

H11343

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey: **Reconnaissance**

Registry Number: **H11343**

LOCALITY

State: Texas and Louisiana

General Locality: Flower Garden Banks National
Marine Sanctuary

Sub-locality: Trackline from Claypile Bank
to East Flower Garden Banks

2004

CHIEF OF PARTY
LCDR Donald W. Haines, NOAA

LIBRARY & ARCHIVES

DATE

HYDROGRAPHIC TITLE SHEET

H11343

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: **Texas and Louisiana**

General Locality: **Flower Garden Banks National Marine Sanctuary**

Sub-Locality: **Trackline from Claypile Bank to East Flower Garden Banks**

Scale: **1:40,000** Date of Survey: **5/13/04 to 5/20/04**

Instructions Dated: **04/8/04** Project Number: **OPR-K366-TJ-04**

Vessel: **NOAA Ship THOMAS JEFFERSON, S-222**

Chief of Party: **LCDR Donald W. Haines, NOAA**

Surveyed by: **THOMAS JEFFERSON Personnel**

Soundings by: **Kongsberg Simrad EM1002 multibeam echosounder**

Graphic record scaled by: **N/A**

Graphic record checked by: **N/A**

Protracted by: **N/A** Automated Plot: **N/A**

Verification by: **Atlantic Hydrographic Branch *Personnel***

Soundings in: **~~Meters~~ *Fathoms* at MLLW**

Remarks: * ***Bold, Italic, Red notes in Descriptive report were made during office processing.***

- 1) ***All Times are UTC.***
- 2) ***This is a Reconnaissance Hydrographic Survey.***
- 3) ***Projection is UTM Zone 15.***

TABLE OF CONTENTS

| | |
|---|---|
| A. AREA SURVEYED | 1 |
| B. DATA ACQUISITION AND PROCESSING | 3 |
| EQUIPMENT | 3 |
| QUALITY CONTROL | 3 |
| Shallow Water Multibeam Quality Control | 3 |
| Crosslines | 3 |
| Junctions | 3 |
| CORRECTIONS TO ECHO SOUNDING | 4 |
| C. VERTICAL AND HORIZONTAL CONTROL | 4 |
| VERTICAL CONTROL | 4 |
| HORIZONTAL CONTROL | 5 |
| D. RESULTS AND RECOMMENDATIONS | 5 |
| CHART COMPARISON | 5 |
| General Agreement with Charted Soundings, Features, and Notes | 5 |
| Item Investigation Reports | 5 |
| ADDITIONAL RESULTS | 6 |
| Prior Surveys | 6 |
| Aids to Navigation and Other Detached Positions | 6 |
| Bridges and Overhead Cables | 6 |
| Ferry Routes | 6 |
| Submarine Cables and Pipelines | 6 |
| Shoreline/Nearshore LIDAR | 6 |
| E. APPROVAL SHEET | 7 |

LIST OF FIGURES

| | |
|---|---|
| Figure 1: Complete Survey Limits & Data Coverage..... | 2 |
|---|---|

LIST OF TABLES

| | |
|---|---|
| Table 1: Final Tide Zones & Correctors..... | 4 |
| Table 2: Affected Charts..... | 5 |

APPENDICES

APPENDIX I – ITEM INVESTIGATION REPORTS*

APPENDIX II – LIST OF GEOGRAPHIC NAMES*

APPENDIX III – PROGRESS SKETCH*

APPENDIX IV – TIDE AND WATER LEVELS*

APPENDIX V – SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCES*

**Data filed with original field records.*

DESCRIPTIVE REPORT

to accompany
HYDROGRAPHIC SURVEY H11343

Scale of Survey: 1:40,000
Year of Survey: 2004
NOAA Ship THOMAS JEFFERSON
LCDR Donald W. Haines, Commanding

A. AREA SURVEYED

This hydrographic survey was conducted in accordance with Hydrographic Survey Letter Instructions* for project OPR-K366-TJ-04, Flower Garden Banks National Marine Sanctuary, TX and LA. The original instructions are dated April 8, 2004. **Filed with original field records.*

This Descriptive Report pertains to the reconnaissance survey of project OPR-K366-TJ-04. The assigned registry number for this sheet is H11343, as prescribed in the Letter Instructions dated April 8, 2004, and e-mail registry number request dated June 3, 2004.

