

**H11466**

NOAA FORM 76-35A

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

**DESCRIPTIVE REPORT**

*Type of Survey*      **Hydrographic**

*Registry No.*        **H11466**

**LOCALITY**

*State/Territory*    Georgia

*General Locality*   Tybee Roads

*Sub-locality*        Entrance of South Channel to 1.4  
NM South of Braddock Point

**2005**

CHIEF OF PARTY  
**David B. Elliott -Team Leader**

LIBRARY & ARCHIVES

DATE

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

## HYDROGRAPHIC TITLE SHEET

REGISTRY NUMBER:

**H11466**

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

FIELD NUMBER: N/A

State/Territory: **Georgia**  
General Locality: **Tybee Roads**  
Sub-Locality: **Entrance of South Channel to 1.4 NM South of Braddock Point**  
Scale: \_\_\_\_\_ Date of Survey: **May 17, 2005 to Jun 30, 2005**  
Instructions Dated: **Feb 25, 2005** Project Number: **OPR-G381**  
Vessel: **NOAA Launch 1210**  
Chief of Party: **David B. Elliott - Team Leader**  
Surveyed by: **David Elliott, Robert Ramsey & Laurie Brennan (NRT2)**  
Soundings by: **Innerspace 455**  
Graphic record scaled by: **DE, RR, LB**  
Graphic record checked by: **DE, RR, LB**  
Protracted by: **N/A** Automated Plot: **HP-750C (field)**  
Verification by: **Atlantic Hydrographic Branch *Personnel***  
Soundings in: **Meters *feet* at MLLW**

Remarks: ***Bold, red, italic notes in the Descriptive Report were made during office processing.***

***1) All Times are UTC.***

***2) This is a basic Hydrographic Survey under the Navigable Area Concept.***

***3) Projection is UTM Zone 17.***

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## **DESCRIPTIVE REPORT**

**To accompany**

**OPR-G381  
Hydrographic Survey  
H11466**

**Year of Survey: 2005  
Navigation Response Team 2 - Launch 1210  
David B. Elliott- Team Leader**

### **A. AREA SURVEYED**

This Field Examination survey was conducted in accordance with Port Letter Instructions for project OPR-G381-NRT-04, Savannah River, Georgia. The instructions are dated Feb. 25, 2005 and Change No. 1 dated March 23, 2005.

