

H11671

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

DESCRIPTIVE REPORT

Type of Survey: Hydrographic Multibeam & 200% Sidescan

Field No. : Sheet C

Registry No. : H11671

LOCALITY

State: Louisiana

General Locality: Approaches to Vermillion Bay

Sublocality: Between Southwest Point and Lighthouse Point

2009 **2008**

CHIEFS OF PARTY
Scott Croft, Joseph Burke

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DATE: _____

H11671

HYDROGRAPHIC TITLE SHEET

FIELD NUMBER: Sheet C

State: Louisiana

General Locality: Approaches to Vermillion Bay

Locality: Between Southwest Point and Lighthouse Point

January 17 -- August 21 2008

Scale: 1:5,000 Date of Survey: August 2007 to August 2008

Instructions Dated: February 22, 2007 Project Number: OPR-K387-KR-07

Vessels: Captain Blake, C-Ghost, C-Wolf

Chiefs of Party: Scott Croft, Joseph Burke

Surveyed by: Jim Wade, Jessica Burke, Leslie Tomlinson, Esther Garatie, Scott Croft, J.W. Burke

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

Graphic record scaled by: N/A

Graphic record checked by: N/A

Protracted by: N/A Automated plot by: HP 1055 Plotter

Verification by: C&C Technologies Personnel

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

Remarks: Multibeam Hydrographic Survey of Sheet C

Data collection in meters, referenced to MLLW, later converted into feet

200% side scan sonar coverage

UTC time was used exclusively

Grab samples were taken

Tidal Zones: WLA 49, 50, 51, 52, 53, 54, 55

Tidal Station: 8768094 (Calcasieu Pass, LA), 8765251 (Cypremort Point, LA)

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APPENDICES

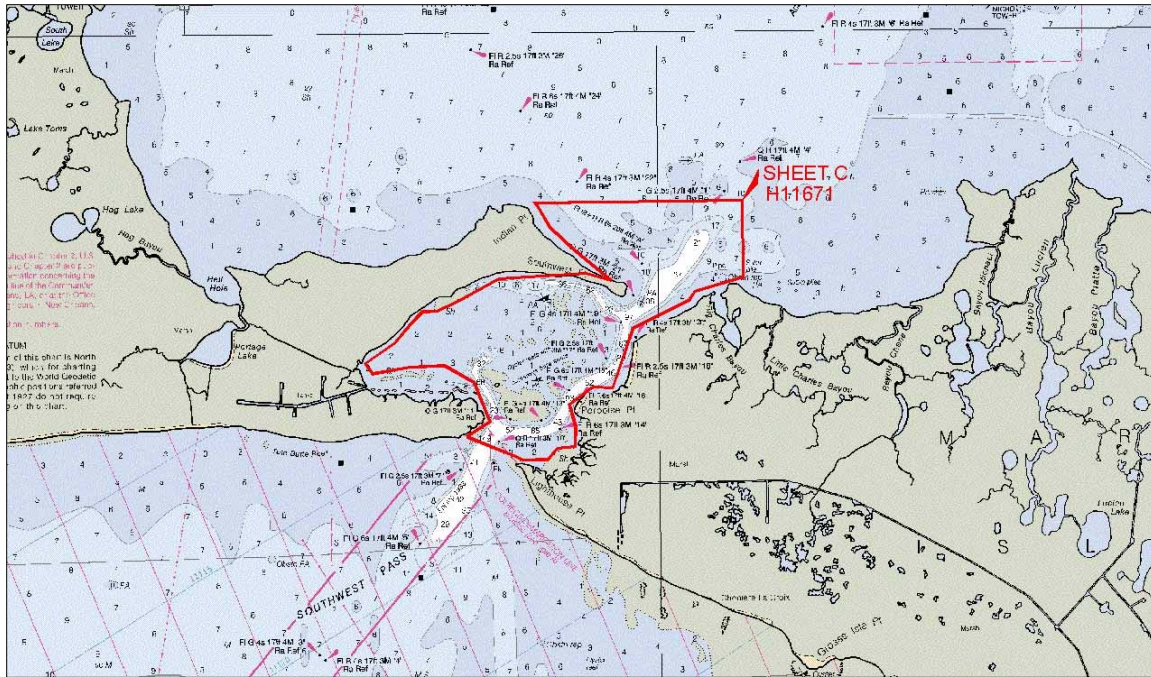
Appendix I	Danger to Navigation Reports
Appendix II	List of Geographic Names
Appendix III	Progress Sketch
Appendix IV	Tides and Water Levels
Appendix V	Supplemental Survey Records and Correspondence

SEPARATES

Separates I	Acquisition and Processing Logs
Separates II	Sonar Contact Table Side Scan Data Reproductions Correlator Sheets
Separates III	Sound Velocity Profile Data
Separates IV	Statement of Work
Separates V	Crossline Comparisons

A. AREA SURVEYED

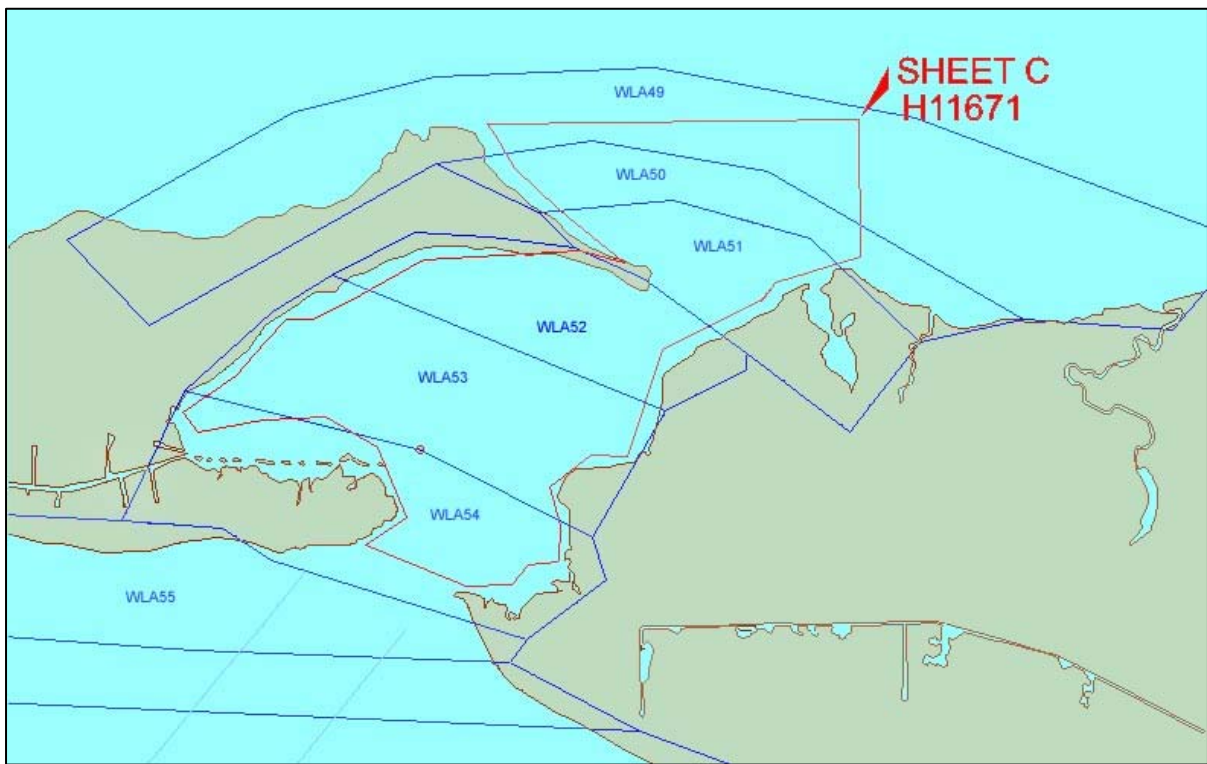
The survey area is located between Southwest Point and Lighthouse Point, Louisiana in between the Gulf of Mexico and Vermillion Bay. The following sketch shows the layout of Sheet C (H11671) of Project (OPR-K387-KR-07). There is a wide range of depths within the survey area. There are extensive mudflats and oyster reefs that are exposed at low tide, while the main channel reaches a maximum depth of 115 feet, Mean Lower Low Water (MLLW).



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Tidal zones WLA 49, WLA50, WLA51, WLA52, WLA53, and WLA54 split sheet C (H11671). Tidal data from the Calcasieu Pass tide station (8768094) and from the Cypremort Point, La tide station (8765251) was used to process all of the tidal data. The following sketch shows the layout of the tidal zones within sheet C (H11671).





B. DATA ACQUISITION AND PROCESSING

B.1 EQUIPMENT

System	Manufacturer	Model
Multibeam Sonar	Simrad	EM3002
Side Scan Sonar (small vessels)	Geo Acoustics	SS981
Single Beam Sonar	Echotrac	3200
Motion Sensor (small vessels)	CODA	F180
Primary Positioning System	CNAV	2050
Secondary Positioning System	CNAV	2050
Tertiary Positioning System	CODA	F180
Sound Speed at Transducer	Endeco	YSI
Sound Velocity Profiler	Seabird	SBE19

See Data Acquisition and Processing Report for a detailed description of the equipment used for hydrographic operations.

K387 DAPR is on file at AHB.

Two vessels were used to collect survey data for this sheet: the *M/V C-Ghost* and the *M/V C-Wolf*. Descriptions of these vessels are included in the DAPR submitted in conjunction with this report. ***Concur.***

The *M/V C-Ghost*, an 8.9-meter vessel, ~~conducted survey operations in subarea 2.~~ ~~The vessel is~~ 2.7 meters wide, with an approximate draft of .5 meters. A central reference point was established prior to the survey from which all relevant offsets were measured. Relevant offsets are presented in the following table where X is positive forward, Y is positive starboard, and Z is positive down.

	EM3002 Head	Side Scan Sonar Towpoint	Port F180 Antenna	Starboard F180 Antenna	F180 MRU
X Offset	-0.06 m	6.657 m	1.027 m	1.027 m	4.478 m
Y Offset	-1.470 m	0.0 m	-0.792 m	0.768 m	0.0 m



Z Offset	-0.730 m	-0.903	-2.519 m	-2.451 m	-0.648 m
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The *M/V C-Wolf*, an 8.9-meter vessel, ~~conducted survey operations in subareas 1, 2, and 3.~~ The vessel is 2.7 meters wide, with an approximate draft of .5 meters. A central reference point was established prior to the survey from which all relevant offsets were measured. Relevant offsets are presented in the following table where X is positive forward, Y is positive starboard, and Z is positive down.

