H11862

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey *Navigable Area Surveys*

Registry No. **H11862**

LOCALITY

State **South Carolina**

General Locality **Charleston**

Sub-locality Wando River

2009

CHIEF OF PARTY
Robert W. Ramsey Jr
Navigation Response Team 2

LIBRARY & ARCHIVES

DATE

NOAA FORM 77-28U.S. DEPARTMENT OF COMMERCE (11-72)NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:
HYDROGRAPHIC TITLE SHEET	**H11862**
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: Sheet "C"

State/Territory: **South Carolina**

General Locality: **Charleston**
Sub-Locality **Wando River**

Scale: **1:10,000** Date of Survey: 03/16/2009- 04/23/2009

Instructions Dated: **09 Apr, 2008** Project Number: **OPR-G347-NRT2-08**

Change No.1 **28 July 2009**

Vessel: **NOAA Launch 1210**

Chief of Party: **Robert W. Ramsey Jr. - Team Leader**

Surveyed by: **Robert Ramsey, Erik Anderson (NRT2)**

Soundings by: **ODOM Echotrac CV**

Graphic record scaled by: **RWR, EA**, Graphic record checked by: RWR, EA

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

Verification by: **Atlantic Hydrographic Branch**

Soundings in: **Meters at MLLW** ***(H-Cell units are in feet at MLLW)***

Remarks:

1) All Times are UTC.

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

3) Projection is UTM Zone 17. ***Bold, Red, Italic notes in the DR were made during office processing.***

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SPECIAL NOTE:

Please read all notes and Special notes in this report prior to conducting ESAR.
The drive letter assigned to the data drive is "O". All PSS, Sessions, and MapInfo workspaces have been opened and saved on this drive, as such, so they will open directly from the drive, in their entirety.

DESCRIPTIVE REPORT

to accompany

OPR-G347-NRT2-08

HYDROGRAPHIC SURVEY
H11862

Scale of Survey: 1:10,000
Year of Survey: 2009
Navigation Response Team 2 - Launch 1210
Robert W. Ramsey Jr.- Team Leader

A. AREA SURVEYED

This hydrographic survey was conducted in accordance with ***Port Letter Instructions for project OPR-G347-NRT2-08, Charleston, South Carolina. The instructions are dated April 9, 2008. ***Data filed with original field records.***

Charleston is the largest city and port in South Carolina and is a rich agricultural area with numerous manufacturing plants surrounding the city. Since Charleston is a busy port, new bathymetry data will be used to update the nautical charts. In addition, the port of Charleston is listed as one of the MTS 175 ports; this area is in need of ENC verification. The Remote Sensing Division, from National Geodetic Survey, has released a Chart Evaluation File (CEF) of the area for Charleston, SC; this CEF was addressed in survey F-00551. The hydrographic data from this project will help ensure navigational safety through updated critical nautical charts and provide new information for emergency response organizations to use in the event of a marine casualty or coastal storm.

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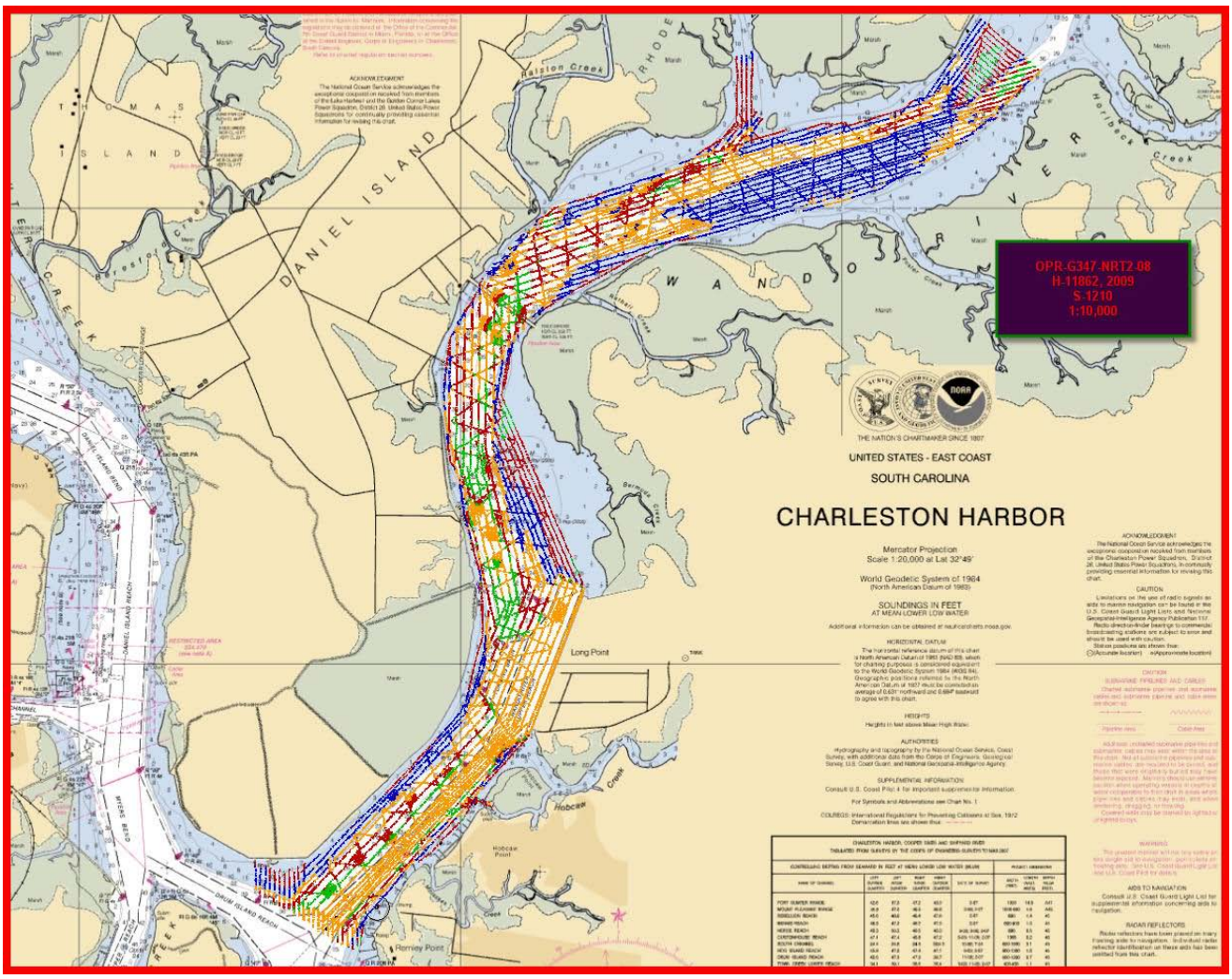
Survey limits are displayed graphically in the chartlet on the following page.



OPR-G347-NRT2-08 / H11862 / Sheet "C"

The following List contains Stats:

VBES only=	68 LNM	SSS only=	71 LNM
Combination VBES/SSS=	71 LNM	X/L=	23 LNM
Development=	25 LNM	BS validated=	4
Features=	157	Total=	139 LNM

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

B.1. EQUIPMENT

Data was 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, located in O:\OPR_G347_NRT2_08\Data_Acquisition_&_Processing_Report\. Major data acquisition systems are summarized below. **** Submitted with H-Cell Deliverables.***

NOAA launch 1210, a 30-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.

An ODOM EchotracCV2, Fathometer, was used to collect all echo soundings on this survey. This echo sounder is a dual frequency instrument but is only used in high frequency with a single transducer.

Klein 3000 side scan sonar was used throughout this survey. The side scan sonar equipment was used to investigate AWOIS items.

An Applanix POS MV 320 Ver4 (S/N 2546) was used as the primary navigation station and motion sensor on launch 1210 for all hydrographic data acquisition.

A Trimble DGPS Beacon Receiver was used provide RTCM broadcast correctors to the Applanix POS MV system on launch 1210.

The Instrument used for determining corrections for the speed of sound through the water column was an ODOM Digibar Ser # 98295-020606. A Seabird-Seacat Velocity Profiler, model 19-03, Ser# 198671-1477, used for quality control checks. CTD casts are processed in the Velociwin program supplied by the Hydrographic Systems and Technology Program (HSTP). ***Concur.***

B.2. QUALITY CONTROL

Following the *Field Procedures Manual, April 2009 and the NOS Hydrographic Surveys Specifications and Deliverables Manual, April 2009 has insured the integrity of the survey data for H11862. ***Filed at AHB.***

Differential GPS (DGPS) was used for all hydrographic data acquired on this survey. DGPS performance checks were conducted in accordance with FPM 3.4 by comparing the DGPS position of the vessel to a high accuracy calibration point monthly. ***Concur.***

Echo Sounder Control

Lead line comparisons were conducted and compared to the digital depth and draft.
The leadline log comparisons are in O:\OPR-G347-NRT2-08\H11862\Descriptive Report***Separates\II. Sound Speed_Data. ***Do not concur. Data filed with original field records.***

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 100/500 kHz.

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. 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. Mosaics were generated for 100% and 200% to insure complete coverage. ***Concur***

The system frequencies used were 500 kHz. The recorder was set on one of either 50/75 meter range scales. There were no water depths greater than 20 meters. ***Concur***

When operating in shoaler waters (e.g. less than 3 meters deep), a short tow was required for the Klein system. When cable-out was approximately 4 meters or less, minor degradation of the side scan imagery occasionally occurred. ***Concur***

Junctions ***See also the Evaluation Report***

The survey junctions with H-11861 (2008) to the south. The survey from 2008, H-11861 compared favorably to the current survey within sub meter values. ***Concur***

OCS considers a standard junction comparison acceptable if sounding variance is 1 meter or less between the present and junctioning surveys.

