H11309

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey: **Basic Hydrographic**

Registry Number: **H11308**

LOCALITY

State: Alabama

General Locality: Mobile Bay

Sub-locality: Mobile Bay Entrance Channel, East of Dog River Point

2004-7

CHIEF OF PARTY

Mark McMann, NRT1

LIBRARY & ARCHIVES

DATE

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

REGISTRY NUMBER:

HYDROGRAPHIC TITLE SHEET

H11309

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

State:	**Alabama**		
General Locality:	**Mobile Bay**		
Sub-Locality:	**Mobile Bay Entrance Channel, East of Dog River Point**		
Scale:	**1:10,000**	Date of Survey:	**08/23/07 to 10/26/07**
Instructions Dated:	**06/09/2004**	Project Number:	**OPR-J373-NRT1-04**
Vessel:	**NOAA Launch S-1211, NRT-1**		
Chief of Party:	**Mark McMann**		
Surveyed by:	**MJM, LTP, SP**		
Soundings by:	**ODOM CVX2 single-beam echosounder**		
Graphic record checked by:	**N/A**		
Protracted by:	**N/A**	Automated Plot:	**N/A**
Verification by:	***Atlantic Hydrographic Branch***		
Soundings in:	**Meters at MLLW**		

Remarks: ***Bold, Italic, Red notes in the Descriptive Report were made during office processing.***
1) All Times are UTC.
2) This is a Standard Navigable Area Hydrographic Survey.
3) Projection is UTM Zone 18.

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DESCRIPTIVE REPORT

to accompany
Basic Hydrographic Survey H11309
OPR-J373-NRT1-04
Year of Survey: 2007
Navigation Response Team 1
NOAA Launch S1211
Mark McMann - Team Leader

A. AREA SURVEYED

This Basic Hydrographic Survey was conducted in accordance with the Project Letter Instructions for project OPR-J373-NRT1-04, Mobile Bay, Alabama. The instructions are dated June 9, 2004.

Mobile Bay is a major port in the Gulf of Mexico and listed as the 17th largest port in the United States, by cargo value, as identified in the 1999 NSD plan. It is also listed as a priority port for chart evaluation by the NOS' Marine Chart Division. Constituents have recently requested, through the NSD's Navigation Manager, surveys of the approaches to Mobile Bay and the GIWW in the area. In addition MCD has identified Mobile Bay as a priority in 2004 for the Coastal Shoreline Change Analysis Program.