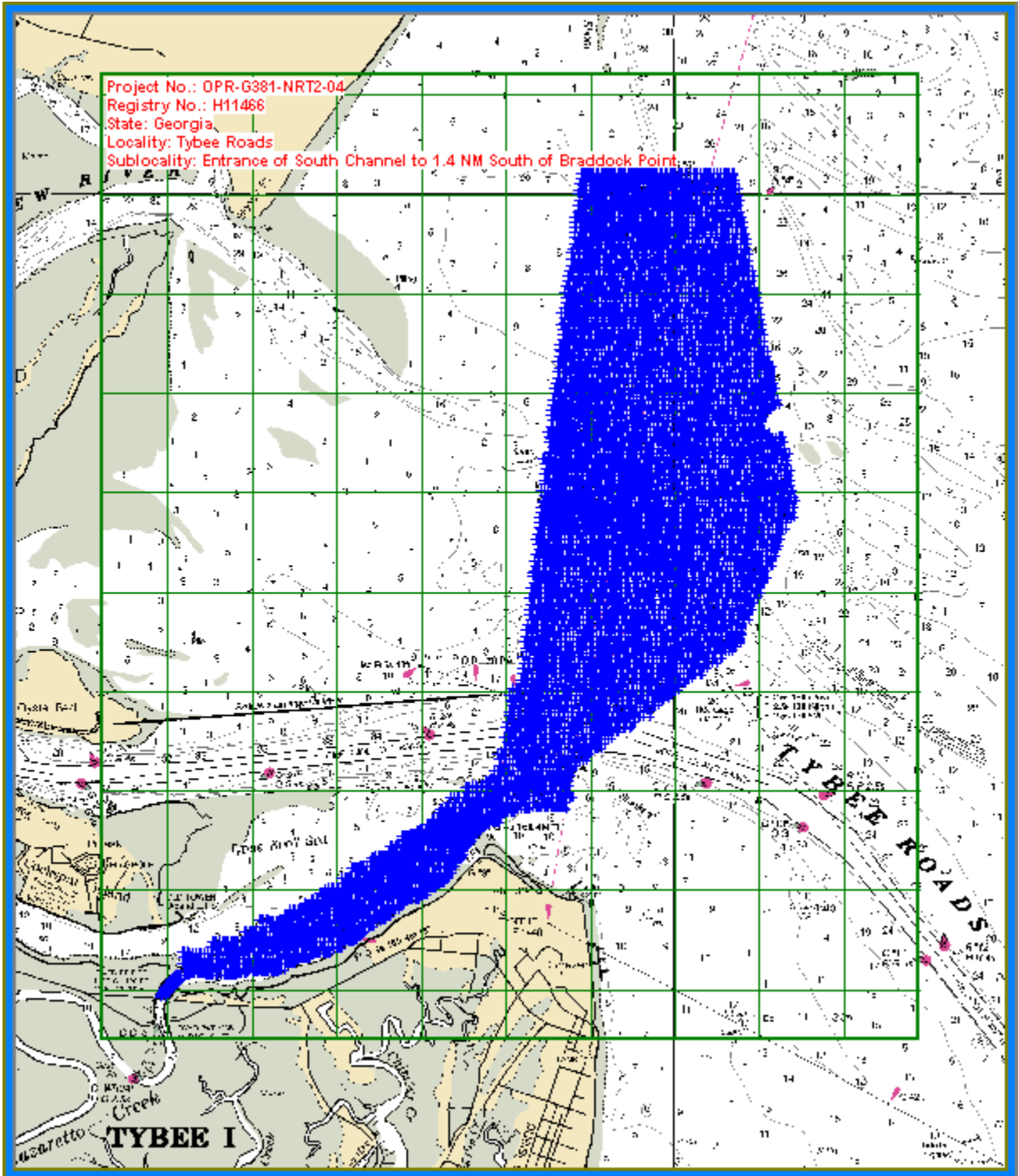
The purpose of this survey was to provide The Port of Savannah, GA contemporary chart updates and validate the Electronic Nautical Chart (ENC). The USCG Group on Tybee Island made this special request for contemporary soundings for their Search and Rescue (SAR) Operations in the confines of H11466. In addition, Office of Coast Survey's National Survey Plan has identified the Approaches to the Port of Savannah, GA as a critical survey area. There is a large amount of Commercial ship traffic using this approach channel.

Survey Limits for Sheet "B" - H11466 are as follows:

32° 05' 36" N  
080° 53' 23" W  
32° 00' 44" N  
080° 48' 33" W

Survey Dates: May 17, 2005 (DN: 137) to June 30, 2005 (DN:181)

Survey limits are displayed graphically in the chartlet on the following page .



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

### **B.1. EQUIPMENT**

Data were acquired by Navigation Response Team 2 and survey Launch 1210. The vessel was configured as described in the Data Acquisition and Processing Report (DAPR)\* for this project. Major data acquisition systems are summarized below. *\*Filed at the Atlantic Hydrographic Branch (AHB).*

An Innerspace model 455 depth sounder, S/Ns 205 was used to collect all echo soundings on this survey. A standard lead line calibrated in meters, S/N 1210, was used during this survey for comparison with the echo sounder. No problems were encountered with any of the sounding equipment.

A Klein 3110 side scan sonar TPU (S/N 315) with a model 3210 towfish (S/N 414), was used throughout this survey. The side scan sonar equipment was used to investigate AWOIS items.

A Trimble DGPS Beacon Receiver (S/N 0220261525) was used as the primary navigation station on launch 1210.

The instrument used for determining corrections for the speed of sound through the water column was a Seabird-Seacat Velocity Profiler, model 19-03, S/N 198671-1477.

NOAA launch 1210, a 27-foot SeaArk with a draft of 0.5 meters, was used to collect all survey data. There were no unusual vessel configurations or problems encountered with the vessel.

### **B.2. QUALITY CONTROL**

Following the Field Procedures Manual and the NOS Hydrographic Surveys Specifications and Deliverables Manual, June 2003 has insured the integrity of the survey data for H11466

The lead line for launch 1210 was calibrated using a steel tape on March 02, 2005 (DN:061). No corrections were necessary. A static draft of 0.5 meters was applied to the sounding plots by the Carris program. The draft was measured by subtracting the difference from a punch mark on the side of launch 1210, 0.6 meter above the transducer, to the water surface.

Settlement and squat measurements for launch 1210 were taken on March 02, 2005 (DN:061) These measurements were conducted in Tybee Island on the Savannah River using the level method. Settlement and squat correctors were applied to the sounding plots using the Carris program.