B.3. CORRECTIONS TO ECHO SOUNDING

Velocwin SVP cast have been inserted into the final Pydro PSS as suggested in the Field Procedures Manual. ***Concur***

The leadline log comparisons are in O:\OPR-G347-NRT2-08\H11862\Descriptive Report*Separates\II. Sound_Speed_Data. A copy of the Velocity DQA file is located here as well. ***Do not concur. Data filed with original field records.***

There are no deviations to be discussed in this section. ***Concur.***

B.4. DATA PROCESSING

There was one base surface created in Caris for the VBES data set. It was created at 5m resolution and Finalized. No BAGs were generated in the field, as per directions from OIC AHB.

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

The Instruments used for determining corrections for the speed of sound through the water column were an ODOM Digibar and a Seabird-Seacat Velocity Profiler. SVP casts are downloaded and processed in the Velociwin program supplied by the Hydrographic Systems and Technology Program (HSTP). Corrections were applied to the sounding plot using the Caris HIPS.

Field soundings are corrected by verified tides data from NOAA/CO-OPS, as per
WATER LEVEL INSTRUCTIONS
OPR-G347-NRT2-2008 Charleston, SC
(2/04/2008 MC)

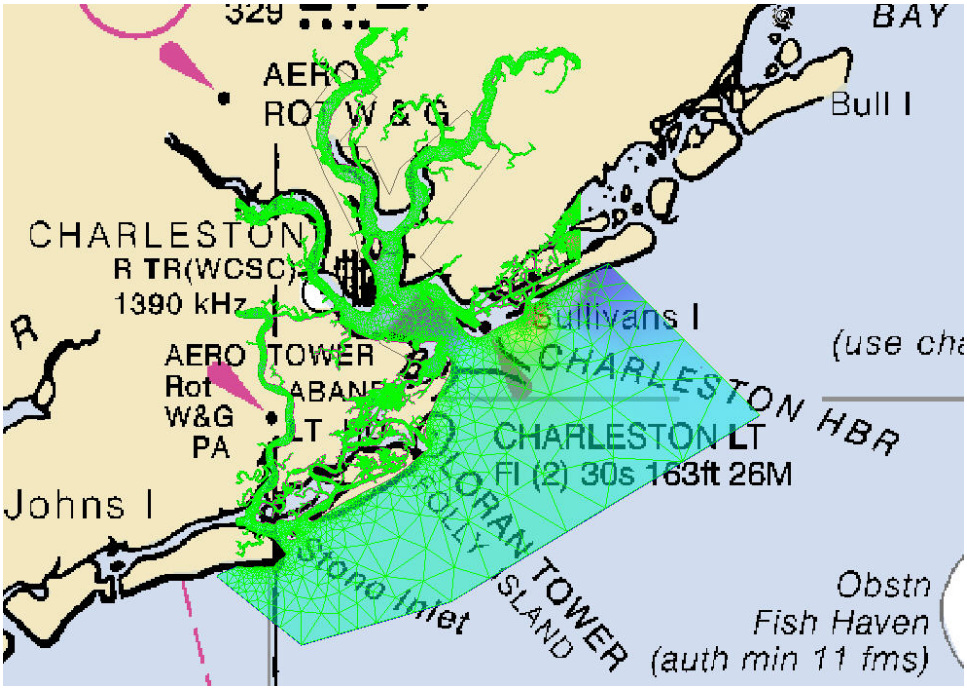
This is a TCARI controlled project.

Pertinent water level data were provided via email data transmissions through TIDEBOT, to the Field unit. Water level data requested and used were both 6 min Verified for final data submission. All data had "Verified" tides applied prior to submission. ***Concur***

The operating water level station at Charleston, SC (8665530) provided water level reducers for this project, during all periods of hydrography. ***Concur***

Tidal Constituent and Residual Interpolation (TCARI) method uses harmonic constituents and residuals from historical and operating water level stations to provide precise water level correction for bathymetric surveys.

For hydrography in the area of Charleston, SC the TCARI grid "G347NRT22008-TCARI.tc" supplied in conjunction with the water level data from Section 1.3.4 to produce a seamless tide correction, was used as the source file. This file was renamed to be matching of the survey "H11862_verified.tc". Refer to the TCARI Field SOP for detailed TCARI instructions. A copy of the *.tc file and all *.dat water level files is included with each survey, and can be found in *O:\OPR-G347-NRT2-08\H11862\Caris\Tide folder. ***Concur with conditions. Found in *OPR-G347-NRT2-08\H11862\Caris \Tide folder.***



All elevations ***are based on MHW datum, while*** ~~and~~ soundings on survey H11862 are based on MLLW unless otherwise specified.

A Request for Approved Tides letter was sent to <smooth.tides@noaa.gov> on 29 April 2009. This request was generated by PYDRO and can be found in ***O:\OPR-G347-NRT2-08\H11862\Descriptive Report\Appendices\IV. Tide_&_Water_Levels\Request_For_Tides. The smooth tides were approved on 28 May 2009, and all data for H11862 have had smooth tides applied to the PSS, then final merge was applied. ***OPR-G347-NRT2-08\H11862\Descriptive Report\Appendices\IV. Tide & Water Levels\Request For Tides. Appendix IV appended to this report.***

Horizontal Control

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

Horizontal dilution of precision (HDOP) was monitored on Hypack daily on the survey platform. 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.
*** Submitted with H-Cell Deliverables.***

D. RESULTS AND RECOMMENDATIONS *See also the Evaluation Report*

D.1 Chart Comparison

There are exceptionally strong tidal currents over three knots noted in the vicinity of the survey region, predominately on the ebb tide.

The port of Charleston is a high vessel traffic area.

Chart 11524 was used for comparison on this survey due to its scale and proximity of its region related to acquisition. .

Chart Number	Edition Date	Scale
11524	51stFebruary 2008	1:20,000

ENC Cell	Edition	Update Application	Issue Date	Corresponding Chart
US5SC14M	17th	2008-02-05	2008-02-05	11524

General Agreement with Charted soundings

In general survey soundings compared reasonably well within two to three feet of the charted soundings. All charted soundings should be superseded by this survey. Notable shifts in the contours were evident, most notable of which was the 18 ft, north of the Wando terminal to SR526 Bridge. The strong ebb tides have eroded away its migration into the natural channel.

The following is a list of comparisons between the survey data and charted shoals or potentially hazardous features as well as notable sounding discrepancies on the chart:

18 ft contour located at 32°50'34.01" N, 079°53'41.65" W, has migrated due SSE 160m, with a 15 ft sounding seaward of the existing 18ft contour at 30°50’34.00”N 079°53’41.65”W. ***Concur. Update the contours and the area based on present survey data.***

New 18 ft isolated sounding seaward of 18 ft contour was located at 32°51’52.45”N 079°53’08.34”W. ***Concur. Update the contours and the area based on present survey data.***

New 16 ft Subm Wk was located at 32°51'55.~~68~~*728*" N 079°52'46.~~38~~*352*" W. This wreck poses no danger to navigation of normal vessel traffic in this area. ***This wreck is outside the 18 foot contour in 19-20 feet of water. Chart a dangerous sunken wreck with a least depth of 16 feet in the present survey location.***

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12 ft Wk rep (1998) located at 32°52'06.725"N, -079°52'58.036"W, no longer exist. ***Concur. Delete 12 foot dangerous sunken wreck and note rep 1998 and update the area with present survey depths.***

12 ft contour located at 32°52'02.27" N 079°52'30.3" W, has receded to the SSE 250m. ***Concur. Update the contours and the area based on present survey data.***

The three charted Piles centered at 32°51'32.27" N, 079°53'35.04" W exist as charted, although they should be charted as three Dols, (detailed note and photo can be found in the Feature Report). ***Concur. Revise note from Piles to Dols. Retain symbols as charted.***

The charted ruins extending from shore at 32°51'37.14" N, 079°53'57.85" W, could not be identified. The area was to shallow to fully side scan, however the coverage obtained and the visual observations at MLLW, showed no signs of existence. It is recommended that these ruins be removed. ***Concur. It is recommended that the ruins be deleted and the shoreline updated based on latest RSD shoreline data and imagery.***

The charted ruins extending from shore to 32°51'19.76" N, 079°54'05.54" W, could not be identified. The area was to shallow to fully side scan, however the coverage obtained and the visual observations at MLLW, showed no signs of existence. Further, there is now a newly constructed Public pier at this location. It is recommended that these ruins be removed (detailed note and photo can be found in the Feature Report). ***Concur with conditions. This is not a pier in ruins, this is submerged piles. It is recommended that the submerged piles and the charted pier be deleted. It is further recommended that a new pier be added based on findings from the latest RSD shoreline data and imagery.***

The charted Subm pile at 32°50'41.3" N, 079°54'01.11" W, could not be identified. The area was to shallow to fully side scan, however the coverage obtained and the visual observations at MLLW, showed no signs of existence. This point is exposed at MLLW. It is recommended that this feature be removed. ***Concur. Remove charted submerged pile note and symbol***

The charted ruins extending from shore to 32°50'36.72" N, 079°53'57.8" W, could not be identified. The area was to shallow to fully side scan, however the coverage obtained and the visual observations at MLLW, showed no signs of existence. Further, there is now a newly constructed Private pier at this location. It is recommended that these ruins be removed (detailed note and photo can be found in the Feature Report). ***Concur. Remove charted ruins and add pier based on latest RSD shoreline data and imagery.***

The two charted rocks at 32°50'15.98" N, 079°53'53.93" W, could not be identified. The area was to shallow to fully side scan, however the coverage obtained and the visual observations at MLLW, showed no signs of existence. Though these rocks lie in close proximity to shore, it is recommended that they be retained. ***Concur.***

The two charted Subm piles centered at 32°49'56.22" N, 079°53'57.84" W, could not be identified. The area was to shallow to fully side scan, however the coverage obtained and the visual observations at MLLW, showed no signs of existence. Though these piles lie in close proximity to shore, it is recommended that they be retained. ***Concur.***

There is one noted pier, not addressed elsewhere in this report, which was identified to exist in the USGS imagery, however does not exist on either the RNC or ENC products. The offshore position is at 32°49’02.56”N, 079°54’19.198”W (Image below). ***It is recommended that the pier is added to the RNC and raster based on current RSD shoreline and imagery.***

Large sand waves of one meter plus were noted throughout the area north of SR 526 Bridge.