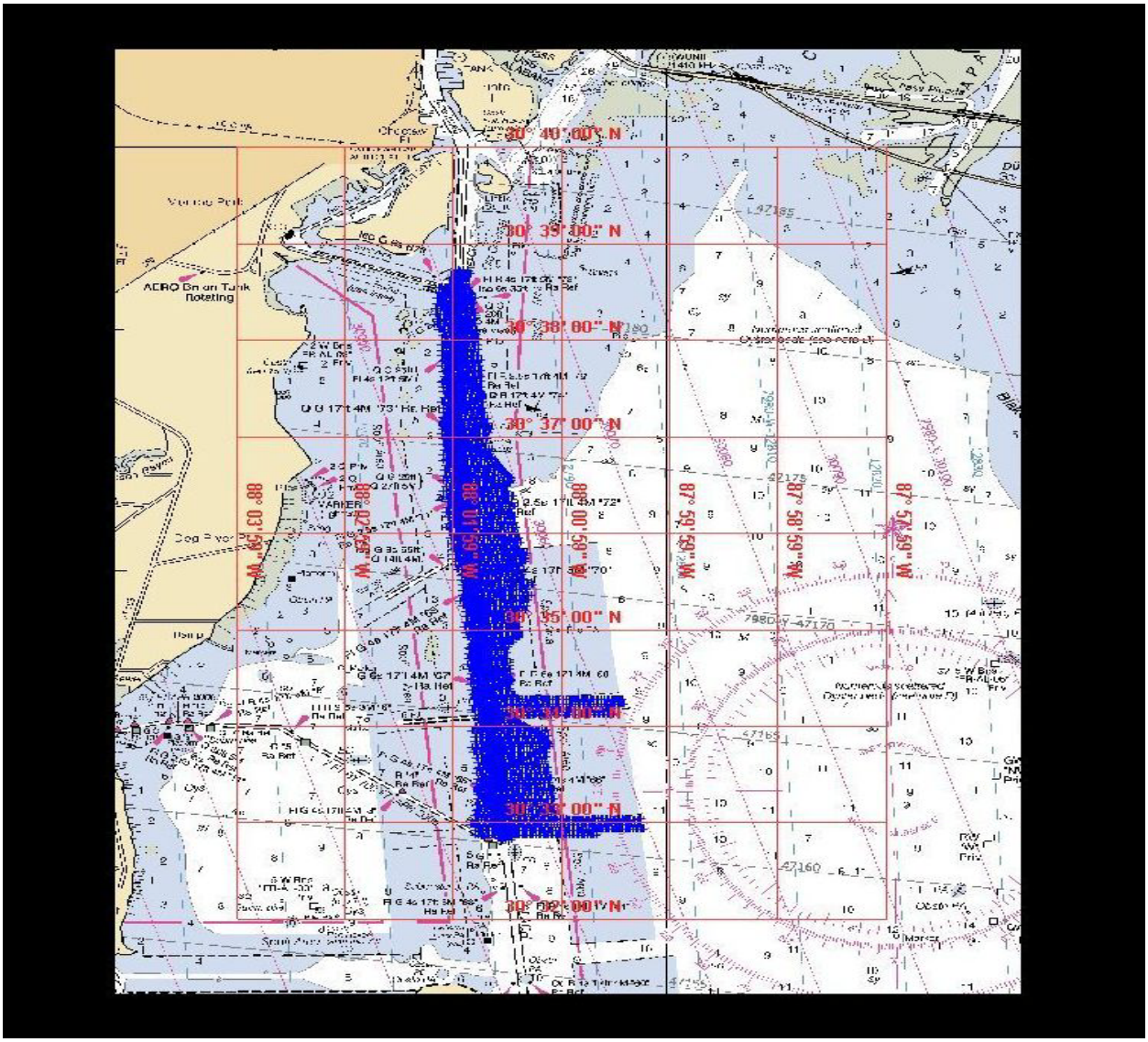
The area surveyed by NRT1, consisted of approximately 3.0 square nautical miles (SNM) of Mobile Bay in the Mobile Bay Entrance Channel-East of Dog Point. Both singlebeam echosounder and side scan sonar were acquired within the survey limits, wherever possible.

Survey Limits for Sheet F, H11309 are as follows:

30° 38'44" N 88°00'13" W
30°32'48" N 88°02'09" W

Survey Dates: August 23, 2007 (DN: 235) to October 26, 2007 (DN: 299).

Survey limits are displayed graphically:


30° 40' 00" N
30° 39' 00" N
30° 38' 00" N
30° 37' 00" N
30° 35' 00" N
88° 03' 59" W
88° 02' 59" W
88° 01' 59" W
88° 00' 59" W
87° 59' 59" W
87° 58' 59" W
87° 57' 59" W

B. DATA ACQUISITION AND PROCESSING *See also Evaluation Report*

B.1. EQUIPMENT

Data were acquired by Navigation Response Team 1 using survey Launch 1211. The vessel was configured as described in the Data Acquisition and Processing Report (DAPR*). Major data acquisition systems are summarized below. ***Filed with original field records.***

NOAA Survey Launch 1211 was used to acquire position, sounding, imagery, and sound velocity data. Positions were acquired with a Trimble DSM212L Differential GPS (DGPS) beacon receiver. Soundings were acquired with an ODOM CVX2 single-beam echosounder (SBES) system. Imagery was acquired with a stern-towed KLEIN 3000 side scan sonar (SSS) system. Water column sound velocity data was acquired with a SeaBird Seacat 19 and an ODOM Digibar Pro DB1200 sound velocity profiler.

B.2. QUALITY CONTROL

The integrity of the survey data for H11309 was insured by following the Field Procedures Manual v2.1, dated May, 2006, and the NOS Hydrographic Surveys Specifications and Deliverables Manual, dated June, 2006.

Differential GPS (DGPS) was used for all hydrographic data acquired on this survey.

Side Scan Sonar

The side scan sonar system frequencies used were 100kHz and 500kHz. The recorder was set to 50 meter range. There were no water depths greater than 20 meters in areas where side scan data was collected.

