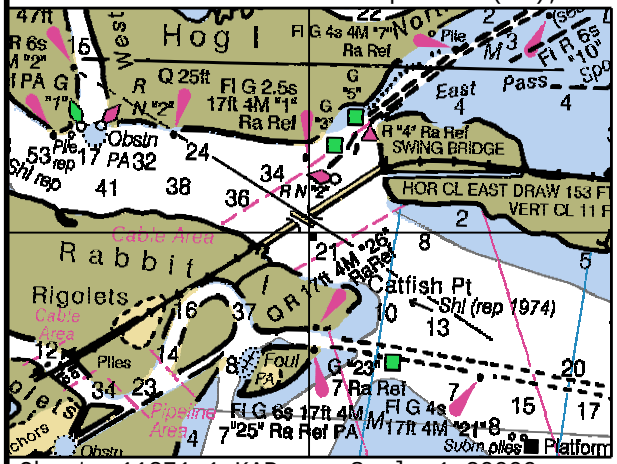


Chart: 11371_1.KAP Scale 1:20000

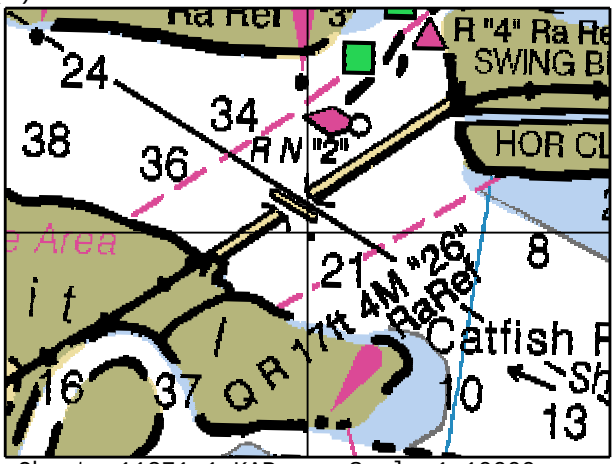
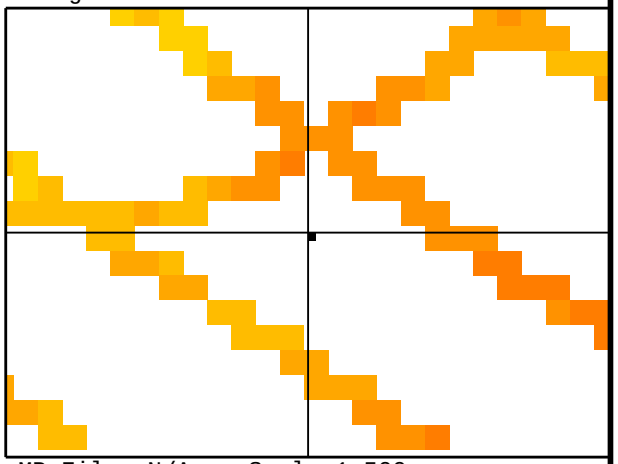
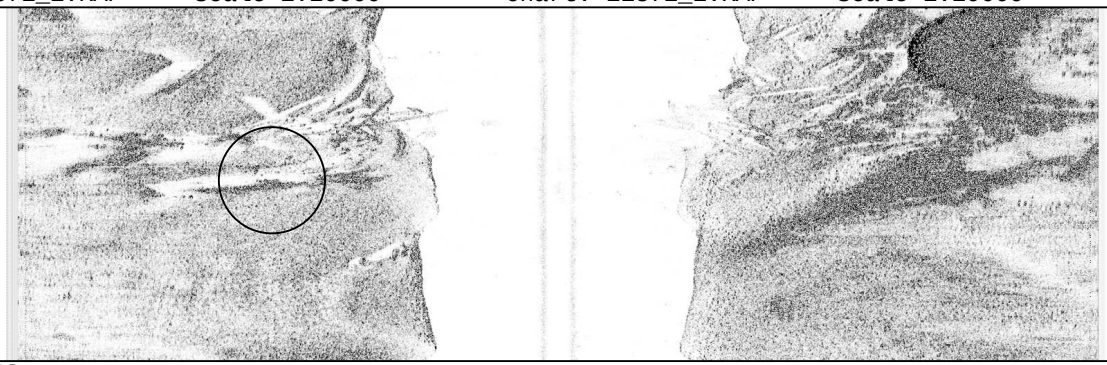


Chart: 11371_1.KAP Scale 1:10000



MB File: N/A Scale 1:500



ID: 89 File: TD07030_070130141200.XTF 30 09 16.69N 089 37 47.74W RNG: -13.00 HGT: 1.59 HDG: 241

COMMENT:
OBSTRS No Plot (see Feature 31 least depth estimated from side scan)

CORRELATED SS CONTACTS:

Contact	Range/Height
030141558	-13.00/1.59

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0031 Least Depth: 15(ft), 4.58(m) Lat: 30 09 14.85N Lon: 089 37 52.56W Ping: Beam:

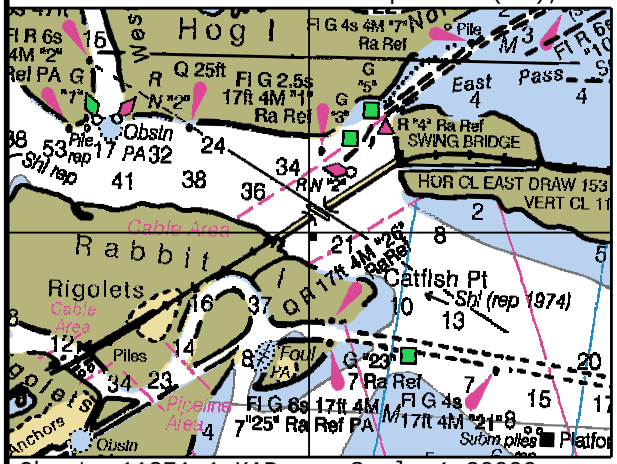


Chart: 11371_1.KAP Scale 1:20000

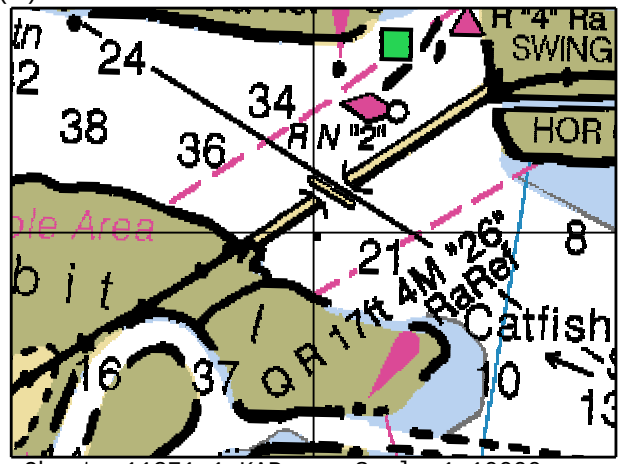
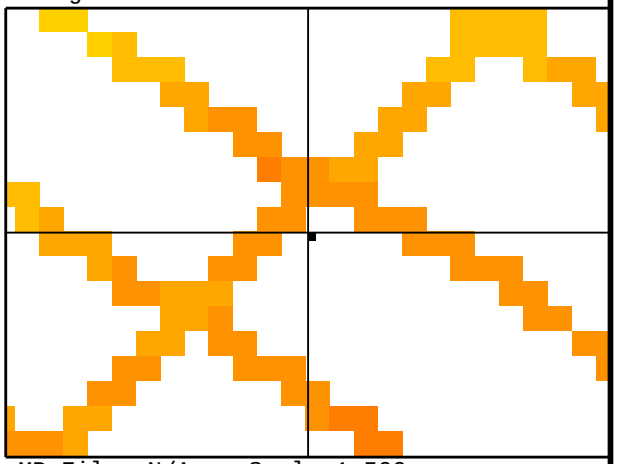
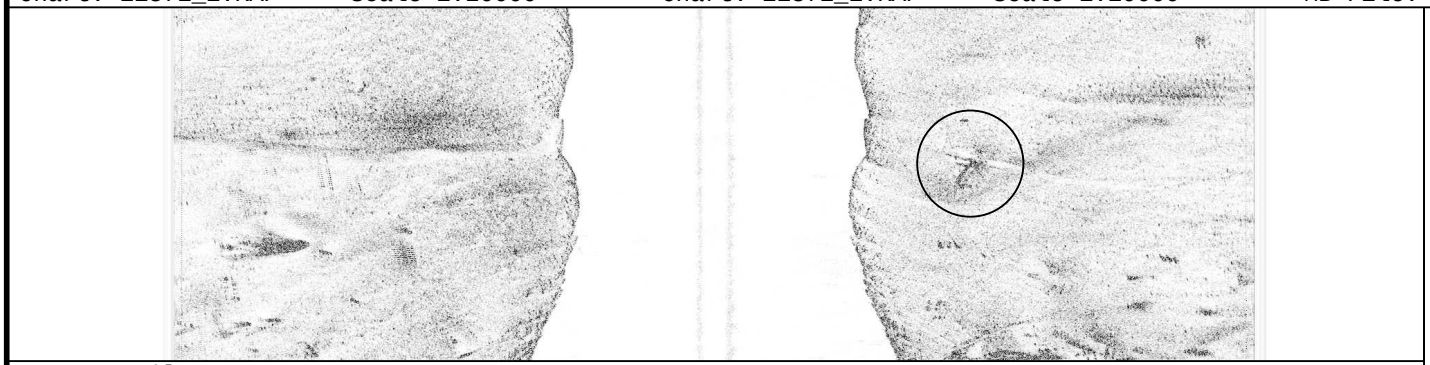


Chart: 11371_1.KAP Scale 1:10000



MB File: N/A Scale 1:500



ID: 27 File: TD07024_070124205000.XTF 30 09 14.85N 089 37 52.56W RNG: 11.53 HGT: 2.62 HDG: 118

COMMENT:
OBSTRS Plot sounding and symbol Obstrs (See Feature 32. Least depth estimated from side scan)

CORRELATED SS CONTACTS:

Contact	Range/Height
024205219	11.53/2.62

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0030 Least Depth: 42(ft), 12.91(m) Lat: 30 09 20.89N Lon: 089 37 45.98W Ping: Beam:

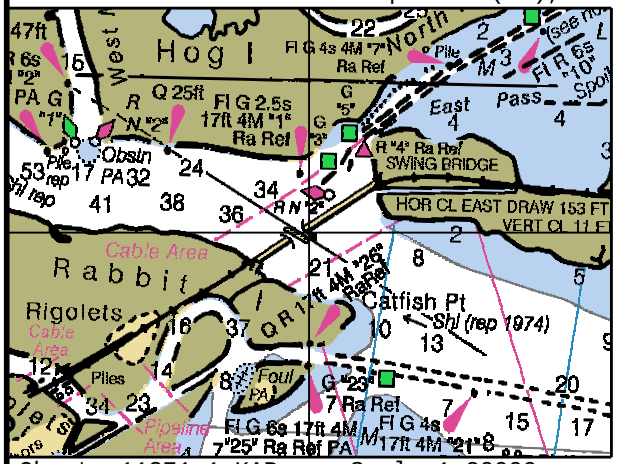


Chart: 11371_1.KAP Scale 1:20000

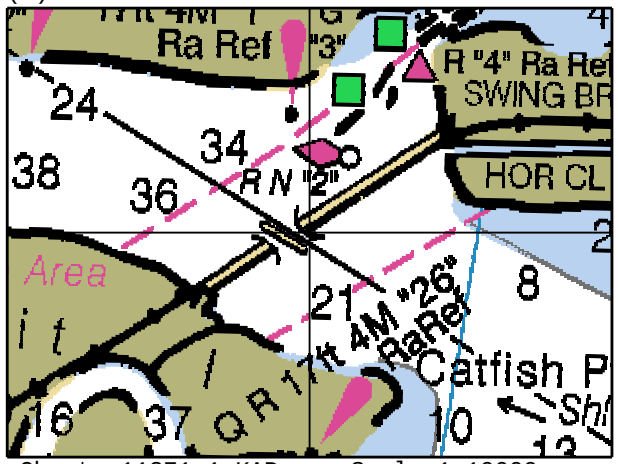
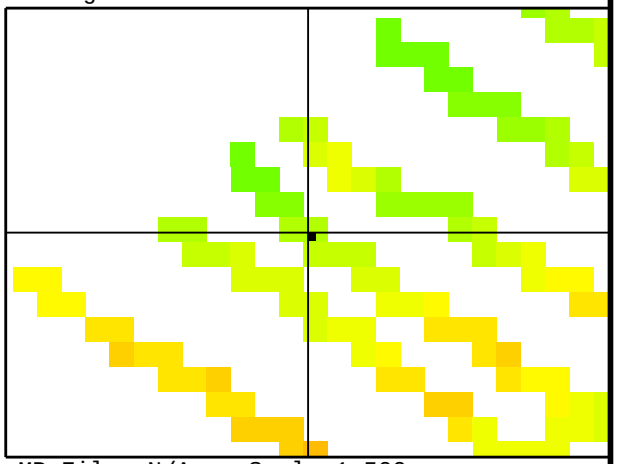


Chart: 11371_1.KAP Scale 1:10000



MB File: N/A Scale 1:500

ID: 98 File: TD07030_070130143800.XTF 30 09 20.89N 089 37 45.98W RNG: -18.94 HGT: 3.23 HDG: 120

COMMENT:
OBSTRS No Plot (see Feature 16 least depth estimated from side scan)

CORRELATED SS CONTACTS:

Contact	Range/Height
030143931	-18.94/3.23

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0029 Least Depth: 32(ft), 9.89(m) Lat: 30 09 21.81N Lon: 089 37 43.47W Ping: Beam:

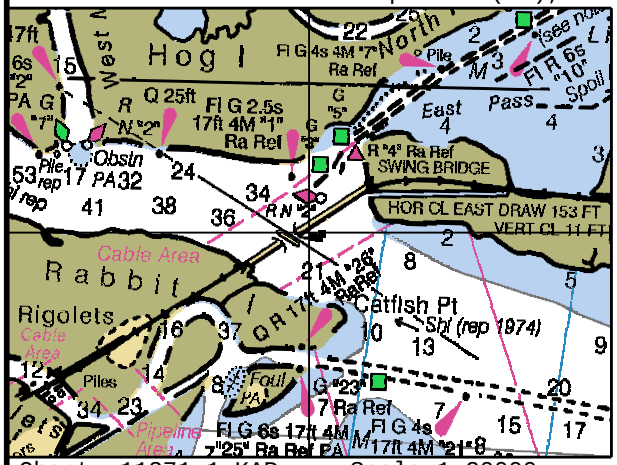


Chart: 11371_1.KAP Scale 1:20000

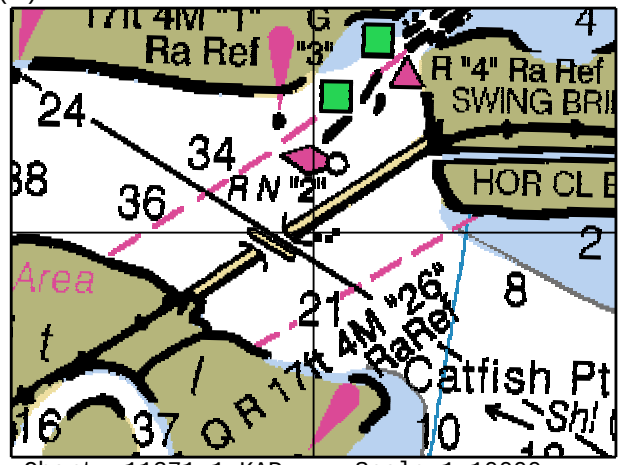
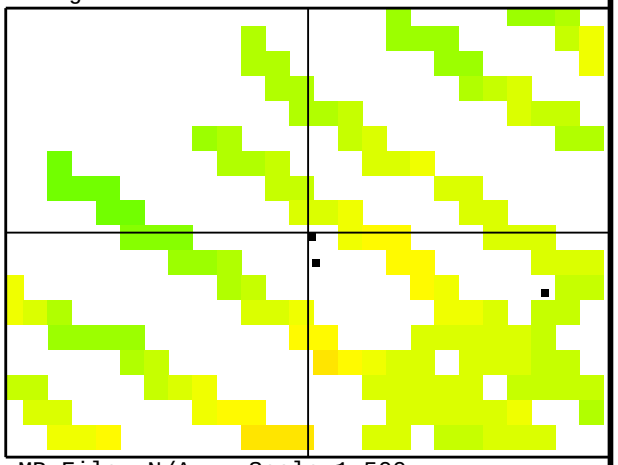
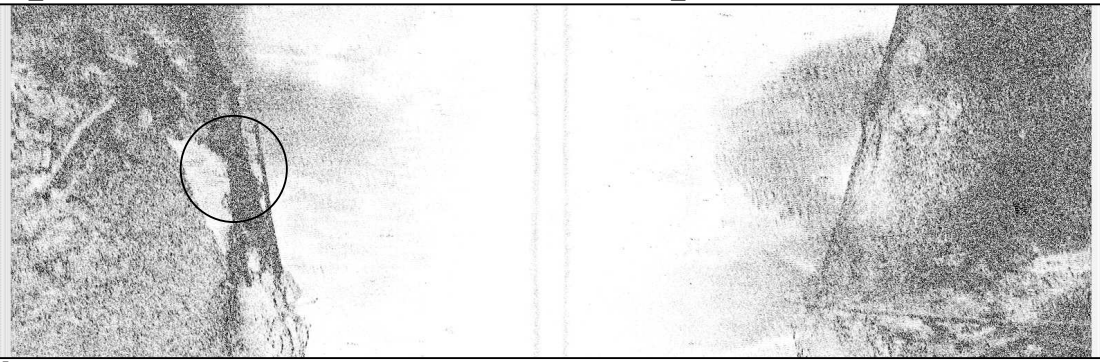


Chart: 11371_1.KAP Scale 1:10000

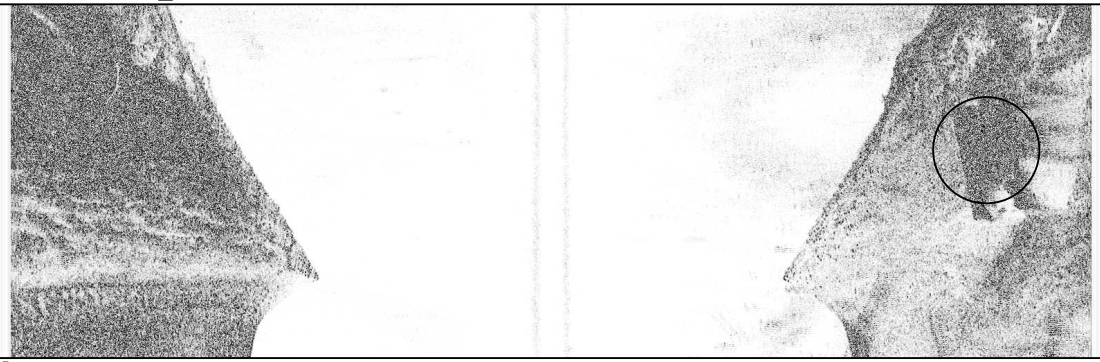


MB File: N/A Scale 1:500



ID: 97 File: TD07030_070130143000.XTF 30 09 21.81N 089 37 43.47W RNG: -14.41 HGT: 4.88 HDG: 298

COMMENT:
OBSTRS No Plot (see Feature 16 least depth estimated from side scan)



ID: 30 File: TD07024_070124213500.XTF 30 09 21.64N 089 37 43.43W RNG: 19.62 HGT: 3.55 HDG: 300

CORRELATED SS CONTACTS:

Contact	Range/Height
030143652	-14.41/4.88
024214057	19.62/3.55
030143633	18.91/4.25
030145100	-19.09/3.49

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0028 Least Depth: 34(ft), 10.46(m) Lat: 30 09 23.76N Lon: 089 37 39.37W Ping: Beam:

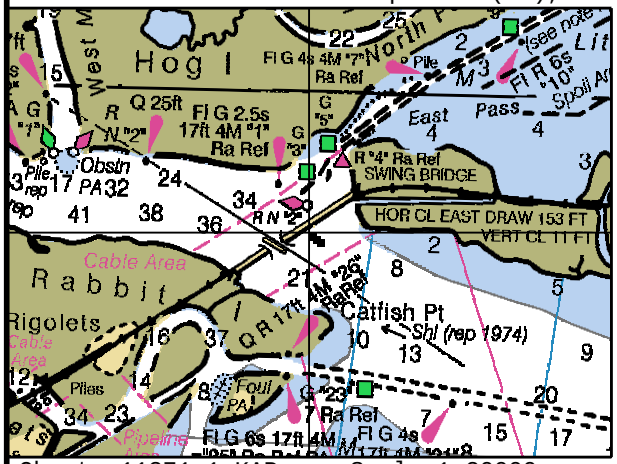


Chart: 11371_1.KAP Scale 1:20000

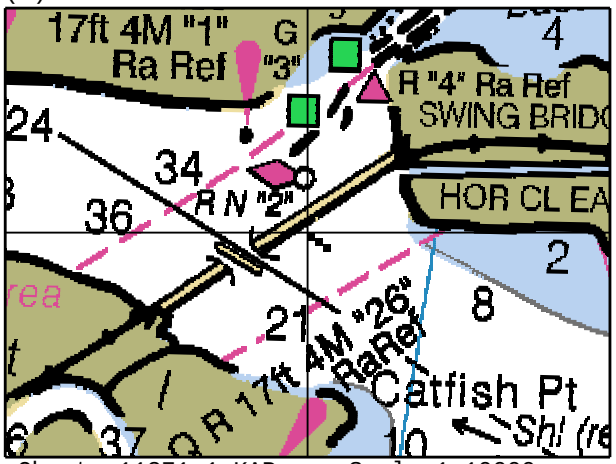
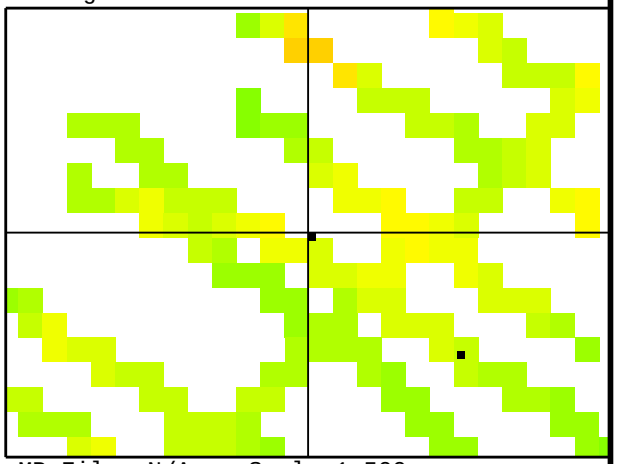
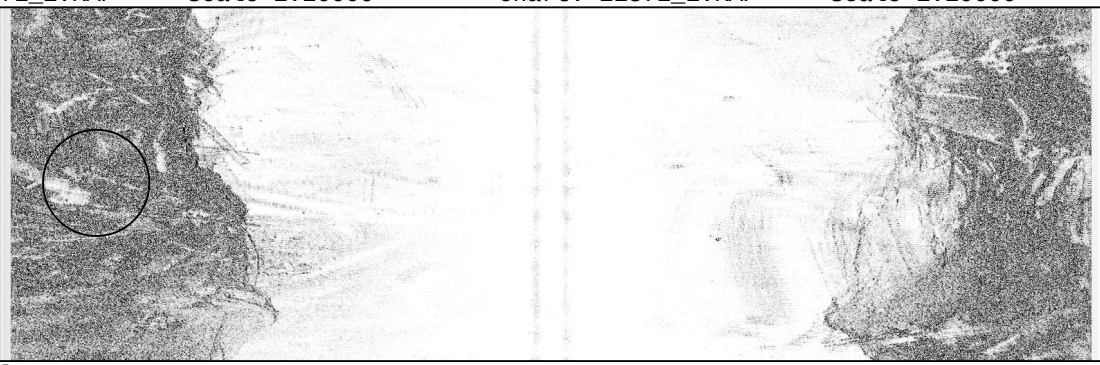


Chart: 11371_1.KAP Scale 1:10000

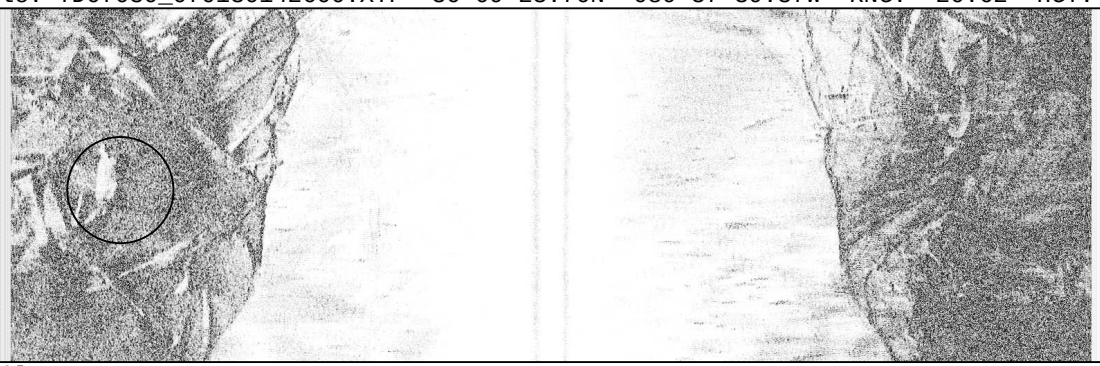


MB File: N/A Scale 1:500



ID: 91 File: TD07030_070130142600.XTF 30 09 23.76N 089 37 39.37W RNG: -20.62 HGT: 2.17 HDG: 126

COMMENT:
OBSTRS No Plot (see Feature 16 least depth estimated from side scan)



ID: 100 File: TD07030_070130144000.XTF 30 09 23.01N 089 37 38.20W RNG: -19.53 HGT: 0.92 HDG: 300

CORRELATED SS CONTACTS:

Contact	Range/Height
030142738	-20.62/2.17
030144735	-19.53/0.92
030144718	-23.62/0.67

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0027 Least Depth: 13(ft), 3.99(m) Lat: 30 09 25.39N Lon: 089 37 37.77W Ping: Beam:

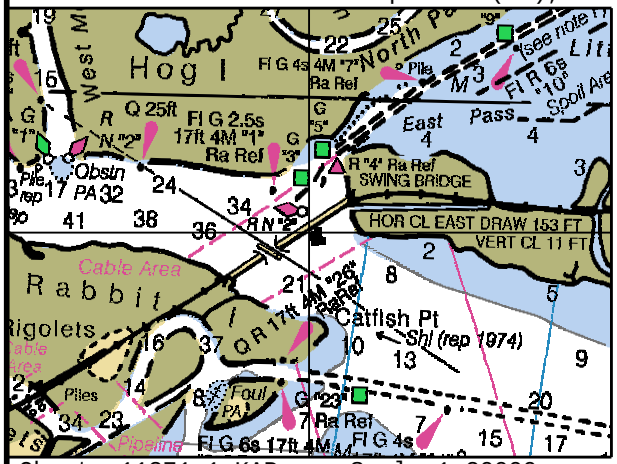


Chart: 11371_1.KAP Scale 1:20000

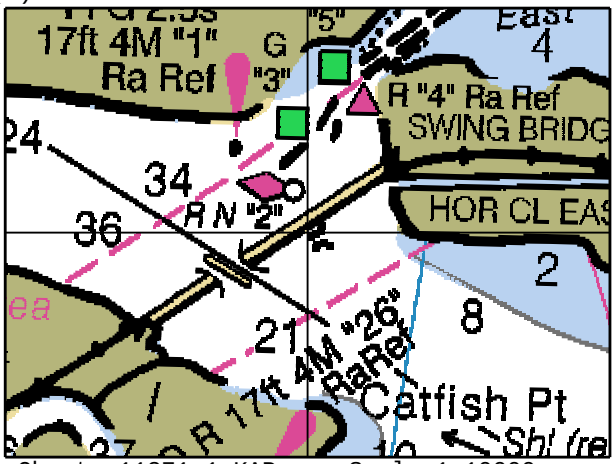
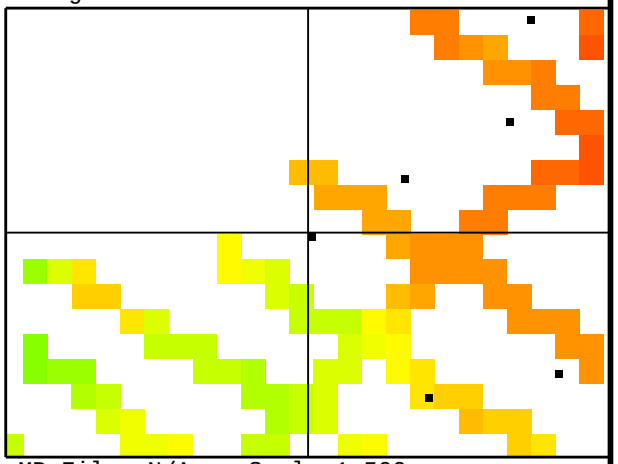
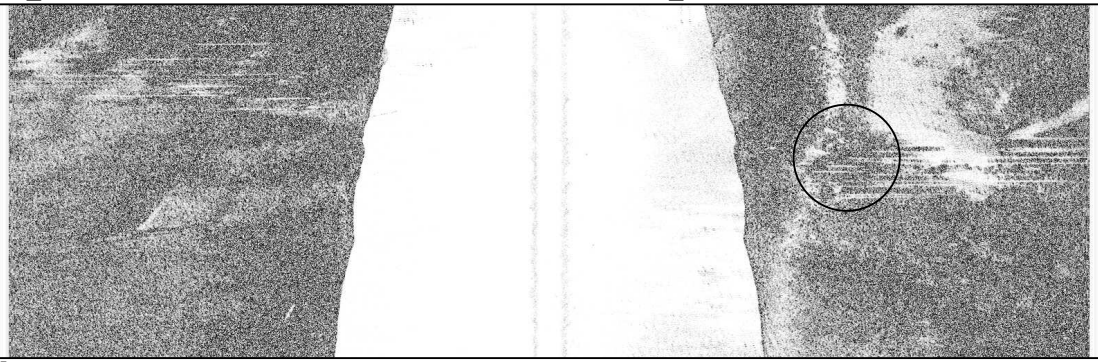


Chart: 11371_1.KAP Scale 1:10000

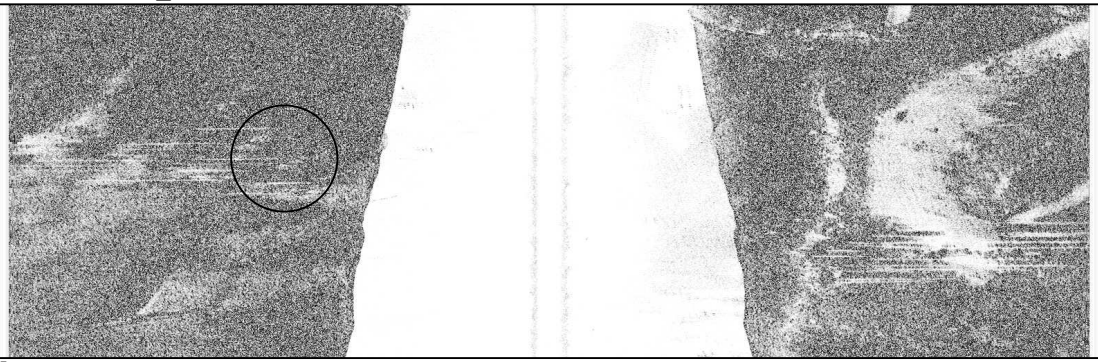


MB File: N/A Scale 1:500



ID: 31 File: TD07024_070124220200.XTF 30 09 25.39N 089 37 37.77W RNG: 13.41 HGT: 4.44 HDG: 113

COMMENT:
OBSTRS No Plot (see Feature 16 least depth estimated from side scan)



ID: 32 File: TD07024_070124220200.XTF 30 09 25.78N 089 37 37.06W RNG: -12.03 HGT: 2.43 HDG: 119

CORRELATED SS CONTACTS:

Contact	Range/Height
024220332	13.41/4.44
024220335	-12.03/2.43
030141352	-17.66/3.60
024221931	-10.56/2.26
030142520	-18.69/2.35
024220348	8.94/1.48
024221933	13.19/2.22
024220356	6.03/2.03

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0026 Least Depth: 8(ft), 2.67(m) Lat: 30 09 25.84N Lon: 089 37 31.50W Ping: Beam:

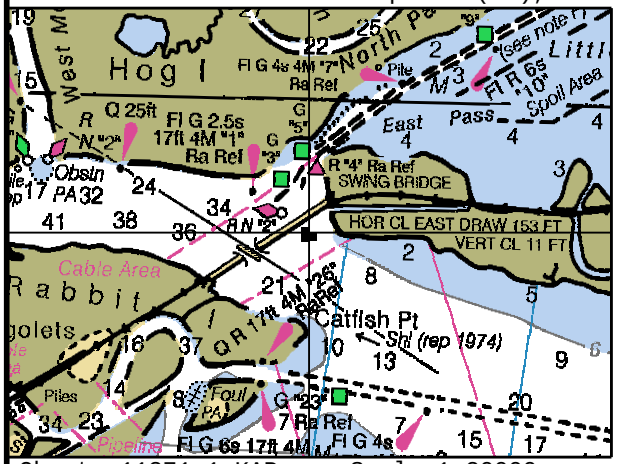


Chart: 11371_1.KAP Scale 1:20000

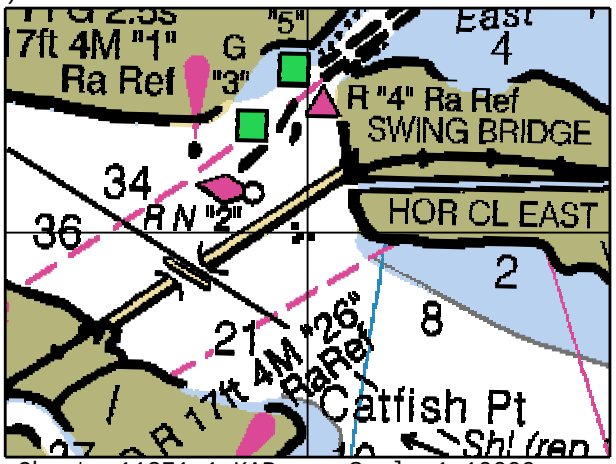
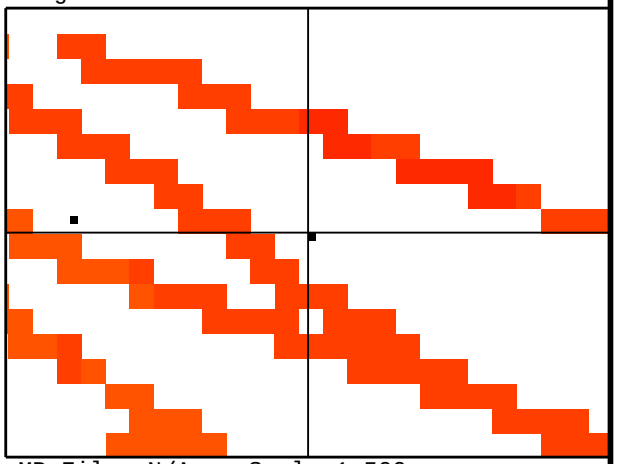
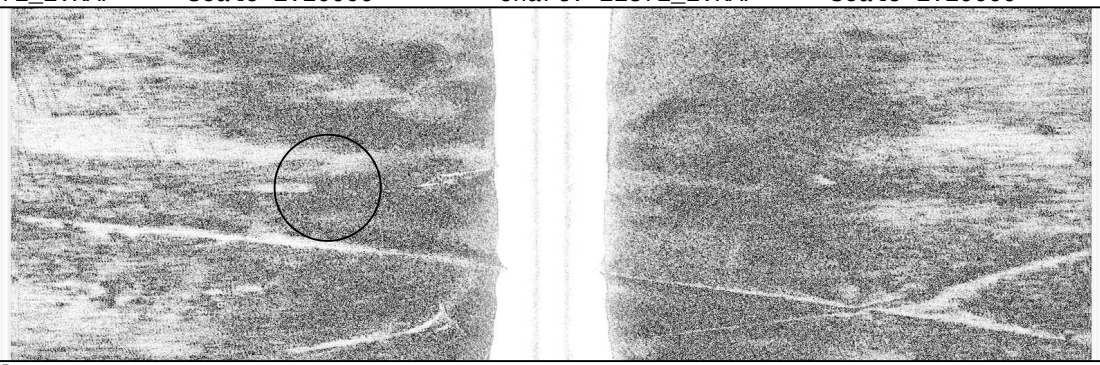


Chart: 11371_1.KAP Scale 1:10000

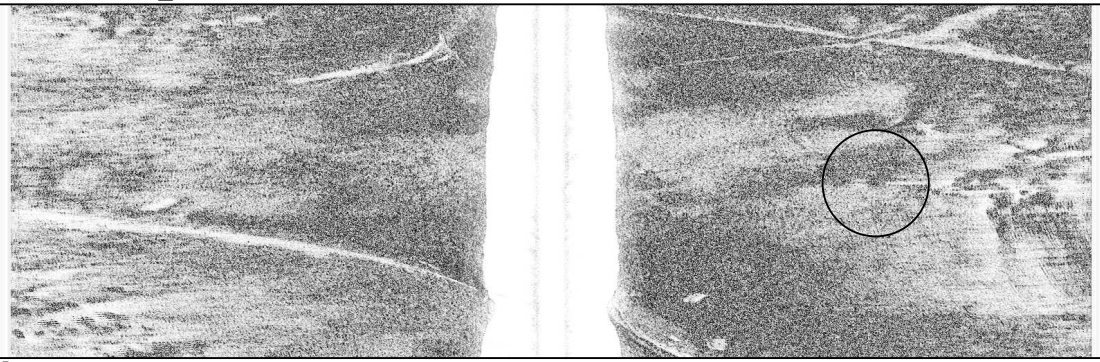


MB File: N/A Scale 1:500



ID: 39 File: TD07024_070124222000.XTF 30 09 25.84N 089 37 31.50W RNG: -10.16 HGT: 0.67 HDG: 123

COMMENT:
OBSTRS No Plot (see Feature 16 least depth estimated from side scan)



ID: 38 File: TD07024_070124222000.XTF 30 09 25.91N 089 37 33.34W RNG: 14.62 HGT: 0.59 HDG: 118

CORRELATED SS CONTACTS:

Contact	Range/Height
024222418	-10.16/0.67
024222405	14.62/0.59
024221910	6.25/1.27
030141315	9.75/1.39

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0025 Least Depth: 9(ft), 2.84(m) Lat: 30 09 18.61N Lon: 089 37 15.50W Ping: Beam:

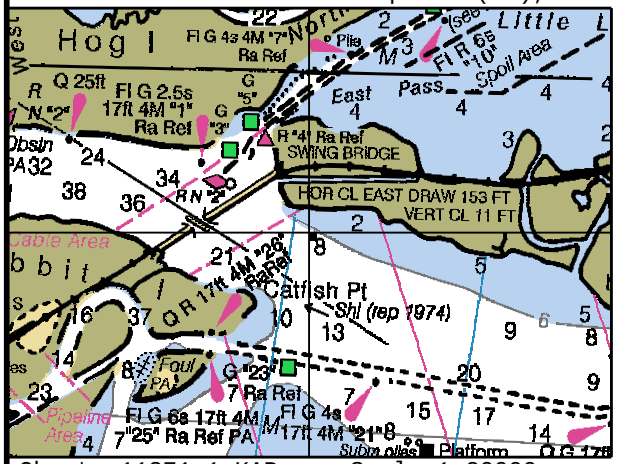


Chart: 11371_1.KAP Scale 1:20000

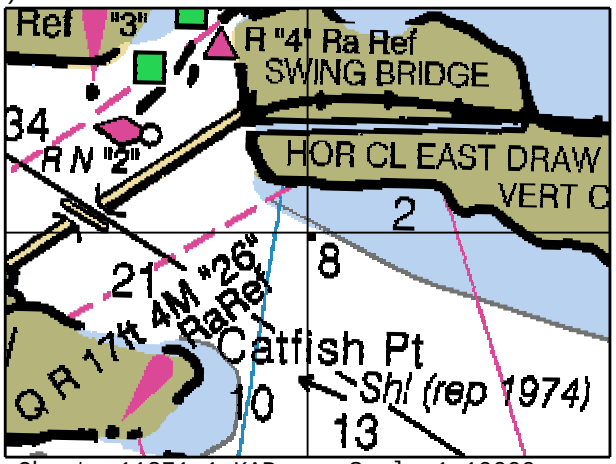
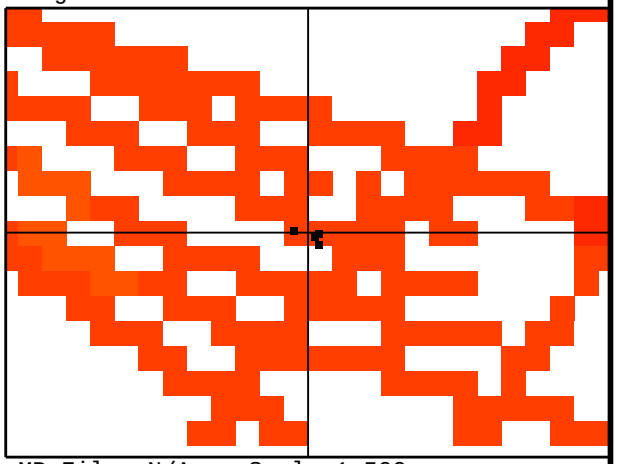
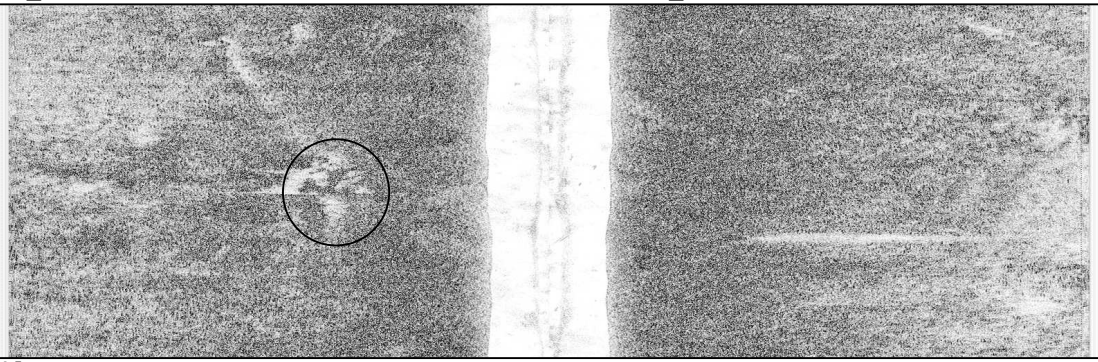


Chart: 11371_1.KAP Scale 1:10000



MB File: N/A Scale 1:500



ID: 273 File: TD07151_070531220000.XTF 30 09 18.60N 089 37 15.48W RNG: -9.69 HGT: 0.99 HDG: 289

COMMENT:
OBSTRS No Plot Non Sig (least depth estimated from side scan)

ID: 48 File: TD07025_070125221000.XTF 30 09 18.62N 089 37 15.45W RNG: -13.41 HGT: 0.63 HDG: 042

CORRELATED SS CONTACTS:

Contact	Range/Height
151220203	-9.69/0.99
025222024	-13.41/0.63
151220510	-12.25/0.87
025225046	-20.59/0.33

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0024 Least Depth: 12(ft), 3.87(m) Lat: 30 08 47.51N Lon: 089 37 07.64W Ping: Beam:

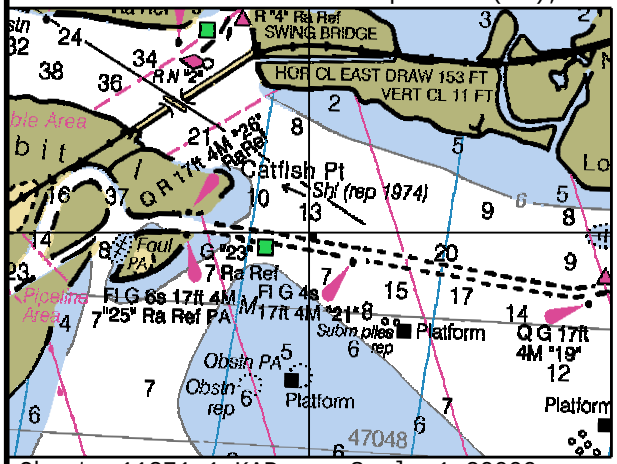


Chart: 11371_1.KAP Scale 1:20000

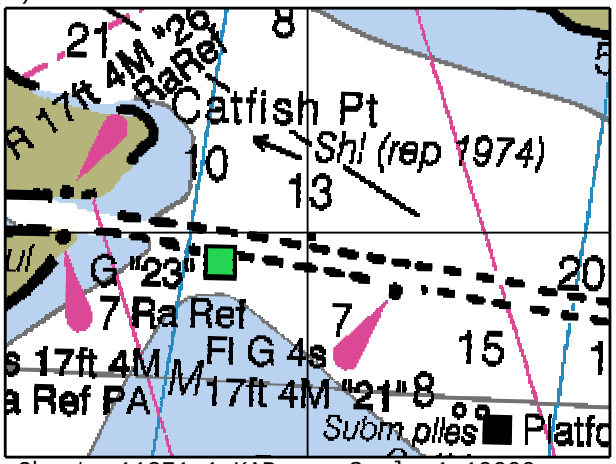
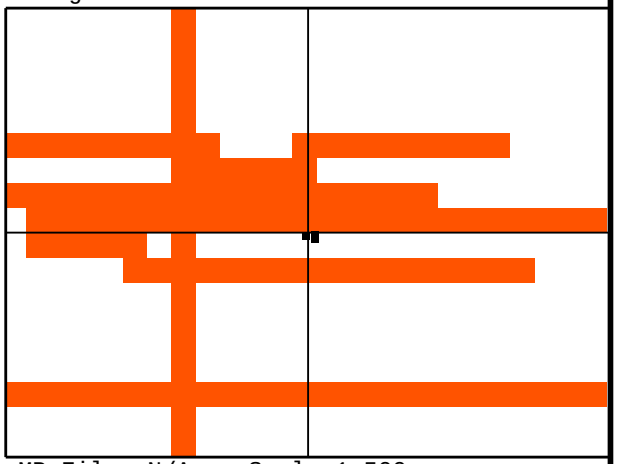
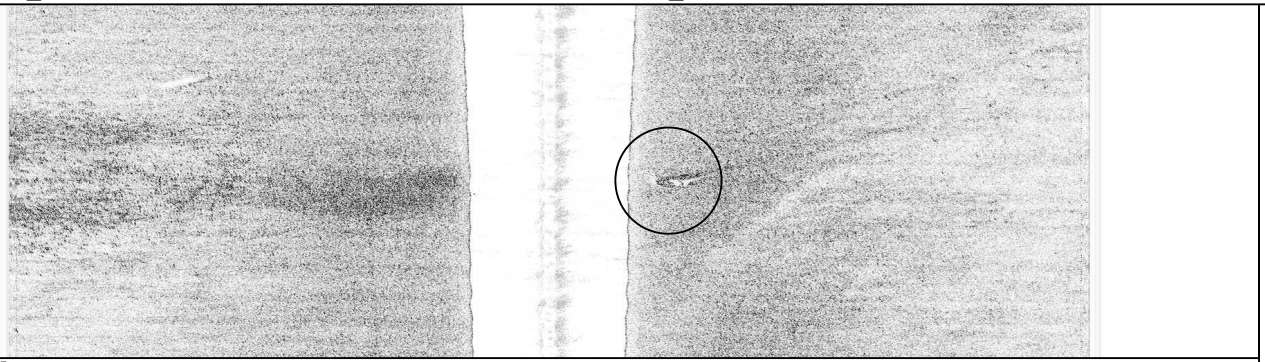


Chart: 11371_1.KAP Scale 1:10000



MB File: N/A Scale 1:500



ID: 24 File: TD07024_070124182900.XTF 30 08 47.52N 089 37 07.62W RNG: 5.34 HGT: 0.82 HDG: 087

COMMENT:
OBSTR Plot sounding and symbol Obstr (least depth estimated from side scan)

ID: 295 File: TD07152_070601215800.XTF 30 08 47.49N 089 37 07.62W RNG: -12.09 HGT: 0.41 HDG: 091

CORRELATED SS CONTACTS:

Contact	Range/Height
024183414	5.34/0.82
152215952	-12.09/0.41
152215706	-12.16/0.38

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0023 Least Depth: 8(ft), 2.37(m) Lat: 30 06 27.62N Lon: 089 31 36.92W Ping: Beam:

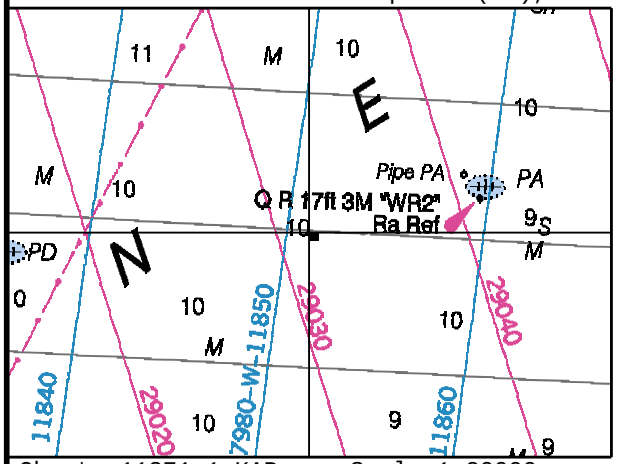


Chart: 11371_1.KAP Scale 1:20000

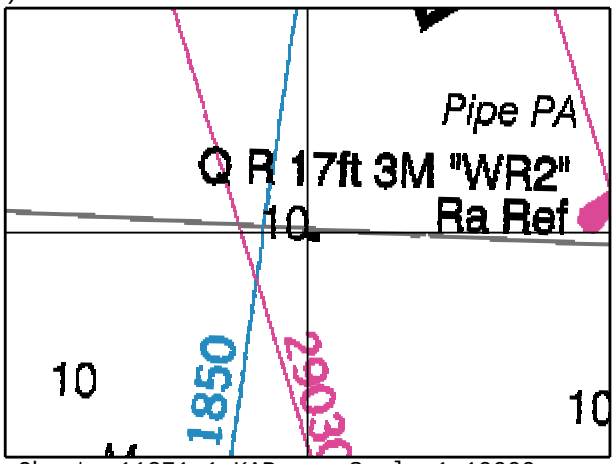
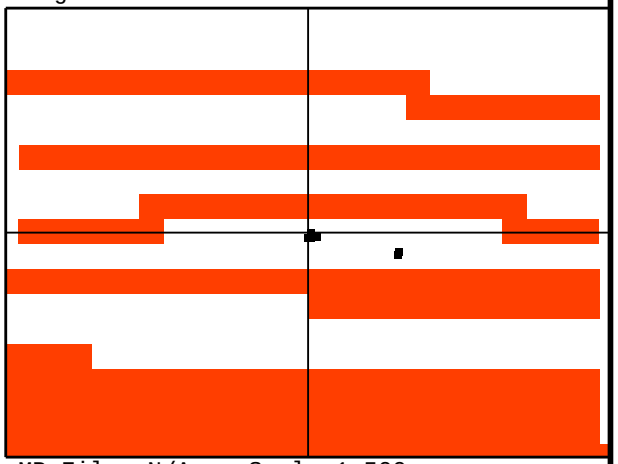
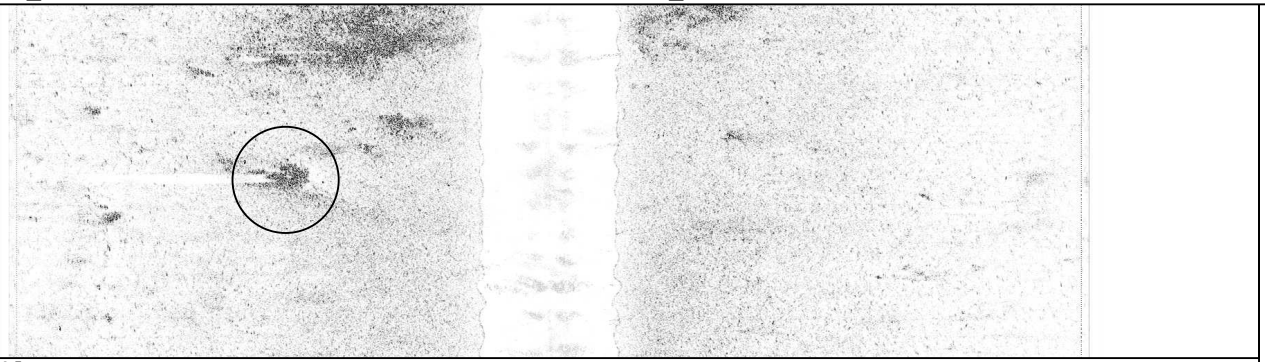


Chart: 11371_1.KAP Scale 1:10000



MB File: N/A Scale 1:500



ID: 278 File: TD07152_070601125500.XTF 30 06 27.61N 089 31 36.92W RNG: -11.97 HGT: 1.47 HDG: 088

COMMENT:
OBSTRS Plot sounding and symbol Obstrs (least depth estimated from side scan)

ID: 277 File: TD07152_070601125300.XTF 30 06 27.64N 089 31 36.92W RNG: -11.97 HGT: 1.36 HDG: 269

CORRELATED SS CONTACTS:

Contact	Range/Height
152125802	-11.97/1.47
152125439	-11.97/1.36
152130117	-4.06/1.33
085140401	-14.56/0.95
152130112	-7.72/0.89
152125808	-9.41/0.84

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0022 Least Depth: 46(ft), 14.17(m) Lat: 30 09 17.51N Lon: 089 37 33.77W Ping: Beam:

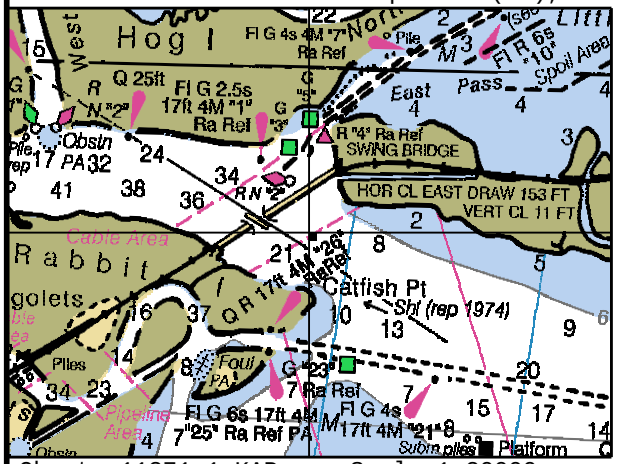


Chart: 11371_1.KAP Scale 1:20000

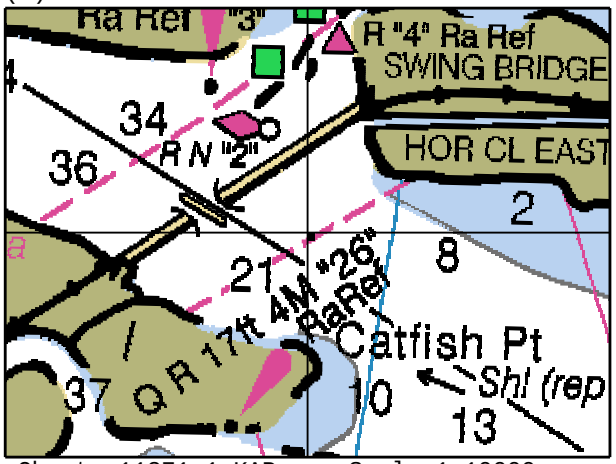
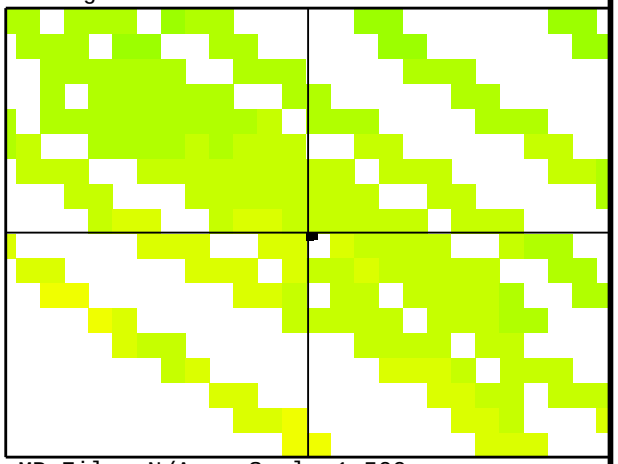
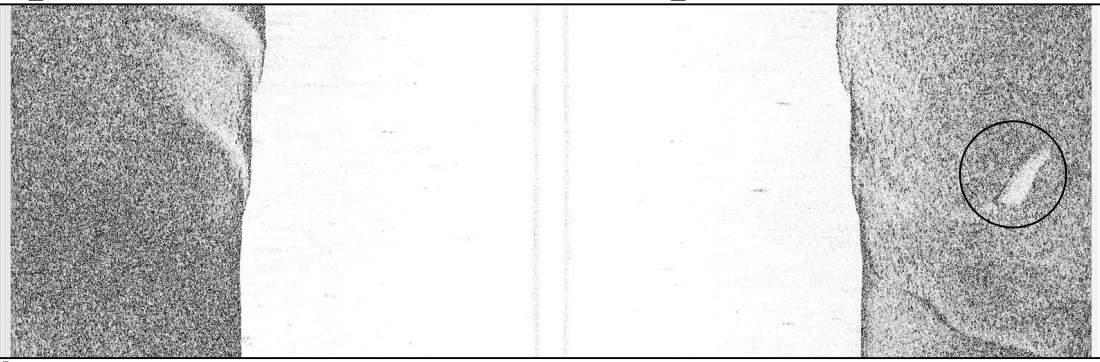


Chart: 11371_1.KAP Scale 1:10000

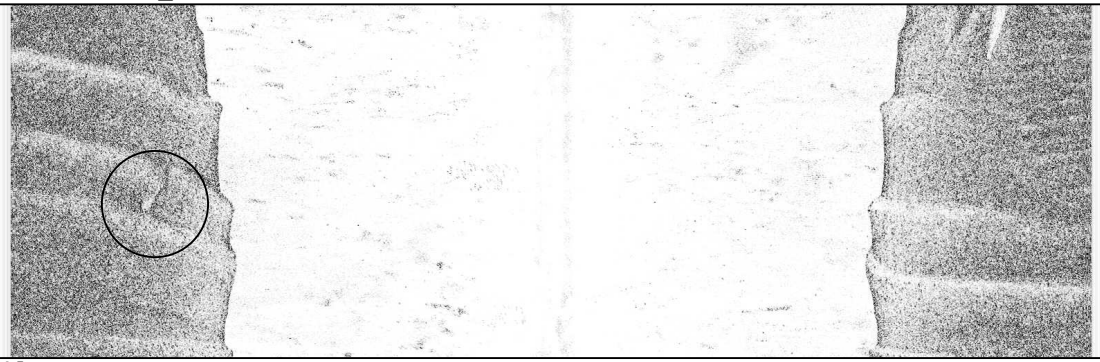


MB File: N/A Scale 1:500



ID: 93 File: TD07030_070130143000.XTF 30 09 17.52N 089 37 33.75W RNG: 20.84 HGT: 0.94 HDG: 294

COMMENT:
OBSTR No Plot Non Sig (least depth estimated from side scan)



ID: 276 File: TD07151_070531221700.XTF 30 09 17.51N 089 37 33.78W RNG: -17.97 HGT: 0.66 HDG: 304

CORRELATED SS CONTACTS:

Contact	Range/Height
030143458	20.84/0.94
151221943	-17.97/0.66

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0021 Least Depth: 7(ft), 2.20(m) Lat: 30 08 27.99N Lon: 089 32 37.65W Ping: Beam:

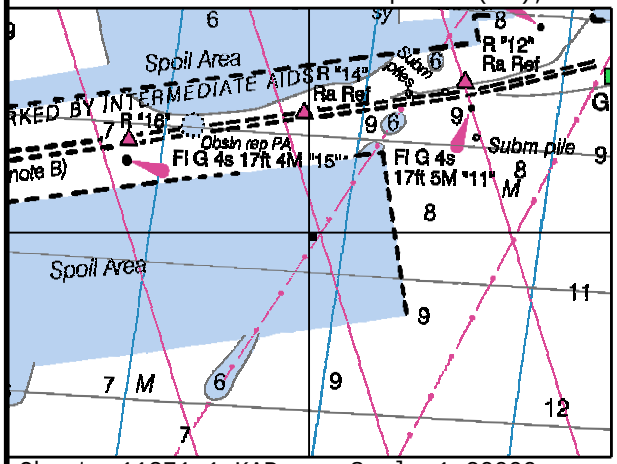


Chart: 11371_1.KAP Scale 1:20000

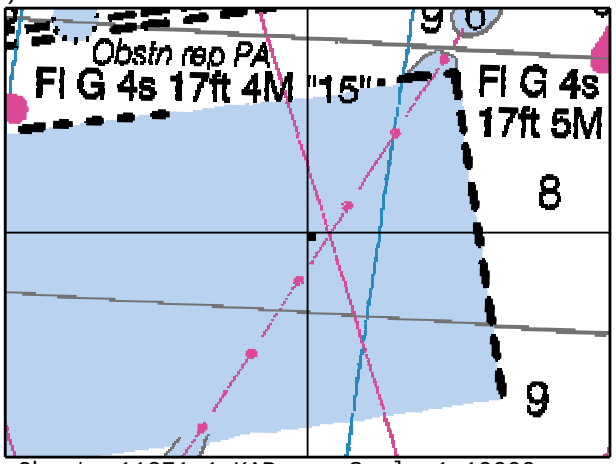
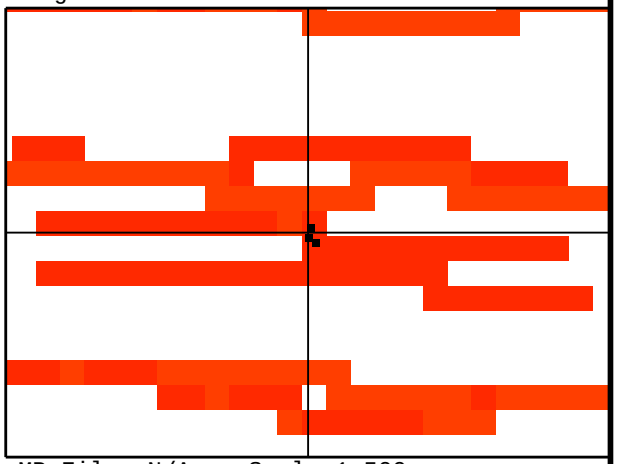
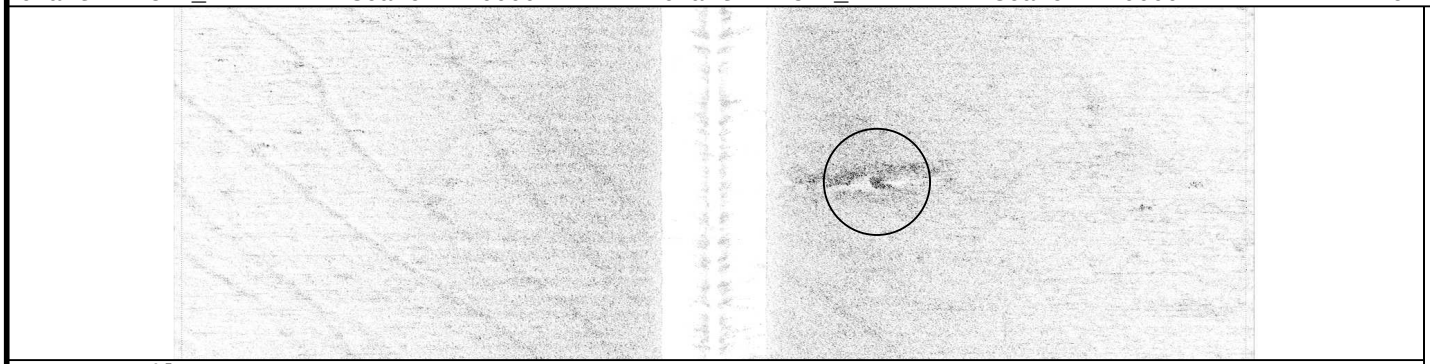


Chart: 11371_1.KAP Scale 1:10000



MB File: N/A Scale 1:500



ID: 71 File: TD07026_070126220700.XTF 30 08 27.98N 089 32 37.68W RNG: 7.31 HGT: 0.96 HDG: 089

COMMENT:
OBSTR No Plot Non Sig (least depth estimated from side scan)

ID: 300 File: TD07153_070602125100.XTF 30 08 27.95N 089 32 37.62W RNG: -14.25 HGT: 0.74 HDG: 267

CORRELATED SS CONTACTS:

Contact	Range/Height
026221347	7.31/0.96
153125304	-14.25/0.74
153125655	-13.78/0.65

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0020 Least Depth: 13(ft), 3.92(m) Lat: 30 08 39.42N Lon: 089 36 53.89W Ping: Beam:

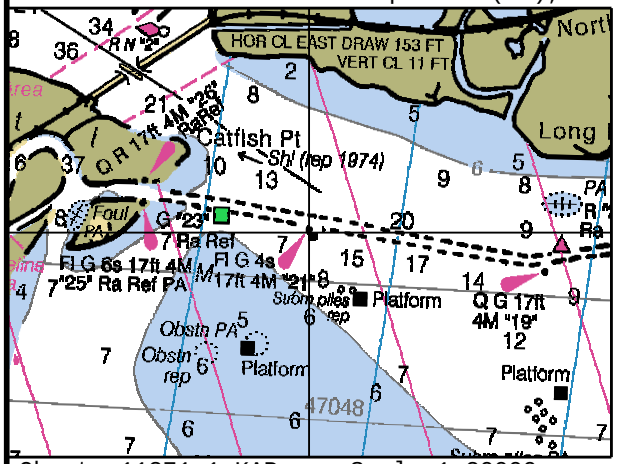


Chart: 11371_1.KAP Scale 1:20000

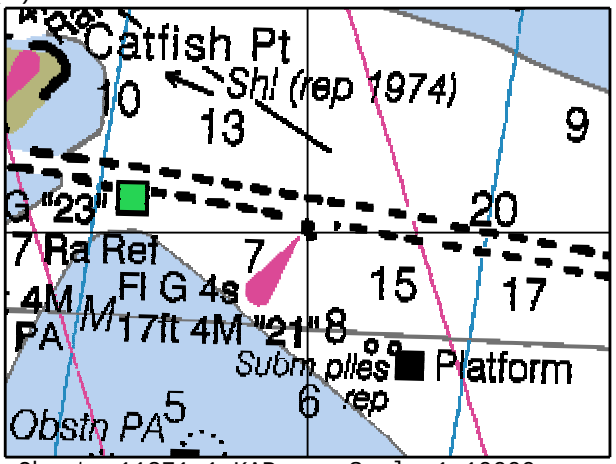
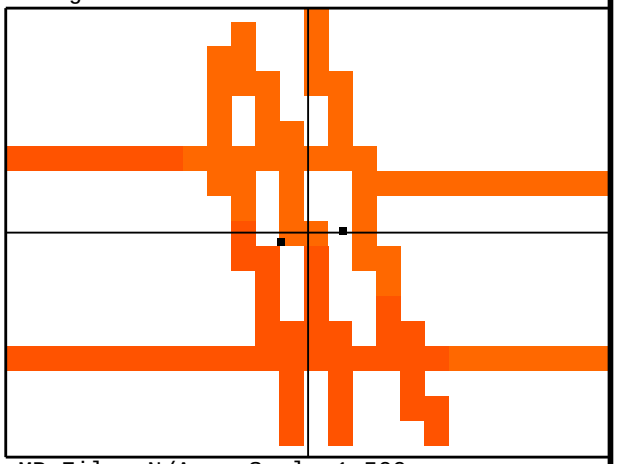
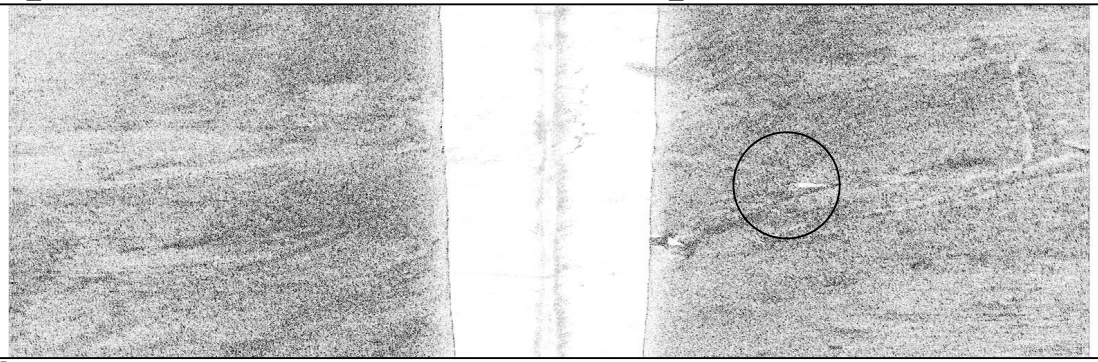


Chart: 11371_1.KAP Scale 1:10000

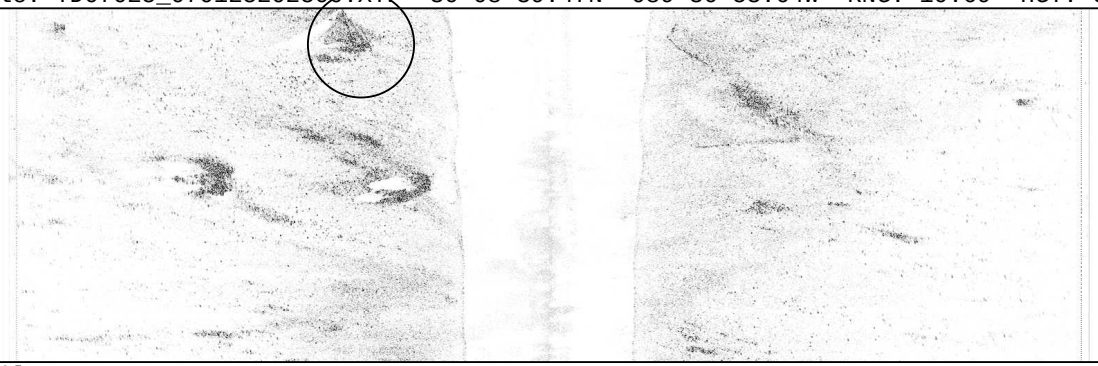


MB File: N/A Scale 1:500



ID: 45 File: TD07025_070125202500.XTF 30 08 39.47N 089 36 53.64W RNG: 10.69 HGT: 0.90 HDG: 091

COMMENT:
OBSTR No Plot Non Sig (least depth estimated from side scan)



ID: 292 File: TD07152_070601215300.XTF 30 08 39.38N 089 36 54.13W RNG: -8.56 HGT: 1.45 HDG: 342

CORRELATED SS CONTACTS:

Contact	Range/Height
025203232	10.69/0.90
152215416	-8.56/1.45

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0019 Least Depth: Lat: 30 08 39.69N Lon: 089 36 54.11W Ping: Beam:

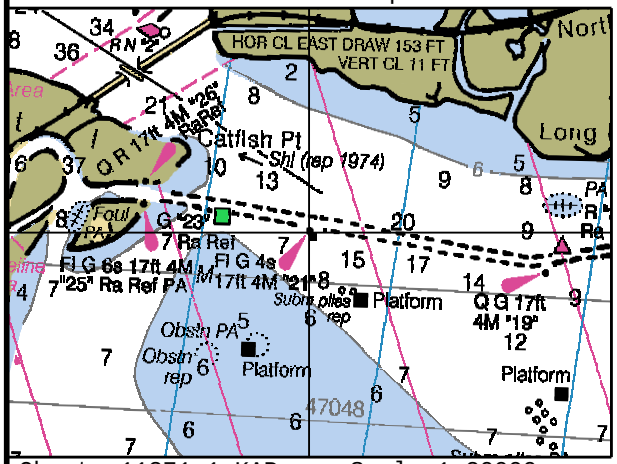


Chart: 11371_1.KAP Scale 1:20000

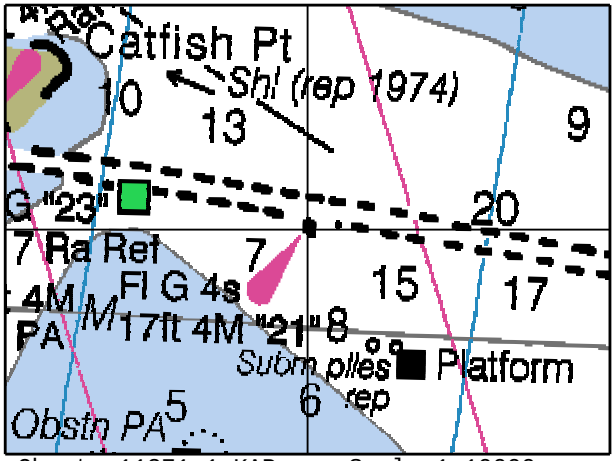
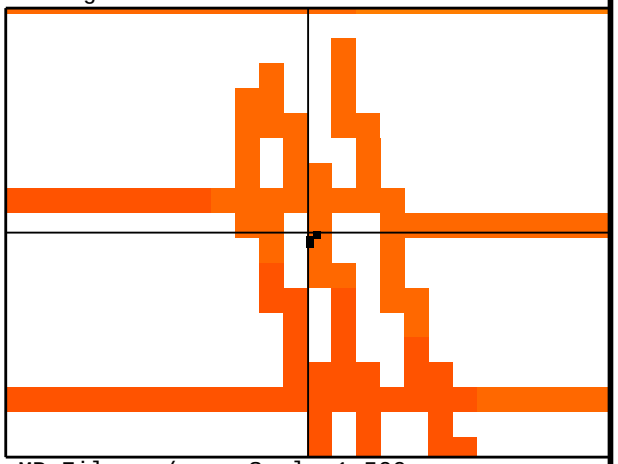
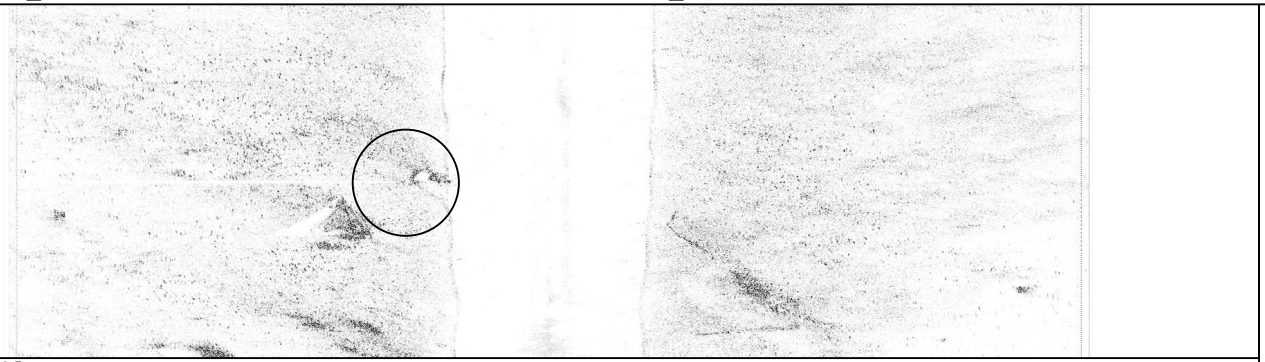


Chart: 11371_1.KAP Scale 1:10000

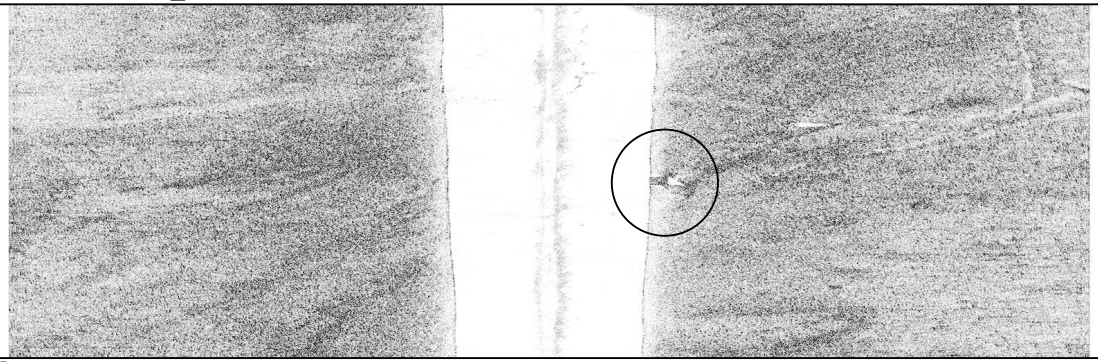


MB File: n/a Scale 1:500



ID: 293 File: TD07152_070601215300.XTF 30 08 39.67N 089 36 54.13W RNG: -6.53 HGT: 3.82 HDG: 341

COMMENT:
DAYBEACON Plot Daybeacon symbol and label Fl G 4s 17ft 4M '21'



ID: 44 File: TD07025_070125202500.XTF 30 08 39.70N 089 36 54.07W RNG: 5.19 HGT: 0.98 HDG: 089

CORRELATED SS CONTACTS:

Contact	Range/Height
152215419	-6.53/3.82
025203229	5.19/0.98
152215131	-8.03/3.14

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0018 Least Depth: 20(ft), 6.20(m) Lat: 30 11 11.26N Lon: 089 31 33.52W Ping: Beam:

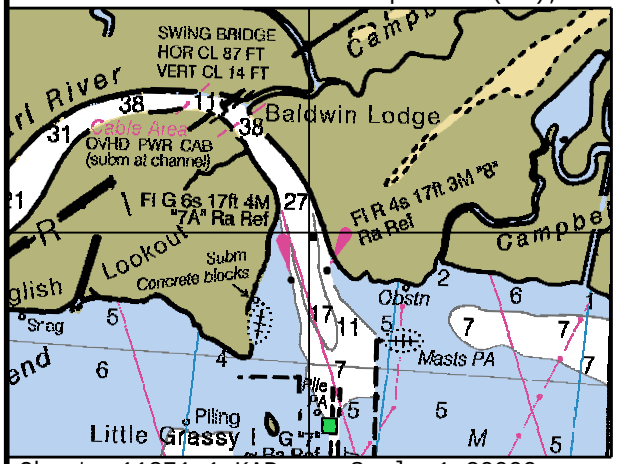


Chart: 11371_1.KAP Scale 1:20000

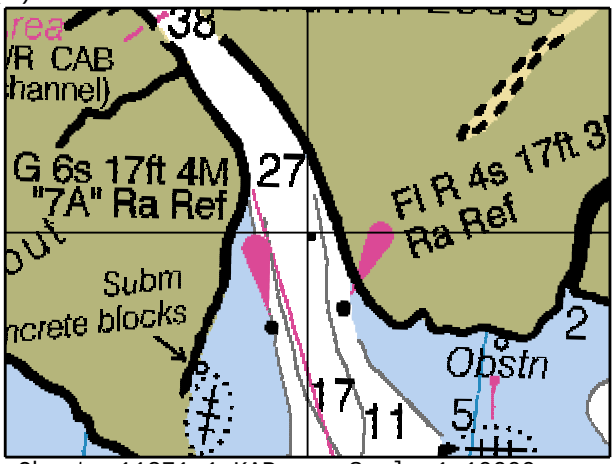
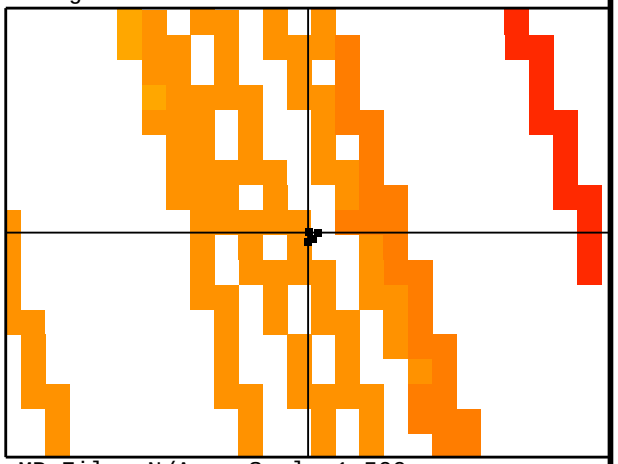
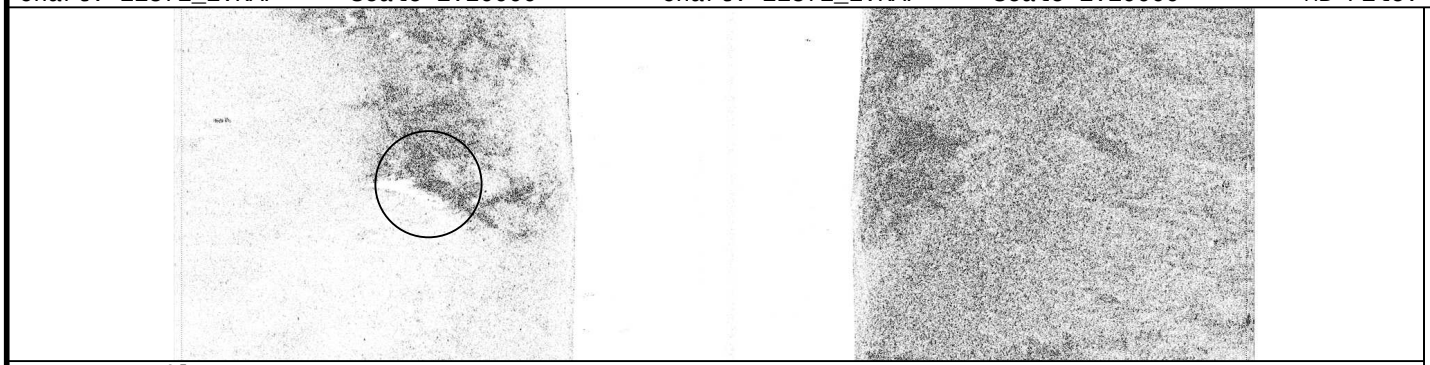