	EM3002 Head	Side Scan Sonar Towpoint	Port F180 Antenna	Starboard F180 Antenna	F180 MRU
X Offset	-0.30 m	6.1 m	0.86 m	0.85 m	3.975 m
Y Offset	0.0 m	0.0 m	-0.75 m	0.735 m	0.0 m
Z Offset	0.570 m	-0.66 m	-2.530 m	-2.540 m	-0.07 m

Detailed vessel diagrams and patch test results are presented in the Data Acquisition and Processing Report.

B.2 QUALITY CONTROL

Line spacing varied within the survey area depending upon the water depths in order to meet the criteria of 200 percent side scan coverage, using Technique 1 as set forth in Section 6.1 of the “Specifications and Deliverables” document for the majority of the survey. Line spacing was 60 meters in the channel where the water depths ranged from 40-110 feet. Outside of the northern entrance to the Pass in Vermillion Bay, where depths are between 5 feet and 10 feet, line spacing was 40 meters. Line spacing was narrowed to 20 meters over the very shallow mudflat and oyster reef areas inside of the Pass. The side scan sonar was operated at a 25 to 75 meters per channel range depending upon the local line spacing. *Concur.*

The angular sector on the multibeam was set so that the criterion of two times water depth, as well as all accuracy, resolution, and detection criteria as set forth



in Sections 5.2 and 5.3 of the “Specifications and Deliverables” document, were met.

No cross lines were run in this sheet due to the complexity of the local geography. However, there was considerable overlap of data with the channel displaying the internal consistency of the multibeam hardware and software. In addition, all data was collected by the same vessels and during the same time frame as that of data collected for H11670 (Sheet B). Crossline comparisons calculated for Sheet B data showed good agreement, and verified the internal consistency of the multibeam.

Intersecting lines at 45° - 90° were checked. Comparison was adequate with differences of 1 – 2 ft.

Multibeam quality control procedures are outlined in Section B.1 of the accompanying Data Acquisition and Processing Report.

Sheet C (H11671) adjoins with Sheet B (H11670), which was submitted in February 2009.

B.3 CORRECTIONS TO ECHO SOUNDINGS

No deviations from the Correction to Echo Soundings section in the Data Acquisition and Processing Report occurred.

C. VERTICAL AND HORIZONTAL CONTROL

Tide and water level corrections were determined and applied in accordance with Attachment #7 of the Statement of Work. Data from Calcasieu Pass, LA (8768094) and Cypremort Point, LA (8765251) tidal stations were used. The statement of work dictates that tidal correctors from the Freshwater Locks gauge should be used as primary for the entirety of this work area. This gauge could not be used because of poor data quality. As a result, new

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zones relative to the Calcasieu Pass gauge were established and applied. Tidal zoning as set forth in the Statement of Work was applied. The following table shows the tidal zone and correctors that were used for this sheet. Tidal data were processed using the 1983-01 epoch.

Tide Zone	Reference Station	Time Corrector (min)	Range Ratio
WLA49	8765251	-126	1.06
WLA50	8765251	-132	1.06
WLA51	8765251	-84	1.09
WLA53	8768094	72	0.97
WLA54	8768094	54	1.00
WLA52	8768094	84	0.97
WLA55	8768094	36	0.97

A subordinate station (8765551) was installed in Southwest Pass on the red navigation marker #16, at 29°35'25.681"N, 92°01'06.618"W. Tidal data was collected from July 11, 2007 through August 11, 2008. None of the data collected by this gauge was applied to the survey soundings. *Concur.*





The horizontal datum for the survey is the North American Datum of 1983 (NAD 83). The projection is Universal Transverse Mercator (UTM) Zone 15 North. The vertical datum for the soundings is Mean Lower Low Water (MLLW). *Concur.*

D. RESULTS AND RECOMMENDATIONS

D.1 CHART COMPARISON

D.1.1 CHARTS AND NOTICES TO MARINERS

The following charts were used for comparison purposes.

Chart Number	Scale	Edition	Edition Date
11340	1:458,596	71	Sept 06
11345	1:175,000	33	Jan 06
11349	1:80,000	42	Jan 06

The Local Notices to Mariners were reviewed beginning with Notice 36/07 dated September 5, 2007 through Notice Number 35/08 dated August 27, 2008. During that time, there were no notice to mariners were issued for the charted area within the survey bounds.

D.1.2 CHARTED SOUNDINGS

11340

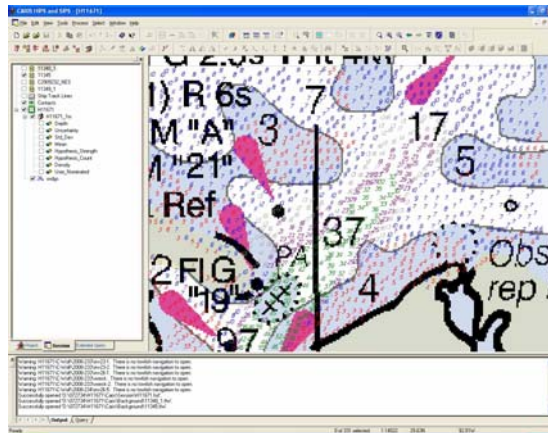
There are no charted soundings in chart 11340. *Concur.*

11345

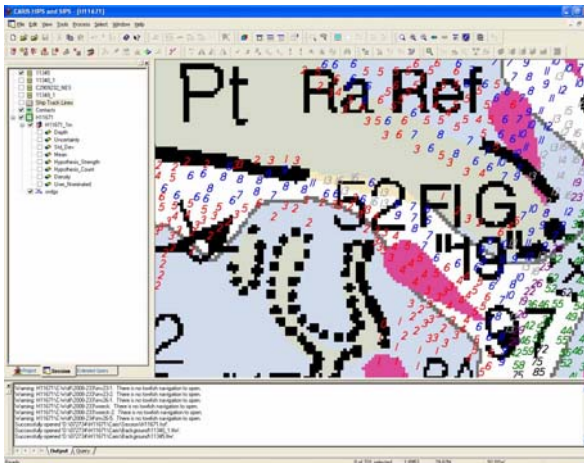
In general, survey soundings are consistent with the charted soundings.

The shape of the 6-foot contour shoals found in Vermillion Bay have changed.

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There are discrepancies found in the two side channels inside the Southwest Pass, which extend to the west from the main channel. Both have shoaled.



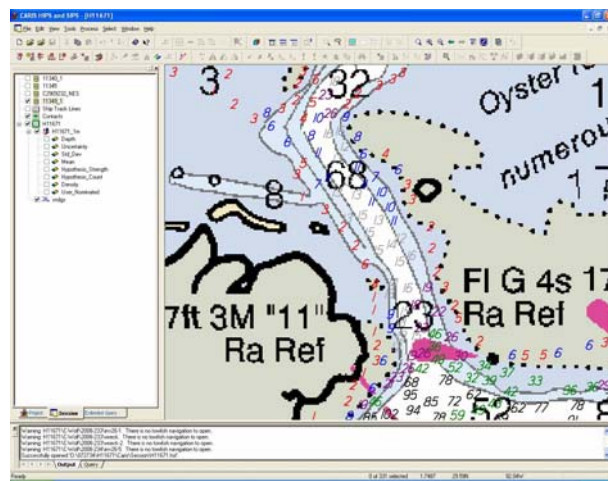
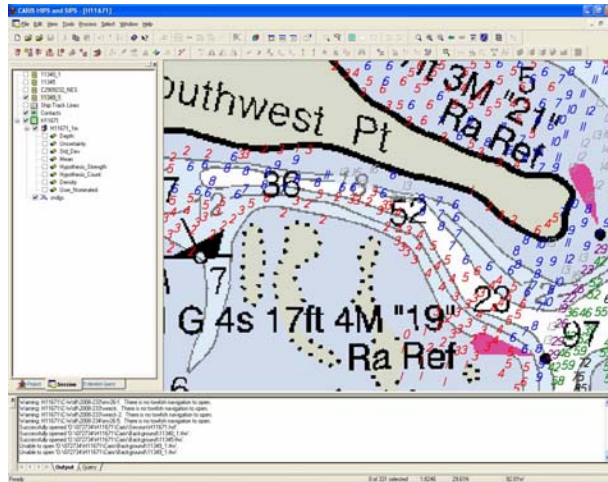
Concur with above remarks concerning shifting shoals.

11349

In general, survey soundings are consistent with the charted soundings.

Do not concur due to examples given below.

There are discrepancies found in the two side channels inside the Southwest Pass, which extend to the west from the main channel. Both have shoaled.



D.1.3 SHOALS AND HAZARDOUS FEATURES

There are two uncharted visible wrecks within the survey area. The first wreck is located along the shoreline of Marsh Island in Vermillion Bay at 29°36'43.925"N, 91°59'17.663"W. This wreck is exposed approximately 4 feet at MHW. This wreck was not considered dangerous because of its proximity to the shoreline. Its charted position on chart 11349 falls on the land. The following image displays this wreck. *Do not concur. Chart visible wreck at surveyed position. S-57 updated to include SORIND, SORDAT. Height value given negative sign.*



The second uncharted visible wreck is at the tip of currently charted oyster reefs at 29°36'46.490"N, 92°01'01.874"W. This wreck lies in water that is approximately 0 – 3 feet deep, and is exposed approximately 1 foot at MHW. The following images display the visible portion of the wreck, and the side scan data collected of the wreck at high tide. *Concur with clarification. Chart visible wreck at surveyed position. S-57 attributes updated.*



During survey operations three navigationally significant submerged contacts were found and investigated. They are discussed in detail in section D.1.5.

D.1.4 AWOIS ITEMS

FULL INVESTIGATIONS

The following eight charted AWOIS Items are located within the survey bounds, and were assigned for full investigation. Positions listed below are LAT83, LONG83.