Daily confidence checks were conducted by observing side scan imagery in the vicinity of known contacts, such as buoys or sand waves. Side scan data were considered satisfactory if these contacts could be distinguished throughout the entire range of the side scan trace. The confidence checks were performed daily at both frequencies. Coverage of 200% was obtained wherever possible in the required survey areas and where water depth and/or hazards permitted. Side scan sonar coverage was conducted to the 12-foot depth curve where possible.

All side scan contacts were selected during processing in CARIS. Only contacts that could be positively identified while underway (ATONS, piles, platforms, other visible features) were selected in Sonarpro to facilitate their identification while processing. Any contacts, which were determined to be significant, were developed using SBES.

Crosslines

Crosslines were collected in a zig-zag pattern over the length of the project area. A total of 8.9 linear nautical miles (LNM) of crosslines were acquired. This is approximately 10.7 percent of mainscheme acquisition (82.6 LNM). A visual inspection of crossline data and main scheme data showed good comparison.

Junctions

No junctioning surveys were provided for comparison with this project. ***Concur with clarification, survey H11309 junctions with H11308 of the same project to the South and H11624 to east. Junction analysis will be performed during office processing of H11309.***

B.3. CORRECTIONS TO ECHO SOUNDING

Echosounder data were corrected for sound velocity using the methods defined in the DAPR. A list of sound velocity profiles (SVP) can be found in the Daily Acquisition Log, located in the Separates* directory. SVPs have also been added to the Pydro PSS for this project.

Filed with original field records.

C. VERTICAL AND HORIZONTAL CONTROL *See also Evaluation Report*

C.1. VERTICAL CONTROL

All soundings were reduced to Mean Lower Low Water (MLLW) with preliminary observed water levels and preliminary zoning.

The operating water level station at Dauphin Island (873-5180) provided water level reducers for this project.

Verified water levels from the Tides & Currents website (http://tidesandcurrents.noaa.gov/olddata/) were downloaded and applied to all soundings for this sheet. Water level corrections were applied to the soundings using CARIS HIPS and SIPS v6.1. ***Concur.***

Zoning was provided on the project CD.

A Request for Approved Water Levels letter was sent to N/OPS1 on December 20, 2007 and is included in Appendix IV***. Approved Water Levels were received by the NRT and the approved water levels were reapplied in CARIS. ****Filed with original field records.***

C.2. HORIZONTAL CONTROL

The horizontal datum used for this survey is the World Geodetic System (WGS84), projected using UTM zone 16. The control reference station used for this survey was the USCG DGPS Beacon in the auto-select mode.

Horizontal dilution of precision (HDOP) was monitored daily on Hypack. At no point did HDOP exceed 4.00, and adequate satellite coverage was maintained throughout the survey period.

All positioning equipment was operated in a manner consistent with the manufacturer requirements and as described in the DAPR. There were no equipment malfunctions which affected the positional quality of the data.

D. RESULTS AND RECOMMENDATIONS *See also Evaluation Report*

D.1. CHART COMPARISON

There is one chart and one ENC affected by this survey:

Chart	Edition	Print Date	Scale
11380	1st	10/2005	1:20,000
11376	52	06/2007	!;80,000
11376 (inset)	52	06/2007	1:25,000

ENC Cell	Last Updated	Corresponding Chart	Version
US4AL11M	08/06/2007	11376	1

General Agreement with Charted soundings

Comparison with the latest chart revealed good agreement with charted soundings, with current survey soundings being 1-2 feet deeper than the chart. ***(See also Evaluation Report D.1.1).***

All current H11309 surveyed soundings in the Mobile Channel have been superseded by US Army Corp of Engineers survey and dredge work.

An 8 foot sounding at Lat. 30º 37’ 14”N, Lon. 88º 01’ 52” W, was not found. Single beam hydrography in the area indicated depths of 13-14 feet. The hydrographer recommends charting current survey soundings in the area. ***Concur.***

A 4 foot sounding charted at Lat. 30º 37’ 53”N, Lon. 88º 02’ 03”W, was not found using single beam echosounder. Current survey soundings were 10-11 feet. The hydrographer recommends charting current survey soundings in the area. ***Concur.***

AWOIS Item Investigations

There was 1 AWOIS item assigned to the Field Party in Sheet F. The radius of this item was covered using 200% SSS to the extent possible.

Results of the AWOIS investigation are contained in Appendix II.