The isolated 18 ft shoal located at 32°51'44.041"N, -079°53'44.428"W exists. ***Concur.***
The isolated 16 ft shoal located at 32°51'59.001"N, -079°53'11.000"W exists. ***Concur.***
The isolated 18 ft shoal located at 32°51'56.063"N, -079°53'04.423"W exists. ***Concur.***
The isolated 18 ft shoal located at 32°52'22.826"N, -079°51'19.319"W exists. ***Concur.***
The isolated 12 ft shoal located at 32°52'03.83" N, -079°52'03.7" W exists. ***Concur.***
Update the location and extent of the above shoals based on present survey data.

Detailed point feature information can be found “H11862_DR_Features_RPT.pdf” located ~~O:\~~OPR-G347-NRT2-08\H11862\Descriptive Report\Appendices\II. Survey_Feature_Report.

The following list contains brief descriptions of seaward controlling depths found by the current survey lying in the maintained channels.

Maintained Channel Seaward Least Depths: *See also the Evaluation Report*

Wando River Lower Reach 45ft 32°49’05.42” N 079°54’22.78” W

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Wando River Upper Reach	42ft	32°50’11.77” N 079°53’31.71”W

Charted Depth and Turning Basins: *See also the Evaluation Report*

Wando River Turning Basin	47ft	32°49’55.21” N 079°53’50.11”W

AWOIS Item Investigations *See also the Appendices and the Evaluation Report*

There were Four AWOIS items within the confines of H11862. Detailed point feature information can be found “H11862_DR_Features_RPT.pdf” located in O:\OPR-G347-NRT2-08\H11862\Descriptive Report\Appendices\II. Survey_Feature_Report*.

AWOIS#		Search	Recommendation	GP(NW)
7625	*Pile*	Visual	Retain	*32°52'39.551", -079°51'25.976"*
523	*3 ft Wk*	Visual	Remove	*32°48'55.819”, -079°54'26.532"*
9895	*Subm pipe*	SSS	Remove	*32°50'19.651", -079°53'53.834"*
10392	*12 ft Wk*	SSS	Remove	*32°52'06.725", -079°52'58.036"*

The following is a list of charted features that were investigated on H11862 that contain the label PA, ED, PD or Rep that were not assigned as AWOIS:

16 ft Rep (2005) located at 32°50'37.262”N, -079°53'46.901"W, does not exist. ***Concur.***
16 ft Rep (2005) located at 32°50'43.915”N, -079°53'57.089”W, does not exist. ***Concur.***
10 ft Rep (2005) located at 32°50'51.342”N, -079°53'50.596"W, does not exist. ***Concur.***
3 ft Rep (2005) located at 32°50'53.666"N, -079°53'38.426"W, does not exist. ***Do not Concur. See also the Evaluation Report.***
13 ft Rep (2005) located at 32°52'10.096"N, -079°52'47.070"W, does not exist. ***Concur.***
14 ft Rep (2005) located at 32°52'12.741"N, -079°52'22.699"W, does not exist. ***Concur.***

**** Update the chart with present survey depths in these areas.***

***** Retain area as charted.***

Dangers to Navigation *See also the Appendices*

There was one DTONS within the confines of H11862, submitted by the field. This feature was sent in advance to MCD in a zip file via e-mail transmission on 01 April 2009 to mcd.dton@noaa.gov as per FPM 4.4.4. Detailed point feature information can be found in the DTON Reports located in Appendices I, as well as the e-mail receipt of these DTON’s, and LNM actions issued. There were no other additional DTON’s identified or submitted from the field, as these items can be addressed during post-process review of this survey by AHB. ***Concur. Feature is currently being shown on latest edition of NOS chart 11524.***

D. 2. ADDITIONAL RESULTS

Aids to Navigation and Other Detached Positions

Navigation Aids serve their intended purpose. There was no ATON Report generated for survey H11862. The assigned ATON Report was submitted at the CEF survey # F00551, conclusion.

Ferry Routes

There is no Ferry route within the confines of H11862. ***Concur***.

Submarine Cables and Pipelines

There is one submerged pipeline area on H11862. ***Concur***

Bridges ***See also Evaluation Repot***

There is one bridge (SR 526) within the confines of H11862. The vertical and horizontal clearances are adequately charted. ***Concur. There are problems with the charted orientation and location of the bridge. See the Evaluation Report.***

Bottom Samples

There were four bottom samples validated on H11862. These samples were acquired and compared to those on the chart. If they were found to be in agreement, no position was taken, and they were entered into the PSS by method of a Chart GP. The random samples were in agreement with the chart therefore extensive sampling was not warranted. The Survey feature report can be found in ******Appendices II. ***Concur. *Data appended to this report. Seabed area characteristics in the survey area were brought forward from the ENC to be retained as charted.***

Historic Wrecks

There were no historic wrecks confirmed by State Archaeologists on H11862. There was one wreck identified by NRT2 in this survey, with one additional suspect, buried subm wreck. These features and information have not been released to the public, and can be found in the feature report located in ******Appendices II. ****Data appended to this report.***

Special Notes:

The PSS contained on the drive with the survey data has been redirected to the portable drive. This PSS will open in its entirety with all images directly from the drive. The PSS can be located at: ******O:\OPR-G347-NRT2-08\H11862\PSS. The final PSS submitted on the data drive has been verified free of all outdated and stale data. ****OPR-G347-NRT2-08\H11862\PSS***

The MapInfo 9.5 workspace named “H11862_working.wor” can be found at:
***O:\OPR-G347-NRT2-08\H11862\Public_Relations_&_Constituent_Products\Field Products**
This workspace has likewise been redirected too, and will open from the portable drive. ****OPR-G347-NRT2-08\H11862\Public_Relations_&_Constituent_Products\Field Products***

The Coast Pilot Report was sent to OCS.NDB@noaa.gov , on 05/04/2009 as per FPM 5.2.3.2.5

The survey outlines were sent to survey.outlines@noaa.gov on 05/04/2009 as per FPM 5.2.3.3.3

The raw data directory size report was sent via e-mail to hydro.info@noaa.gov and copied to the Chief of the Atlantic Hydrographic Branch on 05/05/2009 as per FPM 5.2.3.3.6.

The Letter Transmitting data was sent via e-mail to LTDSubmission.AHB@noaa.gov on 08 June 2009 as per FPM 5.2.5

E. APPROVAL SHEET

OPR-G347-NRT2-08

Charleston, SC

Survey Registry No. H11862

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 by: Robert W Ramsey Jr

Digitally signed by Robert W Ramsey Jr
DN: cn=Robert W Ramsey Jr, o=USDOC/NOAA/NOS/NRB, ou=NRT-2, email=Robert.Ramsey@NOAA.GOV, c=US
Date: 2009.06.08 14:06:16 Z

Robert W. Ramsey Jr - Team Leader
Navigation Response Team 2

APPENDIX I

DANGERS TO NAVIGATION REPORT

H11862 DR Appendix 1

Registry Number: H-11862

State: South Carolina

Locality: Charleston Harbor

Sub-locality: Wando River

Project Number: OPR-G347-NRT2-08

Survey Date: 03/26/2009

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11524	51st	02/01/2008	1:20,000 (11524_1)	USCG LNM: 04/14/2009 (06/09/2009) NGA NTM: 09/18/1999 (06/13/2009)
11521	29th	02/01/2008	1:80,000 (11521_1)	[L]NTM: ?
11520	43rd	10/01/2008	1:432,720 (11520_1)	[L]NTM: ?
11009	38th	12/01/2006	1:1,200,000 (11009_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	No wake Sign	Marker (privately maintained)	-3.61 m	32° 49' 23.5" N	079° 53' 55.4" W	---

Appendix 1 - DR_DToN

1.1) No wake Sign

DANGER TO NAVIGATION

Survey Summary

Survey Position:	32° 49' 23.5" N, 079° 53' 55.4" W
Least Depth:	-3.61 m (= -11.85 ft = -1.975 fm = -1 fm 5.85 ft)
TPU (±1.96σ):	**THU (TPEh)** ±1.961 m ; **TVU (TPEv)** ±0.130 m
Timestamp:	2009-085.14:44:52.000 (03/26/2009)
DP Dataset:	h11862 / nrt2_1210_dpnonechosounder / 2009-085 / 03262009aton
Profile/Beam:	1/1
Charts Affected:	11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

Visually identified private no-wake sign baring, at charted position of subm pile. The subm pile note should be removed from the charts, and a charted Private Marker should be added.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11862/nrt2_1210_dpnonechosounder/2009-085/03262009aton	1/1	0.00	000.0	Primary

Hydrographer Recommendations

Remove subm pile, and chart Private Marker.