AWOIS 13928

Description: Unknown

Charted Position: 29°35'42"N, 92°01'42"W

Search Radius: 400 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS



Investigation Summary: This item was first reported as a visible wreck PA in CL898, 6/15/85. It is charted as a visible wreck. The location of this wreck was visually examined from a distance and no evidence of the wreck could be seen above the water line. This survey could not confirm or disprove the existence of this wreck as no data was collected within the search radius due to shallow water depths and oyster reefs. It is recommended that this feature be recharted as a submerged wreck. ***Do not concur. Do not know what stage of tide the observation was made. Retain as charted.***

AWOIS 13929

Description: Unknown

Charted Position: 29°26' **36'**04.77"N, 92°00'33.44"W

Search Radius: 400 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: This item was first reported as a sunken 75' lift boat in LNM32/79. It is charted as a submerged wreck. No evidence of this wreck was found during the survey. It is recommended that this feature be removed from the chart, and the chart be updated with the current survey. ***Concur with clarification. Position of AWOIS item is in the deepwater channel. No evidence of item was found. The entire search radius could not be performed due to the extreme shallow conditions outside of the channel. Recommend dangerous submerged wreck depth unknown "PA" be removed from chart.***

AWOIS 13930

Description: Unknown

Charted Position: 29°36'40.00"N, 92°00'14.0"W

Search Radius: 400 meters



Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: This item was first reported as dangerous wreck PA in LNM44/88. It is described as a 55' fishing vessel, and is charted as a submerged wreck. No evidence of this wreck was found during the survey. It is recommended that this feature be removed from the chart, and the chart be updated with the current survey. *Concur.*

AWOIS 13931

Description: Obstruction

Charted Position: 29°37'00.0"N, 91°59'12.0"W

Search Radius: 200 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: This item was first reported as butterfly trawl rigging consisting of 1.5" steel pipe in LNM31/85. It is charted as an exposed pipe. No evidence of this obstruction was found during the survey. It is recommended that this feature be removed from the chart, and the chart be updated with the current survey. *Concur. Remove "Pipe" from chart.*

AWOIS 13932

Description: Obstruction

Charted Position: 29°37'05.52"N, 91°58'46.92"W

Search Radius: 0 meter

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: This item was first reported as four missing charted markers by the USPS in CL898, 06/15/85. It is charted as a submerged pile. No evidence of these piles was found during the survey. It is recommended



that this feature be removed from the chart, and the chart be updated with the current survey. ***Concur. Remove pile "Subm pile" from chart.***

AWOIS 13946

Description: Obstruction

Charted Position: 29°36'57"N, 91°59'06"W

Search Radius: 500 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: This item was first appeared on the 19th edition of chart 11349, on 8/14/1975. It is charted as n Obstn rep PA. No evidence of this obstruction was found during the survey. It is recommended that this feature be removed from the chart, and the chart be updated with the current survey.

Concur.

AWOIS 13947

Description: Unknown

Charted Position: ~~29°36'42"N, 92°01'36"W~~ ***29°36'41.69"N, 092°01'37.20"W***

Search Radius: 100 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: This item was first reported as an Unknown wreck in LNM51/85. It is charted as a visible wreck. No evidence of this wreck was found during the survey. The location of this wreck was visually inspected, and no evidence of the wreck could be seen above the waterline. This survey could not confirm or disprove the existence of this wreck as data could not be collected throughout the entire search radius due to shallow water depths and oyster reefs. It is recommended that this feature be recharted as a submerged



wreck. ***Do not concur. Do not know what stage of tide the observation was made. Retain as charted.***

AWOIS 13950

Description: Obstruction

Charted Position: 29°34'41.77"N, 92°02'21.45"W

Search Radius: 200 meters

Investigation Method: 200% Side Scan Sonar, Multibeam Echosounder

Position Determined By: Differential GPS

Investigation Summary: This item is charted as a submerged rock. Its position lies on the border between this survey and its adjoining survey, H11670. This item was fully discussed as a part of H11670, and a least depth was submitted as a designated sounding in the H11670 caris project. The recommendation given for this item in the H11670 Descriptive Report was:

*There are multiple rocks in the immediate vicinity of this contact. It is recommended that this contact be charted as a 3 foot obstruction at 29° 34' 41.732" N, 92° 02' 21.227" W (WGS84), and the RK symbol be updated to reflect the existence of multiple rocks. ***Concur with clarification. Data submitted with H11671 does not cover the entire charted Rk. Sister survey H11670 does. Defer to H11670 Descriptive Report for charting recommendations.****

D.1.5 INVESTIGATION ITEMS

Additional investigation work was performed for four significant sonar contacts. A set of two to six additional multibeam and side scan lines were run over each of these targets. After investigation, the following three items were determined to be significant to navigation, and have been recommended for charting.

Item 1

Least Depth: 4.731ft

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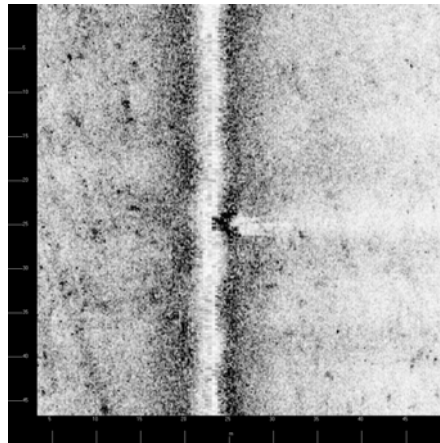
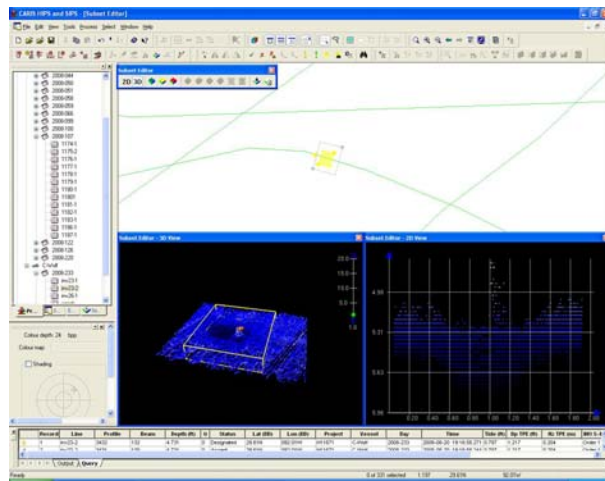


Multibeam Line: INV23-2

Position: 29° 36' 33.152" N, 92° 00' 47.576" W (WGS84)

Time Stamp: 2008-08-20 19:16:58.271

Hydrographer's recommendations: This contact has been marked as a designated sounding within the H11671 Caris project submitted in conjunction with this report. It is recommended that this contact be charted as a 5-foot submerged obstruction at 29° 36' 33.152" N, 92° 00' 47.576" W (WGS84).



Do not concur. Current surrounding depths in this area have changed drastically from the chart and are in the 4-ft range. Chart current surveyed soundings.

Item 2

Least Depth: 10.098ft

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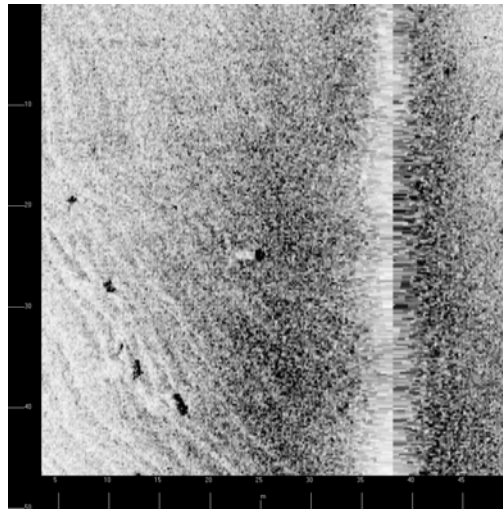
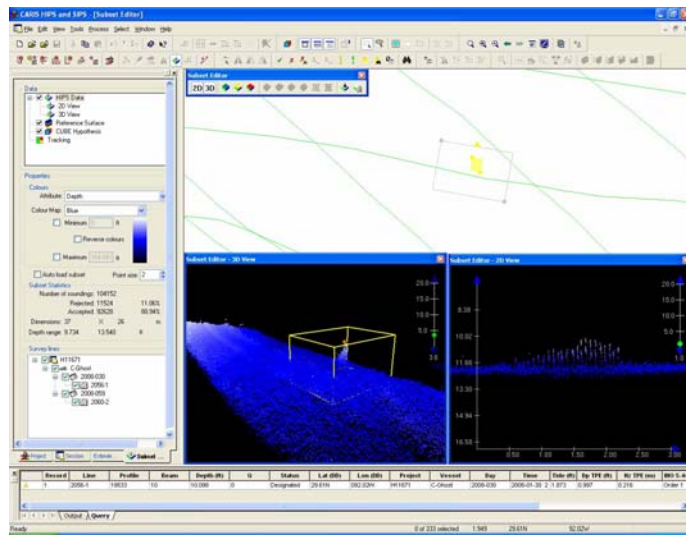


Multibeam Line: 2056-1

Position: 29° 36' 48.982" N, 92° 00' 57.334" W (WGS84)

Time Stamp: 2008-01-30 22:50:14.780

Hydrographer's recommendations: This contact has been marked as a designated sounding within the H11671 Caris project submitted in conjunction with this report. It is recommended that this contact be charted as a 10-foot submerged obstruction at 29° 36' 48.982" N, 92° 00' 57.334" W (WGS84).