Dangers to Navigation

No DTONS were identified in this survey. ***Concur.***

Shoreline

No shoreline features were investigated by the field party.

D. 2. ADDITIONAL RESULTS

Aids to Navigation and Other Detached Positions

All Aids to Navigation in the survey area were found to be on station and serving their intended purpose. The field party has no recommendations on these Aids to Navigation.

Ferry Routes

There are no ferry routes in the survey area.

Submarine Cables and Pipelines

There were no charted submarine pipelines within the survey area.

Bridges and Overhead Cables

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

APPROVAL SHEET
OPR-J373-NRT1-04
Alabama
Mobile Bay Entrance Channel
East of Dog River Point
Survey Registry No. H-11309

Field operations for this basic hydrographic survey were conducted under my daily supervision with frequent checks of progress and adequacy. All field sheets, this Descriptive Report, and all accompanying records and data are approved. This survey is adequate to supersede all prior surveys in common areas, and for application to the relevant NOS nautical charts.

Submitted:

Digitally signed by Mark J. McMann
DN: cn=Mark J. McMann, o=NRT-1, ou=NSD, email=Mark.McMann@noaa.gov, c=US
Date: 2008.05.29 09:28:58 -05'00'

Mark J. McMann-Team Leader
Navigation Response Team 1

APPENDIX I: DTON REPORTS

There are no Dangers to Navigation (DToNs) to report for this survey.

APPENDIX II: SURVEY FEATURES REPORTS

Following are item investigation reports detailing three groups of features:

a) AWOIS Items
b) Significant Uncharted Features
c) Non-AWOIS Charted Features & Notes

H11309 Features Report

Registry Number: H11309

State: Alabama

Locality: Mobile Bay

Sub-locality: Mobile Bay Entrance Channel- East of Dog River Point

Project Number: OPR-J373-NRT1-04

Survey Date: 10/26/2007

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11376	53rd	08/01/2008	1:80,000 (11376_1)	USCG LNM: 05/05/2009 (05/12/2009) NGA NTM: 11/19/2005 (05/16/2009)
1115A	43rd	11/01/2008	1:456,394 (1115A_1)	[L]NTM: ?
11360	43rd	11/01/2008	1:456,394 (11360_1)	[L]NTM: ?
11006	32nd	08/01/2005	1:875,000 (11006_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	AWOIS Item
1.1	165/1 - revise to 10 Obstn	Shoal	3.24 m	30° 36' 52.5" N	088° 01' 51.8" W	---
1.2	186/1 - add 13 Obstn	Obstruction	4.12 m	30° 36' 19.1" N	088° 01' 48.6" W	---
2.1	UNKNOWN - retain Wk PA	AWOIS	[no data]	[no data]	[no data]	---

1 - New Features

1.1) 165/1 - revise to 10 Obstn

Survey Summary

Survey Position:	30° 36' 52.5" N, 088° 01' 51.8" W
Least Depth:	3.24 m (= 10.62 ft = 1.771 fm = 1 fm 4.62 ft)
TPU (±1.96σ):	**THU (TPEh)** ±-1.000 m ;**TVU (TPEv)** ±-1.000 m
Timestamp:	2007-299.15:12:23.386 (10/26/2007)
Survey Line:	h11309 / 1211_sb / 2007-299 / 000_1512
Profile/Beam:	165/1
Charts Affected:	11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11309/1211_sb/2007-299/000_1512	165/1	0.00	000.0	Primary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

10ft (11376_1)

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

S-57 Data

[None]

Office Notes

AHB recommends retaining charted Obstn at current position and updating depth to 3.24m (10.62')

1.2) 186/1 - add 13 Obstn

Survey Summary

Survey Position: 30° 36' 19.1" N, 088° 01' 48.6" W

Least Depth: 4.12 m (= 13.53 ft = 2.254 fm = 2 fm 1.53 ft)

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

Timestamp: 2007-299.14:59:23.960 (10/26/2007)

Survey Line: h11309 / 1211_sb / 2007-299 / 003_1459

Profile/Beam: 186/1

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

Remarks:

Unknown contact detected in 200% SSS coverage. Contact was investigated using SBES in a star pattern. Least depth of 4.1 meters.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11309/1211_sb/2007-299/003_1459	186/1	0.00	000.0	Primary
hdcs_data/1211_sb/2007-299/003_1459	186/1	0.00	000.0	Secondary
h11309/1211sss500k/2007-247/sonar_data070904174600	0004	4.42	350.7	Secondary

Hydrographer Recommendations

Hydrographer recommends charting 4.1 meter depth.