Chart: 11371_1.KAP Scale 1:10000

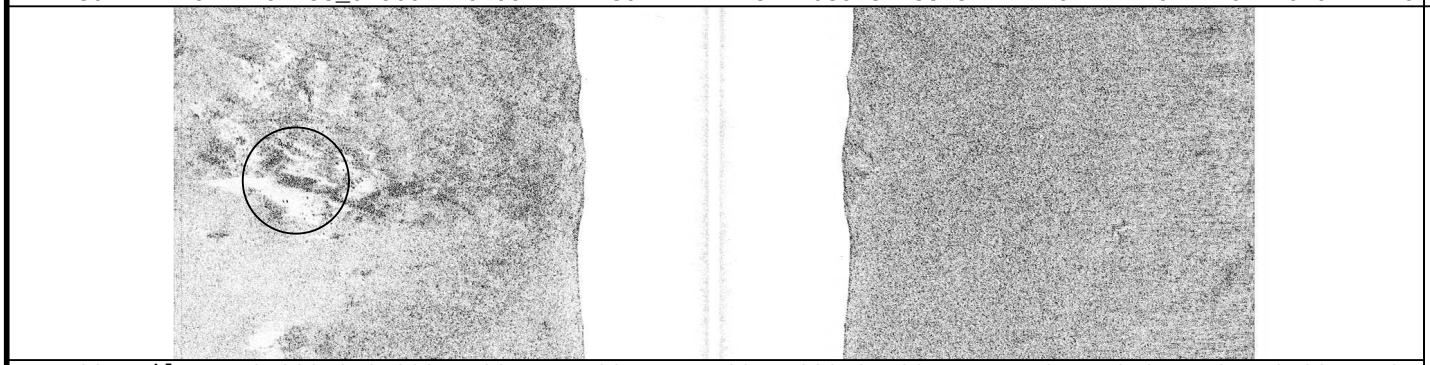


MB File: N/A Scale 1:500



ID: 307 File: TD07153_070602140400.XTF 30 11 11.25N 089 31 33.51W RNG: -12.97 HGT: 0.97 HDG: 336

COMMENT:
OBSTR No Plot Non Sig (least depth estimated from side scan)



ID: 20 File: TD07023_070123214700.XTF 30 11 11.29N 089 31 33.54W RNG: -18.97 HGT: 0.98 HDG: 341

CORRELATED SS CONTACTS:

Contact	Range/Height
153140557	-12.97/0.97
023215219	-18.97/0.98
153140927	-11.47/0.94
153141332	6.69/0.00

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0017 Least Depth: 8(ft), 2.45(m) Lat: 30 08 27.00N Lon: 089 31 48.07W Ping: Beam:

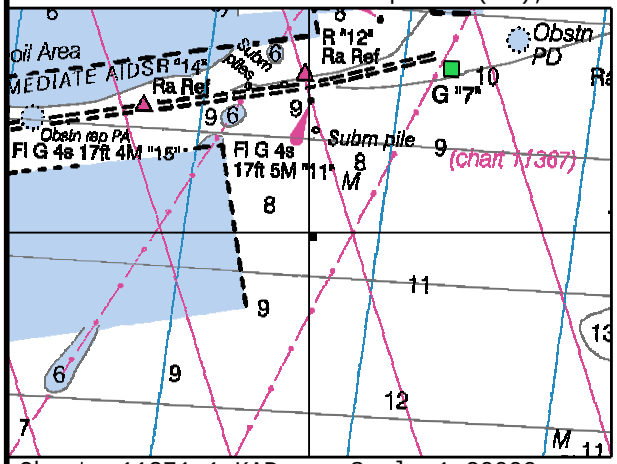


Chart: 11371_1.KAP Scale 1:20000

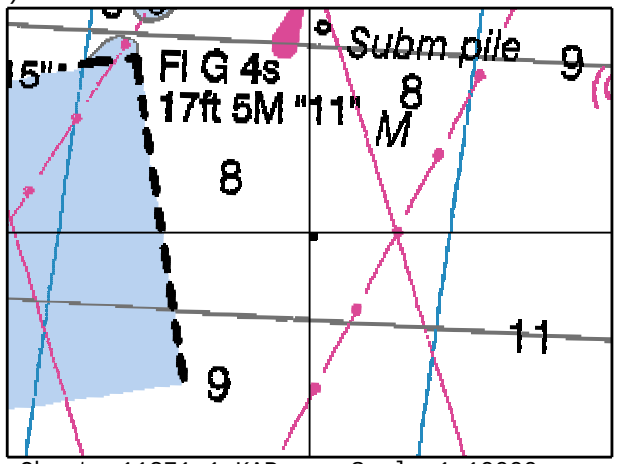
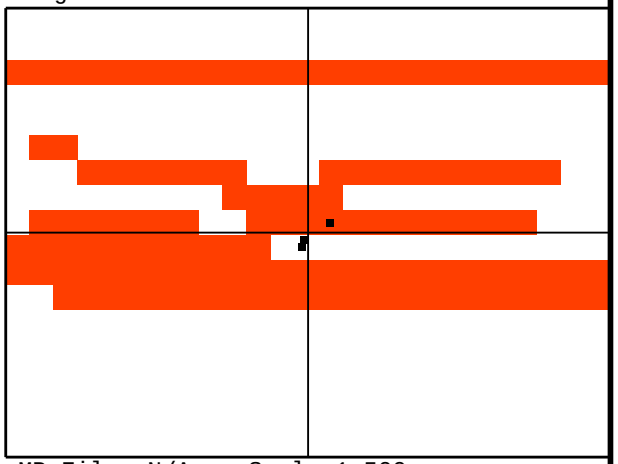
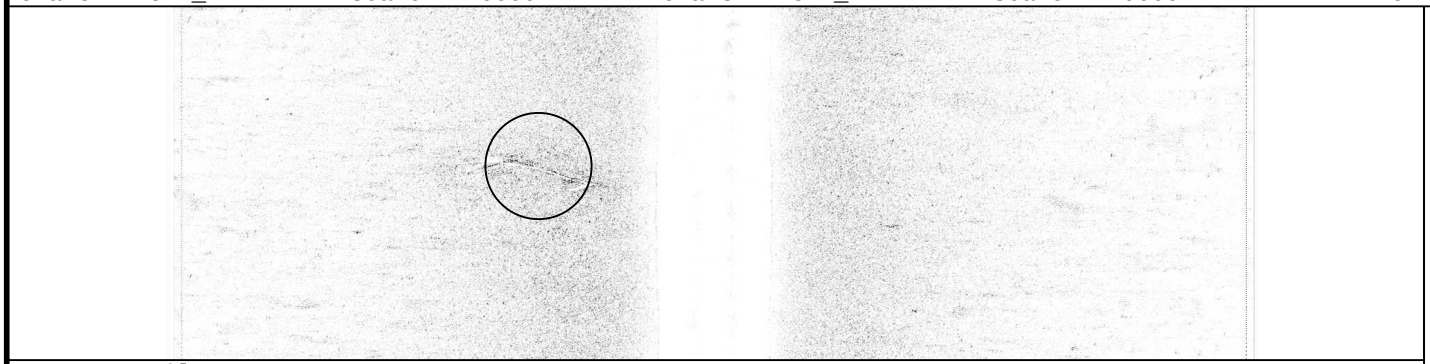


Chart: 11371_1.KAP Scale 1:10000

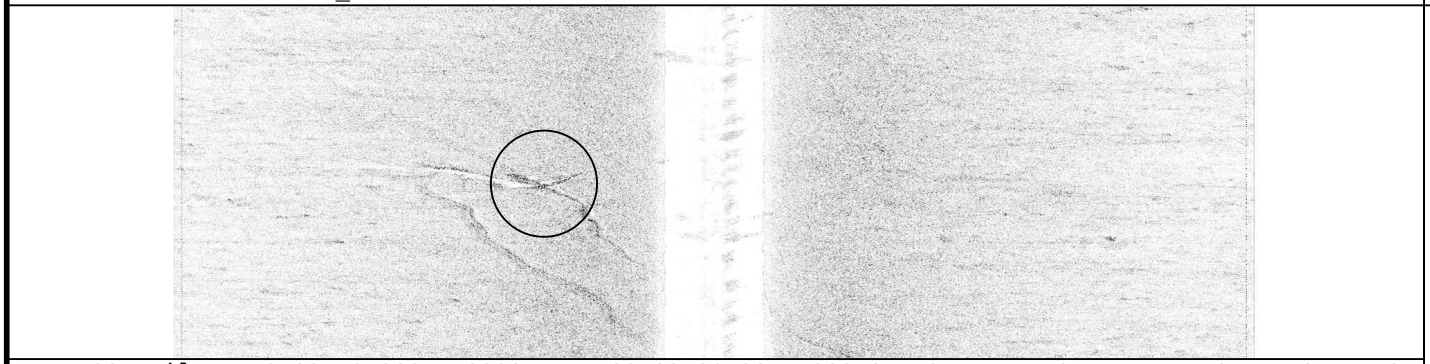


MB File: N/A Scale 1:500



ID: 298 File: TD07153_070602124000.XTF 30 08 26.98N 089 31 48.13W RNG: -8.00 HGT: 0.70 HDG: 266

COMMENT:
OBSTR Plot sounding and symbol Obstr (least depth estimated from side scan)



ID: 123 File: TD07035_070204150000.XTF 30 08 26.93N 089 31 48.15W RNG: -7.75 HGT: 1.04 HDG: 090

CORRELATED SS CONTACTS:

Contact	Range/Height
153124112	-8.00/0.70
035153749	-7.75/1.04
153124437	-16.78/0.71

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0016 Least Depth: 44(ft), 13.41(m) Lat: 30 09 20.14N Lon: 089 37 41.05W Ping: Beam:

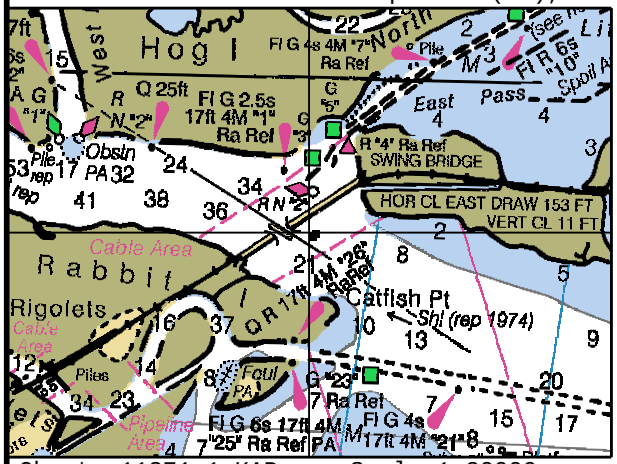


Chart: 11371_1.KAP Scale 1:20000

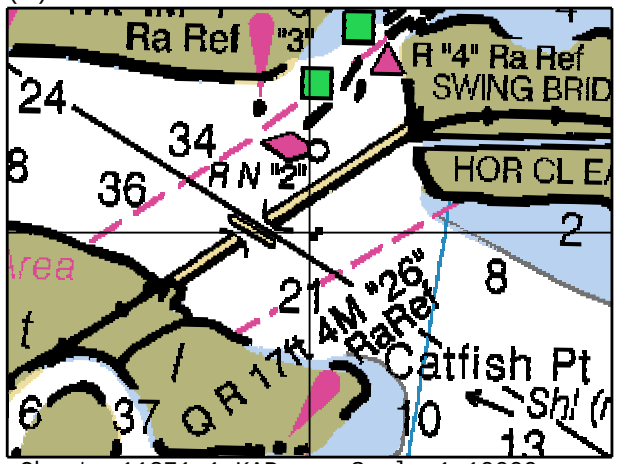
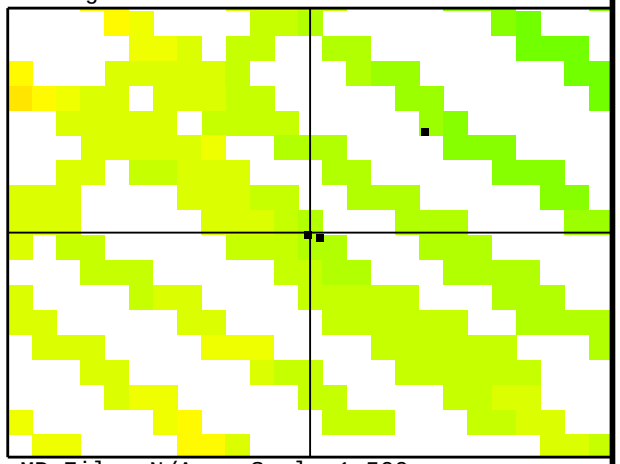
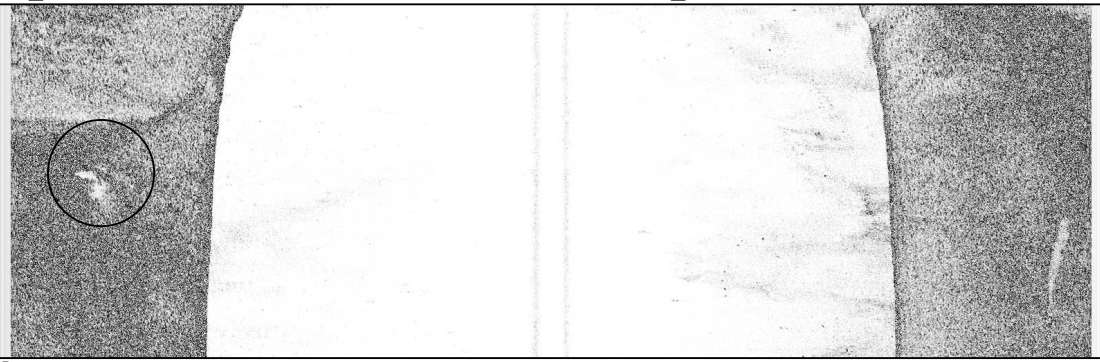


Chart: 11371_1.KAP Scale 1:10000

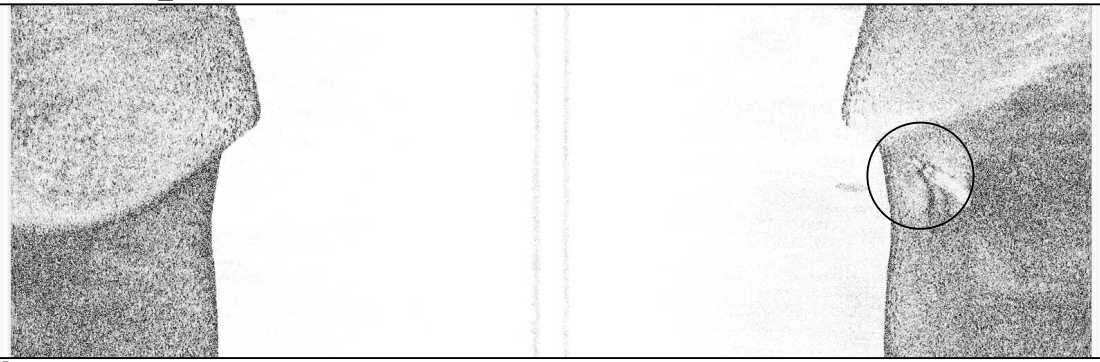


MB File: N/A Scale 1:500



ID: 98 File: TD07030_070130143000.XTF 30 09 20.15N 089 37 41.09W RNG: -20.41 HGT: 1.37 HDG: 300

COMMENT:
OBSTRS Plot sounding and symbol Obstrs (See Features 26, 27, 28, 29 and 30. Least depth estimated from side scan)



ID: 29 File: TD07024_070124213500.XTF 30 09 20.13N 089 37 41.00W RNG: 16.66 HGT: 3.29 HDG: 304

CORRELATED SS CONTACTS:

Contact	Range/Height
030143619	-20.41/1.37
024214031	16.66/3.29
030143616	22.59/0.61

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0015 Least Depth: 43(ft), 13.27(m) Lat: 30 09 14.79N Lon: 089 37 23.38W Ping: Beam:

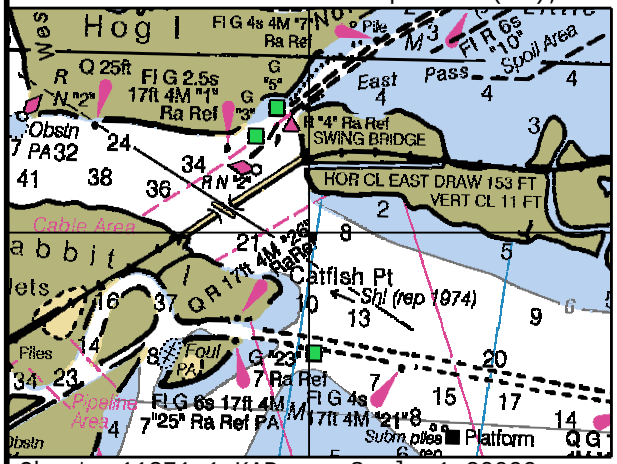


Chart: 11371_1.KAP Scale 1:20000

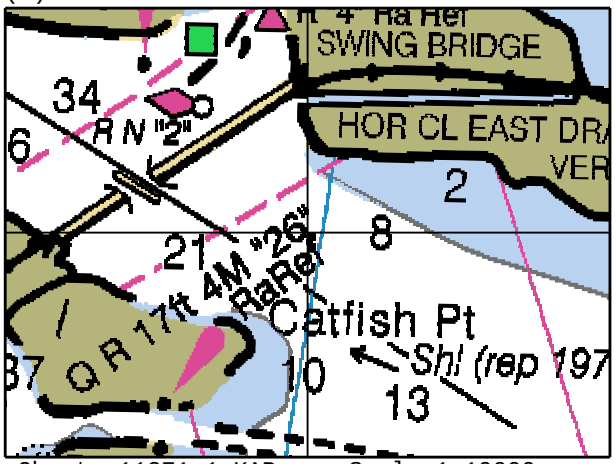
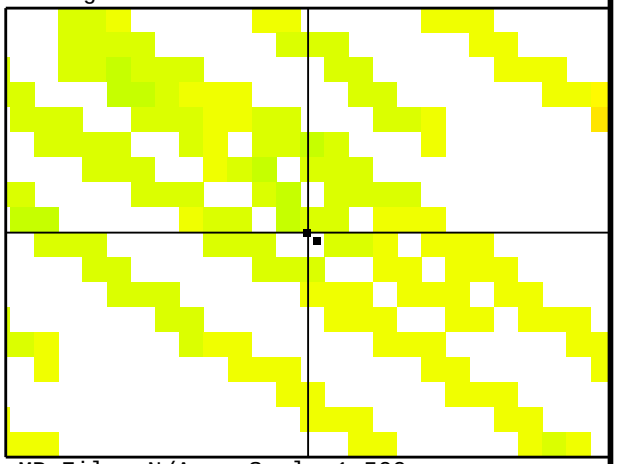
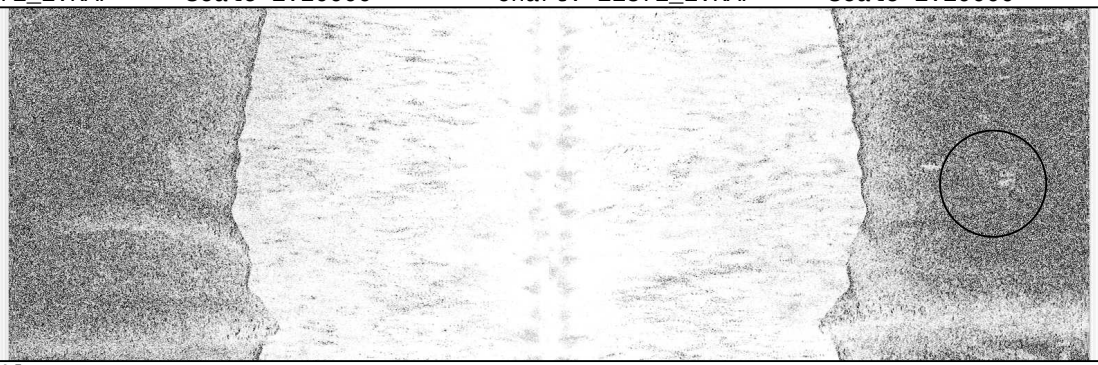


Chart: 11371_1.KAP Scale 1:10000

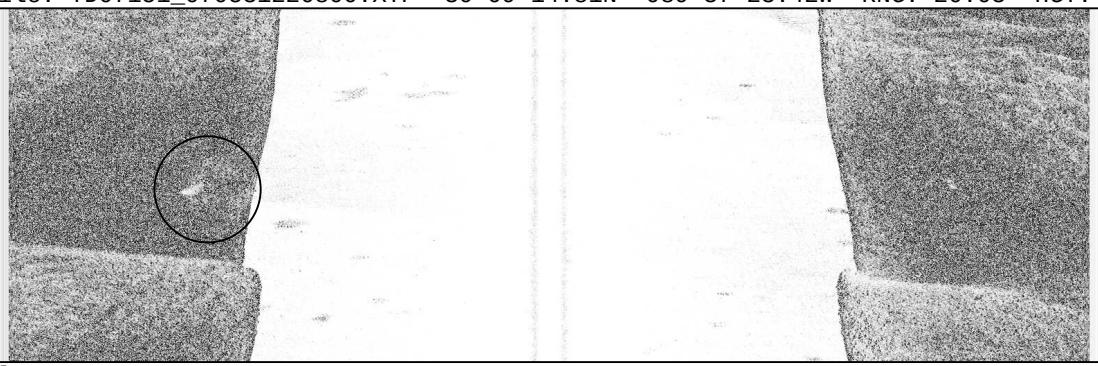


MB File: N/A Scale 1:500



ID: 275 File: TD07151_070531220800.XTF 30 09 14.81N 089 37 23.42W RNG: 20.03 HGT: 0.95 HDG: 122

COMMENT:
OBSTR No Plot Non Sig (least depth estimated from side scan)



ID: 92 File: TD07030_070130142600.XTF 30 09 14.76N 089 37 23.33W RNG: -15.50 HGT: 2.50 HDG: 119

CORRELATED SS CONTACTS:

Contact	Range/Height
151221048	20.03/0.95
030142943	-15.50/2.50

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0014 Least Depth: Lat: 30 10 47.47N Lon: 089 33 01.78W Ping: Beam:

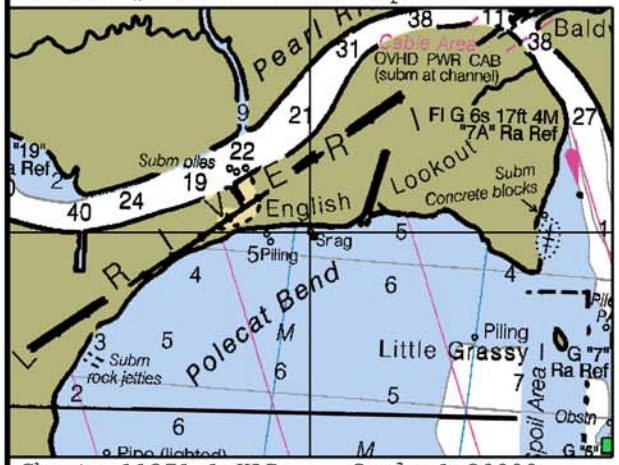


Chart: 11371_1.KAP Scale 1:20000

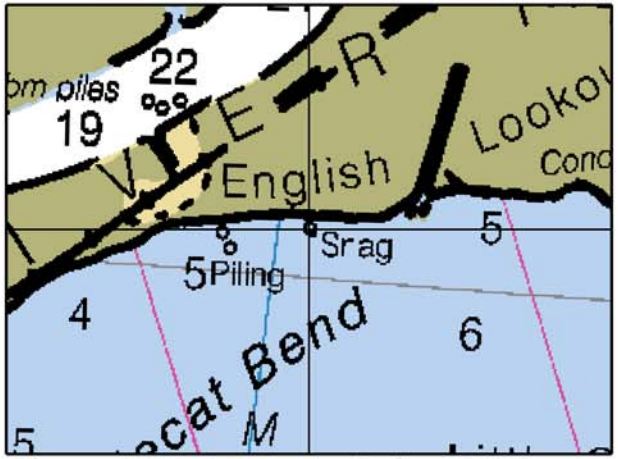
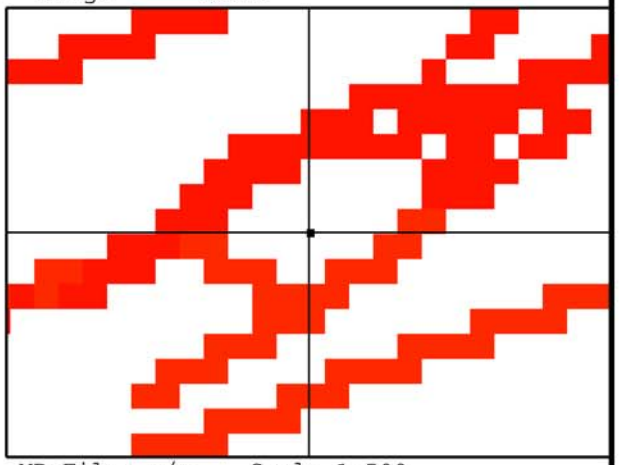
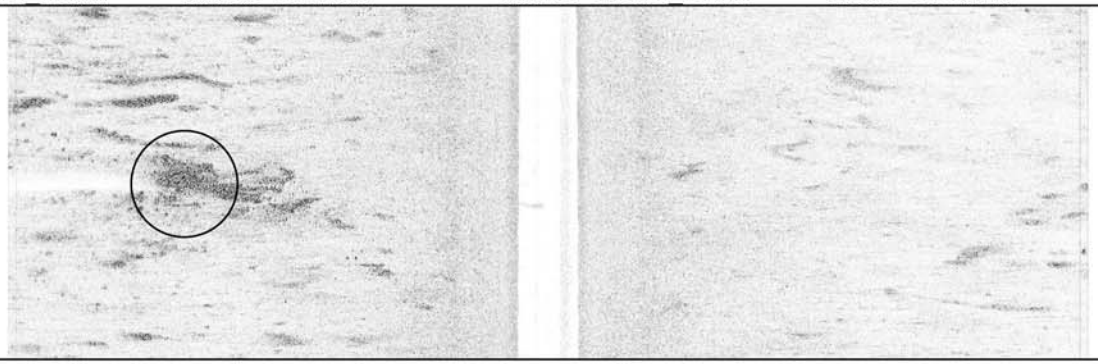