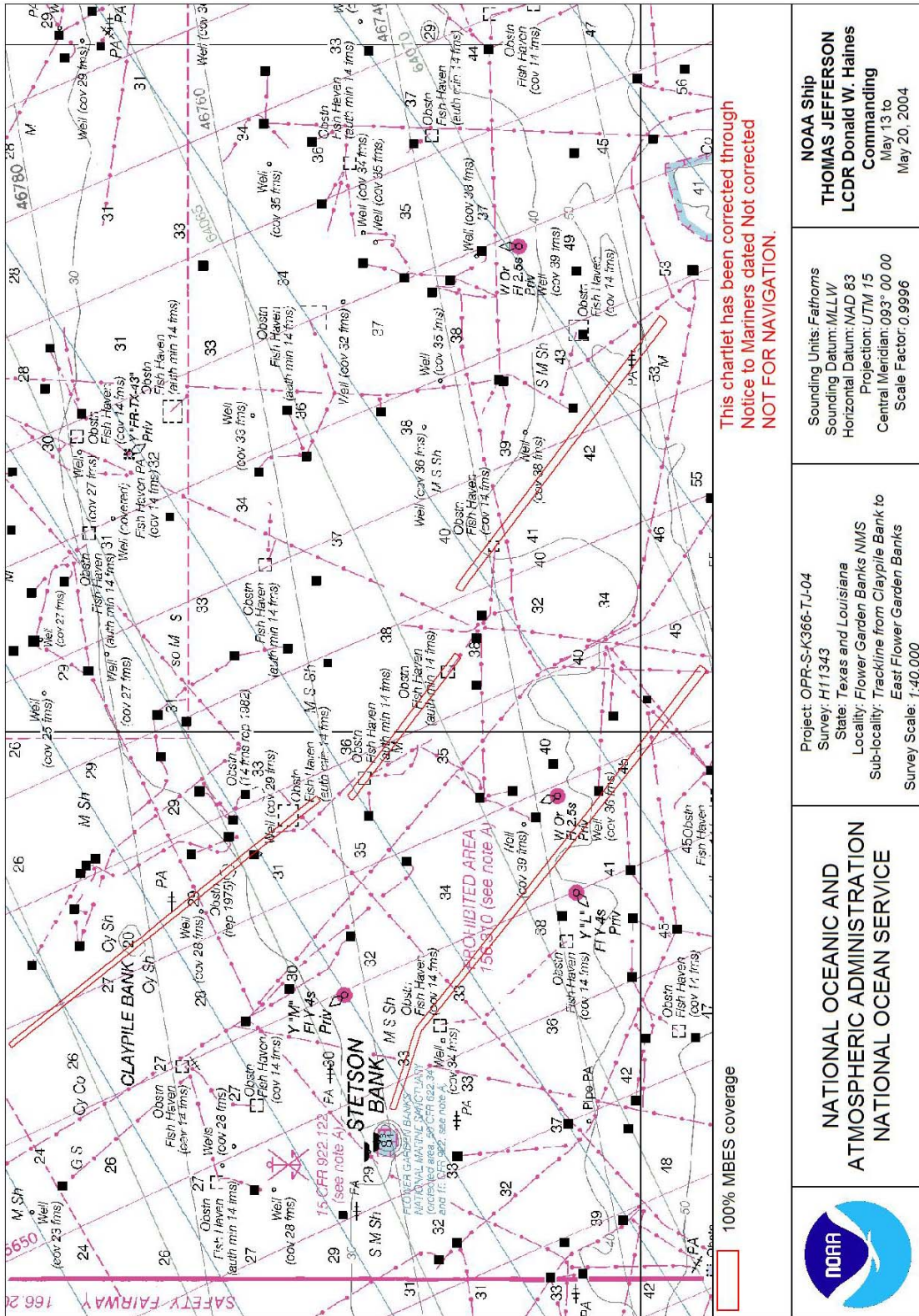
This project was conducted to provide multibeam data in support of the National Oceanic and Atmospheric Administration's (NOAA) Flower Garden Banks National Marine Sanctuary requirements and National Ocean Service (NOS) nautical charts. Though the area has been surveyed numerous times in the past, much of the Flower Garden Banks sanctuary has yet to be mapped with high resolution multibeam sonar. The acquired data will provide invaluable information on habitat distribution and classification to advance knowledge about the area and aid individuals making management decisions for this natural resource.

This reconnaissance survey was acquired at the request of the NMS representative to help in defining natural features between the assigned survey areas.

The project is located in the Gulf of Mexico, 90 miles SSE of Galveston, TX.

For complete survey limits, see the chartlet on the following page.