Cartographically-Rounded Depth (Affected Charts):

-12ft (11524_1, 11521_1)

0fm (11520_1, 11009_1, 411_1)

S-57 Data

Geo object 1:	Beacon, special purpose/general (BCNSPP)
Attributes:	BCNSHP - 5:pile beacon
	CATSPM - 13:private mark
	COLOUR - 1:white
	COLPAT - 4:squared

CONRAD - 1:radar conspicuous

HEIGHT - 3.6 m

INFORM - No Wahe Sign

OBJNAM - Sign

VERDAT - 12:Mean lower low water

Office Notes

AHB concurs w/ the field. The Sign is displayed on the current edition of the raster chart but a subm pile is shown on the ENC. The ENC should be updated; the note revised to Sign no changes to charting of the symbol necessary.

Feature Images

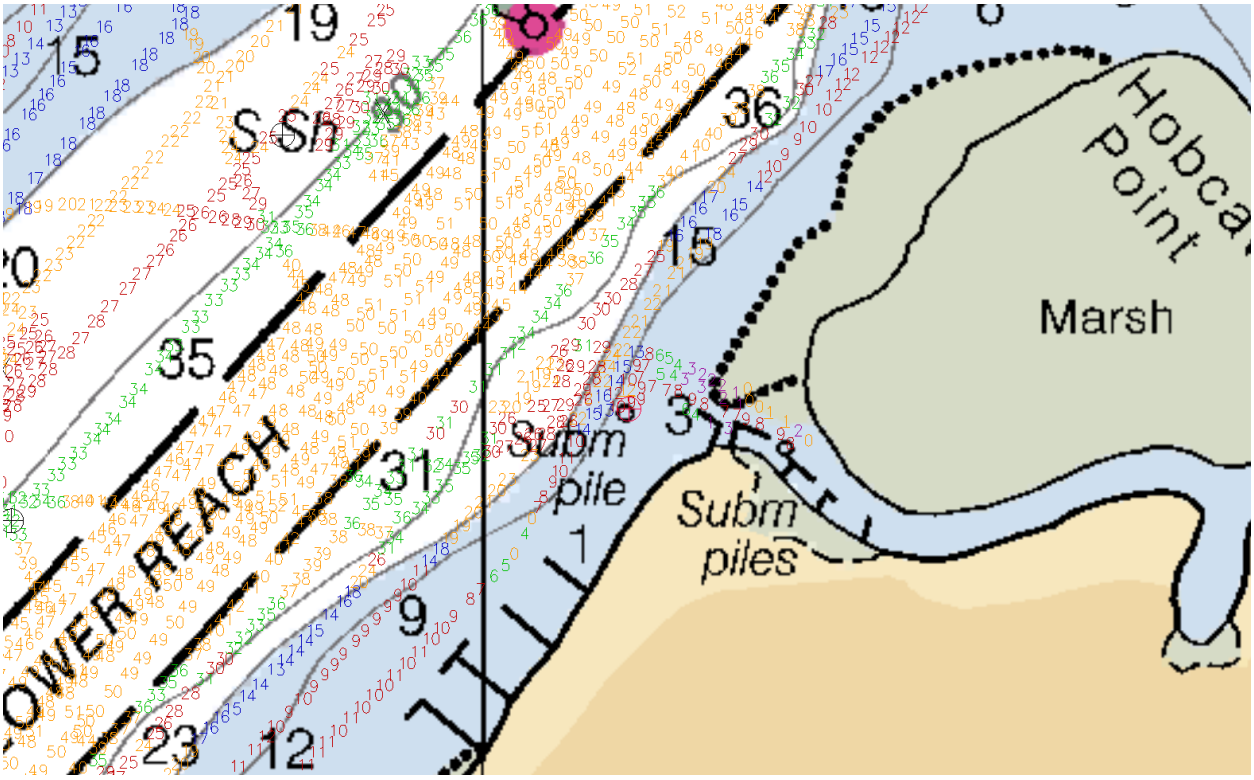


Figure 1.1.1

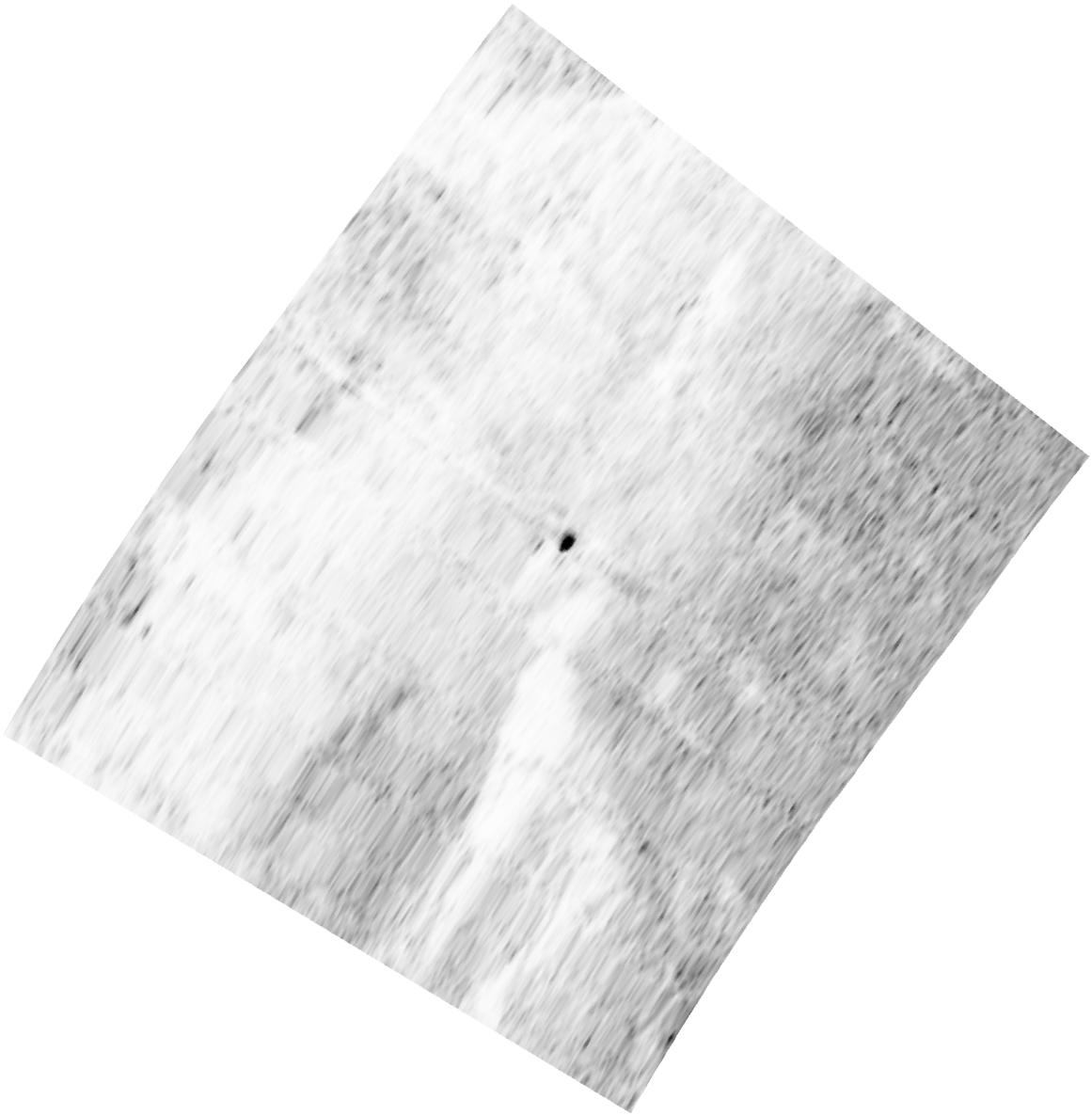


Figure 1.1.2

APPENDIX II
SURVEY FEATURES REPORT

H11862 DR Appenix II

Registry Number: H-11862
State: South Carolina
Locality: Charleston Harbor
Sub-locality: Wando River
Project Number: OPR-G347-NRT2-08
Survey Dates: 04/21/2009 - 04/23/2009

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11524	51st	02/01/2008	1:20,000 (11524_1)	USCG LNM: 04/14/2009 (06/09/2009) NGA NTM: 09/18/1999 (06/13/2009)
11521	29th	02/01/2008	1:80,000 (11521_1)	[L]NTM: ?
11520	43rd	10/01/2008	1:432,720 (11520_1)	[L]NTM: ?
11009	38th	12/01/2006	1:1,200,000 (11009_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	Priv Aid (Outfall buoy)	Marker (privately maintained)	3.00 m	32° 48' 56.3" N	079° 54' 25.9" W	---
1.2	Uncharted Pier	Shoal	-3.67 m	32° 50' 30.5" N	079° 53' 56.3" W	---
1.3	Uncharted Pier	Shoal	-3.66 m	32° 50' 32.0" N	079° 53' 56.6" W	---
1.4	Uncharted Pier	Shoal	-3.65 m	32° 50' 38.0" N	079° 53' 58.8" W	---
1.5	Uncharted Pier	Shoal	-3.64 m	32° 50' 39.3" N	079° 53' 59.4" W	---
1.6	Uncharted Pier	Shoal	-3.64 m	32° 50' 41.1" N	079° 54' 00.3" W	---
1.7	Uncharted Pier	Shoal	-4.14 m	32° 51' 49.5" N	079° 53' 44.4" W	---
1.8	Uncharted Pier	Shoal	-4.12 m	32° 51' 53.9" N	079° 53' 38.7" W	---
1.9	16 foot dangerous sunken wreck	Wreck	4.92 m	32° 51' 55.7" N	079° 52' 46.4" W	---