Chart: 11371_1.KAP Scale 1:10000



MB File: n/a Scale 1:500



ID: 303 File: TD07153_070602134000.XTF 30 10 47.49N 089 33 01.79W RNG: -16.50 HGT: 0.36 HDG: 053

COMMENT:
SNAG EXPOSED Plot symbol Snag

CORRELATED SS CONTACTS:

Contact	Range/Height
153134059	-16.50/0.36
083192318	-14.66/0.52
117122618	-15.28/0.00
153134437	12.69/0.54

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0013 Least Depth: 11(ft), 3.28(m) Lat: 30 08 23.22N Lon: 089 30 47.87W Ping: Beam:

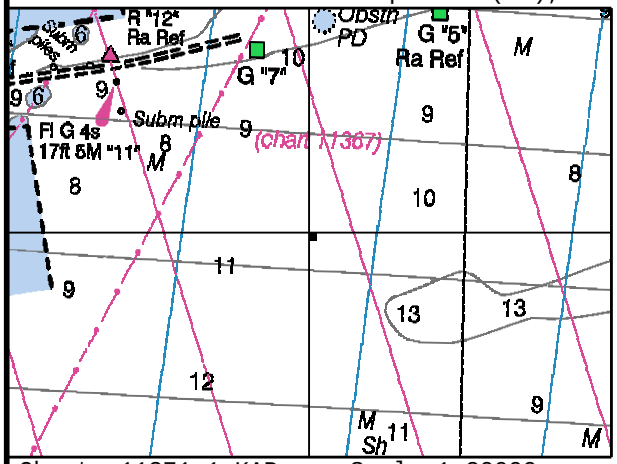


Chart: 11371_1.KAP Scale 1:20000

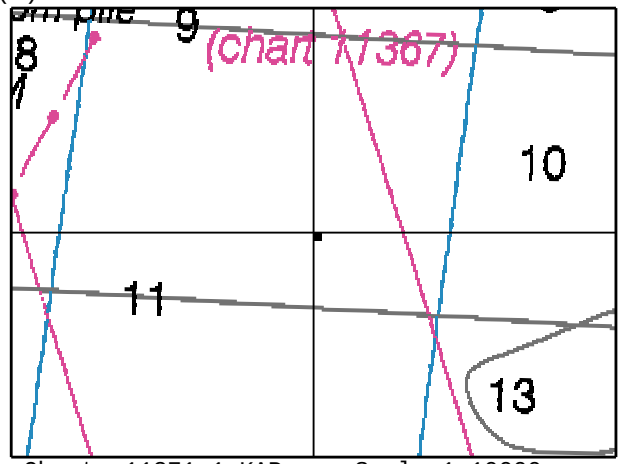
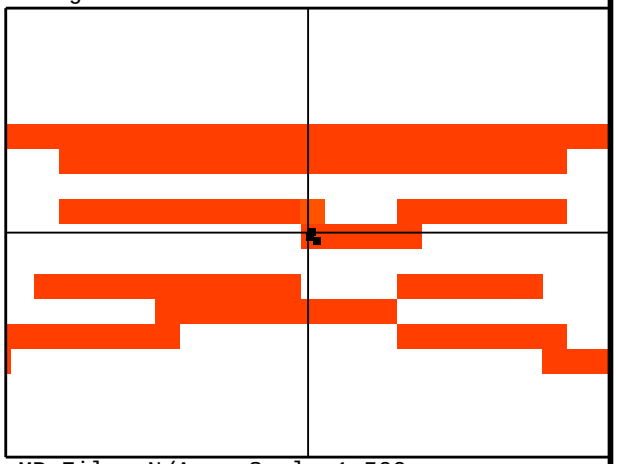
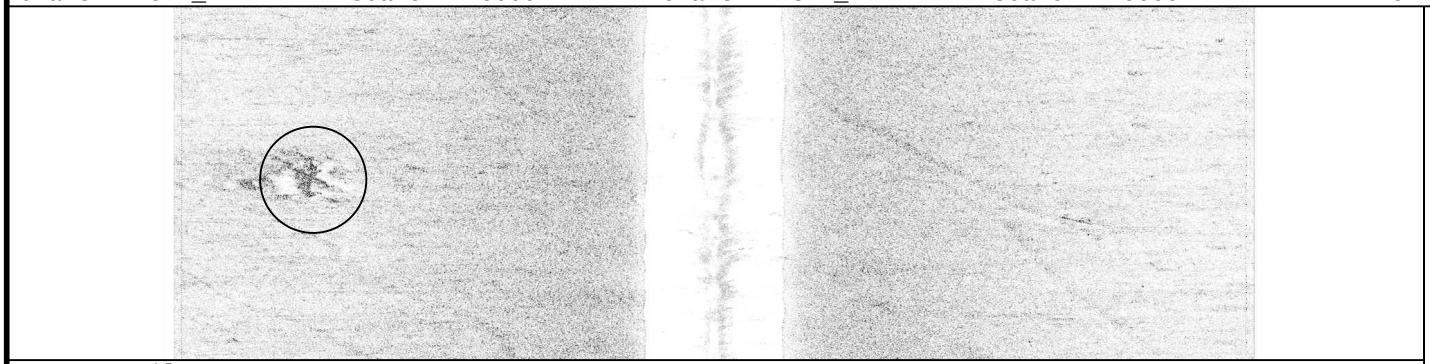


Chart: 11371_1.KAP Scale 1:10000

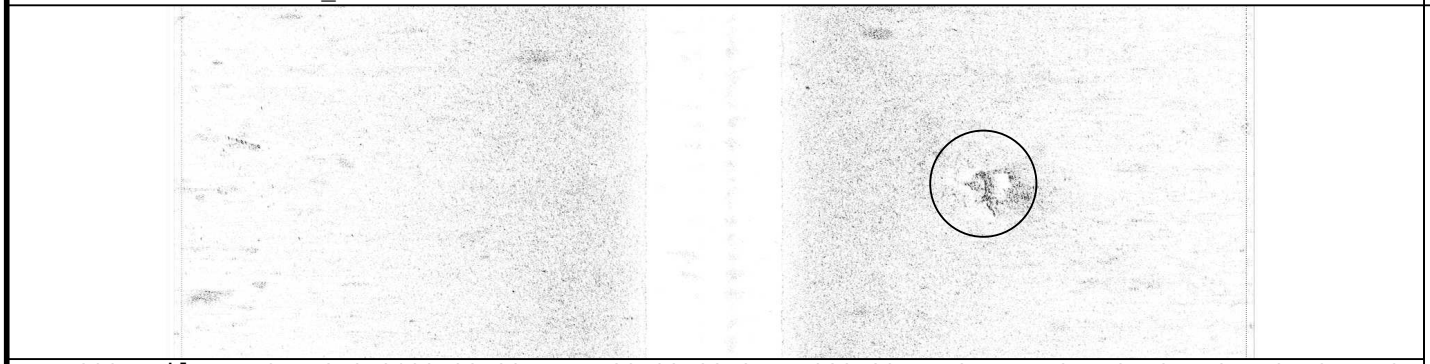


MB File: N/A Scale 1:500



ID: 88 File: TD07029_070129214100.XTF 30 08 23.21N 089 30 47.88W RNG: -18.19 HGT: 0.69 HDG: 264

COMMENT:
OBSTR Plot sounding and symbol Obstr (least depth estimated from side scan)



ID: 300 File: TD07153_070602122400.XTF 30 08 23.25N 089 30 47.87W RNG: 12.12 HGT: 0.59 HDG: 089

CORRELATED SS CONTACTS:

Contact	Range/Height
029214410	-18.19/0.69
153122650	12.12/0.59
153122942	15.34/0.50

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0012 Least Depth: 6(ft), 1.94(m) Lat: 30 08 24.12N Lon: 089 36 40.01W Ping: Beam:

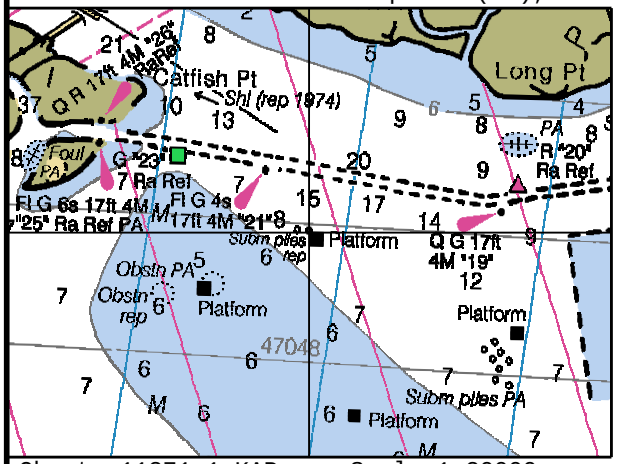


Chart: 11371_1.KAP Scale 1:20000

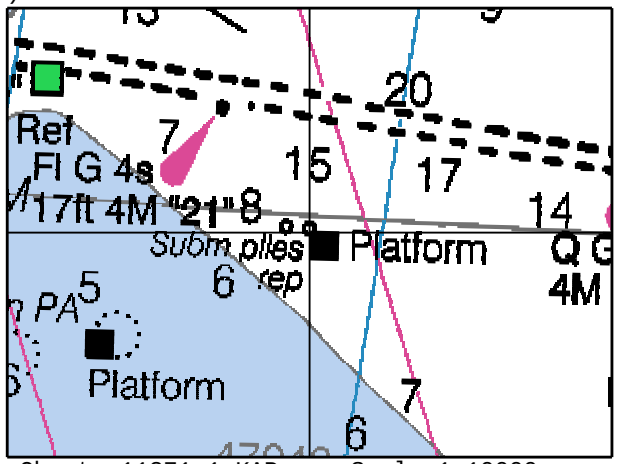
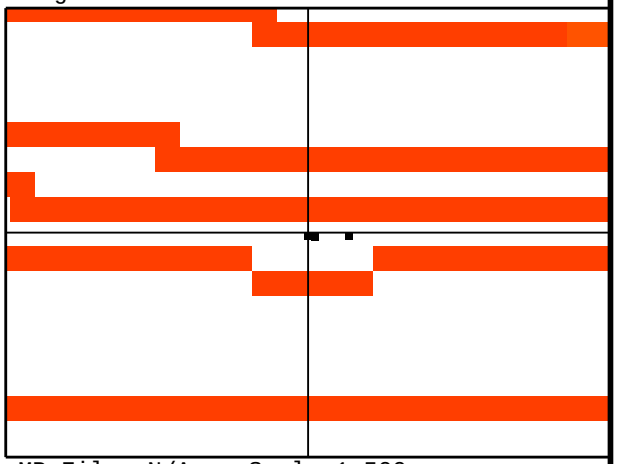
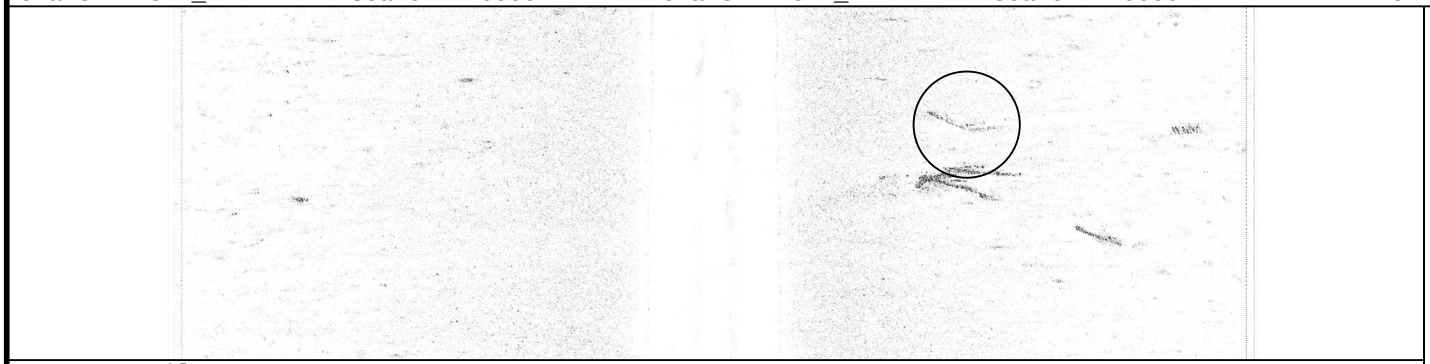


Chart: 11371_1.KAP Scale 1:10000

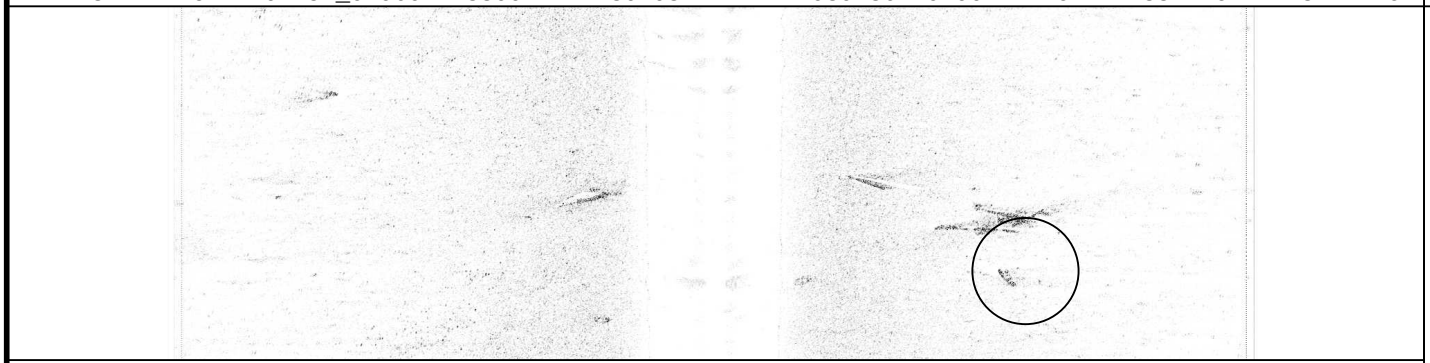


MB File: N/A Scale 1:500



ID: 287 File: TD07152_070601213800.XTF 30 08 24.12N 089 36 40.00W RNG: 11.38 HGT: 1.37 HDG: 266

COMMENT:
SUBM PILE Plot sounding and label Subm pile (least depth estimated from side scan)



ID: 288 File: TD07152_070601214100.XTF 30 08 24.11N 089 36 39.98W RNG: 14.03 HGT: 1.10 HDG: 088

CORRELATED SS CONTACTS:

Contact	Range/Height
152213954	11.38/1.37
152214348	14.03/1.10
029201741	-3.91/2.22
029201739	-3.72/1.16

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0011 Least Depth: 4(ft), 1.37(m) Lat: 30 09 45.46N Lon: 089 33 37.48W Ping: Beam:

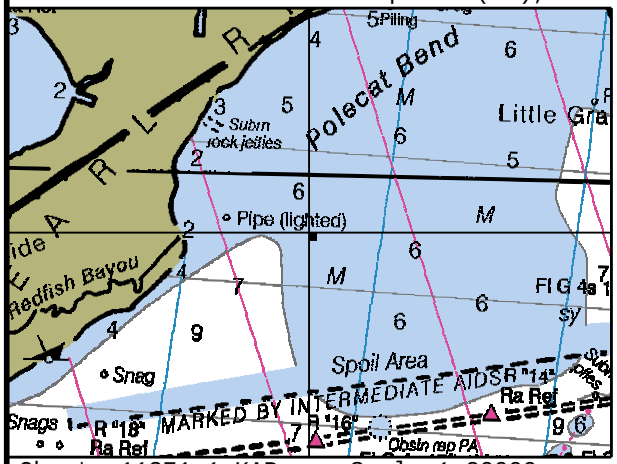


Chart: 11371_1.KAP Scale 1:20000

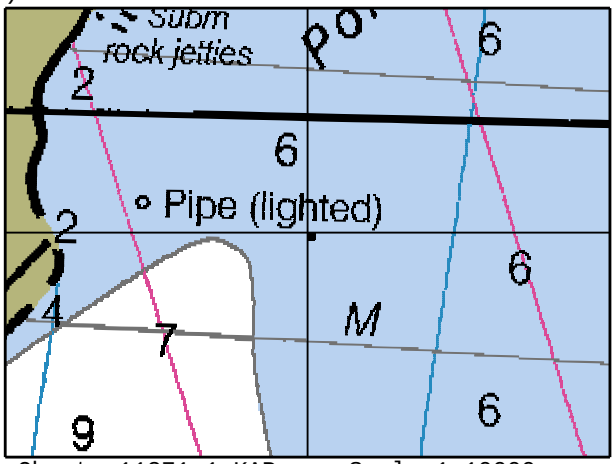
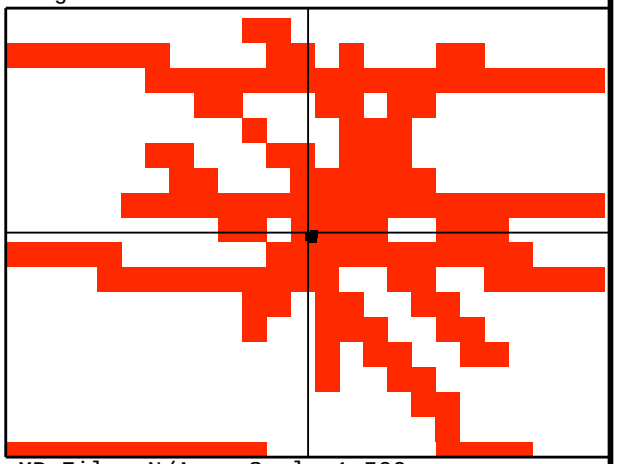
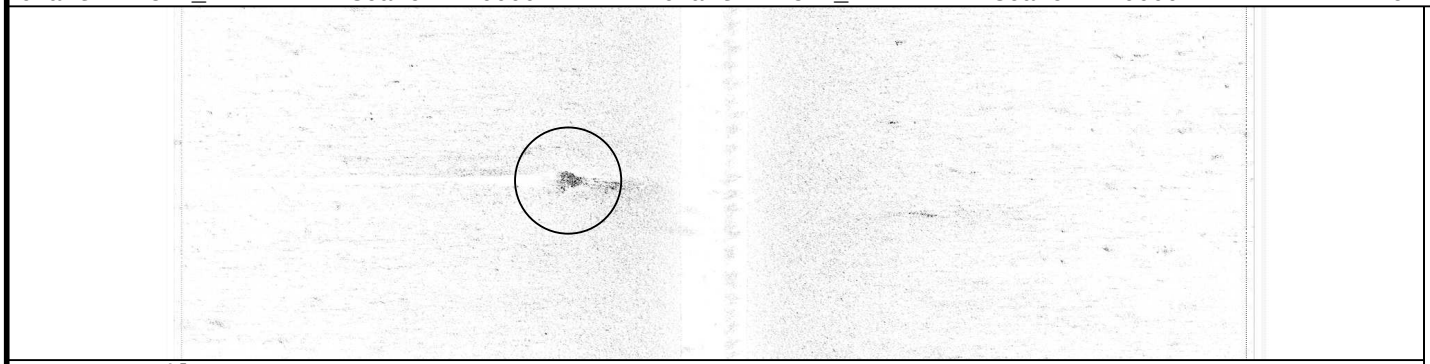


Chart: 11371_1.KAP Scale 1:10000

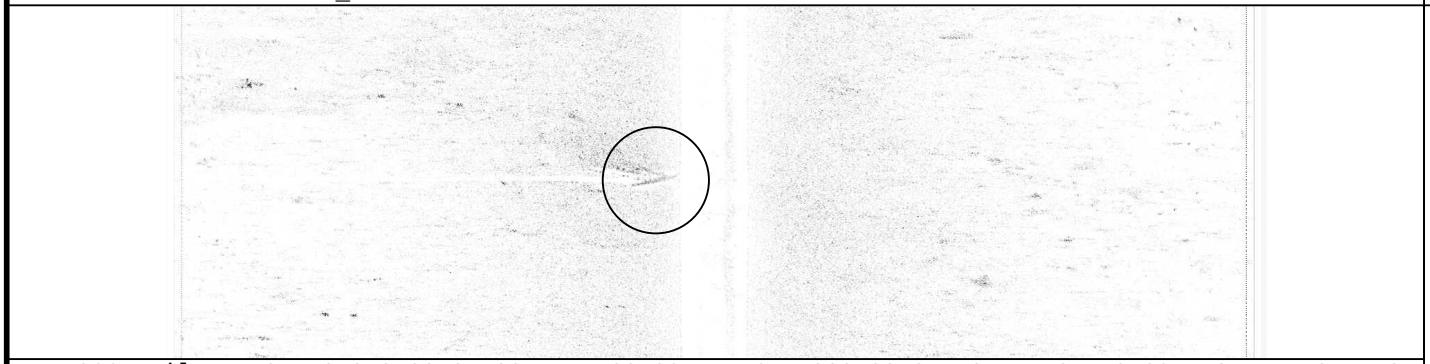


MB File: N/A Scale 1:500



ID: 265 File: TD07140_070520134600.XTF 30 09 45.44N 089 33 37.47W RNG: -6.66 HGT: 0.95 HDG: 130

COMMENT:
OBSTR Plot sounding and symbol Obstrs (See Feature 6. Least depth estimated from side scan)



ID: 266 File: TD07140_070520135400.XTF 30 09 45.46N 089 33 37.50W RNG: -2.69 HGT: 1.43 HDG: 269

CORRELATED SS CONTACTS:

Contact	Range/Height
140135014	-6.66/0.95
140135735	-2.69/1.43
015201121	-10.41/0.78

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0010 Least Depth: 11(ft), 3.50(m) Lat: 30 10 56.71N Lon: 089 31 25.78W Ping: 11761 Beam: 1

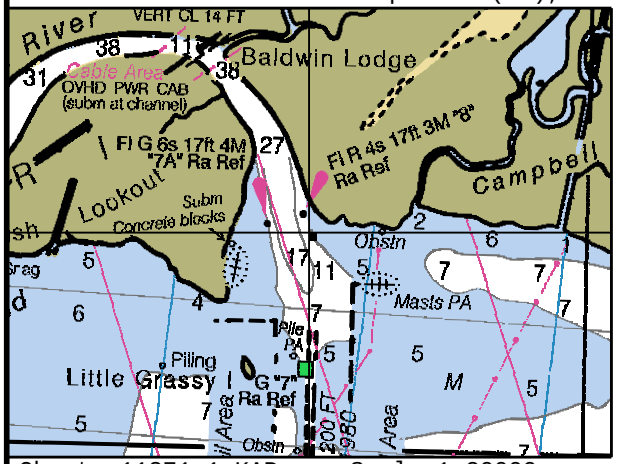


Chart: 11371_1.KAP Scale 1:20000

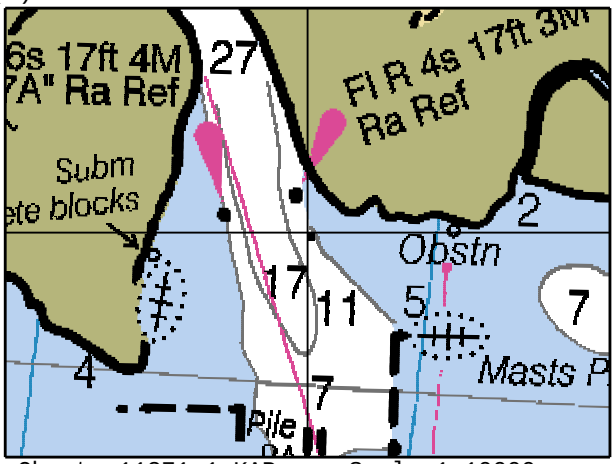
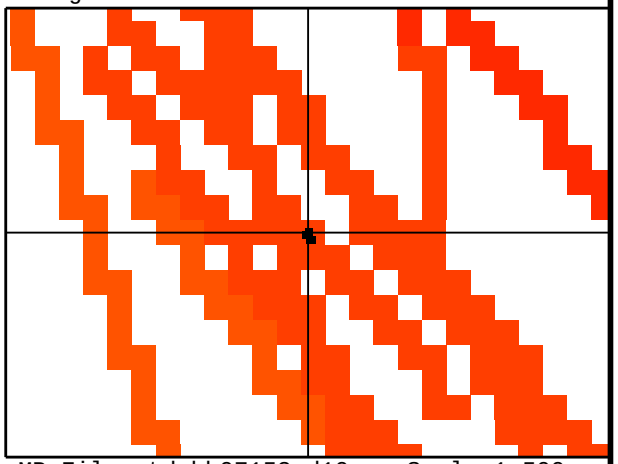
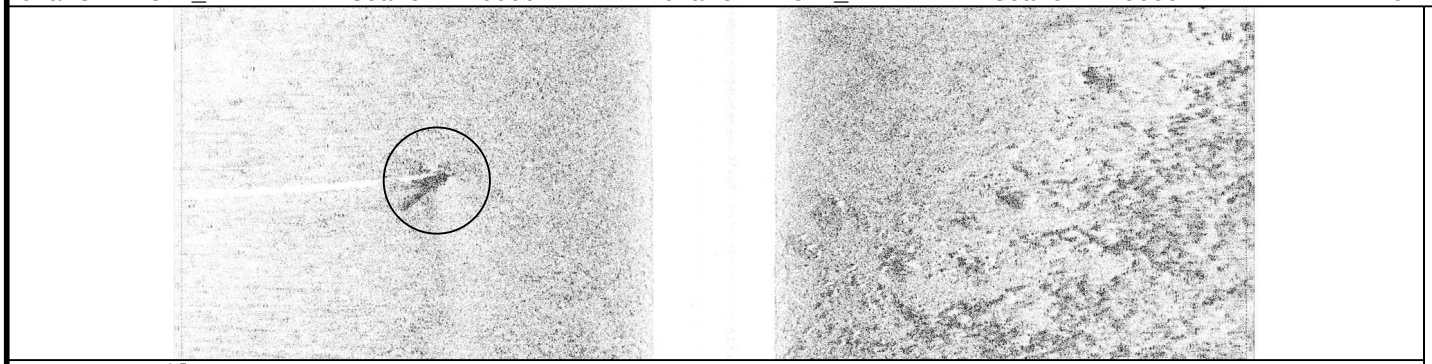