Figure 1: Complete Survey Limits & Data Coverage



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

EQUIPMENT

Data were acquired by NOAA Ship THOMAS JEFFERSON. NOAA Ship THOMAS JEFFERSON is a 63.4-meter hydrographic survey vessel with an average transducer draft of 4.6 meters.

NOAA Ship THOMAS JEFFERSON acquired multibeam echosounder (MBES) data with a SIMRAD EM1002.

NOAA Ship THOMAS JEFFERSON positioning and attitude data were determined with a TSS POS/MV 320 Version 3 GPS-aided inertial navigation system.

No unusual vessel configurations or problems were encountered. Refer to the Data Acquisition and Processing Report (DAPR)* for detailed equipment and vessel configuration information.

QUALITY CONTROL

Shallow Water Multibeam Quality Control

There were no faults with the MBES system which affected data integrity. Daily confidence checks examining the internal consistency of the MBES were made by comparing overlapping lines. Refer to this project's DAPR* for detailed discussion of MBES system calibrations, data acquisition, and data processing. *Concur.*

Crosslines

No crosslines were acquired for this survey. *Concur. See also Evaluation Report.*

Junctions

This survey adjoins with data acquired by the NOAA Ship THOMAS JEFFERSON on sheets H11324 and F00496. Data in the overlapping areas were used for comparison and confidence checks. There was good agreement between the survey areas. *Concur with clarification. See also Evaluation Report.*

** Data filed with original field records.*

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

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** Data filed with original field records.*

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** Data filed with original field records. Concur.*

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No crosslines were acquired for this survey. *Concur. See also Evaluation Report.*

Junctions

This survey adjoins with data acquired by the NOAA Ship THOMAS JEFFERSON on sheets H11324 and F00496. Data in the overlapping areas were used for comparison and confidence checks. There was good agreement between the survey areas. *Concur with clarification. See also Evaluation Report.*

CORRECTIONS TO ECHO SOUNDING

All methods or instruments used were as described in the project DAPR*. A table detailing all sound velocity casts is located in Separate III. * *Data filed with original field records.*

C. VERTICAL AND HORIZONTAL CONTROL

VERTICAL CONTROL

The tidal datum for this project is Mean Lower Low Water (MLLW). The operating tide station at Galveston Pleasure Pier, TX (877-1510) served as datum control for the survey area.

The final zones used for this survey are as follows: *Concur.*

| ZONE NAME | CORRECTOR (min) | RATIO | REFERENCE |
|-----------|-----------------|-------|-----------|
| WGM291 | +6 | 0.76 | 877-1510 |
| WGM292 | +6 | 0.76 | 877-1510 |
| WGM293 | +6 | 0.81 | 877-1510 |
| WGM305 | 0 | 0.81 | 877-1510 |

Table 1: Final Tide Zones & Correctors

A Request for Approved Tides letter was sent to N/OPS1 on May 28, 2004 (Appendix IV). Observed tide files were e-mailed by TideBot during acquisition and applied to all sounding data.

Verified tides were downloaded from the N/OPS1 CO-OPS website on June 13, 2004. These levels were applied to all sounding data using the preliminary zoning. The verified water levels did not change significantly from the observed levels. Final tides data were not available at the completion of this report and have not been applied. Refer to the March-May 2004 DAPR for a summary of the methods used to determine, evaluate, and apply tide corrections to sounding data. *Final water level corrections were applied during office processing. See also Evaluation Report.*

HORIZONTAL CONTROL

The horizontal datum used for this survey is the North American Datum of 1983 (NAD 83), projected using UTM zone 15. *Concur.*

Horizontal position was determined using the Global Positioning System (GPS) corrected by U.S. Coast Guard differential GPS (DGPS) beacon stations. The primary DGPS beacon used for this survey was Angleton, Texas (site ID = 828, transmission frequency = 301 kHz). The secondary station was Aransas Pass, Texas (site ID = 32, transmission frequency = 304 kHz). No horizontal control stations were established for this survey. *See also Evaluation Report.*

D. RESULTS AND RECOMMENDATIONS

CHART COMPARISON

There are three charts affected by this survey:

| Number | Version | Edition Date | Scale |
|--------|----------------------|---------------|-----------|
| 11300 | 39 th Ed. | April, 2003 | 1:460,732 |
| 11330 | 15 th Ed. | October, 2003 | 1:250,000 |
| 11340 | 68 th Ed. | June, 2003 | 1:458,596 |