Differential GPS (DGPS) was used for all hydrographic data acquired on this survey. DGPS performance checks were conducted in accordance with FPM 3.4.4 by comparing the DGPS position of the vessel to a high accuracy (1<sup>st</sup> order) calibration point.

### **Side Scan Sonar Quality Control**

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 100/500kHz.

A 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 and single beam reduced line spacing was performed in other areas where warranted. The towfish was deployed off the starboard quarter of the vessel, which proved very stable. Distorted images caused by strong tidal currents, or sea state, were seen periodically. Significant contacts and shadows were processed with Caris HIPS/SIPS to determine the height off the bottom. The significant contacts were then compared by position, as well as common depth and relationship to channels to determine if further investigations were needed. All areas surveyed were track line/swath line plotted to insure complete coverage.

The system frequencies used were 100kHz and 500kHz. The recorder was set on one of either 50/75/100-meter range scales. There were no water depths greater than 35 meters.

When operating in shoaler waters (e.g. less than 30 meters deep), a short tow was required for the Klein system. When cable-out was approximately 7 meters or less, minor degradation of the side scan imagery and Innerspace echosounder traces were noted due to cross-talk between the two systems.

### **Junctions *See also the Evaluation Report.***

Sounding comparisons were made from surveys H-09459, 1974/1:10,000 & H09197, 1973/1:20,000. In general soundings have discrepancies of three to five feet.

## **B.3. CORRECTIONS TO ECHO SOUNDING**

A table detailing all sound velocity casts is contained in Separates III\* - Sound Velocity Profile Data. Sound velocity data has been submitted with the digital data package. Cast data is organized on the digital media as follows: vessel / day of cast / cast data. \* *Filed with the original digital data.*

There are no deviations to be discussed in this section.

## C. VERTICAL AND HORIZONTAL CONTROL

The instrument used for determining corrections for the speed of sound through the water column was a Seabird-Seacat Velocity Profiler. The manufacturer calibrated this unit on January 4, 2005. Data quality assurance tests were performed after each cast. Program VELOCWIN was used for computing the correctors. Corrections were applied to the sounding plot using the Carris HIPS.

Field soundings are corrected by unverified actual heights from NOAA/CO-OPS.

The Real Time Actual 6 min Tides are downloaded from:

"http://co-ops.nos.noaa.gov/data\_res.html", for all gauges required in the given projects defined by the ZDF file provided in the project letter, and instruction. Tide values are downloaded in blocks of data that covers the Times of Hydrography, and saved in a text file format. The MapInfo program is then used with the "HYDRO\_MI" pre-Survey function, of "Create Cowlis", this function converts the text file into a Caris tide file (.tid).

All elevations and soundings on survey H11466 are based on MLLW unless otherwise specified.

A Request for Approved Tides letter was sent to N/OPS1 on July 14, 2005 (Appendix IV).

### **Horizontal Control** *See also the Evaluation Report.*

The horizontal datum used for this survey is the North American Datum of 1983 (NAD 83), projected using UTM zone 17. The control reference station used for this survey was the USCG DGPS Beacon.

Horizontal dilution of precision (HDOP) was monitored on Hypack daily on all survey platforms. Neither value exceeded 4.00, and adequate satellite coverage was maintained throughout the survey period. All positioning equipment was operated in a manner consistent with the manufacturer's 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 the Evaluation Report.*

There are three charts affected by this survey:

11505, 2nd edition, Apr. 01, 2004	1:40,000
11512, 60 <sup>th</sup> edition, Dec. 01, 2004	1:40,000
11514, 27 <sup>th</sup> edition, July 10, 2004	1:20,000
<b>11516, 30<sup>th</sup> edition, Aug 01, 2003</b>	<b>1:40,000</b>



## General Agreement with Charted soundings

In general survey soundings did not compare favorably. There are some regions in the northeast having differences of five feet. There are some regions in the central survey limits of five to six feet. All charted soundings should be superseded by this survey. *Concur.*