***Do not concur. Current surveyed soundings preclude item's significance.
Chart current soundings.***

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Item 3

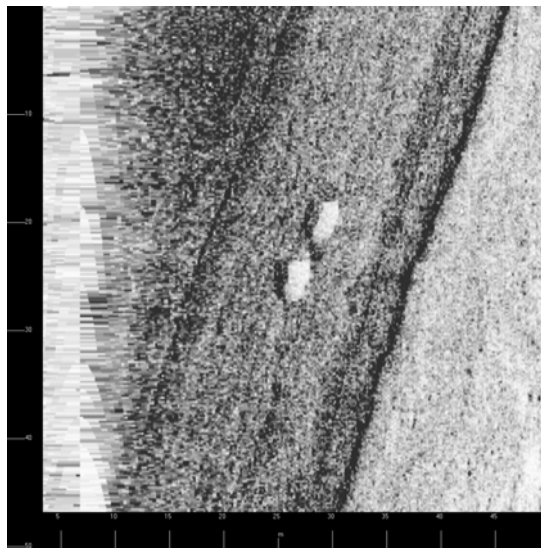
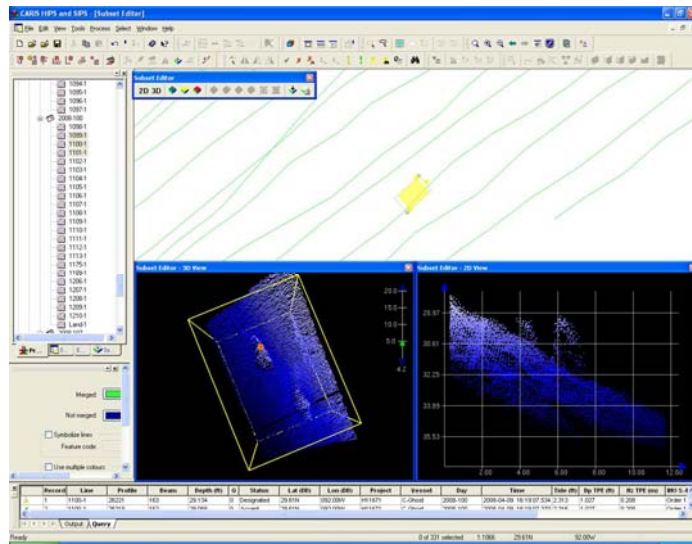
Least Depth: 29.134ft

Multibeam Line: 1100-1

Position: 29° 36' 23.392" N, 92° 00' 12.719" W (WGS84)

Time Stamp: 2008-04-09 16:19:07.534

Hydrographer's recommendations: This contact has been marked as a designated sounding within the H11671 Caris project submitted in conjunction with this report. It is recommended that this contact be charted as a 29-foot submerged obstruction at 29° 36' 23.392" N, 92° 00' 12.719" W (WGS84).





Do not concur. Shoaler depths in the vicinity of this item precludes it's significance. Chart current soundings.

D.1.6 DANGER TO NAVIGATION REPORTS

No Danger to Navigation Reports were issued. *Do not concur. See Evaluation Report for Branch-submitted DtoNs.*

D.2 ADDITIONAL RESULTS

D.2.1 PRIOR SURVEYS

Comparison with prior surveys was not required under this Task Order. See Section D.1 for comparison to nautical charts. *Concur.*

D.2.2 AIDS TO NAVIGATION

The following Aids to Navigation where found as charted.

Charted Position		
Latitude	Longitude	Name
29°37'08.617"N	92°00'14.442"W	Red A
29°36'44.804"N	92°00'21.672"W	Green 21
29°36'24.891"N	92°00'32.014"W	Green 19
29°36'12.973"N	29°36'12.973"N	Red 20
29°35'58.163"N	92°00'44.536"W	Green 17
29°35'50.839"N	92°00'33.841"W	Red 18
29°35'35.010"N	92°01'16.388"W	Green 15
29°35'25.681"N	92°01'06.618"W	Red 16
29°35'05.947"N	92°01'25.000"W	Red 14
29°35'13.295"N	92°02'06.305"W	Green 11
29°34'56.692"N	92°02'16.493"W	Red 10

Concur. Retain as charted.

The following charted channel marker was not present at the time of the survey.

Charted Position		
Latitude	Longitude	Name
29°35'12.172"N	92°01'40.256"W	Green 13

D.2.3 EXISTING INFRASTRUCTURE

There are no charted structures within this survey area.

There are two large storage tank structures, standing on piles, found in the following locations that are currently uncharted. ***Concur.***

Survey Position	
Latitude	Longitude
29°35'43.497"N	92°02'58.546"W
29°35'43.219"N	92°02'56.994"W



There are twenty-one piles surrounding a barge terminal area.

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Survey Position	
Latitude	Longitude
29°35'43.575"N	92°02'59.822"W
29°35'43.708"N	92°03'00.401"W
29°35'43.820"N	92°03'01.006"W
29°35'43.938"N	92°03'01.626"W
29°35'44.046"N	92°03'02.155"W
29°35'44.147"N	92°03'02.670"W
29°35'44.270"N	92°03'03.336"W
29°35'44.370"N	92°03'03.879"W
29°35'44.471"N	92°03'04.646"W
29°35'43.953"N	92°03'04.650"W
29°35'43.459"N	92°03'04.676"W
29°35'43.067"N	92°03'04.650"W
29°35'42.516"N	92°03'04.686"W
29°35'42.444"N	92°03'04.077"W
29°35'42.376"N	92°03'03.494"W
29°35'42.318"N	92°03'02.950"W
29°35'42.221"N	92°03'02.400"W
29°35'42.149"N	92°03'01.734"W
29°35'42.009"N	92°03'01.111"W
29°35'41.912"N	92°03'00.401"W
29°35'41.421"N	92°02'58.973"W

Concur.



D.2.4 OTHER PERTINENT INFORMATION

Due to shallow water depths and oyster reefs, data could not be collected in two large sections of the survey area. The first section in the center of the survey area, where a complex system of oyster reefs makes navigation hazardous, and survey operations extremely difficult. The second area is on the western side of the survey area inside of the Pass. This area is a large mudflat, and shallow waters prevented safe navigation. *Concur.*

A 2005 aerial photo has been included in the caris project that displays the extent of visible oyster reef. *Concur.*

Several tide zone files were created by CO-OPS to be used for tidal correction of multibeam data collected for this survey. The initial tidal zone files were not used due to the failure of the gauge at the Freshwater Bayou locks (8766072). A new zone file was created that uses the Calcasieu tide gauge (876094) as the primary source for tidal correctors. The final and correct file was named K378KR2007RevCORP.zdf, and is included in the Caris projects submitted in conjunction with this report. *Concur.*

Draft corrections are verified on a daily basis, and entered into the multibeam collection software to be applied in real-time. An incorrect draft value was entered on the C-Wolf between the days of 2008-130 and 2008-193. This error was corrected using the C-Wolf Caris vessel file. *Concur.*

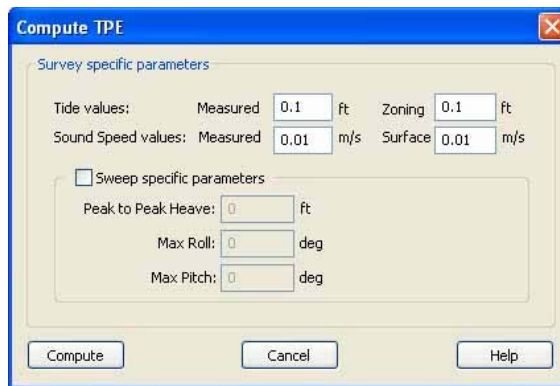
The BASE surface for this survey area was created with 1-meter resolution. *Concur.*



All of the side scan data collected for this project has been layback corrected. Data should be imported into Caris using fish position and zero layback correction. **Raw files submitted as .xtf.**

S57 feature files have been submitted in a Caris Notebook project. This project is named Caris Notebook. **Concur. Additional mandatory attributes were entered by the reviewer and an updated .hob file is included in the compile working directory.**

All TPE values were calculated using the following settings.



This report and data were returned to C&C Technologies following their original submission in order to correct inaccurate TPE vessel offset values in the C-Ghost and C-Wolf vessel files. All data has been remerged, TPE was recalculated, and BASE surfaces recomputed. Vessel offsets were also corrected in section B.1 of this report. **Concur.**



LETTER OF APPROVAL

REGISTRY NUMBER H11671

This report and the accompanying smooth sheet are respectfully submitted.

Field operations contributing to the accomplishment of the survey H11671 were conducted under my direct supervision with frequent personal checks of progress and adequacy. This report and CARIS project have been closely reviewed and are considered complete and adequate as per the Statement of Work.

This report is accompanied by the Data Acquisition and Processing Report for project OPR-K387-KR-07.

Joseph Burke
Chief of Party
C&C Technologies
April 2009



APPENDIX I

DANGER TO NAVIGATION REPORTS

H11671 AHB Submitted Dangers to Navigation

Registry Number: H11671
State: Louisiana
Locality: Approaches to Vermilion Bay
Sub-locality: Between Southwest Pt and Lighthouse Pt
Project Number: OPR-K387-KR-07
Survey Dates: 01/18/2008 - 08/07/2008

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11349	43rd	05/01/2007	1:80,000 (11349_1)	USCG LNM: 07/07/2009 (07/07/2009) NGA NTM: 02/01/2003 (07/11/2009)
11345	34th	04/01/2008	1:175,000 (11345_1)	[L]NTM: ?
11340	73rd	08/01/2008	1:458,596 (11340_1)	[L]NTM: ?
1116A	73rd	08/01/2008	1:458,596 (1116A_1)	[L]NTM: ?
411	52nd	09/01/2007	1:2,160,000 (411_1)	[L]NTM: ?

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

Features

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude
1.1	12-ft sounding on a charted 68 -- DtoN#1	Shoal	3.65 m	29° 35' 40.9" N	092° 02' 31.8" W
1.2	14-ft sounding on a charted 23 -- DtoN#2	Shoal	4.29 m	29° 35' 19.2" N	092° 02' 20.8" W
1.3	3-ft sounding on a charted 52 -- DtoN#3	Shoal	0.91 m	29° 36' 49.5" N	092° 01' 01.3" W
1.4	3-ft sounding on a charted 23 -- DtoN#4	Shoal	1.09 m	29° 36' 32.9" N	092° 00' 42.4" W
1.5	39-ft sounding on a charted 97 -- DtoN#5	Shoal	11.97 m	29° 36' 29.2" N	092° 00' 23.4" W

1 - Danger To Navigation

1.1) 12-ft sounding on a charted 68 -- DtoN#1

DANGER TO NAVIGATION

Survey Summary

Survey Position: 29° 35' 40.9" N, 092° 02' 31.8" W
Least Depth: 3.65 m (= 11.99 ft = 1.998 fm = 1 fm 5.99 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 0.207 m ; **TVU (TPEv)** ± 0.299 m
Timestamp: 2008-018.16:52:03.801 (01/18/2008)
Survey Line: h11671 / c-ghost / 2008-018 / 2047-2
Profile/Beam: 10984/159
Charts Affected: 11349_1, 11345_1, 1116A_1, 11340_1, 411_1

Remarks:

This channel has shoaled over completely. The current charted sounding of 68 no longer exists. Soundings in area are 12 ft with final tides applied.

Hydrographer Recommendations

Cartographically-Rounded Depth (Affected Charts):

12ft (11349_1, 11345_1)

2fm (1116A_1, 11340_1, 411_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: EXPSOU - 1:within the range of depth of the surrounding depth area
INFORM - 12-ft sounding on a charted 68
OBJNAM - DtoN#1
QUASOU - 6:least depth known
SORDAT - 20080821
SORIND - US,US,nsurf,H11671
TECSOU - 3:found by multi-beam

Office Notes

This sounding is being sent as a DtoN. It is recommended that this west channel spur be closed off.