Table 2: Affected Charts

General Agreement with Charted Soundings, Features, and Notes

Acquired sounding data are in good agreement with charted depths and features. *See also Evaluation Report.*

Item Investigation Reports

There are no Item Investigation Reports for this reconnaissance survey. *Concur with clarification. AWOIS Item numbers 12373 and 00221 are addressed in the accompanying Evaluation Report. See also Evaluation Report.*

ADDITIONAL RESULTS

Prior Surveys

This reconnaissance survey is outside of the original project areas. No prior survey information is available. *Concur.*

Aids to Navigation and Other Detached Positions

There were no Aids to Navigation or Detached Positions in the survey area to be considered. *Concur.*

Bridges and Overhead Cables

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

Ferry Routes

There were no ferry routes in the survey area to be considered. *Concur.*

Submarine Cables and Pipelines

There were cables and pipelines in the survey area. The hydrographer has no recommendations for submarine cables and pipelines. *Concur. Final charting disposition of pipelines and platforms is deferred to the Marine Chart Division (MCD) Update Services Branch.*

Shoreline/Near Shore LIDAR

There were no shoreline or near shore LIDAR within the limits of the survey to be considered. *Concur.*

E. APPROVAL SHEET

OPR-K366-TJ-04
Texas and Louisiana
Flower Garden Banks National Marine Sanctuary
Trackline from Claypile Bank to East Flower Garden Banks

Survey Registry No. H11343

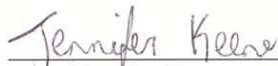
Field operations for this reconnaissance hydrographic survey were conducted under my daily supervision with frequent checks of progress and adequacy. All bathymetry models, this Descriptive Report, and all accompanying records and data are approved.

This survey is adequate to supersede all prior surveys in common areas and for application to the relevant NOS nautical charts.

Also submitted in association with this descriptive report has been a series of reports and data:

- SEPARATES TO ACCOMPANY PROJECT OPR-K366-TJ-04, SHEET X, H11343
- HORIZONTAL AND VERTICAL CONTROL REPORT TO ACCOMPANY PROJECT OPR-K366-TJ-04 (DATED 06/14/2004, SUBMITTED 06/18/2004)
- DATA ACQUISITION AND PROCESSING REPORT (*dated <pending>; submitted<pending>*)

Respectfully Submitted:



Jennifer A. Keene
Hydrographer

Approved and Forwarded:



Ltjg Marc S. Moser, NOAA
Field Operations Officer



LCDR Donald W. Haines, NOAA
Commanding Officer

APPENDIX I

ITEM INVESTIGATION REPORTS

- 1) There are no Item Investigation Reports for this reconnaissance survey.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: September 9, 2004

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: OPR-K366-TJ-2004
HYDROGRAPHIC SHEET: H11343

LOCALITY: 90 miles SSE of Galveston, TX
Flower Garden Banks National Marine
Sanctuary, TX

TIME PERIOD: May 13 - 20, 2004

TIDE STATION USED: 877-1510 Galveston Pleasure Pier, TX
Lat. 29° 17.1'N Lon. 94° 47.3'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.563 meters

REMARKS: RECOMMENDED ZONING

Use zone(s) identified as: WGM291, WGM292, WGM293, WGM305 &
WGM306

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 new 1983-2001 National Tidal Datum Epoch (NTDE).

Thomas V. Mero 9/23/04

CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION



Printed on Recycled Paper



**ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H11324 & H11343 (2004)**

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

Important notation: Final H-Cell and Base Cell products for hydrographic surveys H11324 and H11343 were processed and finalized as a single product. This was done due to the limited hydrography obtained during reconnaissance survey H11343. This Evaluation Report addresses all references made within the Descriptive Reports H11324 and H11343 and serves as a single document to detail all subsequent information not contained within Descriptive Reports H11324 and H11343.

B. DATA ACQUISITION AND PROCESSING

B.1 EQUIPMENT

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

MAPINFO, version 6.5
CARIS HIPS/SIPS version 6.0 SP1
CARIS BASE Editor Version 1.0
CARIS HOM ENC Version 3.3 SP3
PYDRO, version 5.9.4
DKART INSPECTOR, version 5.0

B.2 PROCESSING

H-CELL

H-Cell **H11324_H11343_hcell.des** was created in HOM to produce the following Base Cell final products:

| | | |
|------------------------------|-----------------|------------------------------|
| US311324_11343_CU.000 | 1:458,596 Scale | Chart 11340 |
| US311324_11343_SS.000 | 1:40,000 Scale | H11324 & H11343 Survey Scale |

H-cell layers in CARIS HOM are organized as follows:

| | |
|-----------|--------------|
| Layer 100 | Soundings |
| Layer 200 | SOTE |
| Layer 300 | Obstructions |

| | |
|-----------|-------------------|
| Layer 310 | Seabed Areas |
| Layer 320 | Wrecks |
| Layer 330 | Lights & Buoys |
| Layer 400 | Line & Meta |

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

Office processing entailed the use of CARIS BASE Editor to generate a Bathymetry Associated with Statistical Error (BASE) navigation surface model. The BASE Surface model serves as source for all cartographic components incorporated within the submitted Base Cell file.