## The following is a list of notable sounding discrepancies on the chart:

- 1.) The region charted fifteen foot at 32° 03' 50" N, 080° 49' 26" W, now reflects shoal to three foot. *Concur.*
- 2.) The region charted nine to ten foot at 32° 03' 23" N, 080° 50' 42" W, now reflects soundings in the two to three foot range. *Concur.*
- 3.) The offshore shoal at 32° 03' 43" N, 080° 49' 12" W, has migrated northwest approximately 400 meters. *Concur.*
- 4.) The six foot contour at 32° 03' 40" N, 080° 50' 42" W, has migrated to the southeast approximately 1100 meters. *Concur.*
- 5.) The twelve foot contour at 32° 03' 21" N, 080° 50' 08" W, has migrated south approximately 750 meters. *Concur.*
- 6.) The zero foot contour at 32° 01' 47" N, 080° 51' 06" W, has migrated north approximately 200 meters. *Concur. Add partial low water curve. Defer to MCD for adequate charting of this area.*

## The following is a list of items that were investigated or disproved by 200% side scan sonar:

There were no side scan operations conducted during acquisition of survey H11466. There was some side scan conducted on F-00501, Field Examination within the confines of H11466. This data, which is for disproval of AWOIS, submerged features and currently ongoing will follow this survey in 2005. *Concur. Features within the limits of the present survey are to be retained as charted until subsequent information indicates otherwise.*

## The following is a list of Charted sounding notations that were investigated by echo sounder.

There were no charted sounding notations to be addressed.

## **AWOIS Item Investigations**

There were four AWOIS items within the survey limits, however they were not included on this survey. They were addressed on survey F-00501, Field Examination for Savannah River, GA. These items along with others will be submitted in 2005. *Concur.*

## **Dangers to Navigation**

There were no DTONS within the confines of H11466. *Concur.*

## **D. 2. ADDITIONAL RESULTS**

### **Aids to Navigation and Other Detached Positions** *See also the Evaluation Report.*

All Navigation Aids serve their intended purpose. Charted positions should be superseded by new survey positions. There were no detached positions taken on floating aids as they are all on their charted stations.

Fixed aids were addressed on F-00501, Field Examination and the Chart Evaluation File (CEF). *Concur.*

### **Chart Evaluation File (CEF)**

A pilot project was initiated on OPR-G381 named the Chart Evaluation File. This form of survey documentation is primarily for shoreline changes and alongshore features. The file is generated by Remote Sensing Division (RSD) and given to the NRT in a perspective port for visual verifications or physical position changes via Trimble Backpack acquisition. A MapInfo spreadsheet detailed the regions of discrepancies and NRT2 verified these features as to be removed, retained or changed. Upon completion of this spreadsheet the file was returned to RSD for final digital compilation of the raster and vector charts. After final compilation RSD will forward the digital file to Marine Chart Division (MCD) for corrections. The updates will be posted on the Survey Update Notice (SUN). The CEF will be included with the survey package for F-00501, Field Examination of Savannah River in 2005. This CD is being submitted to the Marine Center strictly for **Information Only** and does not require additional work by Atlantic Hydrographic Branch personnel. The objective is for the evaluators to see what features were addressed for shoreline changes that will subsequently be revised to the digital shoreline file. Some seaward features along the shoreline that may have required side scan sonar for disproval or additions are likewise addressed in the CEF spreadsheet. These features that are investigated by the NRT are either re-positioned on discovery or recommended for removal to RSD. When a NRT begins port surveys for ENC and Field Examinations, the CEF will be their first priority and in time the shoreline changes may have reached the chart products before additional surveys are submitted to the Marine Center.

### **Ferry Routes**

There are no Ferry routes within the confines of H11466. *Concur.*

### **Submarine Cables and Pipelines**

There are no cables or pipelines. *Concur.*

### **Bridges**

There is one bridge at Lazaretto Creek, the Horizontal and Vertical clearances were checked by NRT2 and are adequately charted. *Concur.*

**E. APPROVAL SHEET**

**OPR-G381**

Hydrographic Survey

Tybee Roads

Savannah River, GA

**Survey Registry No. H11466**

Field operations for this 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:**



**David B. Elliott - Team Leader  
Navigation Response Team 2**



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

**TIDE NOTE FOR HYDROGRAPHIC SURVEY**

**DATE :** August 10, 2005

**HYDROGRAPHIC BRANCH:** Atlantic  
**HYDROGRAPHIC PROJECT:** OPR-G381-NRT2-2004  
**HYDROGRAPHIC SHEET:** H11466

**LOCALITY:** Entrance of S. Channel to Braddock Pt, Tybee Roads, GA  
**TIME PERIOD:** May 17 - June 30, 2005

**TIDE STATION USED:** 867-0870 Fort Pulaski, GA  
Lat. 32 2.2' N Long. 80 54.1' W

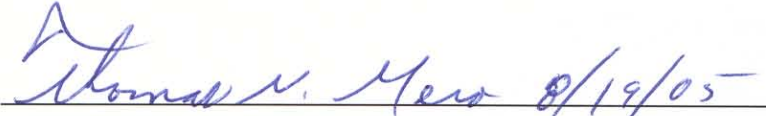
**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 0.000 meters  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 2.173 meters

**REMARKS: RECOMMENDED ZONING**

Preliminary zoning is accepted as the final zoning for project OPR-G381-NRT2-2004, H11466.