Appendix II - DR_UnCharted

1.1) Priv Aid (Outfall buoy)

Survey Summary

Survey Position: 32° 48' 56.3" N, 079° 54' 25.9" W

Least Depth: 3.00 m (= 9.84 ft = 1.640 fm = 1 fm 3.84 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.961 m ;**TVU (TPEv)** ±0.130 m

Timestamp: 2009-113.14:42:46.000 (04/23/2009)

DP Dataset: h11862 / nrt2_1210_dpnonechosounder / 2009-113 / 04232009_dps

Profile/Beam: 1/1

Charts Affected: 11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

Mount Pleasant outfall pipe discharge end. Located over AWOIS# 523. WK removed. Due to proximity to pier and marking, no DTON deemed warranted from field.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11862/nrt2_1210_dpnonechosounder/2009-113/04232009_dps	1/1	0.00	000.0	Primary

Hydrographer Recommendations

Delete charted 3 ft dangerous sunken wreck and note. Add buoy to raster charts and ENC.

Cartographically-Rounded Depth (Affected Charts):

10ft (11524_1, 11521_1)

1 ½fm (11520_1, 11009_1, 411_1)

S-57 Data

Geo object 1: Buoy, special purpose/general (BOYSPP)

Office Notes

AHB concurs with conditions. Remove charted 3 foot dangerous wreck and note. Chart a white and orange special purpose buoy marking MPW outfall at current surveyed location. Delete wreck from raster chart and ENC.

Feature Images

Figure 1.1.1

Figure 1.1.2

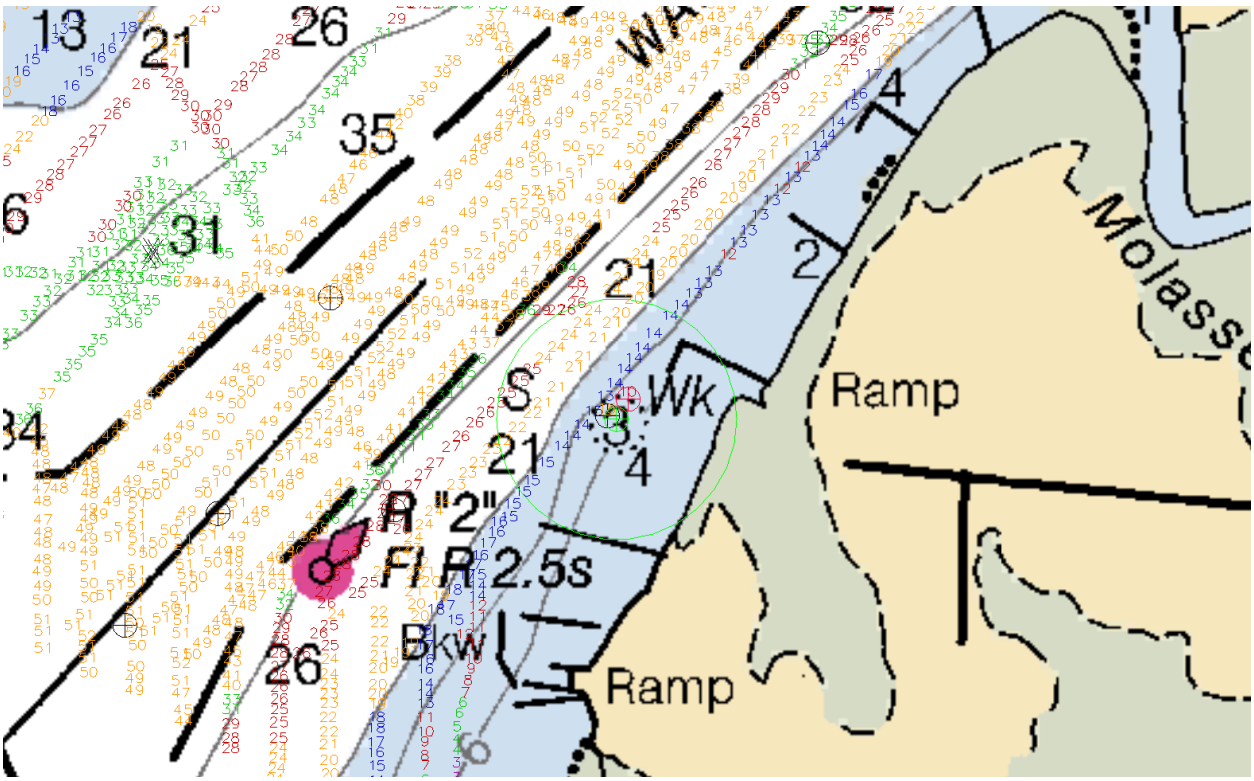

13
21
26
35
31
21
Wk
4
2
Molasse
Ramp
S
Wk
3
4
21
R "2"
Fl R 2.5s
Bkw
26
Ramp

Figure 1.1.3

1.2) Uncharted Pier

Survey Summary

Survey Position:	32° 50' 30.5" N, 079° 53' 56.3" W
Least Depth:	-3.67 m (= -12.05 ft = -2.009 fm = -2 fm 0.05 ft)
TPU (±1.96σ):	**THU (TPEh)** ±1.962 m ; **TVU (TPEv)** ±0.130 m
Timestamp:	2009-113.15:01:42.000 (04/23/2009)
DP Dataset:	h11862 / nrt2_1210_dpnonechosounder / 2009-113 / 04232009_dps
Profile/Beam:	3/1
Charts Affected:	11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

New finger pier perpendicular to shore with floating "T" on offshore end.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11862/nrt2_1210_dpnonechosounder/2009-113/04232009_dps	3/1	0.00	000.0	Primary

Hydrographer Recommendations

Chart new pier.

Cartographically-Rounded Depth (Affected Charts):

-12ft (11524_1, 11521_1)

-2fm (11520_1, 11009_1, 411_1)

S-57 Data

Geo object 1:	Cartographic symbol ($CSYMB)
Geo object 2:	Shoreline Construction (SLCONS)
Attributes:	CATSLC - 4:pier (jetty)
	HEIGHT - 3.7 m
	NATCON - 6:wooden
	OBJNAM - Pier
	SORDAT - 20090423
	SORIND - US,US,Survy,H11862

WATLEV - 2:always dry

Office Notes

AHB concurs w/ the field. Pier not shown on downloaded imagery at present time. Add Pier based on current ortho imagery.

Shoreline to be updated by RSD.

Feature Images

Figure 1.2.1

1.3) Uncharted Pier

Survey Summary

Survey Position:	32° 50' 32.0" N, 079° 53' 56.6" W
Least Depth:	-3.66 m (= -11.99 ft = -1.999 fm = -1 fm 5.99 ft)
TPU (±1.96σ):	**THU (TPEh)** ±1.962 m ; **TVU (TPEv)** ±0.130 m
Timestamp:	2009-113.15:04:20.000 (04/23/2009)
DP Dataset:	h11862 / nrt2_1210_dpnonechosounder / 2009-113 / 04232009_dps
Profile/Beam:	4/1
Charts Affected:	11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

New finger pier perpendicular to shore with floating T on offshore end.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11862/nrt2_1210_dpnonechosounder/2009-113/04232009_dps	4/1	0.00	000.0	Primary

Hydrographer Recommendations

Add new pier.

Cartographically-Rounded Depth (Affected Charts):

-12ft (11524_1, 11521_1)

0fm (11520_1, 11009_1, 411_1)

S-57 Data

Geo object 1:	Cartographic symbol ($CSYMB)
Geo object 2:	Shoreline Construction (SLCONS)
Attributes:	CATSLC - 4:pier (jetty)
	HEIGHT - 3.7 m
	SORDAT - 20090423
	SORIND - US,US,Survy,H11862
	WATLEV - 2:always dry

Office Notes

AHB concurs w/ the field. Add Pier based on current ortho imagery. Pier not shown on downloaded imagery at present time. Shoreline to be updated by RSD.

Feature Images

Figure 1.3.1

1.4) Uncharted Pier

Survey Summary

Survey Position:	32° 50' 38.0" N, 079° 53' 58.8" W
Least Depth:	-3.65 m (= -11.96 ft = -1.993 fm = -1 fm 5.96 ft)
TPU (±1.96σ):	**THU (TPEh)** ±1.962 m ; **TVU (TPEv)** ±0.130 m
Timestamp:	2009-113.15:06:31.000 (04/23/2009)
DP Dataset:	h11862 / nrt2_1210_dpnonechosounder / 2009-113 / 04232009_dps
Profile/Beam:	6/1
Charts Affected:	11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

New finger pier perpendicular to shore with floating T on offshore end.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11862/nrt2_1210_dpnonechosounder/2009-113/04232009_dps	6/1	0.00	000.0	Primary

Hydrographer Recommendations

Add new pier

Cartographically-Rounded Depth (Affected Charts):

-12ft (11524_1, 11521_1)

0fm (11520_1, 11009_1, 411_1)

S-57 Data

Geo object 1:	Shoreline Construction (SLCONS)
Attributes:	CATSLC - 4:pier (jetty)
	HEIGHT - 3.6 m
	NATCON - 6:wooden
	SORDAT - 20090423
	SORIND - US,US,survy,H11862
	WATLEV - 2:always dry

Office Notes

AHB concurs w/ the field. Add Pier based on current ortho imagery. Pier not shown on downloaded imagery at present time. Shoreline to be updated by RSD.