Feature Images

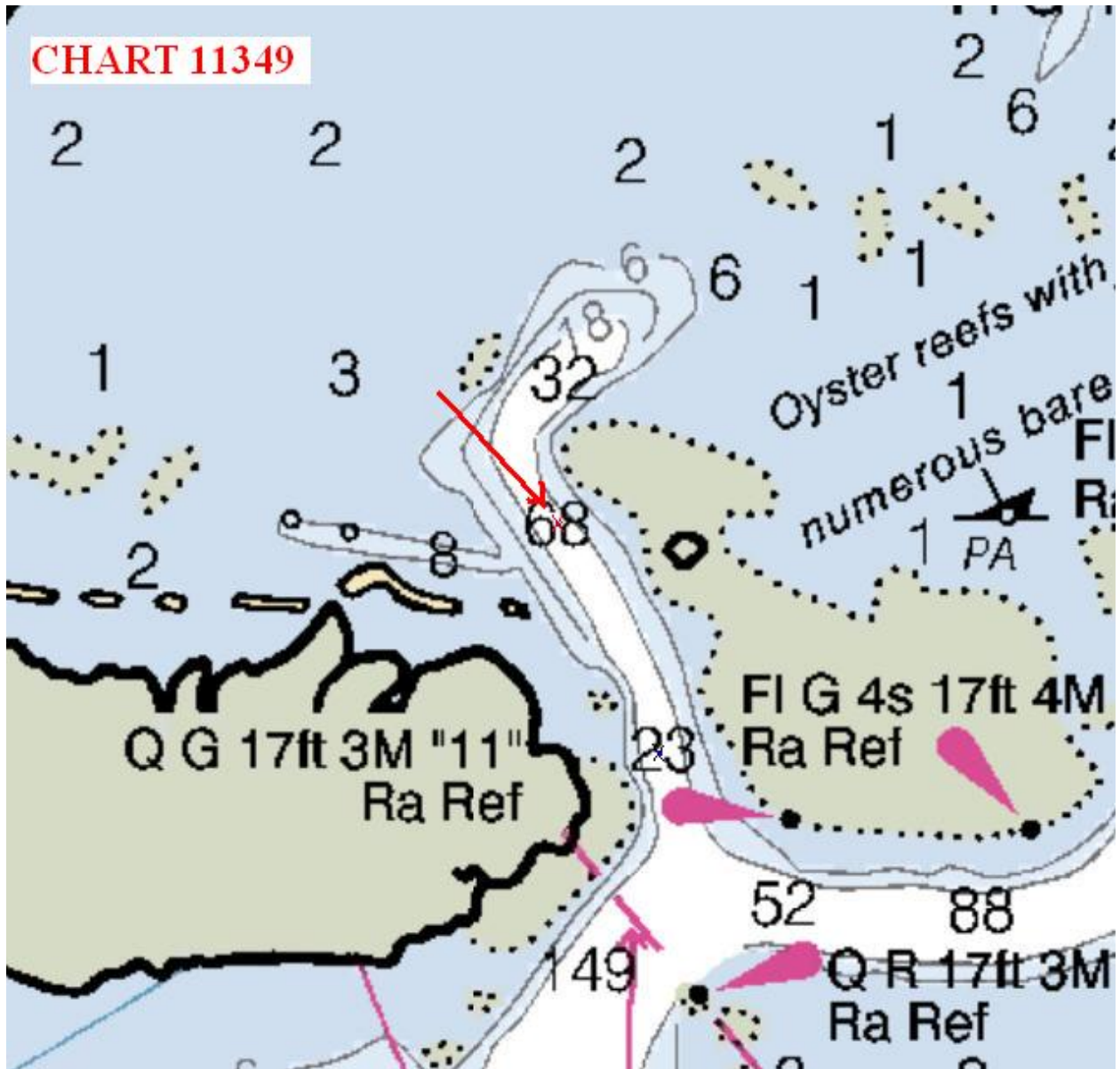


Figure 1.1.1

1.2) 14-ft sounding on a charted 23 -- DtoN#2

DANGER TO NAVIGATION

Survey Summary

Survey Position: 29° 35' 19.2" N, 092° 02' 20.8" W
Least Depth: 4.29 m (= 14.07 ft = 2.346 fm = 2 fm 2.07 ft)
TPU ($\pm 1.96\sigma$): THU (TPEh) ± 0.207 m ; TVU (TPEv) ± 0.300 m
Timestamp: 2008-018.16:58:19.605 (01/18/2008)
Survey Line: h11671 / c-ghost / 2008-018 / 2047-2
Profile/Beam: 25554/159
Charts Affected: 11349_1, 11345_1, 1116A_1, 11340_1, 411_1

Remarks:

This channel has shoaled over completely. The current charted sounding of 23 no longer exists. Soundings in area are 14 ft with final tides applied.

Hydrographer Recommendations

Cartographically-Rounded Depth (Affected Charts):

14ft (11349_1, 11345_1)

2 ¼fm (1116A_1, 11340_1, 411_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: EXPSOU - 1:within the range of depth of the surrounding depth area
 INFORM - 14-ft sounding on a charted 23
 OBJNAM - DtoN#2
 QUASOU - 6:least depth known
 SORDAT - 20080821
 SORIND - US,US,nsurf,H11671
 TECSOU - 3:found by multi-beam

Office Notes

This sounding is being sent as a DtoN. It is recommended that this west channel spur be closed off.

Feature Images

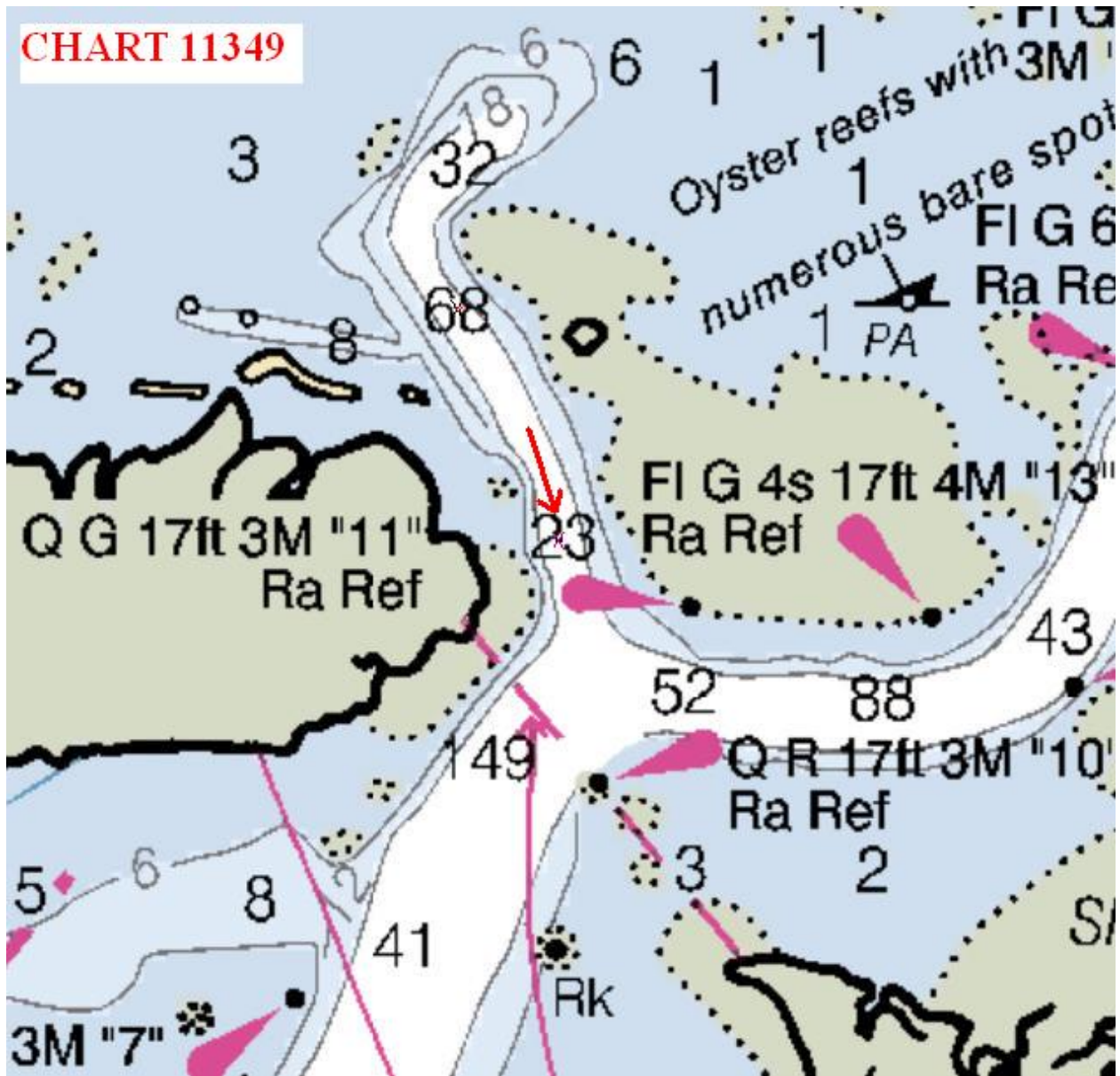


Figure 1.2.1

1.3) 3-ft sounding on a charted 52 -- DtoN#3

DANGER TO NAVIGATION

Survey Summary

Survey Position: 29° 36' 49.5" N, 092° 01' 01.3" W
Least Depth: 0.91 m (= 2.98 ft = 0.497 fm = 0 fm 2.98 ft)
TPU ($\pm 1.96\sigma$): THU (TPEh) ± 0.204 m ; TVU (TPEv) ± 0.297 m
Timestamp: 2008-030.22:49:35.963 (01/30/2008)
Survey Line: h11671 / c-ghost / 2008-030 / 2056-1
Profile/Beam: 18117/127
Charts Affected: 11349_1, 11345_1, 1116A_1, 11340_1, 411_1

Remarks:

This channel has shoaled over completely. The current charted sounding of 52 no longer exists. Soundings in area are 3 ft with final tides applied.