The field unit submitted a series of surface models generated at different resolutions based upon depth ranges that allowed the highest resolution possible. AHB generated surface models at 2 meter, 4 meter, 6 meter, and 12 meter resolutions; the four individual surface models were combined into one surface with a resolution of 12 meters. AHB selected the resolutions of 2, 4, 6, and 12 meters to maximize the horizontal resolution of shoal areas and minimize the data gaps in deeper areas where high resolution cannot be supported.

BASE Editor processing included the generation of the combined surface model, creation of contours, and extraction of sounding data sets for survey scale and chart scale. A combined 12 meter resolution surface model was used to extract and generate the 1:40k survey scale sounding data set for H-cell production. A product surface was created to produce the contour feature layer at the chart scale of 1:458,596 with a default resolution of 229.298 meters with no defocusing.

Before the HOM file was exported to S-57 format, the file was converted from metric to NOAA chart equivalent values. This conversion renames the DRVAL1 and DRVAL2 values (for depth areas) and VALDCO attributes (for the contours) from the metric equivalent values to the standard NOAA chart contour values to accommodate NOAA traditional rounding standards on charts. This renaming convention assures all soundings fall on the shoal side of the properly charted contour.

Soundings were selected during HOM processing with the CARIS GIS Environmental Variable set to a metric scale (-1,-1, T) to accommodate millimeter precision of the sounding value (CARIS default rounding regime with truncation). This environmental variable was reset to NOAA standard values (0, 0, N) to convert the metric sounding values to whole fathoms (NOAA rounding regime) prior to export of the Base Cell File.

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 values (ENC_CU.000) with all values measured in fathoms.

BASE CELL TESTING

The base cell file US311324_11343_CU.000 was examined using dKart Inspector. Warnings received were all inconsequential. The DSPM.HUNI and DSPM.DUNI were reported to have illegal values, but these errors were expected as originating during ENC conversion to NOAA chart values, so they also can be ignored. All other errors refer to ENC features being retained where QUASOU and VECSOU are attributed as unknown.

CROSS LINES

Due to survey H11343 consisting of only four survey lines of hydrography, the field unit failed to acquire any cross line data for quality assurances and system assessment as specified in the *NOS Hydrographic Surveys Specifications and Deliverables (NOS HHSSD)*, 2003 Edition. However, since H11343 was acquired concurrently and within close proximity of H11324, which met cross line requirements, H11343 multibeam data has been deemed as acceptable for charting purposes.

JUNCTIONS

H11342 (2004) to the east of H11324
F00496 (2004) to the north and east of H11343

A standard junction was affected between the present survey H11324 and H11342 (2004). The junction comparison indicates excellent agreement between H11324 and H11342.

There are no junctional surveys to the north, west or south. Present survey depths are in harmony with the charted hydrography to the north, west, and to the south.

Survey H11343 does not junction H11324 as stated in the Descriptive Report. H11343 does junction with F00496 to the north and to the east. The junction comparison indicates excellent agreement between H11343 and F00496. There are no junctional surveys to the south or west. Present survey depths are in harmony with the charted hydrography to the south and to the west.

C. VERTICAL CONTROL & HORIZONTAL CONTROL

Final vertical correction processing was completed by AHB for H11324 and H11343 using final approved zoning and water level data provided by N/OPSI CO-OPS.

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD 83), UTM projection zone 15. Office ENC processing of this survey required translating the datum to meet S-57 ENC requirements. During CARIS HOM processing the horizontal geodetic datum was translated to Latitude and Longitude (LLDG) World Geodetic System-84 (WGS-84). The S-57 ENC format serves as the exchange file submitted to Marine Chart Division.