Feature Images

Figure 1.4.1

1.5) Uncharted Pier

Survey Summary

Survey Position:	32° 50' 39.3" N, 079° 53' 59.4" W
Least Depth:	-3.64 m (= -11.95 ft = -1.991 fm = -1 fm 5.95 ft)
TPU (±1.96σ):	**THU (TPEh)** ±1.962 m ; **TVU (TPEv)** ±0.130 m
Timestamp:	2009-113.15:07:07.000 (04/23/2009)
DP Dataset:	h11862 / nrt2_1210_dpnonechosounder / 2009-113 / 04232009_dps
Profile/Beam:	7/1
Charts Affected:	11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

New finger pier perpendicular to shore with floating T on offshore end.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11862/nrt2_1210_dpnonechosounder/2009-113/04232009_dps	7/1	0.00	000.0	Primary

Hydrographer Recommendations

Add new pier

Cartographically-Rounded Depth (Affected Charts):

-12ft (11524_1, 11521_1)

0fm (11520_1, 11009_1, 411_1)

S-57 Data

Geo object 1:	Shoreline Construction (SLCONS)
Attributes:	CATSLC - 4:pier (jetty)
	HEIGHT - 3.6 m
	NATCON - 6:wooden
	SORDAT - 20090423
	SORIND - US,US,Survy,H11862
	WATLEV - 2:always dry

Office Notes

AHB concurs w/ the field. Add Pier based on current ortho imagery. Pier not shown on downloaded imagery at present time. Shoreline to be updated by RSD.

Feature Images

Figure 1.5.1

Figure 1.5.2

1.6) Uncharted Pier

Survey Summary

Survey Position:	32° 50' 41.1" N, 079° 54' 00.3" W
Least Depth:	-3.64 m (= -11.94 ft = -1.989 fm = -1 fm 5.94 ft)
TPU (±1.96σ):	**THU (TPEh)** ±1.965 m ; **TVU (TPEv)** ±0.130 m
Timestamp:	2009-113.15:07:52.000 (04/23/2009)
DP Dataset:	h11862 / nrt2_1210_dpnonechosounder / 2009-113 / 04232009_dps
Profile/Beam:	8/1
Charts Affected:	11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

New finger pier perpendicular to shore with floating L on offshore end.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11862/nrt2_1210_dpnonechosounder/2009-113/04232009_dps	8/1	0.00	000.0	Primary

Hydrographer Recommendations

Add new pier

Cartographically-Rounded Depth (Affected Charts):

-12ft (11524_1, 11521_1)

0fm (11520_1, 11009_1, 411_1)

S-57 Data

Geo object 1:	Shoreline Construction (SLCONS)
Attributes:	CATSLC - 4:pier (jetty)
	HEIGHT - 3.6 m
	NATCON - 6:wooden
	SORDAT - 20090423
	SORIND - US,US,Survy,H11862
	WATLEV - 2:always dry

Office Notes

AHB concurs w/ the field. Add Pier based on current ortho imagery. Pier not shown on downloaded imagery at present time. Shoreline to be updated by RSD.

Feature Images

Figure 1.6.1

1.7) Uncharted Pier

Survey Summary

Survey Position:	32° 51' 49.5" N, 079° 53' 44.4" W
Least Depth:	-4.14 m (= -13.57 ft = -2.262 fm = -2 fm 1.57 ft)
TPU (±1.96σ):	**THU (TPEh)** ±1.962 m ; **TVU (TPEv)** ±0.131 m
Timestamp:	2009-113.15:15:47.000 (04/23/2009)
DP Dataset:	h11862 / nrt2_1210_dpnonechosounder / 2009-113 / 04232009_dps
Profile/Beam:	10/1
Charts Affected:	11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

Finger pier perpendicular to shore with offshore floating dock with six mooring slips.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11862/nrt2_1210_dpnonechosounder/2009-113/04232009_dps	10/1	0.00	000.0	Primary

Hydrographer Recommendations

Chart new pier, with multiple slips (4)

Cartographically-Rounded Depth (Affected Charts):

-14ft (11524_1, 11521_1)

-2 ¼fm (11520_1, 11009_1, 411_1)

S-57 Data

Geo object 1:	Cartographic symbol ($CSYMB)
Geo object 2:	Shoreline Construction (SLCONS)
Attributes:	CATSLC - 4:pier (jetty)
	HEIGHT - 4.1 m
	NATCON - 6:wooden
	SORDAT - 20090423
	SORIND - US,US,Survy,H11862
	WATLEV - 2:always dry

Office Notes

AHB concurs w/ the field. Add pier as shown on USGS High Resolution Orthoimagery for the Charleston, South Carolina Urban Area, 2007.

Feature Images

Figure 1.7.1

1.8) Uncharted Pier

Survey Summary

Survey Position:	32° 51' 53.9" N, 079° 53' 38.7" W
Least Depth:	-4.12 m (= -13.52 ft = -2.253 fm = -2 fm 1.52 ft)
TPU (±1.96σ):	**THU (TPEh)** ±1.962 m ; **TVU (TPEv)** ±0.131 m
Timestamp:	2009-113.15:18:20.000 (04/23/2009)
DP Dataset:	h11862 / nrt2_1210_dpnonechosounder / 2009-113 / 04232009_dps
Profile/Beam:	11/1
Charts Affected:	11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

Finger pier perpendicular to shore with offshore floating dock with six mooring slips.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11862/nrt2_1210_dpnonechosounder/2009-113/04232009_dps	11/1	0.00	000.0	Primary

Hydrographer Recommendations

Chart new pier, with multiple slips (8)

Cartographically-Rounded Depth (Affected Charts):

-14ft (11524_1, 11521_1)

-2 ¼fm (11520_1, 11009_1, 411_1)

S-57 Data

Geo object 1:	Cartographic symbol ($CSYMB)
Geo object 2:	Shoreline Construction (SLCONS)
Attributes:	CATSLC - 4:pier (jetty)
	HEIGHT - 4.1 m
	NATCON - 6:wooden
	SORDAT - 20090423
	SORIND - US,US,Survy,H11862
	WATLEV - 2:always dry

Office Notes

AHB concurs w/ the field. Add pier as shown on USGS High Resolution Orthoimagery for the Charleston, South Carolina Urban Area, 2007.

Feature Images

Figure 1.8.1

1.9) 16 foot dangerous sunken wreck

Survey Summary

Survey Position: 32° 51' 55.7" N, 079° 52' 46.4" W

Least Depth: 4.92 m (= 16.14 ft = 2.690 fm = 2 fm 4.14 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.965 m ; **TVU (TPEv)** ±0.132 m

Timestamp: 2009-111.15:39:03.488 (04/21/2009)

Survey Line: h11862 / nrt2_1210_sb / 2009-111 / 052_1538

Profile/Beam: 297/1

Charts Affected: 11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

200% SSS located what would appear to be a Subm WK. Due to the normal vessel traffic in this area, and the LD acquired being within range of the currently charted soundings, no DTON was issued from the field.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11862/nrt2_1210_sb/2009-111/052_1538	297/1	0.00	000.0	Primary
h11862/nrt2_1210_klein3000hf_200sss/2009-113/sss090423123700	0001	1.56	023.8	Secondary
h11862/nrt2_1210_klein3000hf_100sss/2009-098/sss090408150300	0001	2.19	259.0	Secondary
h11862/nrt2_1210_klein3000hf_200sss/2009-105/sss090415171500	0001	12.02	081.7	Secondary

Hydrographer Recommendations

Chart Subm WK with LD=16ft @ mllw.

Cartographically-Rounded Depth (Affected Charts):

16ft (11524_1, 11521_1)

2 ¾fm (11520_1, 11009_1, 411_1)

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 2:dangerous wreck

CONVIS - 2:not visual conspicuous

OBJNAM - Dangerous Sunken Wreck

QUASOU - 6:least depth known

SORDAT - 20090423

SORIND - US,US,nsurf,H11862

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

VALSOU - 4.919 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

AHB concurs w/ the field. Chart dangerous sunken 16-ft WK.