Hydrographer Recommendations

Cartographically-Rounded Depth (Affected Charts):

3ft (11349_1, 11345_1)

0 ½fm (1116A_1, 11340_1, 411_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: EXPSOU - 1:within the range of depth of the surrounding depth area
 INFORM - 3-ft sounding on a charted 52
 OBJNAM - DtoN#3
 QUASOU - 6:least depth known
 SORDAT - 20080821
 SORIND - US,US,nsurf,H11671
 TECSOU - 3:found by multi-beam

Office Notes

This sounding is being sent as a DtoN. It is recommended that this west channel spur be closed off.

1.4) 3-ft sounding on a charted 23 -- DtoN#4

DANGER TO NAVIGATION

Survey Summary

Survey Position: 29° 36' 32.9" N, 092° 00' 42.4" W
Least Depth: 1.09 m (= 3.58 ft = 0.597 fm = 0 fm 3.58 ft)
TPU ($\pm 1.96\sigma$): THU (TPEh) ± 0.201 m ; TVU (TPEv) ± 0.300 m
Timestamp: 2008-107.19:57:35.153 (04/16/2008)
Survey Line: h11671 / c-ghost / 2008-107 / 1182-1
Profile/Beam: 7076/105
Charts Affected: 11349_1, 11345_1, 1116A_1, 11340_1, 411_1

Remarks:

This channel has shoaled over completely. The current charted sounding of 23 no longer exists. Soundings in area are 3 ft with final tides applied.

Hydrographer Recommendations

Cartographically-Rounded Depth (Affected Charts):

3ft (11349_1, 11345_1)

0 ½fm (1116A_1, 11340_1, 411_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: EXPSOU - 1:within the range of depth of the surrounding depth area
 INFORM - 3-ft sounding on a charted 23
 OBJNAM - DtoN#4
 QUASOU - 6:least depth known
 SORDAT - 20080821
 SORIND - US,US,nsurf,H11671
 TECSOU - 3:found by multi-beam

Office Notes

This sounding is being sent as a DtoN. It is recommended that this west channel spur be closed off.

Feature Images

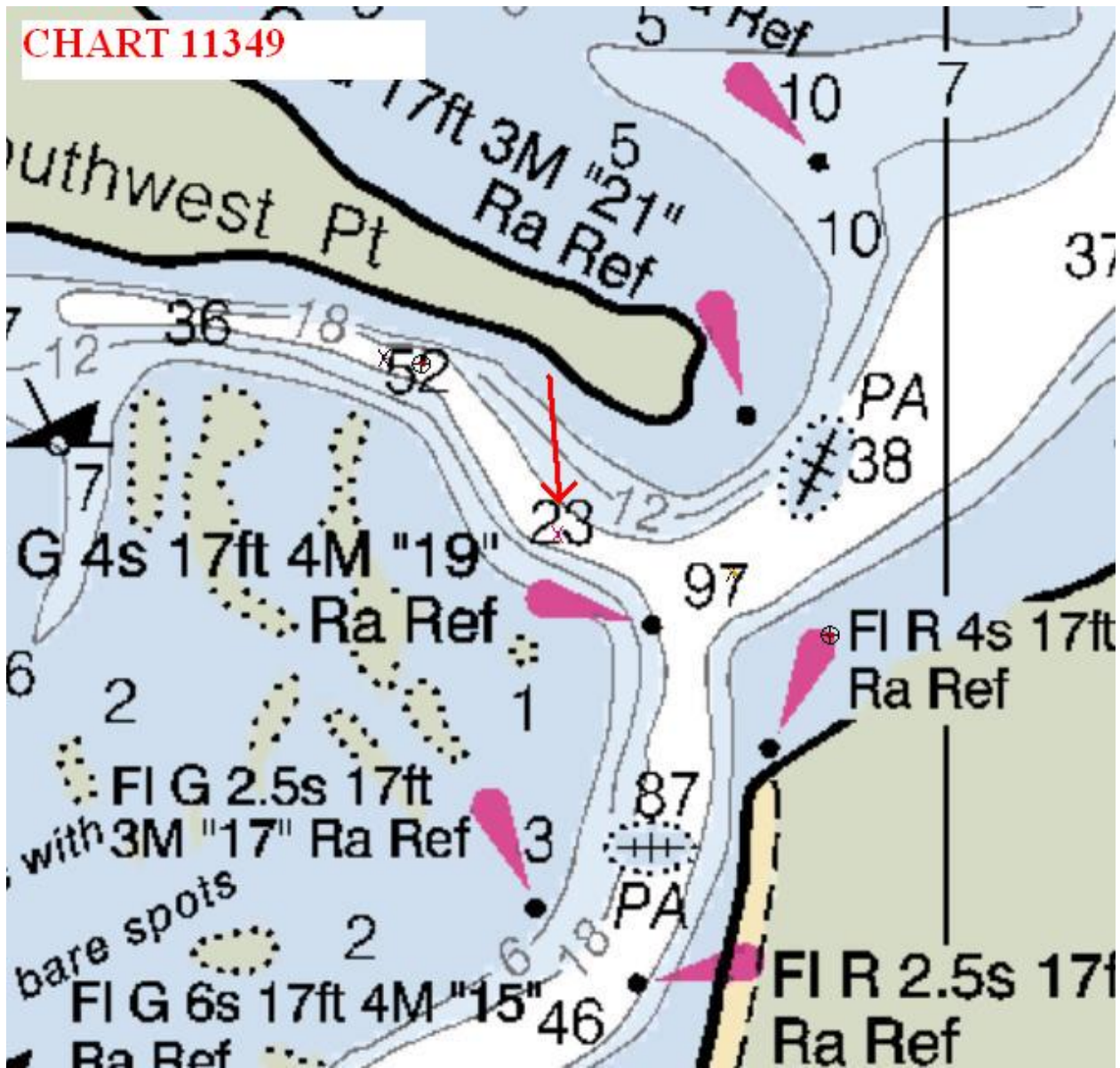


Figure 1.4.1

1.5) 39-ft sounding on a charted 97 -- DtoN#5

DANGER TO NAVIGATION

Survey Summary

Survey Position: 29° 36' 29.2" N, 092° 00' 23.4" W
Least Depth: 11.97 m (= 39.27 ft = 6.545 fm = 6 fm 3.27 ft)
TPU ($\pm 1.96\sigma$): THU (TPEh) ± 0.211 m ; TVU (TPEv) ± 0.302 m
Timestamp: 2008-220.18:17:16.395 (08/07/2008)
Survey Line: h11671 / c-ghost / 2008-220 / 2006r-1
Profile/Beam: 12791/194
Charts Affected: 11349_1, 11345_1, 1116A_1, 11340_1, 411_1

Remarks:

A 39-ft sounding (final tides applied) with surrounding soundings of 39-41 feet were found on the charted 97. Significant shoaling has occurred, especially into the western spur.

Hydrographer Recommendations

Cartographically-Rounded Depth (Affected Charts):

39ft (11349_1, 11345_1)

6 ½fm (1116A_1, 11340_1, 411_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Attributes: EXPSOU - 1:within the range of depth of the surrounding depth area
 INFORM - 39-ft sounding on a charted 97
 OBJNAM - DtoN#5
 QUASOU - 6:least depth known
 SORDAT - 20080821
 SORIND - US,US,nsurf,H11671
 TECSOU - 3:found by multi-beam

Office Notes

This sounding is being sent as a DtoN. Depths corrected with final tides show the vicinity of charted 97 ft to be 39 - 41 ft.