Cartographically-Rounded Depth (Affected Charts):

13ft (11376_1)

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

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: SORDAT - 20071026

SORIND - US,US,survey,H11309

VALSOU - 4.123 m

WATLEV - 3:always under water/submerged

Office Notes

AHB concurs w/ clarification, chart an Obstn with a depth of 13 ft. in Latitude 30°36'19.064"N, Longitude 88°01'48.633"W.

2 - AWOIS Features

2.1) AWOIS #12387 - UNKNOWN - retain Wk PA

No Primary Survey Feature for this AWOIS Item

Search Position: 30° 33' 10.0" N, 088° 01' 36.0" W

Historical Depth: [None]

Search Radius: 200

Search Technique: SD, S2, SWMB, ES, DI

Technique Notes: [None]

History Notes:

HISTORY■ LNM53/02--8TH CGD: ADD SYMBOL: "DANGEROUS WRECK (PA)" (18FT P/C) (CGD8 239-02) (ENTERED 3/04, SPS)

Survey Summary

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

Remarks:

50% of AWOIS 12387 radius covered in 200% SSS coverage. No contact was detected in this portion of the coverage. Full coverage limited by shallow water depths.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H11309_AWOIS	AWOIS # 12387	0.00	000.0	Primary

Hydrographer Recommendations

Hydrographer recommends retaining charted wreck at current position.

S-57 Data

[None]

Office Notes

AHB concurs w/ the field. Retain dangerous Wk symbol PA as charted.

UNITED STATES DEPARMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : December 26, 2007

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: OPR-J373-NRT1-2004
HYDROGRAPHIC SHEET: H11309

LOCALITY: Mobile Bay Entrance Channel-East of Dog River Point, AL
TIME PERIOD: March 6, 2007 - October 26, 2007

TIDE STATION USED: 873-5180 Dauphin Island, AL
Lat.30° 15.08'N Long. 088° 04.7' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.361 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: CGM53, CGM54, & CGM54A

Refer to attachments for zoning information.

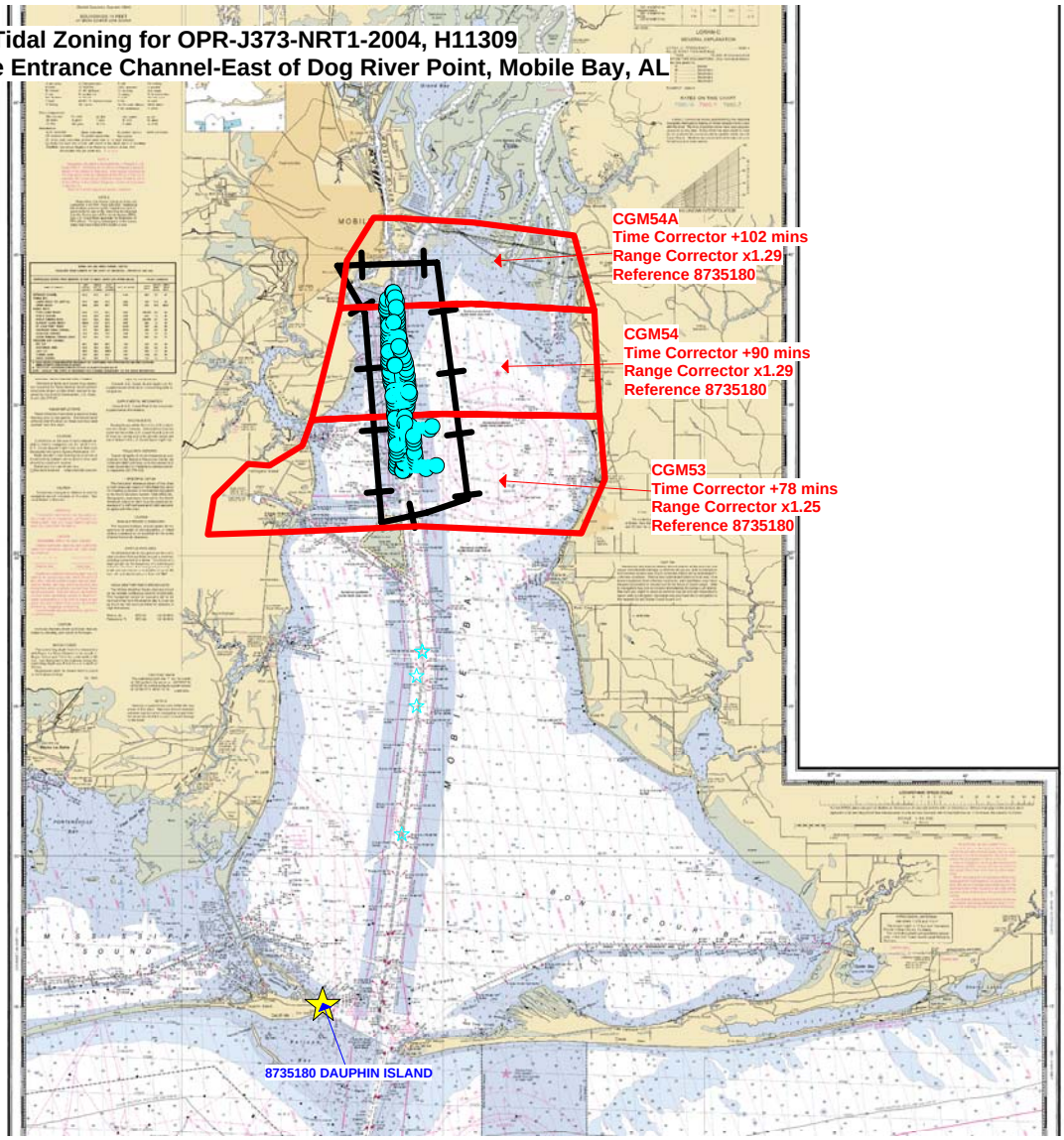
Note 1: Provided time series data are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time on the 1983-2001 National Tidal Datum Epoch (NTDE).