Feature Images

Figure 1.9.1

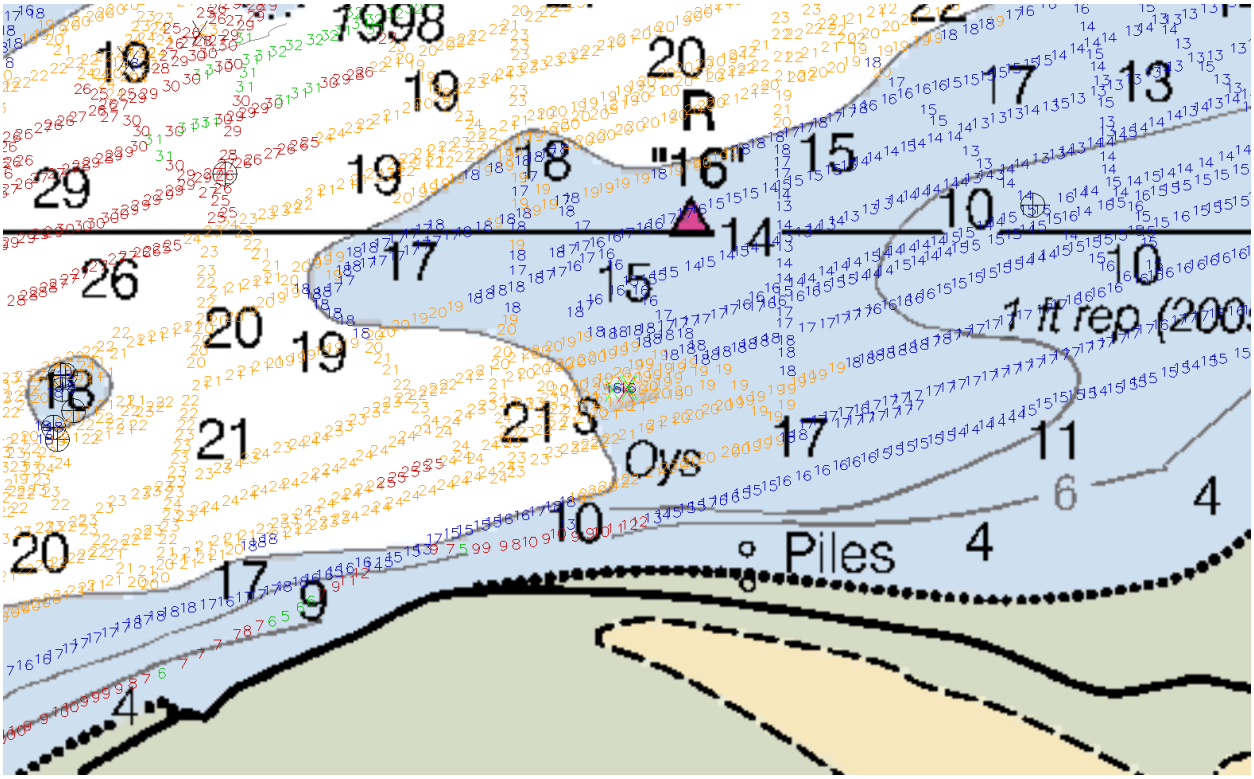


Figure 1.9.2

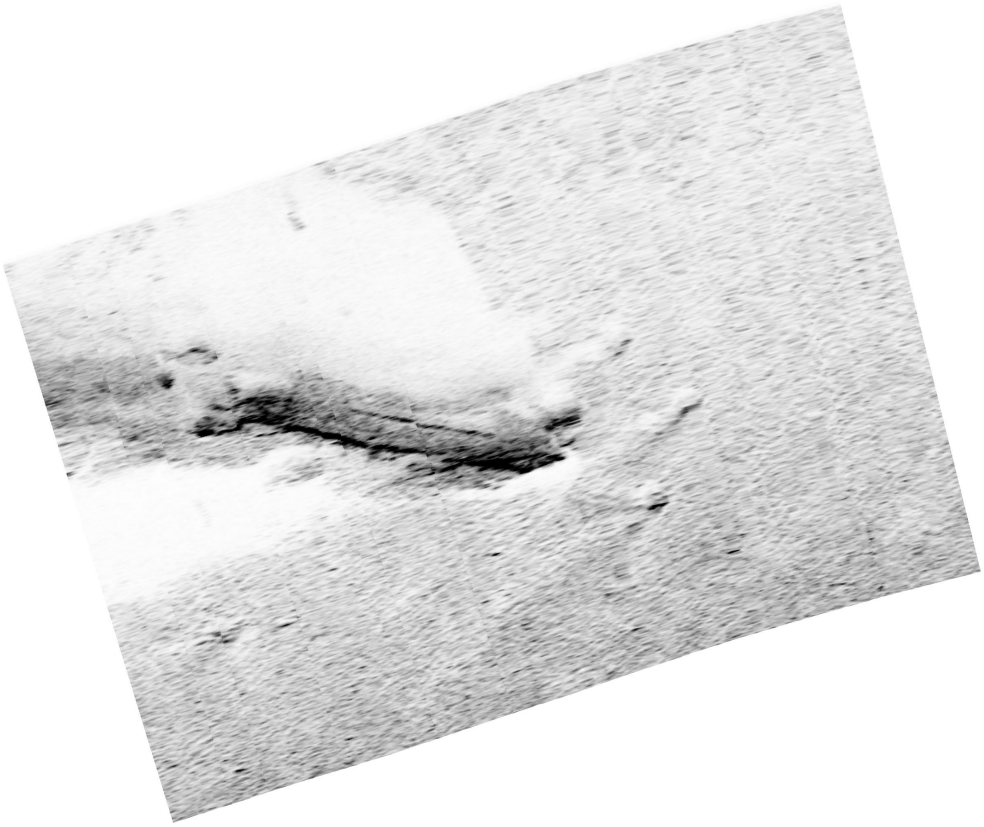


Figure 1.9.3

H11862 DR Charted Features

Registry Number: H-11862
State: South Carolina
Locality: Charleston Harbor
Sub-locality: Wando River
Project Number: OPR-G347-NRT2-08
Survey Dates: 03/31/2009 - 04/28/2009

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11524	51st	02/01/2008	1:20,000 (11524_1)	USCG LNM: 04/14/2009 (06/09/2009) NGA NTM: 09/18/1999 (06/13/2009)
11521	29th	02/01/2008	1:80,000 (11521_1)	[L]NTM: ?
11520	43rd	10/01/2008	1:432,720 (11520_1)	[L]NTM: ?
11009	38th	12/01/2006	1:1,200,000 (11009_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	0002 pier ruins (disproved)	SSS	[None]	32° 52' 46.6" N	079° 51' 20.4" W	---
1.2	charted pier ruins/uncharted pier	Shoal	-3.65 m	32° 50' 36.8" N	079° 53' 58.1" W	---
1.3	Charted Pier Ruins	Shoal	-4.14 m	32° 51' 19.8" N	079° 54' 05.4" W	---
1.4	Delete 14-ft rep (2005) NOTE	Shoal	6.91 m	32° 52' 12.7" N	079° 52' 22.7" W	---
1.5	Delete 13-ft Rep (2005)	Shoal	8.71 m	32° 52' 10.1" N	079° 52' 47.1" W	---
1.6	Revise note to DOLS	Dolphin	[None]	32° 51' 32.2" N	079° 53' 35.1" W	---
1.7	Oys Sh	Bottom Sample	[None]	32° 49' 12.6" N	079° 54' 06.2" W	---
1.8	S Sh	Bottom Sample	[None]	32° 49' 30.4" N	079° 54' 06.4" W	---
1.9	M	Bottom Sample	[None]	32° 49' 46.9" N	079° 53' 48.8" W	---
1.10	S Sh	Bottom Sample	[None]	32° 51' 00.8" N	079° 53' 54.2" W	---
1.11	Delete 3-ft Rep (2005)	Shoal	3.32 m	32° 50' 53.7" N	079° 53' 38.4" W	---
1.12	Delete 10-ft Rep (2005)	Shoal	8.05 m	32° 50' 51.3" N	079° 53' 50.6" W	---

1.13	Delete 16 Rep (2005)	Shoal	7.98 m	32° 50' 43.9" N	079° 53' 57.1" W	---
1.14	Delete 16 Rep (2005)	Shoal	7.43 m	32° 50' 37.3" N	079° 53' 46.9" W	---

Appendix II - DR_Charted

1.1) 0002 pier ruins (disproved)

Survey Summary

Survey Position:	32° 52' 46.6" N, 079° 51' 20.4" W
Least Depth:	[None]
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2009-110.07:08:15 (04/20/2009)
Survey Line:	h11862 / nrt2_1210_klein3000hf_100sss / 2009-104 / sss090414161100
Contact/Point:	0002/1
Charts Affected:	11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

pier ruins offshore limit. No significant projection. Area to close to shore to antiquatly be developed.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11862/nrt2_1210_klein3000hf_100sss/2009-104/sss090414161100	0002	0.00	000.0	Primary

Hydrographer Recommendations

Revise the charted pier to ruins on the .

S-57 Data

Geo object 1:	Shoreline Construction (SLCONS)
Attributes:	CATSLC - 4:pier (jetty)
	CONDTN - 2:ruined
	INFORM - Charted pier in ruins
	NATCON - 6:wooden
	OBJNAM - Pier Ruins
	SORDAT - 20090423
	SORIND - US,US,survy,H11862
	STATUS - 7:temporary

Office Notes

AHB concurs w/ the field. Pier considered disproved by side scan records. Revise charted pier from the raster and ENC to pier ruins.