Chart: 11371_1.KAP Scale 1:10000

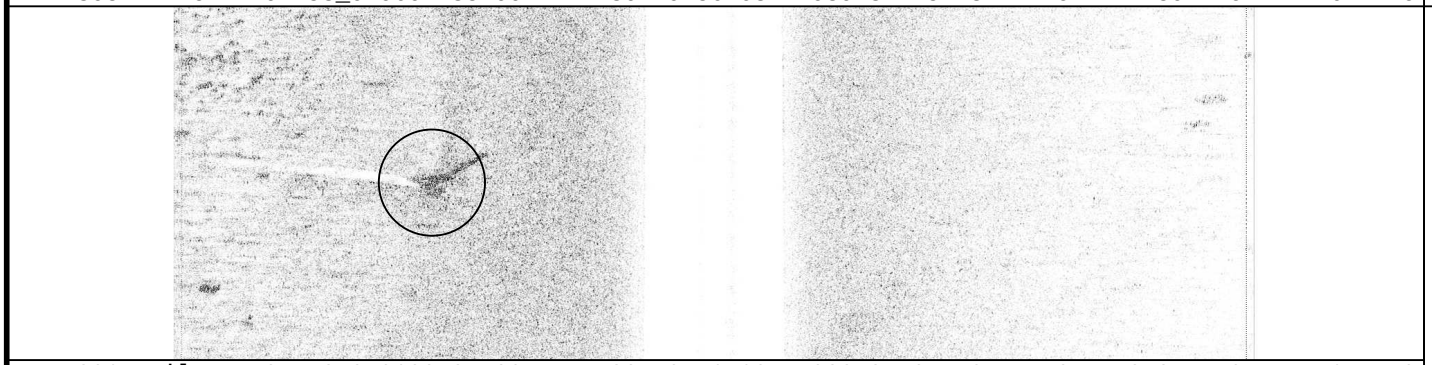


MB File: tdsbh07153.d10 Scale 1:500



ID: 305 File: TD07153_070602135400.XTF 30 10 56.68N 089 31 25.78W RNG: -12.59 HGT: 1.16 HDG: 324

COMMENT:
OBSTR Plot sounding and symbol Obstr



ID: 306 File: TD07153_070602135700.XTF 30 10 56.69N 089 31 25.79W RNG: -12.81 HGT: 1.16 HDG: 142

CORRELATED SS CONTACTS:

Contact	Range/Height
153135609	-12.59/1.16
153135922	-12.81/1.16
029181605	14.59/1.04
029161301	4.41/2.04

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0009 Least Depth: 12(ft), 3.88(m) Lat: 30 08 29.26N Lon: 089 35 50.23W Ping: 8657 Beam: 1

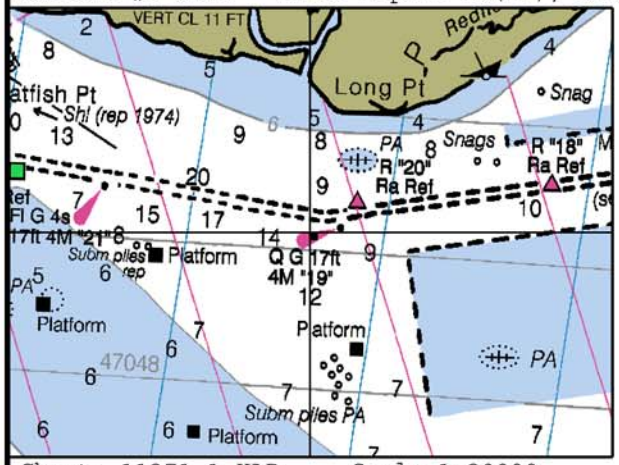


Chart: 11371_1.KAP Scale 1:20000

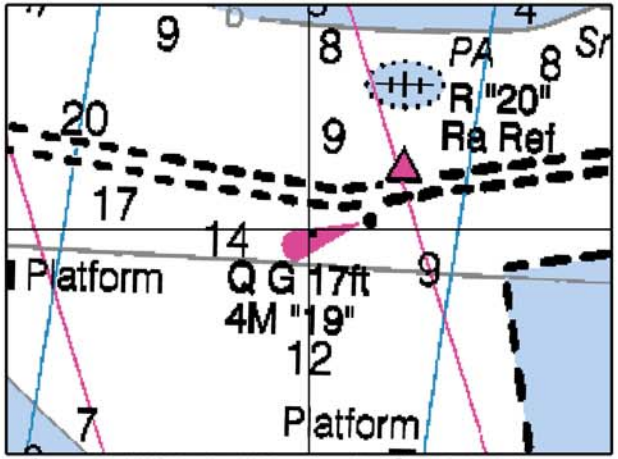
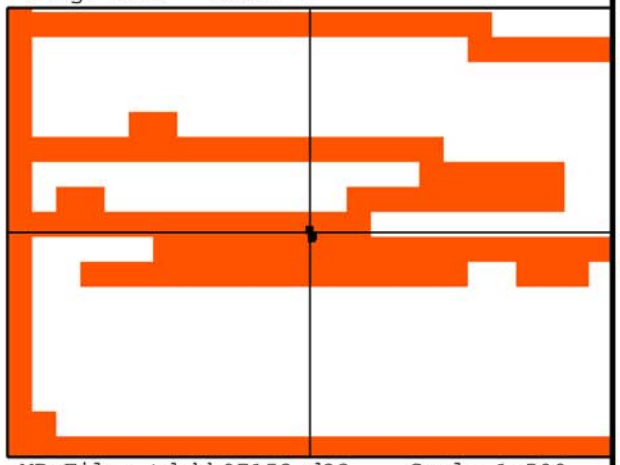
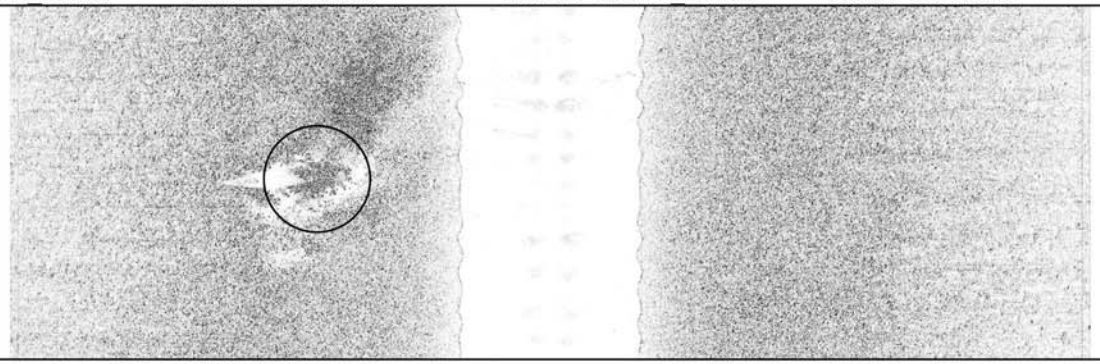


Chart: 11371_1.KAP Scale 1:10000



MB File: tdsbh07152.d32 Scale 1:500



ID: 69 File: TD07152 070601212200.XTF 30 08 29.27N 089 35 50.24W RNG: -10.59 HGT: 1.01 HDG: 090

COMMENT:
OBSTR Plot sounding and symbol Obstr

CORRELATED SS CONTACTS:

Contact	Range/Height
152212319	-10.59/1.01
026213807	-6.84/1.21
152212049	-13.75/0.92

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0008 Least Depth: 12(ft), 3.72(m) Lat: 30 08 28.70N Lon: 089 35 37.63W Ping: 10542 Beam: 1

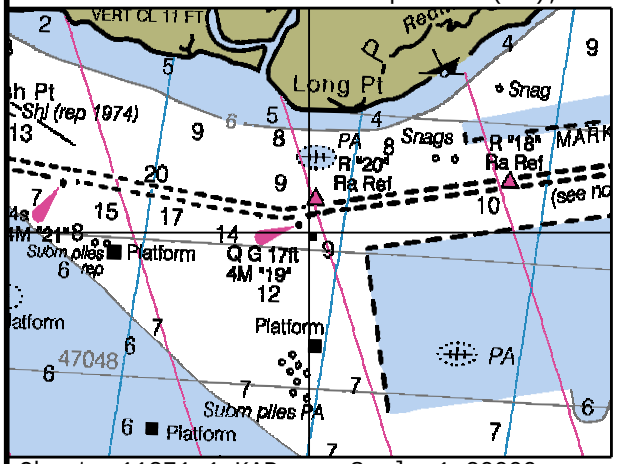


Chart: 11371_1.KAP Scale 1:20000

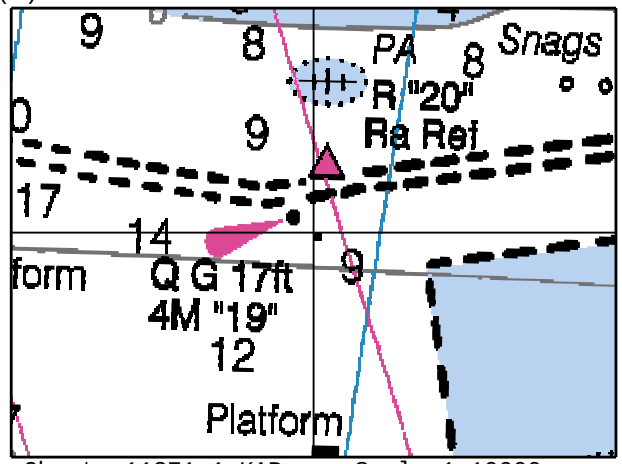
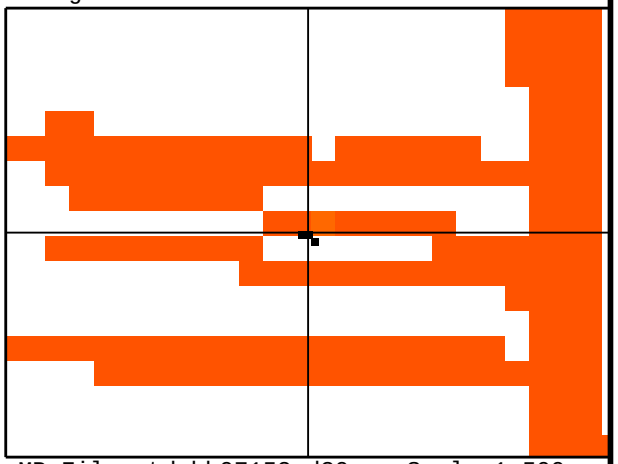
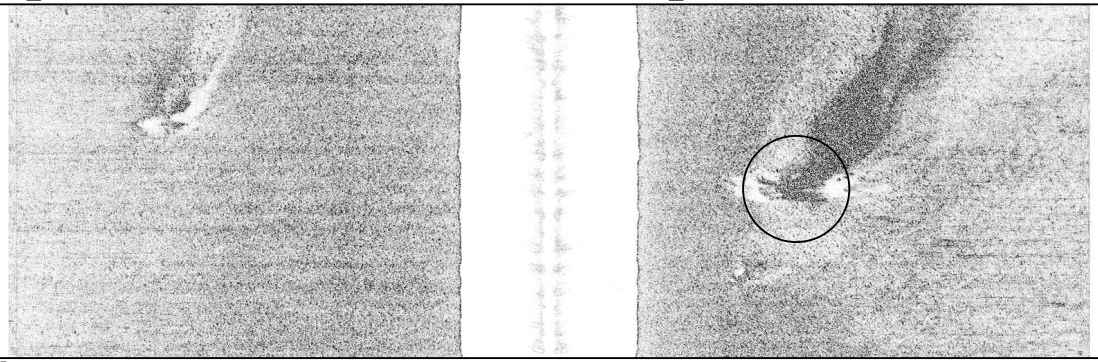


Chart: 11371_1.KAP Scale 1:10000

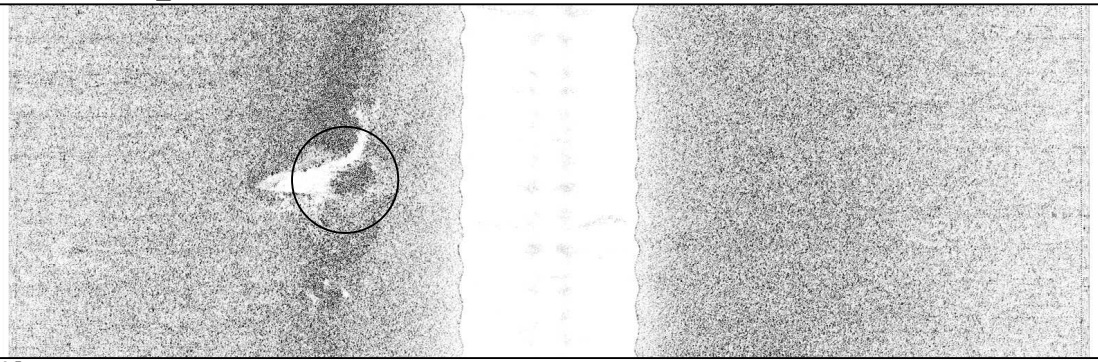


MB File: tdsbh07152.d30 Scale 1:500



ID: 70 File: TD07026_070126212000.XTF 30 08 28.71N 089 35 37.65W RNG: 11.12 HGT: 0.83 HDG: 086

COMMENT:
OBSTR No Plot Non Sig



ID: 284 File: TD07152_070601210200.XTF 30 08 28.66N 089 35 37.61W RNG: -9.28 HGT: 0.93 HDG: 095

CORRELATED SS CONTACTS:

Contact	Range/Height
026213937	11.12/0.83
152210409	-9.28/0.93
152210122	-15.84/0.77

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0007 Least Depth: 4(ft), 1.29(m) Lat: 30 09 20.89N Lon: 089 31 29.78W Ping: 1708 Beam: 372

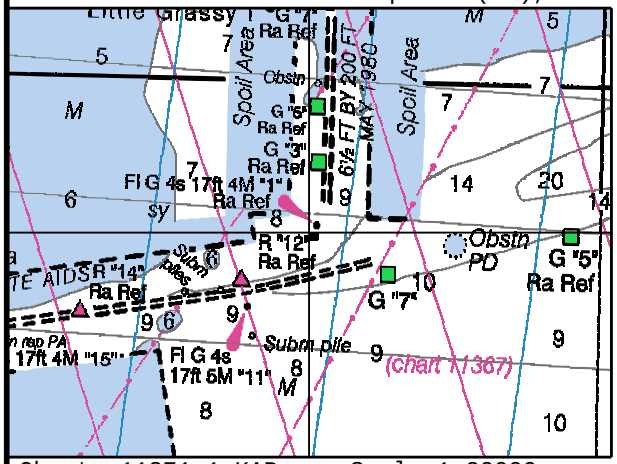


Chart: 11371_1.KAP Scale 1:20000

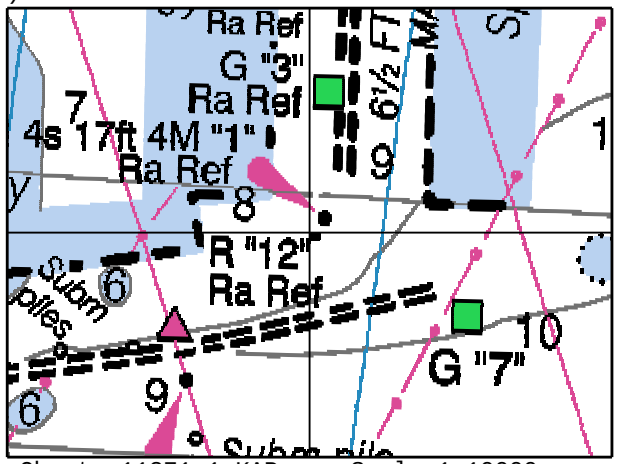
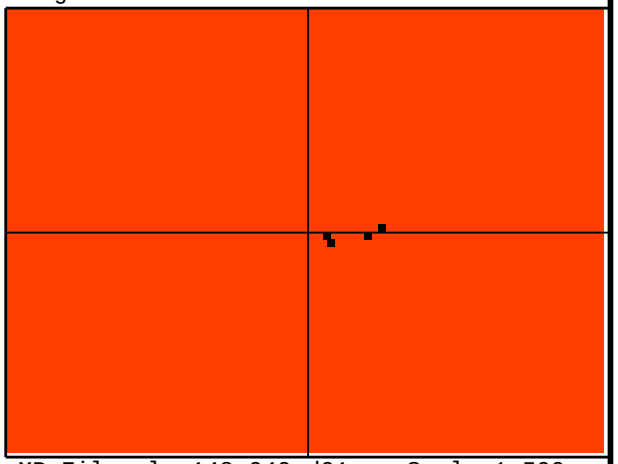
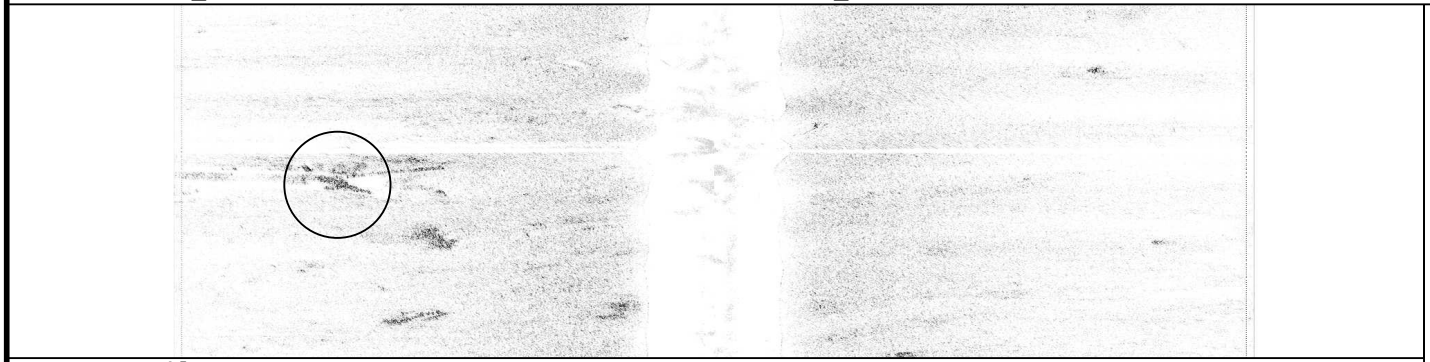


Chart: 11371_1.KAP Scale 1:10000



MB File: lm_148_040.d01 Scale 1:500



ID: 270 File: TD07141_070521202000.XTF 30 09 20.90N 089 31 29.67W RNG: -17.09 HGT: 0.76 HDG: 202

COMMENT:
OBSTRS Plot sounding and symbol Obstrs

ID: 271 File: TD07141_070521202200.XTF 30 09 20.85N 089 31 29.64W RNG: -14.00 HGT: 1.24 HDG: 042

CORRELATED SS CONTACTS:

Contact	Range/Height
141202151	-17.09/0.76
141202353	-14.00/1.24
141202617	-11.53/1.50
148193525	-15.45/1.00

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0006 Least Depth: 7(ft), 2.29(m) Lat: 30 09 41.51N Lon: 089 33 38.58W Ping: 1205 Beam: 1

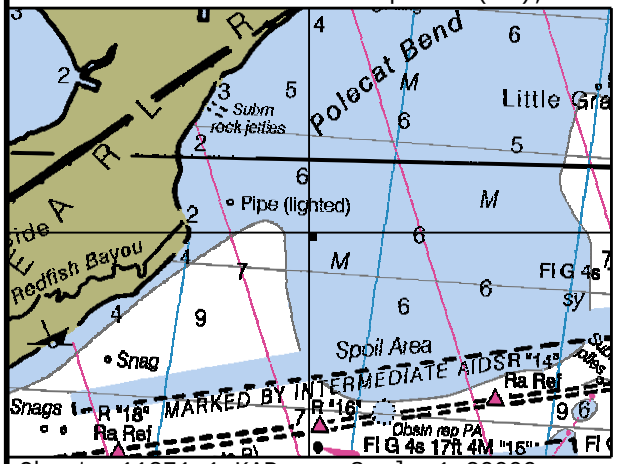


Chart: 11371_1.KAP Scale 1:20000

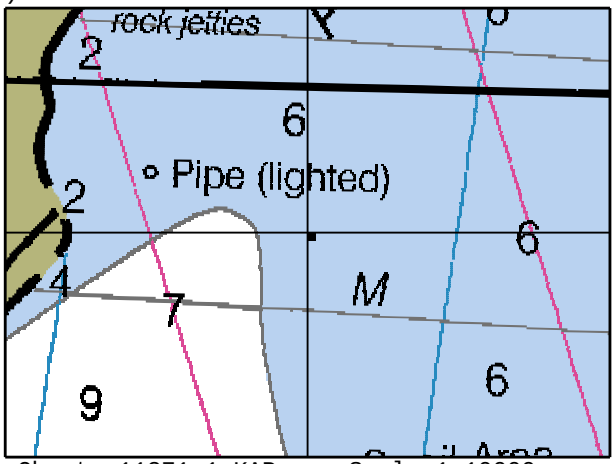
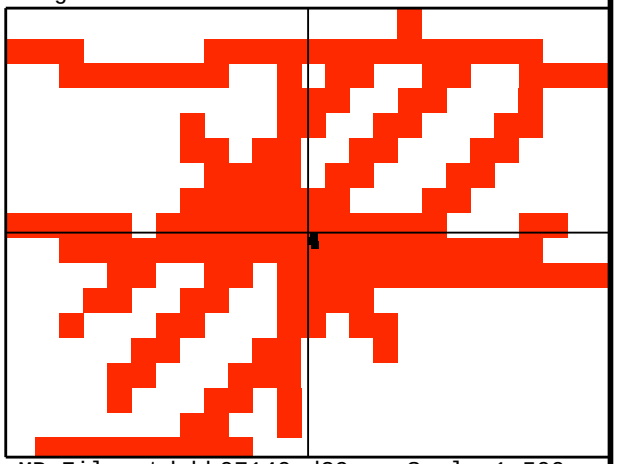
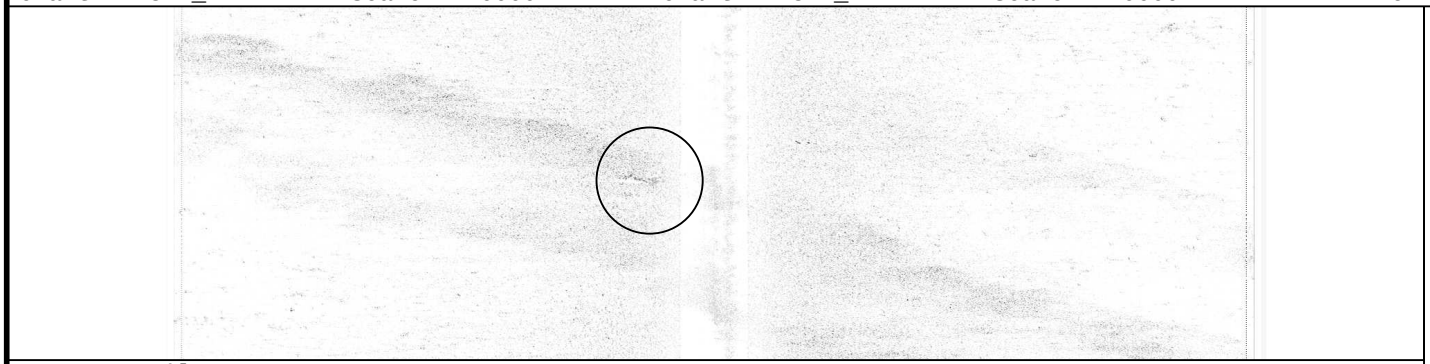


Chart: 11371_1.KAP Scale 1:10000

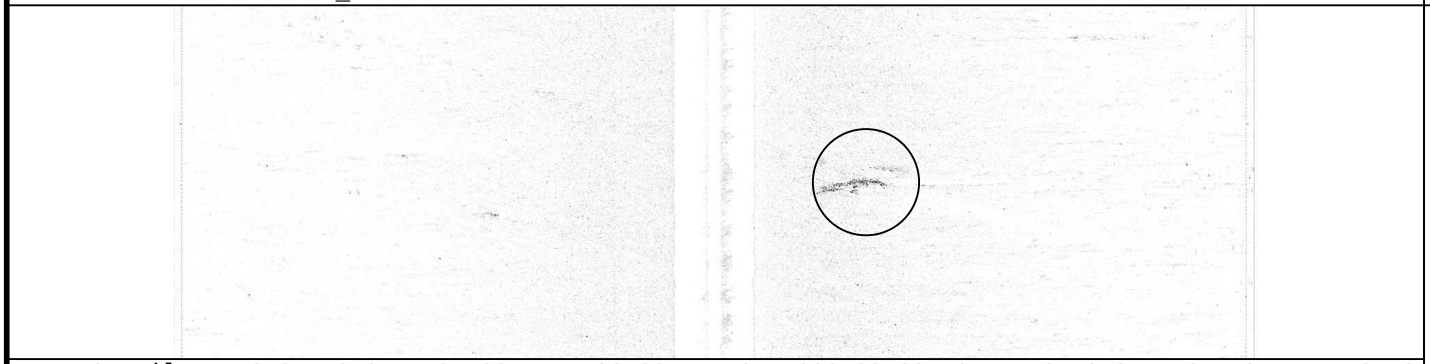


MB File: tdsbh07140.d29 Scale 1:500



ID: 263 File: TD07140_070520133800.XTF 30 09 41.51N 089 33 38.56W RNG: -2.97 HGT: 0.53 HDG: 088

COMMENT:
OBSTR No Plot (see Feature 11)



ID: 10 File: TD07015_070115194400.XTF 30 09 41.48N 089 33 38.56W RNG: 6.81 HGT: 0.77 HDG: 273

CORRELATED SS CONTACTS:

Contact	Range/Height
140134001	-2.97/0.53
015200228	6.81/0.77
140134517	-3.28/0.52

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0005 Least Depth: 7(ft), 2.33(m) Lat: 30 05 06.49N Lon: 089 35 46.56W Ping: 51751 Beam: 1