Stephen K. Gill

Digitally signed by Stephen K. Gill
DN: cn=Stephen K. Gill, c=US, l=Silver Spring, st=Maryland, o=National Oceanic and Atmospheric Administration, ou=Center for Operational Oceanographic Products & Serv., email=Stephen.Gill@noaa.gov
Reason: I attest to the accuracy and integrity of this document
Date: 2008.01.04 15:03:28 -05'00'

CHIEF, PRODUCTS AND SERVICES DIVISION

Final Tidal Zoning for OPR-J373-NRT1-2004, H11309
Mobile Entrance Channel-East of Dog River Point, Mobile Bay, AL



ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT to Accompany
Survey H11309

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

B. DATA ACQUISITION AND PROCESSING

B.1 DATA PROCESSING

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

CARIS HIPS/SIPS version 6.1 SP2 hotfix 7
Pydro version 9.4 (r2691)
CARIS BASE Manager 2.1 SP1 hotfix 10
CARIS S-57 Composer 2.0 hotfix 2
dKart Inspector V. 5.0 Build 732 (SP1)

B.2. QUALITY CONTROL

H-Cell

The AHB source depth grid was a 5m resolution shoal biased BASE surface extracted from the field submitted surface for survey H11308. Survey scale soundings were extracted from the 5m shoal biased BASE Surface generated at a 1:10000 scale using a radius of 1m. Depth curves were created by hand at the depth intervals represented on charts 11380. Soundings were selected for charting by hand using the latest raster chart and depth contours used as background for sounding placement. Soundings were then checked for conflicts, corrected to remove conflicts, and edited to allow for proper sounding compilation placement with respect to existing charted depths outside the survey area.

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

The completed H-Cell was exported as a Base Cell File (ENC.000) in S-57 format with all values in metric units. The metric equivalent ENC.000 file was then converted to

NOAA chart units (ENC_CU.000) with all values measured in feet following NOAA sounding rounding rules.

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

The H11309 CARIS H-Cell final deliverables include the following products:

US511309_CS.000	**1:20,000 Scale**	**H11309 H-Cell with Chart Scale Soundings**
US511309_SS.000	**1:10,000 Scale**	**H11309 Survey Scale Soundings**

B.2. Junctions

Survey H11309 junctions with survey H11308 of the same project to the South. Junction analysis was performed during office processing of H11308.