Feature Images

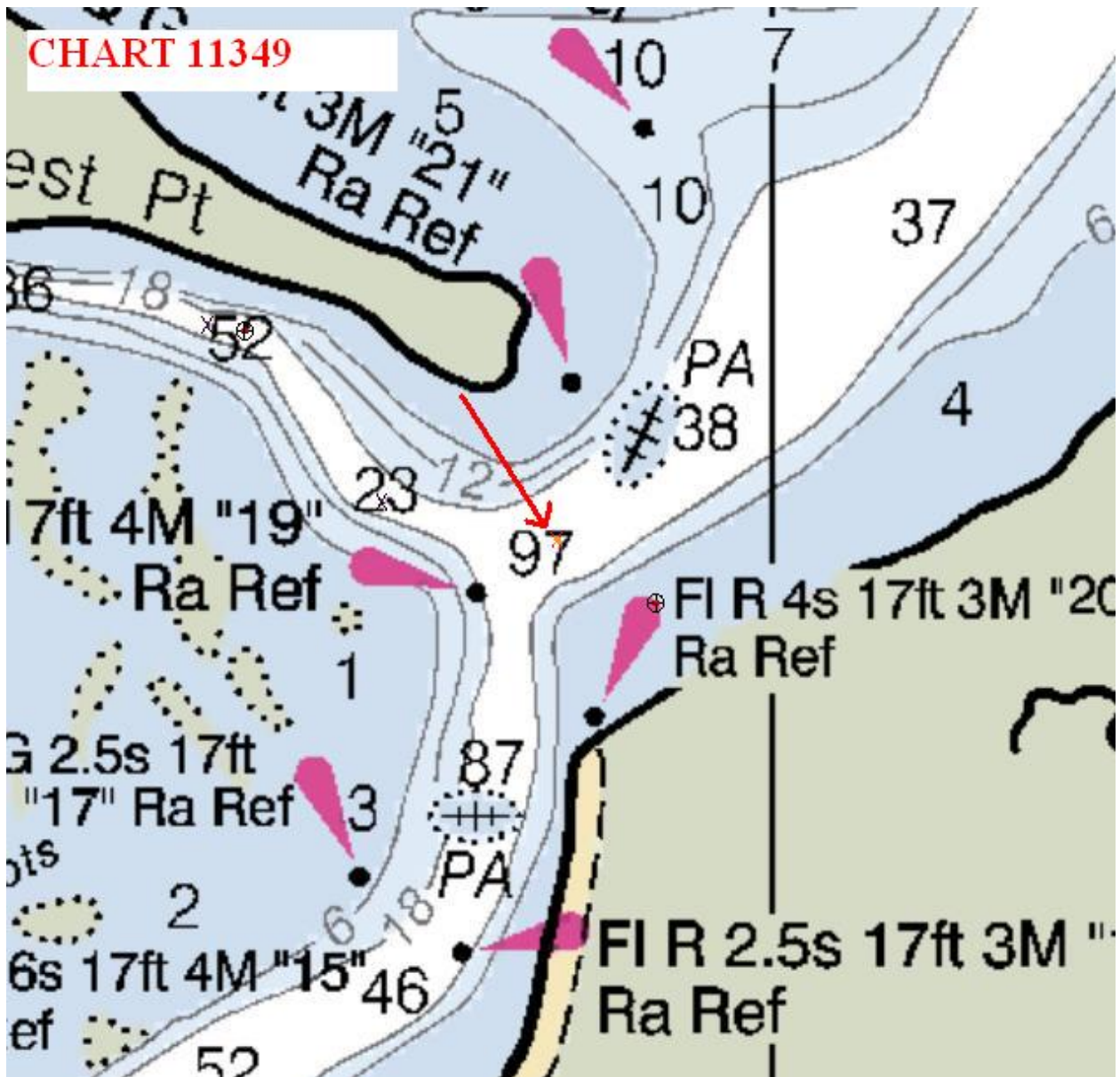


Figure 1.5.1



APPENDIX II

LIST OF GEOGRAPHIC NAMES

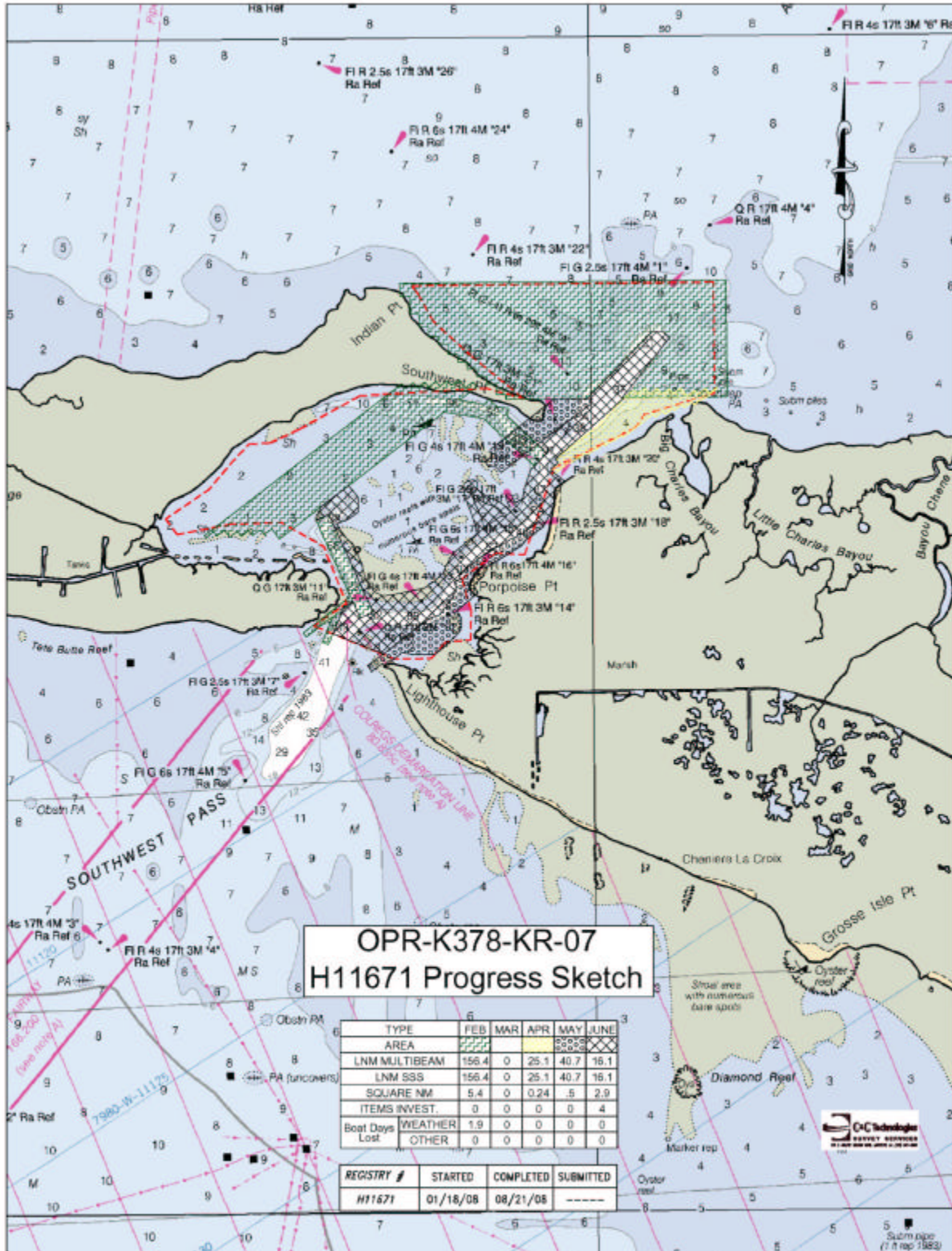


No new geographic names were found within the survey area. No corrections to the currently charted geographic names within the survey area are needed.



APPENDIX III

PROGRESS SKETCH





APPENDIX IV

TIDES AND WATER LEVELS

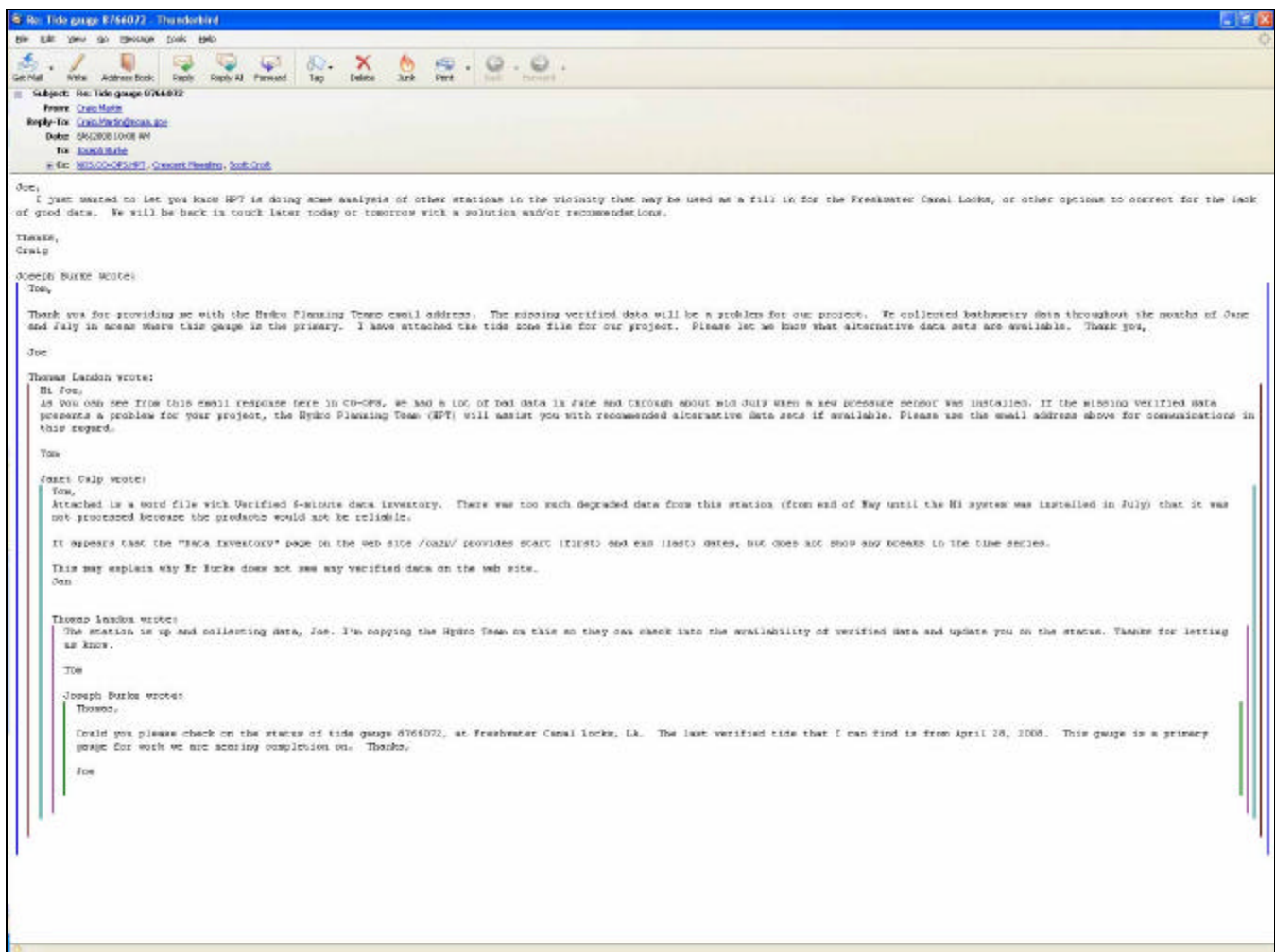
Descriptive Report to Accompany Hydrographic Survey H11671



The tidal data applied to all single beam echosounder data was downloaded from the following website:

http://tidesandcurrents.noaa.gov/data_menu.shtml?stn=8768094%20Calcasieu%20Pass,%20LA&type=Historic%20Tide%20Data

The following images display a series of emails outlining the request and receipt of new tidal zoning for project OPR-K387-KR-07.



Descriptive Report to Accompany Hydrographic Survey H11671



Thunderbird 6

File Edit View Go Message Tools Help

Get Mail Write Address Book Reply Reply All Forward Tag Delete Junk Print Lock Forward

Subject: [Fwd: Revised Zoning for OPR-E378-ER-2007]

From: [Craig Moore](#)

Reply-To: Craig.Moore@noaa.gov

Date: 01/13/2008 12:04 PM

To: [Joseph Burke](#)

Joe,

This one solves part of the issue, correct? And now what you need is just the E377-CC-2008 updated with Calcasieu instead of Freshwater, am I right?

Thanks
Craig

----- Original Message -----
Subject: Revised Zoning for OPR-E378-ER-2007
Date: Fri, 29 Aug 2008 16:23:59 -0400
From: [Carolyn Landry <Carolyn.Landry@noaa.gov>](mailto:Carolyn.Landry@noaa.gov)
Reply-To: [Carolyn Landry <Carolyn.Landry@noaa.gov>](mailto:Carolyn.Landry@noaa.gov)
Organization: National Ocean Service
To: joseph.burke@cctechnol.com
CC: NOA-COOPS-REPLY@noaa.gov

Hi Joe,
Attached is the revised zoning for OPR-E378-ER-2007 including correct
highways that Craig provided for you. Please let us know if you have any
additional comments or questions.
Thanks,
Carolyn

E378-CC-2008.dwg



APPENDIX V

**SUPPLEMENTAL SURVEY RECORDS
AND CORRESPONDANCE**



There are no supplemental survey records or correspondence accompanying this report.