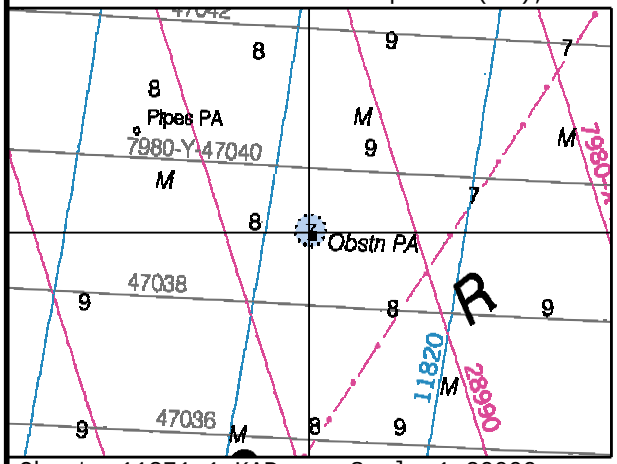


Chart: 11371_1.KAP Scale 1:20000

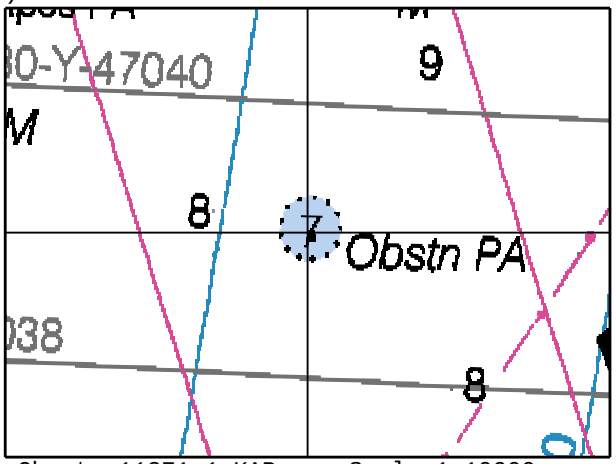
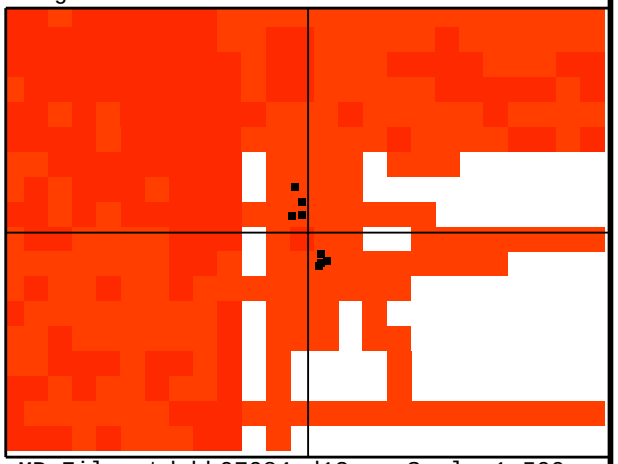
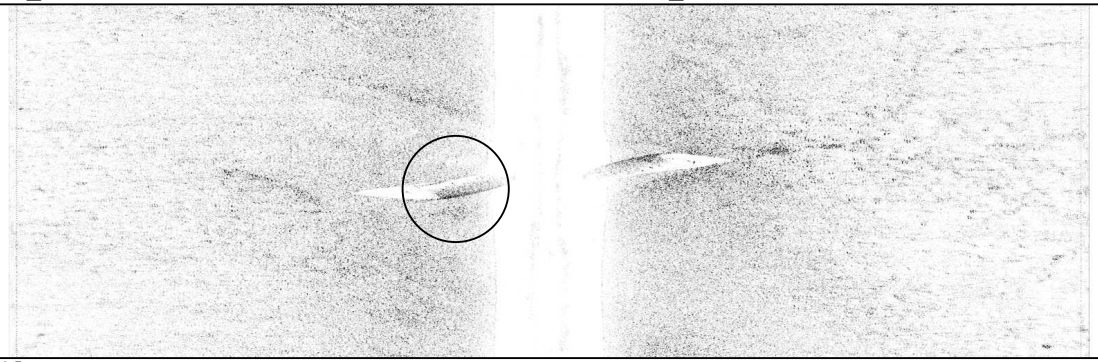


Chart: 11371_1.KAP Scale 1:10000

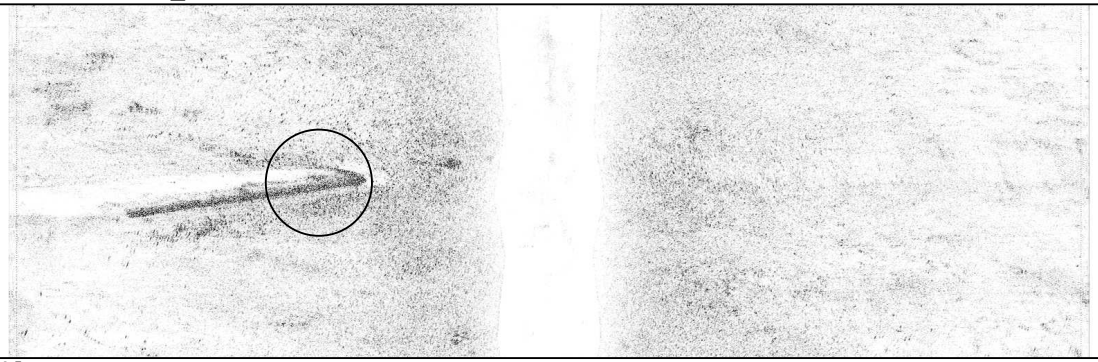


MB File: tdsbh07084.d13 Scale 1:500



ID: 194 File: TD07084_070325210400.XTF 30 05 06.37N 089 35 46.48W RNG: -4.28 HGT: 0.68 HDG: 272

COMMENT:
OBSTR Plot sounding and symbol Obstr



ID: 205 File: TD07085_070326201300.XTF 30 05 06.62N 089 35 46.64W RNG: -10.47 HGT: 1.11 HDG: 272

CORRELATED SS CONTACTS:

Contact	Range/Height
084214904	-4.28/0.68
085201540	-10.47/1.11
085200511	-3.50/0.99
085200845	5.50/0.92
085201241	-8.44/1.06
085201759	-13.97/0.85
085202046	7.88/0.94
085202259	13.81/0.97

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0004 Least Depth: Lat: 30 07 57.39N Lon: 089 37 20.70W Ping: Beam:

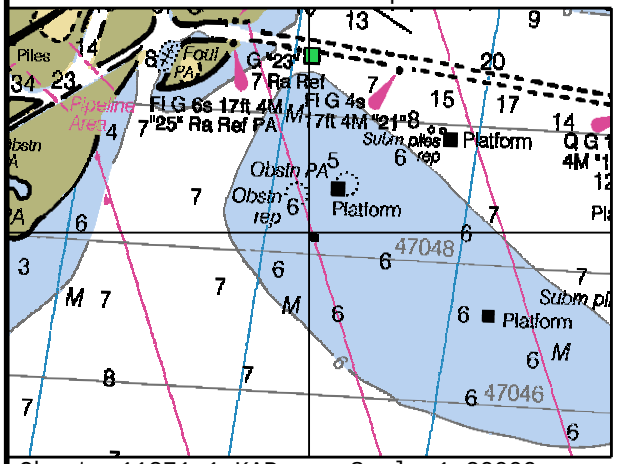


Chart: 11371_1.KAP Scale 1:20000

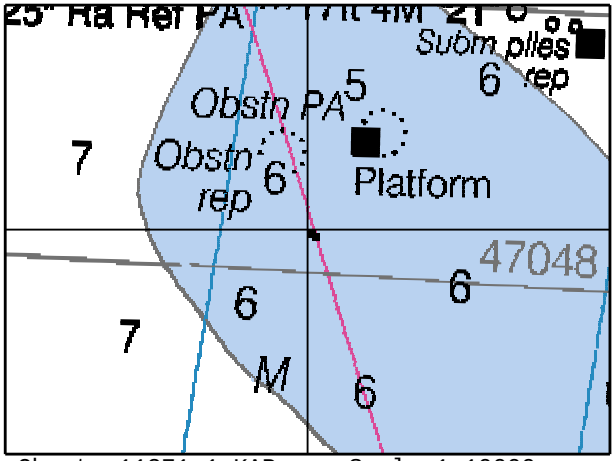
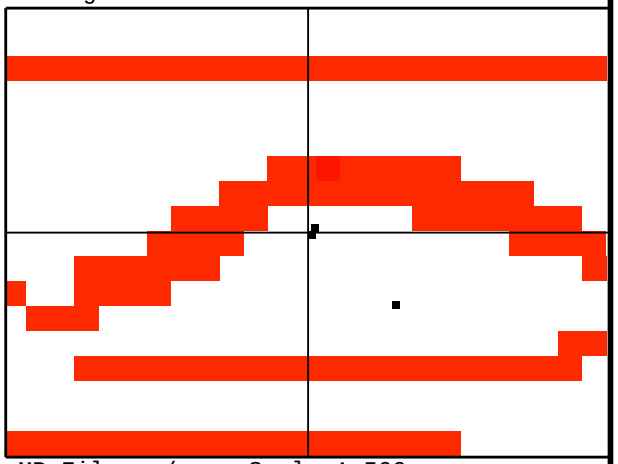
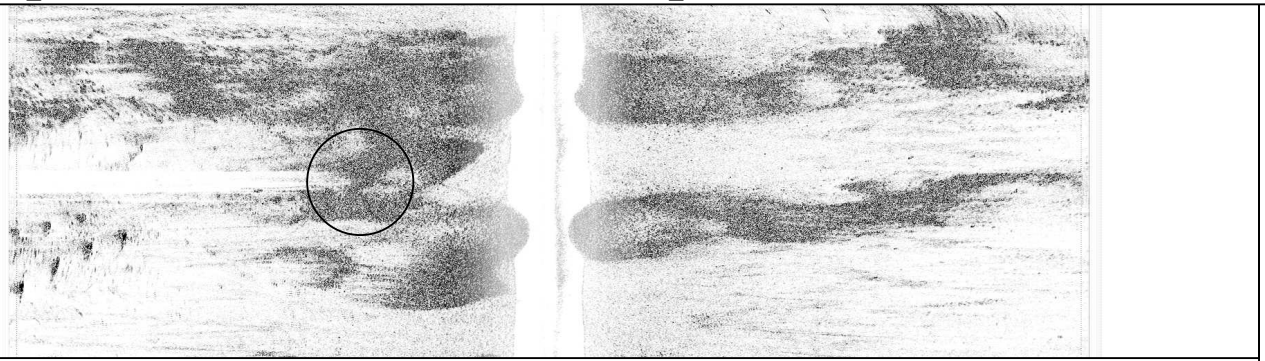


Chart: 11371_1.KAP Scale 1:10000

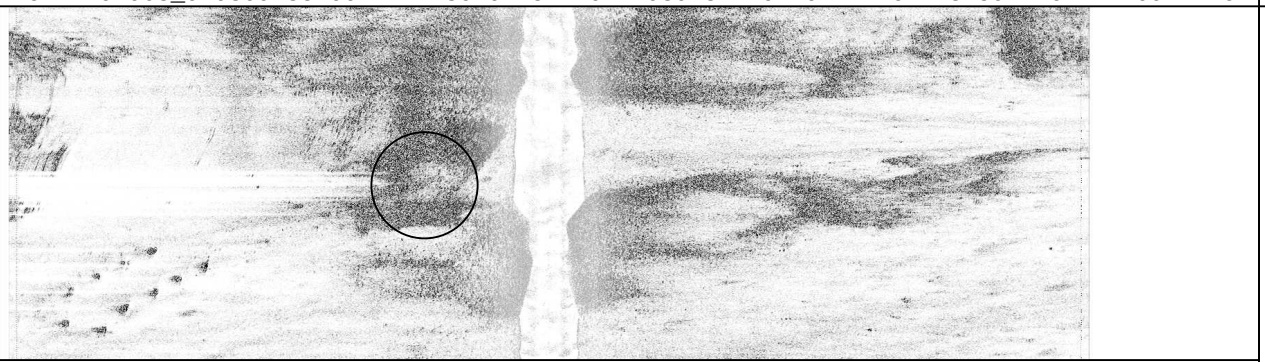


MB File: n/a Scale 1:500



ID: 150 File: TD07068_070309135700.XTF 30 07 57.40N 089 37 20.70W RNG: -8.59 HGT: 1.09 HDG: 253

COMMENT:
PLATFORM Plot platform symbol
(see Feature 36)



ID: 115 File: TD07033_070202183900.XTF 30 07 57.44N 089 37 20.68W RNG: -5.69 HGT: 1.14 HDG: 265

CORRELATED SS CONTACTS:

Contact	Range/Height
068140024	-8.59/1.09
033184627	-5.69/1.14
068140211	-14.41/0.54

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0003 Least Depth: 7(ft), 2.28(m) Lat: 30 06 44.18N Lon: 089 36 46.79W Ping: 43597 Beam: 1

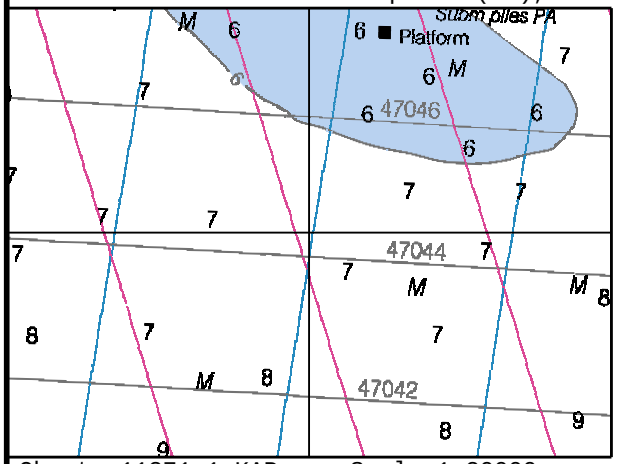


Chart: 11371_1.KAP Scale 1:20000

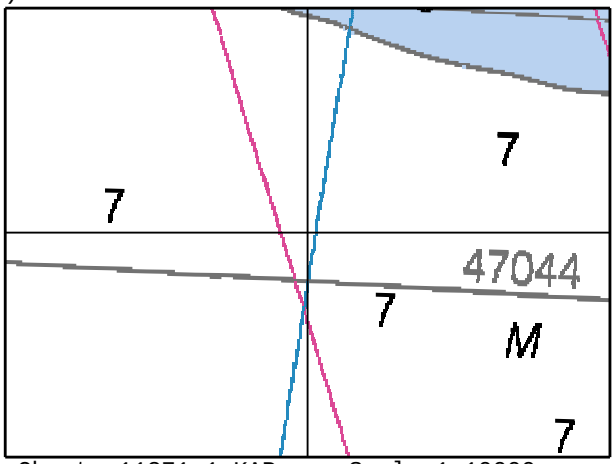
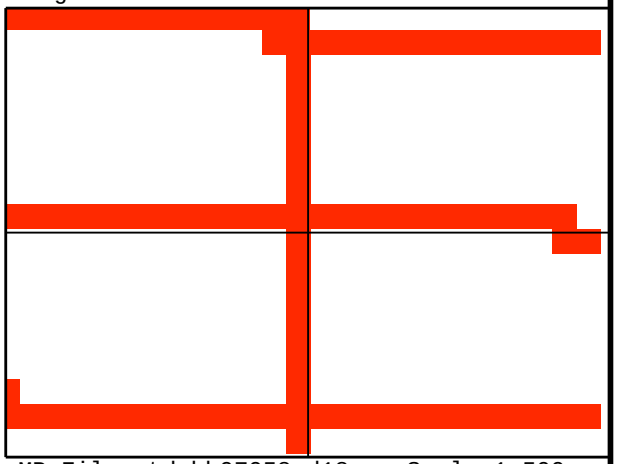


Chart: 11371_1.KAP Scale 1:10000



MB File: tdsbh07058.d18 Scale 1:500

COMMENT:
OBSTR Plot sounding and symbol Obstr

CORRELATED SS CONTACTS:
Contact Range/Height

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0002 Least Depth: 7(ft), 2.27(m) Lat: 30 04 10.01N Lon: 089 29 37.91W Ping: 8497 Beam: 1

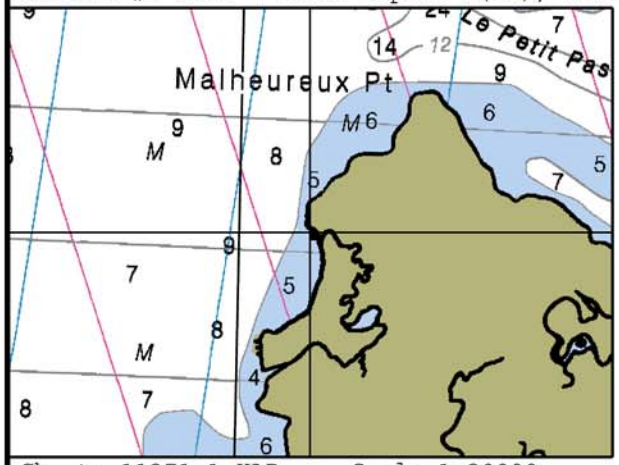


Chart: 11371_1.KAP Scale 1:20000

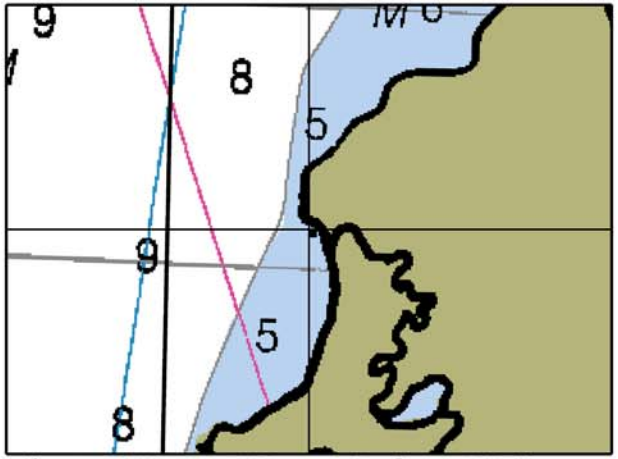
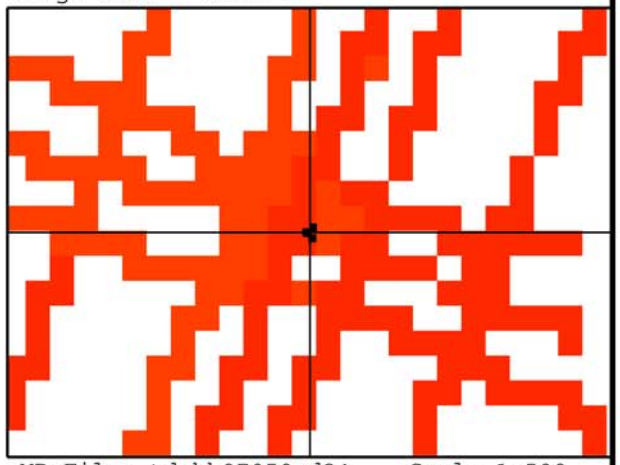
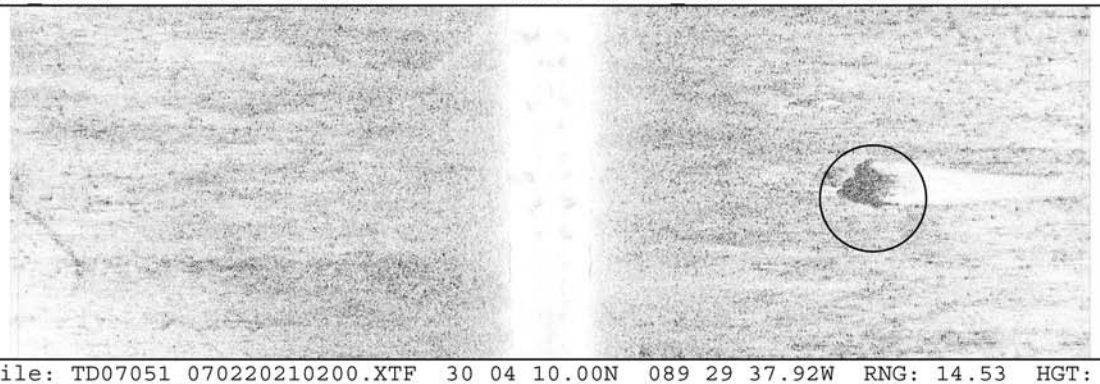


Chart: 11371_1.KAP Scale 1:10000

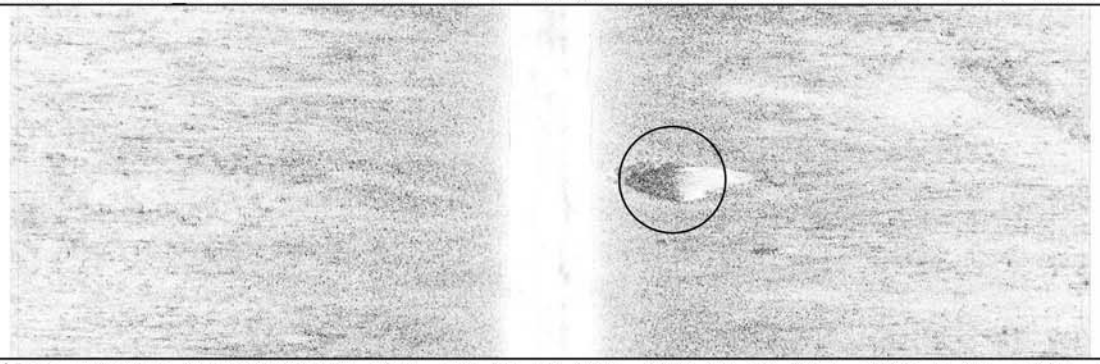


MB File: tdsbh07050.d24 Scale 1:500



ID: 134 File: TD07051_070220210200.XTF 30 04 10.00N 089 29 37.92W RNG: 14.53 HGT: 0.56 HDG: 284

COMMENT:
OBSTR Plot sounding and symbol Obstr



ID: 133 File: TD07051_070220205700.XTF 30 04 10.03N 089 29 37.96W RNG: 5.47 HGT: 0.62 HDG: 099

CORRELATED SS CONTACTS:

Contact	Range/Height
051210351	14.53/0.56
051210052	5.47/0.62
051205543	-15.00/0.52
051210631	2.34/0.56
051205258	-9.62/0.62
051204747	5.94/0.56

FEATURE CORRELATOR SHEET Job: H11612

Feature #: 0001 Least Depth: 13(ft), 4.00(m) Lat: 30 08 38.52N Lon: 089 36 54.16W Ping: 29687 Beam: 1

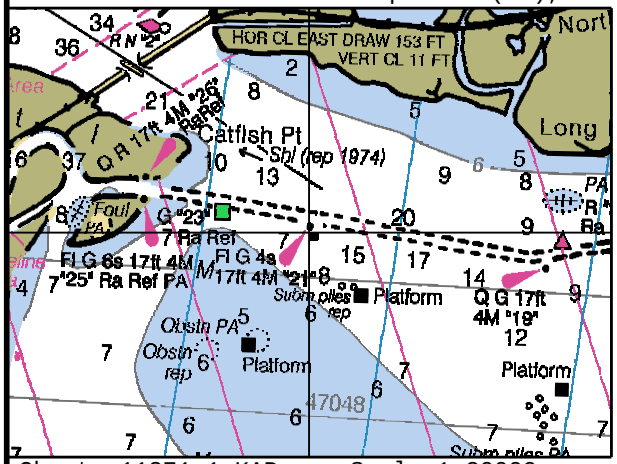


Chart: 11371_1.KAP Scale 1:20000

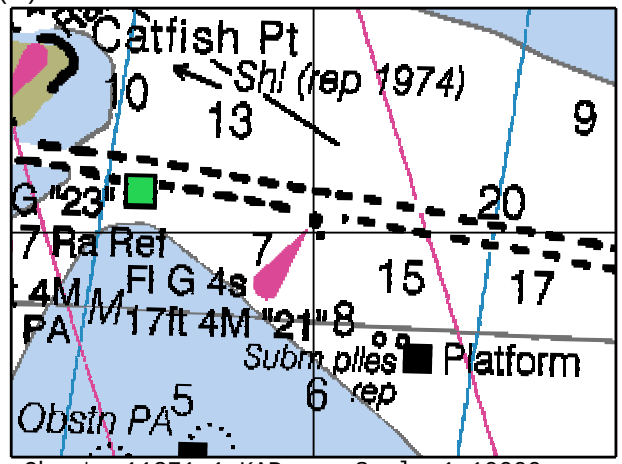
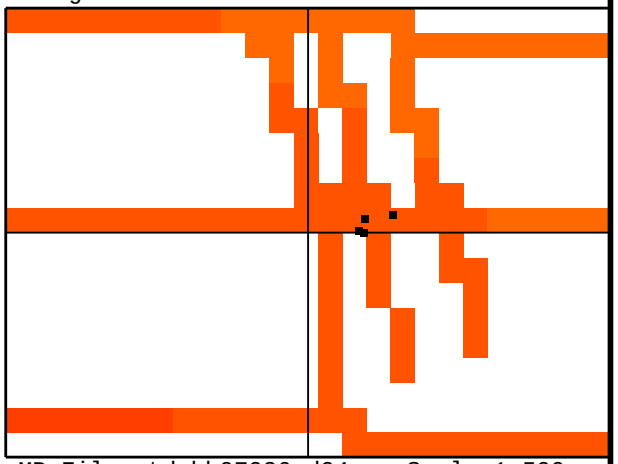
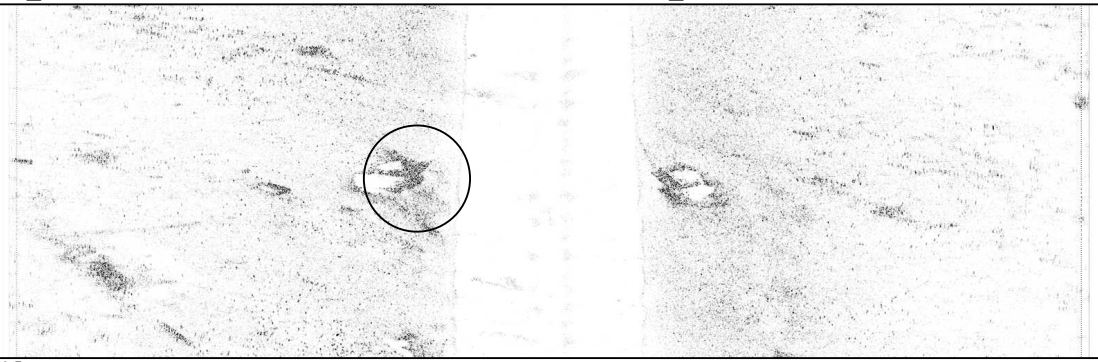


Chart: 11371_1.KAP Scale 1:10000

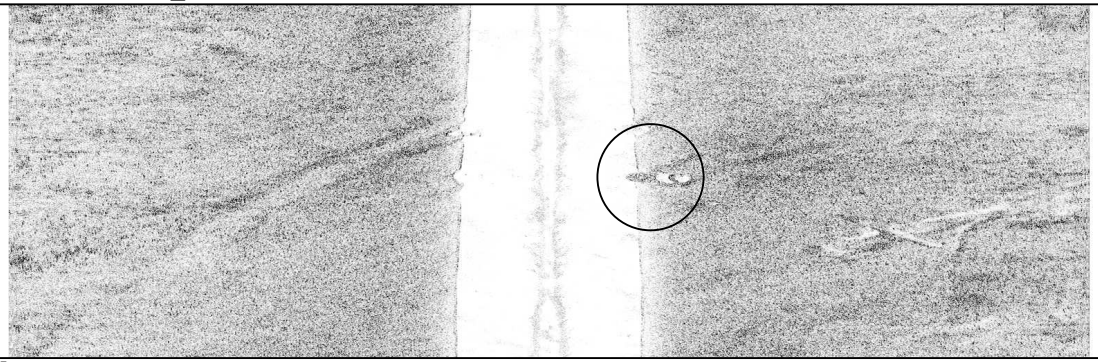


MB File: tdsbh07026.d04 Scale 1:500



ID: 291 File: TD07152_070601214900.XTF 30 08 38.57N 089 36 53.79W RNG: -6.03 HGT: 1.63 HDG: 166

COMMENT:
OBSTR No Plot Non Sig (least depth estimated from side scan)



ID: 61 File: TD07026_070126163600.XTF 30 08 38.55N 089 36 53.76W RNG: 4.53 HGT: 0.68 HDG: 271

CORRELATED SS CONTACTS:

Contact	Range/Height
152215142	-6.03/1.63
026170320	4.53/0.68
152214844	-18.44/0.74
026170318	6.75/0.51

AHB PRE-COMPILATION PROCESS

REGISTRY No.	H11612
PROJECT No.	S-J977-KR-SAIC
FIELD UNIT	SAIC
PRE-COMPILER	MATTHEW J. WILSON
LARGEST SCALE CHART	11367, edition 34, 20060801
CHART SCALE	1:40,000
SURVEY SCALE	1:20,000
DATE OF SURVEY	13JAN2007-02JUN2007
CONTENT REVIEW DATE	01OCT2008

Components	File Names
Product Surface	PS_H11612_Combined_SB.hns
Shifted Surface	PS_H11612_Combined_Interpolated_Shifted_SB.hns
Contour Layer	H11612_SB_Contours.hob
Survey Scale Soundings	H11612_SB_SS.hob
Chart Scale Soundings	H11612_SB_CS.hob
ENC Retain Soundings	
Feature Layer	H11612_Features.hob
Meta-Objects Layer	H11612_MetaObjects.hob
Blue Notes	H11612_Bluenotes.hob

SPECIFICATIONS:

I. COMBINED SURFACE:
   a. File name: H11612_Combined_SB.hns
   b. Resolution: 3m
   c. Final Grid Location: H:\Compilation\H11612_J977-SAIC\AHB_H11612\COMPILE\Working\Surfaces\6_Oct

II. PRODUCT SURFACE (SOUNDINGS):
   a. Scale: 1: 40,000
   b. Radius: 200m
   c. Resolution: 10m
   d. Depth
      i. Minimum: 0.82m
      ii. Maximum: 19.85m

   PRODUCT SURFACE (CONTOURS):
   a. Scale: 1: 40,000
   b. Radius:_____m
   c. Resolution: 100m

III. SHIFTED SURFACE:
   Single Shift Value: -0.229 *[-0.229m (feet), (≤ 10 fathoms)]*
   [-1.372m (fathoms), (> 10 fathoms)]

IV. CONTOUR LAYER:
   a. Use a Depth List: H11612_NOAA_depth_curves_list.txt

b. Output Options:
   i. Create contour lines:
      1. Line Object: DEPCNT
      2. Value Attribute: VALDCO

V. SOUNDING SELECTION:

a. Selection Criteria:
   i. Radius
   ii. Shoal biased
   iii. Use Single-Defined Radius: 100 distance on ground (m)
   iv. Filter: Generalized !=1

VI. FEATURES:

a. Brought in from Survey
   Total No. 60
b. Brought in from ENC
   ENC: US4MS10M.000
   Total No. 1

VII. META-OBJECTS:

a. M_COVR attributes

Acronym	Value
SORDAT	20070602
CATCOV	Coverage available
SORIND	US,US,Survy,H11612

b. M_QUAL attributes

Acronym	Value
CATZOC	Zone of confidence U (data not assessed)
INFORM	H11612; S-J977-KR-SAIC
POSACC	10
SORDAT	20070602
SORIND	US,US,Survy,H11612
SUREND	20070602
SURSTA	20070213
TECSOU	1

c. DEPARE attributes

Acronym	Value
DRVALV 1	0.000 ft
DRVALV2	68.898 ft
SORDAT	20070602
SORIND	US,US,Nsurf,H11612

d. M_CSCL attributes

Acronym	Value
CSCALE	80,000
SORDAT	20070602
SORIND	US,US,Survy,H11612

VIII. NOTES:

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT to ACCOMPANY
SURVEY H11612 (2007)

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

A. AREA SURVEYED

No changes from DR.