C. VERTICAL AND HORIZONTAL CONTROL

Final vertical correction processing was completed by field personnel. Sounding datum is Mean Lower Low Water (MLLW). Vertical datum is Mean High Water (MHW). Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD83), UTM projection zone 16.

D. RESULTS AND RECOMMENDATIONS

Chart Comparison

11380 (1st Edition, Oct./05)
Corrected through NM Oct. 01/05
Corrected through LNM Sep. 20/05
Scale 1:20,000

11376 (53rd Edition, Aug./08)
Corrected through NM Aug. 30/08
Corrected through LNM Aug. 19/08
Scale 1:80,000 with a 1:25,000 inset

ENC Comparison

US5AL14M
Mobile Bay East Fowl River to Deer River Pt; Mobile Middle Bay Terminal
Edition 2
Update Application Date 2009-05-18
Issue Date 2009-05-18
References: Chart 11380

ENC Comparison (cont'd) **US4AL11M**
Mobile Bay Alabama
Edition 21
Update Application Date 2009-02-02
Issue Date 2009-05-18
References: Chart 11376

Hydrography

USACE Project Depths

All current surveyed sounding in the Mobile Channel have been superseded by US Army Corp of Engineers (USACE) survey and dredge work. The USACE operations took place in July of 2008 after the final data of survey operations (Oct. 25, 2007).

Comparison with Prior Surveys

A comparison with prior surveys was not done during office processing in accordance with section 4. of the memorandum titled "Changes to Hydrographic Survey Processing", dated May 24, 1995.

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.

Bryan Chauveau
Physical Scientist
Verification of Data
Evaluation and Analysis Report

H11309 COMPILATION LOG

Registry No.	H11309
Project No.	OPR-J373-NRT1-04
Field Unit	NRT-1
Pre-Compiler	M. Leonard Tyson
Compilation	Bryan Chauveau
Largest Scale Chart	**11380 (1st Edition, Oct./05)** Corrected through NM Oct. 01/05 Corrected through LNM Sep. 20/05 Scale 1:20,000 **11376 (53rd Edition, Aug./08)** Corrected through NM Aug. 30/08 Corrected through LNM Aug. 19/08 Scale 1:80,000 with a 1:25,000 inset **US5AL14M** Mobile Bay East Fowl River to Deer River Pt; Mobile Middle Bay Terminal Edition 2 Update Application Date 2009-05-18 Issue Date 2009-05-18 References: Chart 11380 **US4AL11M** Mobile Bay Alabama Edition 21 Update Application Date 2009-02-02 Issue Date 2009-05-18 References: Chart 11376
Chart Scale	1:20,000
Survey Scale	1:10,000
Date Of Survey	20071026

Components	File Names
Contour Layer	H11309_Contours
Survey Scale Soundings	H11309_SS_Soundings.hob
Chart Scale Soundings	H11309_CS_Soundings.hob
Feature Layer	H11309_DepAre.hob H11309_Obstrns.hob H11309_Wrecks.hob

Meta-Objects Layer	H11309_M_COVR.hob H11309_M_QUAL.hob H11309_M_CSCL.hob
Blue Notes	H11309_BlueNotes.hob

META-OBJECTS:

M_COVR attributes

Acronym	Value
CATCOV	1 – coverage available
SORDAT	20071026
SORIND	US,US,survy,H11309

M_QUAL attributes

Acronym	Value
CATZOC	6
INFORM	H11309,NOAA Survey Launch 1211,NRT-1
POSACC	10
SORDAT	20071026
SORIND	US,US,survy,H11309
SUREND	20071026
SURSTA	20070823

Final Grids Listing –

H11309_5m_Shoal_Extracted.hns
H11309_5m_Shoal_Extracted.xml
H11309_5m_Shoal_Extracted_Depth.bel

APPROVAL SHEET
H11309

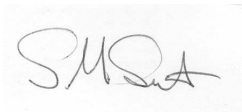
The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disproval of charted data. All revisions and additions made to the H-Cell files during survey processing have been entered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

Bryan Chauveau
Physical Scientist,
Atlantic Hydrographic Branch

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

I have reviewed the Base Cell files, accompanying data, and reports. This survey and accompanying Marine Chart Division deliverables meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.

Approved:



Commander Shepard M. Smith, NOAA
Chief, Atlantic Hydrographic Branch

Kelly Kriner
AWOIS Check
2009.06.10 11:23:14 -04'00'