Zones GA1, GA5 & SA172D included in the preliminary zoning file "G381NRT22004CORP" are the applicable zones for sheet H11375.

**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).

  
CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION



**ATLANTIC HYDROGRAPHIC BRANCH  
EVALUATION REPORT FOR H11466 (2005)**

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 EQUIPMENT**

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

Hydrographic Processing System  
MicroStation J, version 07.01.04.16  
I/RAS B, version 07.01.000.18  
MapInfo, version 6.5  
CARIS HIPS/SIPS 5.4  
PYDRO, version 5.3.3rc5

The smooth sheet was plotted using a Hewlett Packard DesignJet 2500CP plotter.

**Junctions**

There are no contemporary junction surveys in the common area of the present survey.

**C. VERTICAL AND HORIZONTAL CONTROL**

**Horizontal Control**

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD83), UTM Zone 17N. Office processing of this survey is based on these values.

**D. RESULTS AND RECOMMENDATIONS**

CHART COMPARISON 11505 ( 2<sup>nd</sup> Edition, Apr 01/04)  
                          11512 (60<sup>th</sup> Edition, Dec 01/04)  
                          11516 (30<sup>th</sup> Edition, Aug 01/03)

The charted hydrography originates with prior surveys and

requires no further consideration. The hydrographer makes an adequate chart comparison in section D. of the Descriptive Report. The following should be noted:

## D.2. ADDITIONAL RESULTS

### Aids to Navigation

1. Green daybeacon "1" is charted in Latitude 32°03'25.24"N, Longitude 80°49'24.67"W on chart 11512, 60<sup>th</sup> edition. On chart 11505, 2<sup>nd</sup> edition, it is charted in Latitude 32°02'50.75"N, Longitude 80°50'31.38"W. It is recommended that Marine Charting Division (MCD), Update Service Branch determine the correct charting disposition for this feature.

2. The aid to navigation charted in Latitude 32°05'01.00"N, Longitude 80°50'02.00"W is shown as a fixed aid (Fl G 6s 16ft 4M "5") on chart 11516. The same aid to navigation is shown as a floating aid (G"5" Fl G 6s) on chart 11512. It is recommended that the aid to navigation be deferred to MCD, Update Service Branch determine the correct charting disposition of this feature.

### ADEQUACY OF SURVEY

This is an adequate hydrographic survey. No additional work is recommended.

### 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 chart was used for compilation of the present survey:

11505 (2<sup>nd</sup> Ed., Apr/04)  
 Corrected through NM Apr.10/04  
 Corrected through LNM Mar. 30/04  
 11512 (60<sup>th</sup> Ed., Dec/04)  
 Corrected through NM Dec. 25/04  
 Corrected through LNM Dec. 14/04  
 11516 (30<sup>th</sup> Ed., Aug/03)  
 Corrected through NM Jul. 26/03  
 Corrected through LNM Jul. 15/03

*Robert R. Hill*

**Robert Hill**

Cartographer

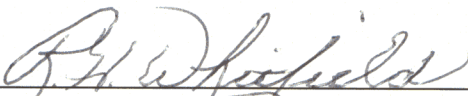
Verification of Field Data

Evaluation and Analysis



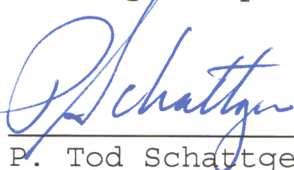
APPROVAL SHEET  
H11466 (2005)

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disapproval of charted data. The digital data have been completed and all revisions and additions made to the smooth sheet 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.

  
\_\_\_\_\_  
Richard H. Whitfield, Cartographer,  
Atlantic Hydrographic Branch

Date: 11/23/05

I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.

Approved:   
\_\_\_\_\_  
P. Tod Schattgen  
Commander, NOAA  
Chief, Atlantic Hydrographic Branch

Date: 12/19/05