B. DATA ACQUISITION AND PROCESSING

B.1 DATA PROCESSING

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

CARIS HIPS/SIPS version 6.1 SP2
CARIS Bathy Manager version 2.1 SP1
DKART INSPECTOR, version 5.0 Build 732 SP1
CARIS HOM version 3.3 SP3
CARIS S57 Composer version 2.0
FLEDERMAUS version 6.7

Much of the processing of the survey data was accomplished by the contractor, SAIC, prior to submission to AHB, with the use of GeoAcoustics GeoSwath Plus and SAIC's SABER.

B.2. QUALITY CONTROL

B.2.1. H-Cell

It was noted several times in the survey review that a significant discrepancy existed between the soundings of the interferometric sonar and the single beam sonar and that this discrepancy must be considered for charting purposes. The interferometric sonar was systematically shoaler than the single beam sonar in all of the Lake Borgne surveys, however there are portions of this particular survey where this systematic error is of a greater magnitude (2-3 ft). During the pre-compilation phases of this survey, it quickly became clear that the interferometric sonar could not go to chart – it differed too much from the single beam sonar, in such a significant way that the contours produced from this union would reflect the survey line plan of the vessel that was equipped with the interferometric sonar.

The systematic difference between the sonar systems is attributed to the nature of the interferometric sonar and the soft bottom in Lake Borgne. The usage of the interferometric sonar was somewhat experimental. The statement of work specified that "interferometric sonar and other emerging technologies" are highly encouraged for this project, however such usage could not be in lieu of the single beam coverage. There are portions of the project where the interferometric data was used in lieu of the single beam – this is a deviation from the statement of work, but was deemed acceptable by AHB (see DR supplemental material and correspondence for more information).

During the pre-compilation phase, it was discovered that the portions of the survey area that were covered solely by the interferometric data were quite minimal, and the removal of the interferometric data from compilation would not affect the chart sounding selection of the largest-scale chart. In addition, these same portions were confirmed by side scan sonar and from the interferometic sonar to be flat and featureless, without any obstructions. Hence, it was decided to remove the interferometric sonar from compilation entirely. The selection of chart soundings would remain unaffected, and no features or anything of cartographic significance would be missed in the slight gaps in sounding selection coverage. The decision was approved by the AHB Chief and Lead Physical Scientist.

The single beam surfaces were combined at a 3m resolution, and from this a product surface was generated with a 10m resolution. The sounding selection was generated from this product surface with a 100m shoal-biased radius. To aid in the chart sounding selection, first a TIN was made from the sounding selection. Next, a surface was interpolated from this TIN at a 100m resolution. This surface was then shifted by a factor of -0.229, to account for NOAA's rounding practices when creating contours. Finally, the contours were generated from this shifted, interpolated TIN surface. The chart soundings were then selected from the sounding selection with the aid of the contours, and using AHB best practices.

Meta objects were submitted by the field unit, and some alterations had to be made by AHB to account for U.S Army CORPS of Engineers (ACE) maintained channels and the changing scale in the survey area. First, the boundaries of the ACE maintained channels were obtained from the ENC (US4MS10M.000). These channel areas were removed from each Meta object. The largest-scale chart in this region is 11367 (1:40,000), however this chart only covers the northern section of the survey area. The southern section is covered by chart 11371 (1:80,000), and a M_CSCL Meta object was created to cover this smaller-scale area not covered by 11367.

The pre-compilation components include sounding selection and chart sounding selection (SOUNDG), features (SBDARE, DEPCNT, OBSTRN, PILPNT, WRECKS), Meta objects (DEPARE, M_COVR, M_QUAL, M_CSCL), and cartographic Blue Notes ($CSYMB). All of the components with the exception of the sounding selection were inserted into one feature layer (including the Bluenotes, as dictated by Hydrographic Technical Directive 2008-8), and this layer was exported into S-57 format in order to create the H-Cell deliverable. Similarly, the sounding selection was exported into S-57 format separately, and then both S-57 files were processed in CARIS HOM to convert the metric units to feet. The final products are two S-57 files, one that contains the chart soundings, all the features, Meta objects, and Bluenotes (H11612_CS.000), and one that contains the sounding selection (H11612_SS.000). Finally, quality assurance checks

were made utilizing both DKART Inspector version 5.0 and CARIS S-57 Composer version 2.0 validation checks.

Chart compilation was performed by Atlantic Hydrographic Branch personnel in Norfolk, Virginia. Compilation data will be forwarded to the Marine Chart Division, Silver Spring, Maryland.

The H11612 CARIS H-Cell final deliverables include the following products:

H11612_CS.000	**1:40,000 Scale**	**H11612 H-Cell with Chart Scale Selected Soundings**
H11612_SS.000	**1:20,000 Scale**	**H11612 Selected Soundings (Survey Scale)**

B.22. Junctions

Junctions include SAIC surveys H11613 and H11615, also conducted in 2007. At least 95% of the data from H11612 falls within 35-40cm of H11613 (East Lake Borgne), and within 15-20cm of H11615 (West Lake Borgne).

C. VERTICAL AND HORIZONTAL CONTROL

Vertical control was established from tide station 8761529 (Martello Castle, LA) and NOAA tide station 8747437 (Bay Waveland Yacht Club, MS). Analysis of water levels obtained from these tide stations was performed to determine final water level zoning parameters. Zone boundaries were provided by NOAA. Tide station 8761529 was the source of verified water level heights for corrections to soundings. The adequacy of zoning was determined through a zone to zone analysis, and verified by SAIC's MultiView Editor (MVE). Crossline comparisons were used to analyze zoning for the influence of wind and weather.

Trimble GPS receivers were used for horizontal control. Differential correctors were from the U.S. Coast Guard Stations at English Turn, LA, and Mobile Point, AL.

D. RESULTS AND RECOMMENDATIONS

D.1 CHART COMPARISON

11367 (34th Edition, 08/01/2006)
Corrected by NTM through 12/01/2007
Scale 1:40,000

11371 (38th Edition, 04/01/2007)
Corrected by NTM through 12/01/2007
Scale 1:80,000

ENC Comparison **US4MS10M**
4th Edition

Application Date 2007-09-21
Issue Date 2007-09-05
Chart 11371

D.1.1 Hydrography

It was noted in the DR and again during review that the charted shoreline has receded and is no longer accurate. Sounding were obtained over charted land, especially along the west side around Unknown Pass and along the north side in the vicinity of Long Point and Sand Bayou as well as the shoreline west of the entrance to the Pearl River. In addition, the shoreline has receded in the southeastern portion of the survey area, along Malheureux Pt.

The charted exposed wreck (Feature ID# US 0000521107 00001) and the 4 charted piles (Feature ID# US 0000521332 00001) were not addressed during this survey and are recommended to be retained as charted.

All features on charts 11367 and 11371 are accounted for either in the Feature file or as a Bluenote. See the Bluenote descriptions in the following table for specifics regarding the individual items.

Feature ID	Acronym	Latitude	Longitude	INFORM
US 0000521311 00001	$CSYMB	30-10-24.36N	089-31-28.32W	The charted pile labeled Pile PA was not found during this survey, disproved with 200% SSS. Recommend removing the pile symbol and label Pile PA.
US 0000521312 00001	$CSYMB	30-08-58.59N	089-35-32.83W	Delete charted sounding at survey boundary. Chart survey soundings in common area.
US 0000521313 00001	$CSYMB	30-08-22.18N	089-36-38.05W	The charted position of this platform is based on Danger to Navigation Report #3. Additional survey data collected after the report was submitted indicates the platform is in a slightly different position, denoted by the nearby Bluenote. Recommend to delete the platform symbol and label Platform from this location.
US 0000521314 00001	$CSYMB	30-09-33.62N	089-31-46.97W	The charted pipeline was not addressed during this survey. Recommend to retain pipeline as charted.
US 0000521315 00001	$CSYMB	30-10-20.59N	089-31-43.62W	The small charted island was not found in this survey. Recommend removing the island and removing the label Little Grassy I.
US 0000521316 00001	$CSYMB	30-06-43.58N	089-30-49.47W	The charted pipe labeled Pipe PA was not found in this survey, disproved with 200% SSS. Recommend removing the pipe symbol and label Pipe PA.

US 0000521317 00001	$CSYMB	30-08-24.58N	089-36-43.81W	The two charted submerged piles labeled Subm piles rep are from Danger to Navigation Report #3. Additional data collected after submittal of the report confirmed that there is only one submerged pile, denoted in the Feature file. Recommend removing the pile symbol and change the label to Subm pile.
US 0000521318 00001	$CSYMB	30-07-35.81N	089-36-27.15W	Charted platform not observed. Defer charting recommendation to MCD.
US 0000521319 00001	$CSYMB	30-07-56.77N	089-35-37.60W	Platform observed in this location. Recommend charting platform in this location.
US 0000521320 00001	$CSYMB	30-09-04.03N	089-31-45.10W	The charted submerged pile labeled Subm Pile was not found during this survey, disproved with 200% SSS. Recommend removing the pile symbol and removing the label Subm pile.
US 0000521321 00001	$CSYMB	30-08-48.16N	089-34-57.43W	The charted snags labeled Snags were not found during this survey, disproved with 200% SSS. Recommend removing the snag symbols and label Snags.
US 0000521322 00001	$CSYMB	30-08-37.18N	089-35-35.98W	The Lake Borgne Daybeacon 20 was replaced with a red buoy "20".
US 0000521323 00001	$CSYMB	30-07-49.44N	089-35-38.66W	The 8 charted piles labeled Subm piles PA were not found in their charted positions, disproved by 200% SSS. The updated positions are denoted in the Feature file. Recommend removing the 8 pile symbols and label Subm piles PA from these locations.
US 0000521324 00001	$CSYMB	30-08-25.10N	089-36-41.87W	The special purpose beacon Lake Borgne Range Front Light was not present during this survey.
US 0000521325 00001	$CSYMB	30-07-59.25N	089-35-34.75W	The charted platform labeled Platform was not found in this location. Two platforms were found nearby, denoted by Bluenotes. Recommend removing the platform symbol and label Platform from this location.
US 0000521326 00001	$CSYMB	30-05-14.52N	089-29-48.03W	The charted exposed wreck labeled PA was not found during this survey, disproved with 200% SSS. Recommend removing the exposed wreck symbol and label PA.
US 0000521327 00001	$CSYMB	30-08-59.21N	089-35-50.43W	Delete charted sounding at survey boundary. Chart survey soundings in common area.
US 0000521328 00001	$CSYMB	30-10-20.49N	089-32-11.76W	The charted pile labeled Piling was not found during this survey, disproved with 200% SSS. Recommend removing the pile

				symbol and removing the label Pile.
US 0000521329 00001	$CSYMB	30-06-20.71N	089-33-10.23W	The charted dangerous wreck labeled PD was not found during this survey, disproved with 200% SSS and interferometric sonar. Recommend removing the wreck symbol, danger circle, blue tint and label PD.
US 0000521330 00001	$CSYMB	30-08-08.78N	089-37-12.52W	New platform found by Field Unit. Platform is already charted because this feature was submitted in DtoN report 1.2.
US 0000521331 00001	$CSYMB	30-07-15.96N	089-34-30.31W	The submerged piles labeled Subm piles are from Danger to Navigation Report #5. The charted position is correct, however these piles are exposed at low tide. Hence, recommend that the label Subm piles is removed and add the label Awash piles.
US 0000521332 00001	$CSYMB	30-09-27.15N	089-37-29.34W	The 4 charted piles were not addressed during this survey. Recommend to retain the 4 charted piles and label Piles.
US 0000521333 00001	$CSYMB	30-08-11.76N	089-38-22.28W	The special purpose beacon Lake Borgne Range Front Light was not present during this survey.
US 0000521334 00001	$CSYMB	30-11-19.54N	089-31-38.16W	Delete charted sounding at survey boundary. Chart survey soundings in common area.
US 0000521335 00001	$CSYMB	30-10-47.11N	089-31-49.22W	The charted dangerous wreck was not found during this survey, disproved with 200% SSS. Recommend removing the wreck symbol and danger circle.
US 0000521336 00001	$CSYMB	30-08-58.71N	089-32-40.07W	This Lake Borgne Daybeacon was not present during this survey.
US 0000521337 00001	$CSYMB	30-08-59.76N	089-37-19.11W	There were no shoals located in this vicinity. Recommend removing the label Shoal rep 1974.
US 0000521338 00001	$CSYMB	30-05-32.03N	089-36-40.40W	The charted pipe labeled Pipes PA was not found during this survey, disproved by 200% SSS and interferometric sonar. Recommend removing the pipe symbol and label Pipes PA.
US 0000521339 00001	$CSYMB	30-03-42.60N	089-39-18.12W	The 2 charted submerged dolphins labeled Subm dols were not found during this survey, disproved with 200% SSS. Submerged piles were found nearby, denoted in the Feature file. Recommend to remove the dolphin symbols and label Subm dols from this location.

US 0000521340 00001	$CSYMB	30-07-57.14N	089-34-52.08W	The charted dangerous wreck was not found during this survey, disproved with 200% SSS. Recommend removing the wreck symbol, danger circle, and label PA.
US 0000521341 00001	$CSYMB	30-09-15.02N	089-37-38.63W	The charted cable area was not addressed during this survey. Recommend to retain charted cable and label Cable Area.
US 0000521342 00001	$CSYMB	30-10-17.71N	089-31-43.25W	The two small charted islands were not found during this survey. Recommend removing both islands and the label Little Grassy I.
US 0000521343 00001	$CSYMB	30-04-12.25N	089-41-53.45W	The charted tree labeled Tree was not found during this survey. Recommend removing the tree symbol and the label Tree.
US 0000521344 00001	$CSYMB	30-05-39.48N	089-39-50.22W	The charted platform was found in the position indicated by this Bluenote.
US 0000521345 00001	$CSYMB	30-08-30.35N	089-35-41.07W	The Lake Borgne Daybeacon 19 was replaced with a green buoy "19".
US 0000521346 00001	$CSYMB	30-09-07.10N	089-34-39.98W	The charted snag labeled Snag was not found during this survey, disproved with 200% SSS. Recommend removing the snag symbol and removing the label Snag.
US 0000521347 00001	$CSYMB	30-08-10.09N	089-37-11.46W	The charted obstruction labeled Obstn was not found in its charted position, disproved with 200% SSS. Recommend removing the Obstruction symbol and label Obstn. An obstruction was found nearby, but there are no additional charting recommendations due to close proximity to an oil platform.
US 0000521348 00001	$CSYMB	30-08-53.25N	089-33-16.67W	The charted dangerous obstruction labeled Obstn rep PA was not found during this survey, disproved with 200% SSS. Recommend removing the danger circle, blue tint, and label Obstn rep PA.
US 0000521349 00001	$CSYMB	30-07-57.97N	089-35-37.31W	The charted platform was not found in this location. The updated position is denoted by nearby Bluenote. Recommend to delete platform from this position.
US 0000521350 00001	$CSYMB	30-10-46.51N	089-33-23.89W	Delete charted sounding at survey boundary. Chart survey soundings in common area.
US 0000521351 00001	$CSYMB	30-07-49.00N	089-35-40.54W	The 10 charted piles labeled Subm piles PA were not found in their charted positions, disproved by 200% SSS. The updated positions are denoted in the Feature file. Recommend removing the 10 pile symbols and label Subm piles PA

				from these locations.
US 0000521352 00001	$CSYMB	30-05-13.75N	089-29-29.86W	The charted dangerous wreck labeled PD was not found during this survey, disproved with 200% SSS. Recommend to remove the wreck symbol, danger circle, blue tint, and label PD.
US 0000521353 00001	$CSYMB	30-09-16.18N	089-30-44.23W	The charted dangerous obstruction labeled Obstn PD was not found during this survey, disproved with 200% SSS. Recommend removing the danger circle, blue tint, and label Obstn PD.
US 0000521354 00001	$CSYMB	30-07-57.39N	089-37-20.70W	New platform observed in this location. Defer charting recommendation to MCD.
US 0000521355 00001	$CSYMB	30-08-07.41N	089-37-27.03W	The charted dangerous obstruction labeled Obstn rep was submitted with Danger to Navigation Report #2. The object is an awash pile. The position of the awash pile is denoted in the Feature file. Recommend removing the danger circle and removing the label Obstn rep.
US 0000521356 00001	$CSYMB	30-07-57.46N	089-35-38.90W	Platform observed in this location. Recommend charting platform in this location.
US 0000521357 00001	$CSYMB	30-09-48.77N	089-34-04.35W	The charted pipe labeled Pipe (lighted) was not found during this survey, disproved by 200% SSS. Recommend removing the pipe symbol and label Pipe (lighted).
US 0000521358 00001	$CSYMB	30-08-22.07N	089-36-29.85W	Platform observed in this location. Originally this feature was sent in Danger to Navigation Report #3, however since that time additional survey data reflects a slightly different position, as noted in this Bluenote. Recommend to chart platform and label Platform in this position.
US 0000521359 00001	$CSYMB	30-09-09.29N	089-34-54.64W	The charted exposed wreck was not addressed in this survey. Recommend to retain the exposed wreck as charted.
US 0000521360 00001	$CSYMB	30-10-45.34N	089-33-15.28W	The 3 charted piles labeled Piling were not found in their charted positions, disproved by 200% SSS. The updated positions of the pilings are denoted in the Feature file. Recommend removing the 3 charted pile symbols and removing label Piling.

US 0000521361 00001	$CSYMB	30-03-31.63N	089-41-18.28W	The charted dangerous obstruction labeled Obstn PA was not found during this survey, disproved with 200% SSS and interferometric sonar. Recommend to remove the danger circle, blue tint, and label Obstn PA.
US 0000521362 00001	$CSYMB	30-10-45.63N	089-33-14.44W	The 2 charted piles labeled Piling were not found in their charted positions, disproved by 200% SSS. The updated positions of the pilings are denoted in the Feature file. Recommend removing the 2 charted pile symbols and removing the label Piling.
US 0000521363 00001	$CSYMB	30-10-42.50N	089-33-12.41W	Add label Subm piles.
US 0000521364 00001	$CSYMB	30-07-56.46N	089-35-35.67W	The charted platform was not found in this location. The updated position is denoted by nearby Bluenote. Recommend to delete platform from this position.
US 0000521365 00001	$CSYMB	30-09-07.93N	089-31-50.58W	This Lake Borgne Daybeacon was not present during this survey.
US 0000521366 00001	$CSYMB	30-09-03.30N	089-31-57.09W	The charted submerged pile labeled Subm Pile was not found during this survey, disproved by 200% SSS. Recommend removing the pile symbol and removing label Subm pile.
US 0000521367 00001	$CSYMB	30-08-48.06N	089-35-35.97W	The charted dangerous wreck labeled PA was not found in its charted position. A submerged wreck was found nearby, denoted as a wreck in the Features file. Recommend removing the wreck symbol, danger circle, blue tint, and label PA from this position and recharting in the updated position.
US 0000521368 00001	$CSYMB	30-08-53.36N	089-31-46.92W	The charted pile labeled Subm pile was not found during this survey, disproved with 200% SSS. Recommend removing the pile symbol and label Subm pile.
US 0000521369 00001	$CSYMB	30-10-24.08N	089-31-29.91W	The charted pile labeled Pile Awash PA was not found during this survey, disproved with 200% SSS. Recommend removing the pile symbol and removing label Pile Awash PA.
US 0000521370 00001	$CSYMB	30-03-33.42N	089-40-47.67W	The charted submerged piles labeled Subm piles PA were not found during this survey, disproved with 200% SSS and interferometric sonar. Recommend removing the pile symbols and label Subm piles PA.

US 0000521371 00001	$CSYMB	30-10-11.90N	089-34-10.34W	The charted jetties labeled Rock jetties were not found during this survey, disproved by 200% SSS. Recommend removing the jetty symbol and label Rock jetties.
US 0000521372 00001	$CSYMB	30-10-18.04N	089-34-08.73W	Delete charted sounding at survey boundary. Chart survey soundings in common area.
US 0000521373 00001	$CSYMB	30-10-52.75N	089-31-51.23W	The charted obstruction labeled Subm concrete blocks were not found in their charted position. Submerged concrete blocks were found nearby, denoted as an obstruction in the Feature file. Recommend removing the obstruction symbol and removing the label from this position.
US 0000521374 00001	$CSYMB	30-06-59.43N	089-39-21.45W	The charted dangerous obstruction labeled Obstn PA was not found during this survey, disproved with 200% SSS. Recommend removing the danger circle, blue tint, and label Obstn PA.
US 0000521375 00001	$CSYMB	30-09-03.81N	089-36-09.25W	Delete charted sounding at survey boundary. Chart survey soundings in common area.
US 0000521376 00001	$CSYMB	30-03-59.06N	089-42-49.15W	Delete charted sounding at survey boundary. Chart survey soundings in common area.
US 0000521377 00001	$CSYMB	30-09-31.69N	089-30-58.00W	The charted pipelines were not addressed during this survey. Recommend to retain the pipelines as charted.
US 0000521378 00001	$CSYMB	30-06-41.56N	089-30-41.30W	The charted dangerous wreck labeled PA was not found in its charted position. A submerged wreck was found nearby, denoted as a wreck in the Feature file. Recommend to remove the wreck symbol, danger circle, blue tint, and label PA from this location and recharting in the updated position.
US 0000521379 00001	$CSYMB	30-03-10.71N	089-38-40.66W	Delete charted sounding at survey boundary. Chart survey soundings in common area.
US 0000521380 00001	$CSYMB	30-09-07.57N	089-32-03.17W	The charted submerged piles labeled Subm piles were not found during this survey. Recommend removing the pile symbols and label Subm piles.
US 0000521381 00001	$CSYMB	30-09-04.25N	089-32-08.00W	The charted submerged pile labeled Sign was not found during this survey, disproved by 200% SSS. Recommend removing the pile symbol and removing label Sign.
US 0000521382 00001	$CSYMB	30-09-58.74N	089-31-28.37W	The charted obstruction labeled Obstn was not found during this survey, disproved with 200% SSS. Recommend removing the Obstruction symbol and label

				Obstn.
US 0000521383 00001	$CSYMB	30-10-13.61N	089-34-08.48W	Regarding the charted piers on ENC US4MS10M: The charted pier from 30-10-13.88N 089-34-12.27W to 30-10-11.08N 089-34-06.28W was not found to extend this far from shore. Recommend changing the offshore end to 30-10-13.29N 089-34-10.84W based on side scan sonar coverage. The charted pier from 30-10-15.76N 089-34-04.89W was not found to extend this far from shore. Recommend changing the offshore end to 30-10-15.28N 089-34-10.11W based on side scan sonar coverage.
US 0000521386 00001	$CSYMB	30-10-47.47N	089-33-01.78W	Snag exposed (tree). Estimated height above MLLW datum of 2 meters. 3Std153a.TIF. This feature was submitted in Danger to Navigation Report #5. Chart 11371: Recommend updating the label from Srag to Snag.

D.2. ADDITIONAL RESULTS

D.2.1. Aids to Navigation

For notes regarding various Aids to Navigation, see Feature ID #'s US 0000521322 00001, US 0000521324 00001, US 0000521333 00001, US 0000521336 00001, US 0000521345 00001, and US 0000521365 00001 in the table above. AHB recommends deferring the charting disposition of these navigational aids to Marine Chart Division, Nautical Data Branch.

D.3. MISCELLANEOUS

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

D.4. ADEQUACY OF SURVEY

The present survey is adequate to supersede the charted bathymetry within the common area. Any features not specifically addressed either in the H-Cell BASE Cell File or the Bluenotes should be retained as charted. Refer to the Descriptive Report for further recommendations by the hydrographer.

APPROVAL SHEET
H11612

Initial Approvals:

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

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

Matthew J Wilson

Digitally signed by Matthew J Wilson
DN: cn=Matthew J Wilson, c=US, o=NOAA, ou=Atlantic Hydrographic Branch, email=matthew.wilson@noaa.gov
Date: 2008.10.15 09:02:12 -04'00'

Matthew J. Wilson
Physical Scientist
Atlantic Hydrographic Branch

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

Approved:

Jeffrey Ferguson
I am approving this document for CDR Shep Smith
2008.12.11 11:19:44 -05'00'

Shepard Smith
Commander, NOAA
Chief, Atlantic Hydrographic Branch

Mark Lathrop
AWOIS/Surf Check
2008.12.11
13:00:48 -05'00'