D. RESULTS AND RECOMMENDATIONS

D.1 COMPARISON WITH CHART 11340 70th Edition, August 2005

Corrected through NM Aug.13/05

Corrected through LNM Aug.09/05

| | |
|-----------------------|-----------------|
| <u>ENC Comparison</u> | <u>US3GC02M</u> |
| | <u>US3GC03M</u> |

Hydrography

D.1.1 H11324 Charted Soundings and Items

1) The charted wellhead covered 56 fms, in Latitude 27°58'19.456"N, Longitude 93°27'04.699"W (Source ENC US3GC03M). A full hydrographic investigation was not performed during survey H11324. It is recommended that The charted wellhead covered 56 fms, be retained as charted at

the present survey position in Latitude 27°58'19.456"N, Longitude 93°27'04.699"W.

2) The charted wellhead covered 83 fms, in Latitude 27°48'11.966"N, Longitude 93°25'50.577"W (Source ENC US3GC03M). A full hydrographic investigation was not performed during survey H11324. It is recommended that The charted wellhead covered 83 fms, be retained as charted at the present survey position in Latitude 27°48'11.966"N, Longitude 93°25'50.577"W.

D.1.2 AWOIS Items

D.1.2.1 H11324 AWOIS Items

1) AWOIS Item #12372, A CONMACO HAMMER REPORTED SUNK is charted as a non-dangerous sunken wreck PA, least depth unknown, in Latitude 27°48'24.393"N, Longitude 93°53'22.799"W (Source ENC US3GC03M). A Conmaco "Cable" Hammer is a type of offshore drilling equipment, not a vessel. It is recommended that AWOIS 12372, non-dangerous sunken wreck PA, least depth unknown, be revised to a non-dangerous obstruction, least depth unknown at the present survey position in Latitude 27°48'24.393"N, Longitude 93°53'22.799"W.

D.1.2.1 H11343 AWOIS Items

1) AWOIS Item #12373, a charted non-dangerous sunken wreck PA, least depth unknown, in Latitude 28°00'20.474"N, Longitude 93°43'45.700"W (Source ENC US3GC03M). A full hydrographic investigation was not performed during survey H11343. Only one recon survey line was acquired over the charted position. It is recommended that AWOIS 12373, non-dangerous sunken wreck PA, least depth unknown, be retained as charted at the present survey position in Latitude 28°00'20.474"N, Longitude 93°43'45.700"W.

2) AWOIS Item #00221, a charted obstruction reported, least depth unknown, in Latitude 28°16'00.940"N, Longitude 94°06'00.610"W (Source ENC US3GC02M). A full hydrographic investigation was not performed during survey H11343. Only one recon survey line was acquired over the charted position. It is recommended that AWOIS 00221, obstruction reported, least depth unknown, be retained as charted at

the present survey position in Latitude 28°16'00.940"N,
Longitude 94°06'00.610"W.

The charted hydrography originates with prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in section D. of the Descriptive Report (DR). Current survey soundings are generally shoaler than the charted depths; the depth variance between charted depths and survey soundings can be attributed to modern positioning systems, echo sounder systems, and new processing philosophies, software, and programming algorithms.

Except as noted above, the present survey is adequate to supersede the charted hydrography within the common area.

D.2 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

Except as noted above, the present survey is adequate to supersede the charted hydrography within the common area. This is an adequate navigable area survey with full bottom multibeam coverage. No additional field work was recommended by the hydrographer nor noted during office processing.

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. The following NOS charts were used for compilation of the present survey:

11340 70th Edition, August 2005 1:458,596 Scale
Corrected through NM Aug.13/05
Corrected through LNM Aug.09/05

ENC US3GC02M
 US3GC03M


H11324
H11343



Edward A. Owens
Physical Scientist
Verification of Field Data
Evaluation and Analysis

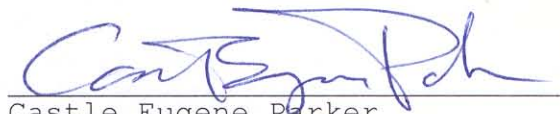
APPROVAL SHEET
H11324 & H11343

The completed surveys have 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 these surveys. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.


Edward Anthony Owens
Physical Scientist,
Atlantic Hydrographic Branch

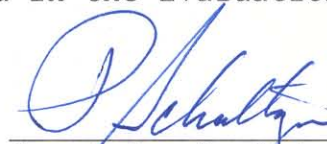
Date: 09/19/06

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.


Castle Eugene Parker
Physical Scientist,
Atlantic Hydrographic Branch

Date: 09/15/06

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 P. Tod Schattgen, NOAA
Chief, Atlantic Hydrographic Branch

Date: 9/20/06