APPENDIX V

AWOIS



Eight AWOIS Items were assigned for full investigation. They are discussed in section D.1.4 of this report.

**ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT to ACCOMPANY
SURVEY H11671 (2008)**

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

B. DATA ACQUISITION AND PROCESSING

B.1 DATA PROCESSING

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

CARIS HIPS/SIPS version 6.1 SP2 HF 8
CARIS Bathym Manager version 2,1,0,0 SP1 HF 1-4
CARIS S-57 Composer version 2.0 HF 3
CARIS HOM version 3.3 SP3 HF 8

B.2. QUALITY CONTROL

B.2.1. H-Cell

The AHB source depth grid for the survey's nautical chart update product entailed the field's original MBES 1m CUBE surface. The surface was regenerated at AHB at 2m resolution using the latest NOAA parameters. The survey scale soundings were created from the surface at 1mm radius at 1:80,000. A TIN was created from the survey scale soundings from which an interpolated surface was generated. The chart scale soundings were selected from the filtered interpolated surface using a sounding space range file for the 80,000 chart scale. The chart scale selected soundings are a subset of the survey scale selected soundings. The surface model was referenced when selecting the chart scale soundings, to ensure that the selected soundings portrayed the bathymetry within the common area.

Depth curves were created by hand to aid with chart sounding selection. The depth curves are incorporated into the SS H-Cell product as per 2009 H-Cell Specifications.

The pre-compilation products or components (Stand Alone HOB files (SAHOB)) are detailed in the Compile Log attached at the end of this document. The Stand Alone HOB, (SAHOB), files included depth areas (DEPARE), depth contours (DEPCNT), sounding selections (SOUNDG), features (OBSTRN, SBDARE, WRECKS, PILPNT, OFSPLF, SILTNK), Meta objects (M_COVR, M_QUAL), and cartographic Blue Notes (\$CSYMB).

All of the components with the exception of the sounding selection and depth contours 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 and depth contours were exported into S-57 format separately, and then both S-57 files were processed in CARIS HOM to convert the metric units to feet/fathoms and feet. The final products are two S-57 files, in Lat/Lon NAD-83, one that contains the chart soundings, all the features, Meta objects, and Bluenotes (H11671_CS.000), and one that contains the sounding selection and depth contours (H11671_SS.000). Finally, quality assurance check was made utilizing CARIS S-57 Composer validation checks.

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

H11671 CARIS H-Cell final deliverables include the following products:

H11671_CS.000	1:80,000 Scale	H11671 H-Cell with Chart Scale Selected Soundings
H11671_SS.000	1:5,000 Scale	H11671 Selected Soundings (Survey Scale)

B.2.2. Junctions

Survey H11671 (2008) junctions with survey H11670 (2008) to the south. Junctions will be analyzed when Survey H11670 is under review.

C. VERTICAL AND HORIZONTAL CONTROL

The OPR-K387-KR-07 Horizontal and Vertical Control Report (HVCR) is on file at AHB.

D. RESULTS AND RECOMMENDATIONS

D.1 CHART COMPARISON

11349 (43rd Edition, May/07)

Corrected through NM 05/19/2007
 Corrected through LNM 05/08/2007
 Scale 1:80,000

11345 (34th Edition, Apr/08)
 Corrected through NM 04/12/2006
 Corrected through LNM 04/08/2008
 Scale 1:175,000

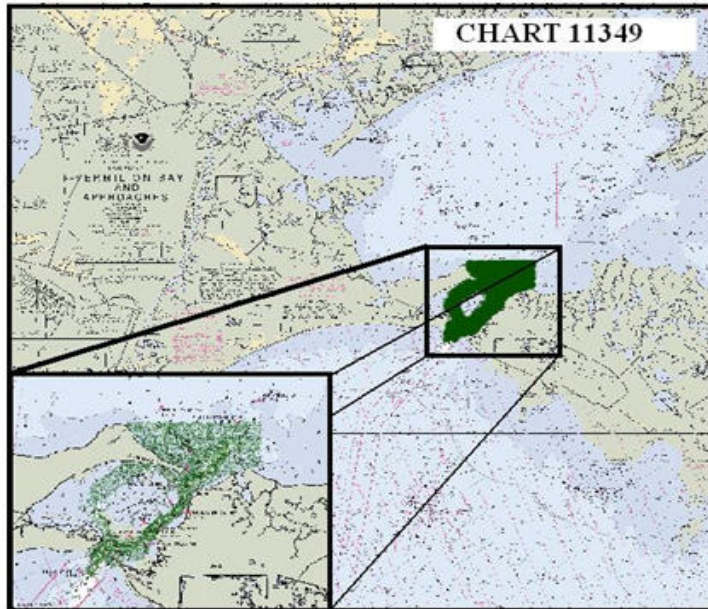
ENC Comparison

US4LA15M

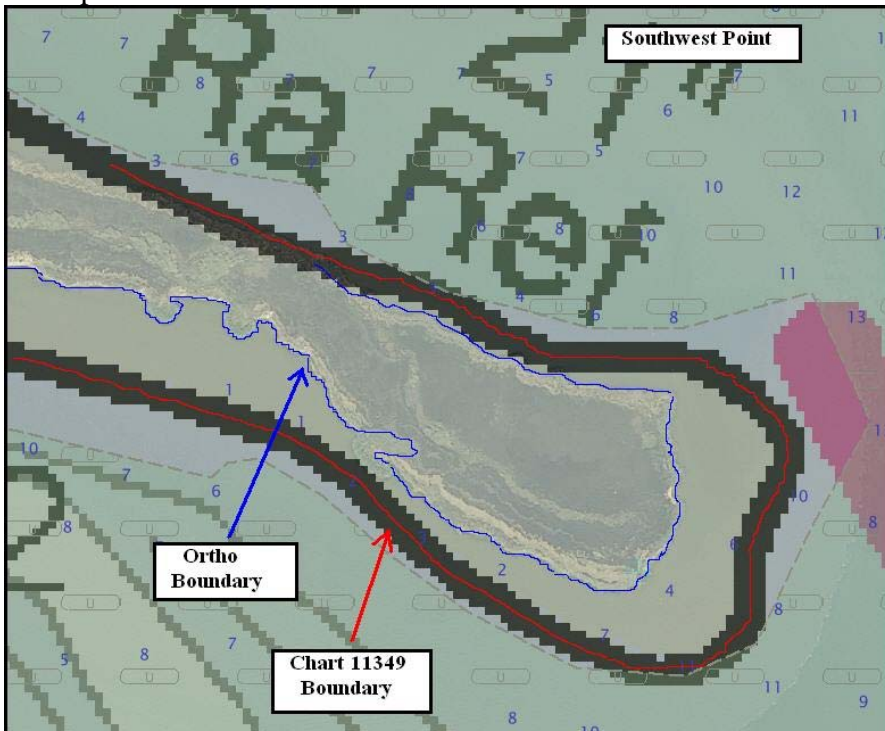
Vermilion Bay and Approaches

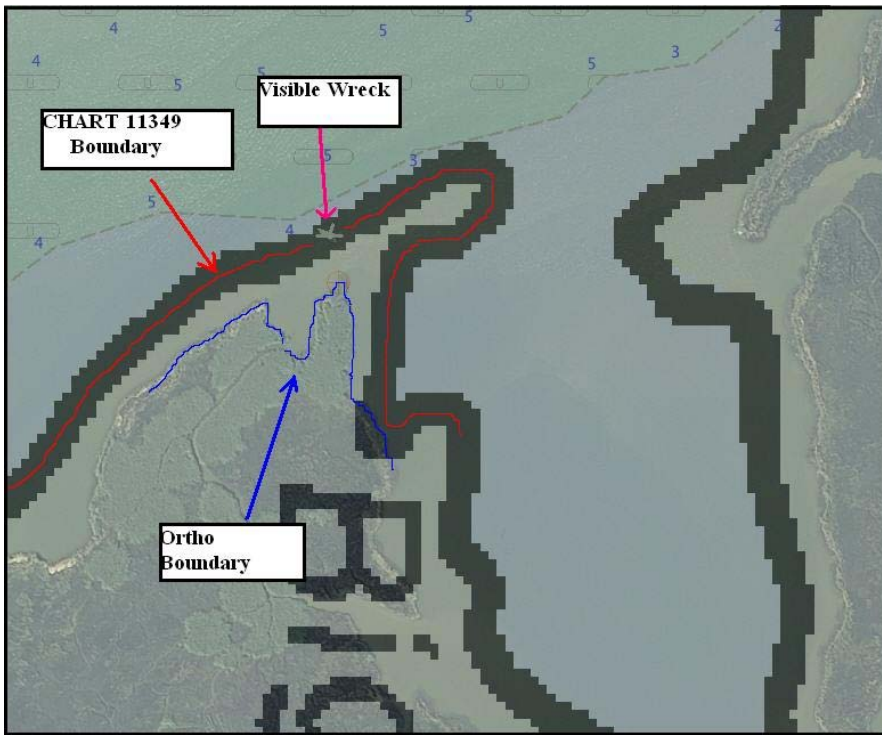
Thank you,

Wes Kitt, PS-AHB



The following screen grabs shows in detail the charted shoreline and ortho imagery discrepancies:





D.1.6 DANGER TO NAVIGATION REPORTS

During office processing, a dangers to navigation report was submitted concerning 5 extreme shoal soundings when compared to chart 11349. This report and graphics may be found in Appendix I of the descriptive report included in this evaluation.

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 Blue Notes should be retained as charted. Refer to the Descriptive Report for further recommendations by the hydrographer.

APPROVAL SHEET
H11671

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, disposition of critical depths, cartographic symbolization, and verification or disproval of charted data. All revisions and additions made to the H-Cell files during survey processing have been entered in the digital data for this survey. The survey records and digital data comply with National Ocean Service and Office of Coast Survey requirements except where noted in the Descriptive Report and the Evaluation Report.

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

Wesley G Kitt
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: _____

Richard T. Brennan
Lieutenant Commander, NOAA
Chief, Atlantic Hydrographic Branch