Feature Images

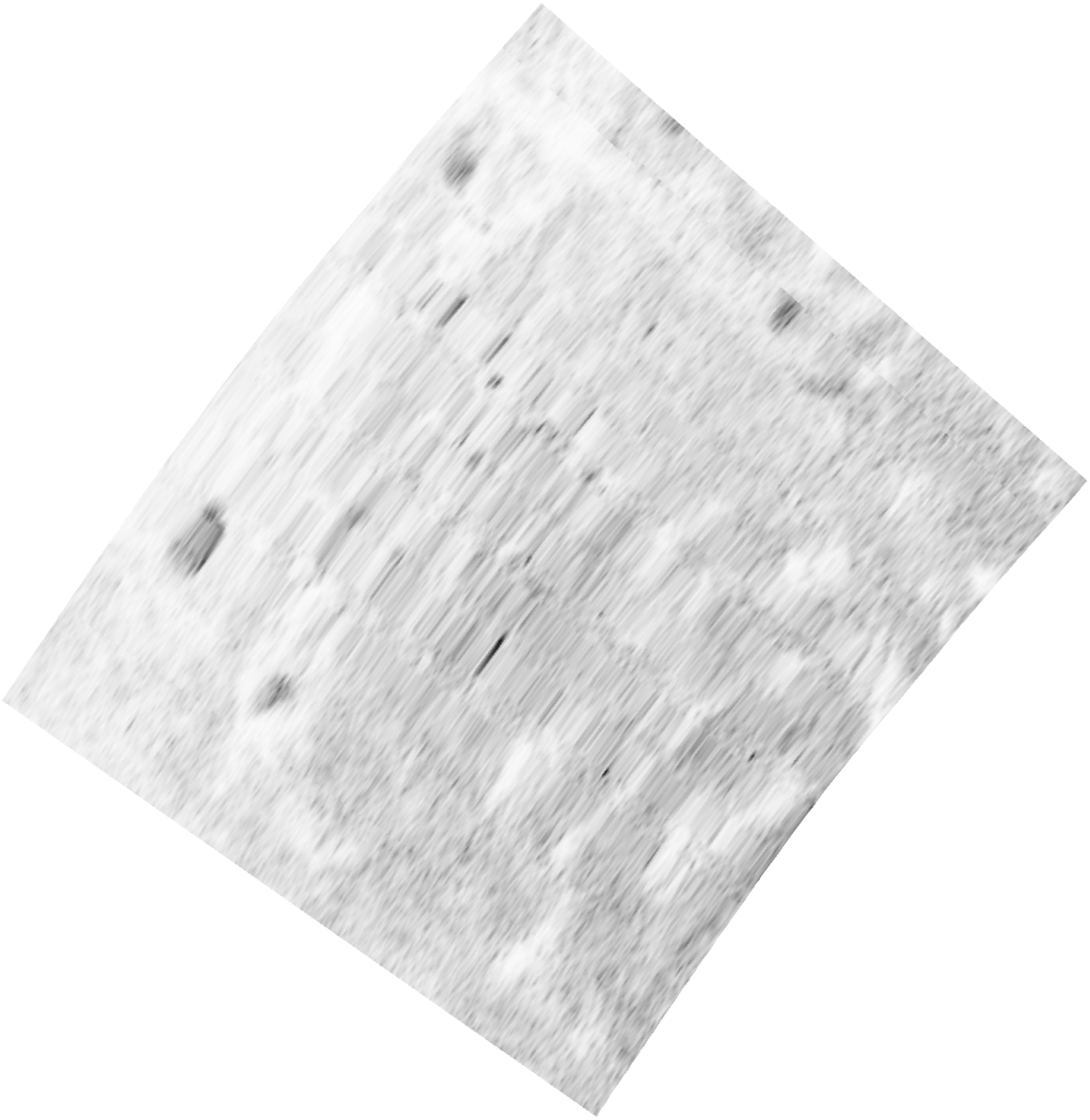


Figure 1.1.1

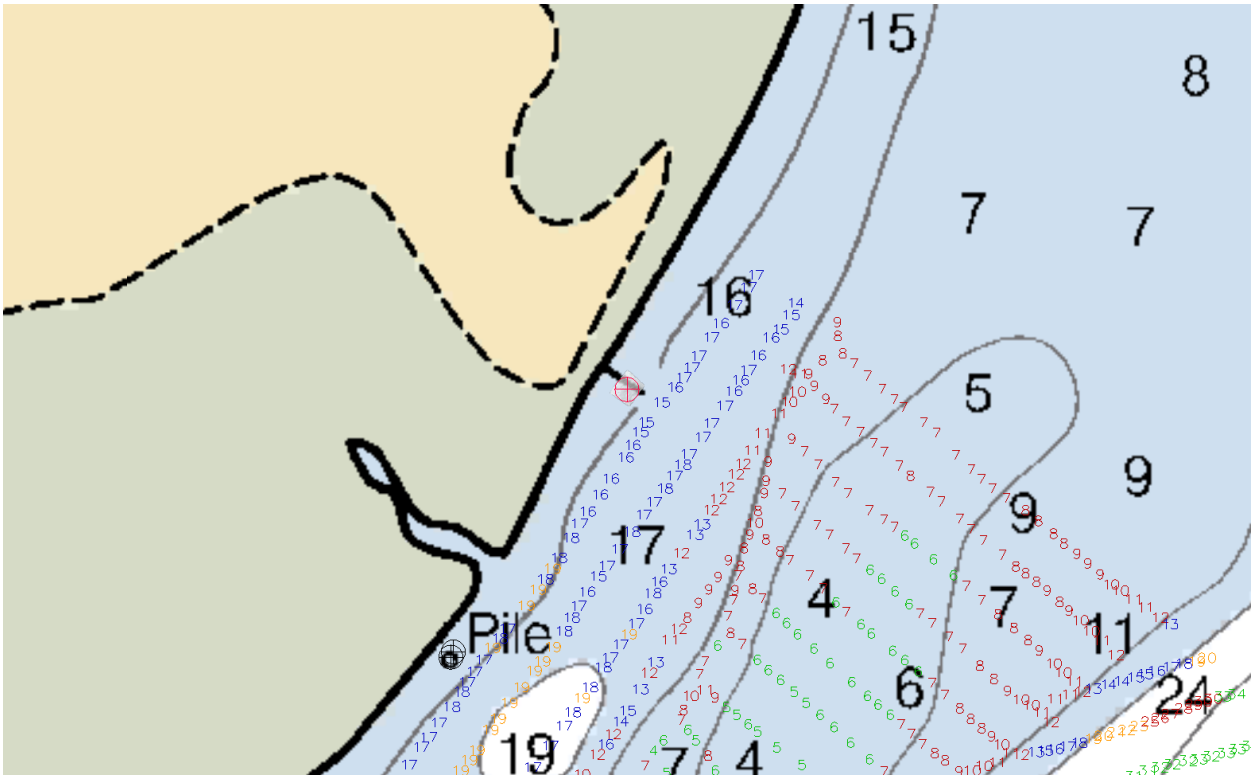


Figure 1.1.2

1.2) charted pier ruins/uncharted pier

Survey Summary

Survey Position:	32° 50' 36.8" N, 079° 53' 58.1" W
Least Depth:	-3.65 m (= -11.97 ft = -1.995 fm = -1 fm 5.97 ft)
TPU (±1.96σ):	**THU (TPEh)** ±1.962 m ; **TVU (TPEv)** ±0.130 m
Timestamp:	2009-113.15:05:49.000 (04/23/2009)
DP Dataset:	h11862 / nrt2_1210_dpnonechosounder / 2009-113 / 04232009_dps
Profile/Beam:	5/1
Charts Affected:	11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

New finger pier perpendicular to shore with floating T on offshore end. Located over currently charted ruins.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11862/nrt2_1210_dpnonechosounder/2009-113/04232009_dps	5/1	0.00	000.0	Primary

Hydrographer Recommendations

Remove current ruins, and add new pier.

Cartographically-Rounded Depth (Affected Charts):

-12ft (11524_1, 11521_1)

0fm (11520_1, 11009_1, 411_1)

S-57 Data

Geo object 1:	Cartographic symbol ($CSYMB)
Geo object 2:	Shoreline Construction (SLCONS)
Attributes:	CATSLC - 4:pier (jetty)
	HEIGHT - 3.7 m
	NATCON - 6:wooden
	SORDAT - 20090423
	SORIND - US,US,survy,H11862
	WATLEV - 2:always dry

Office Notes

Concur with clarification. Recommend to delete currently charted pier ruins. Pier not shown on downloaded imagery at present time. Shoreline to be updated by RSD.

Feature Images

Figure 1.2.1

1.3) Charted Pier Ruins

Survey Summary

Survey Position: 32° 51' 19.8" N, 079° 54' 05.4" W

Least Depth: -4.14 m (= -13.57 ft = -2.262 fm = -2 fm 1.57 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.967 m ; **TVU (TPEv)** ±0.131 m

Timestamp: 2009-113.15:12:19.000 (04/23/2009)

DP Dataset: h11862 / nrt2_1210_dpnonechosounder / 2009-113 / 04232009_dps

Profile/Beam: 9/1

Charts Affected: 11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

Finger pier perpendicular to shore with offshore floating dock with two mooring dols. This is a public pier, the charted ruins adjacent no longer exist.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11862/nrt2_1210_dpnonechosounder/2009-113/04232009_dps	9/1	0.00	000.0	Primary

Hydrographer Recommendations

Remove the charted ruins.

Cartographically-Rounded Depth (Affected Charts):

-14ft (11524_1, 11521_1)

-2 ¼fm (11520_1, 11009_1, 411_1)

S-57 Data

Geo object 1: Cartographic symbol ($CSYMB)

Geo object 2: Shoreline Construction (SLCONS)

Attributes: CATSLC - 4:pier (jetty)

CONDTN - 2:ruined

HEIGHT - 4.1 m

NATCON - 6:wooden

OBJNAM - Pier ruins

SORDAT - 20090423

SORIND - US,US,survy,H11862

WATLEV - 2:always dry

Office Notes

AHB concurs w/ the field. Deleted charted pier ruins located to the north of the charted pier.
Use USGS High Resolution Orthoimagery for the Charleston, South Carolina Urban Area, 2007 to update the chart and location of the pier.

Feature Images

Figure 1.3.1

Figure 1.3.2

1.4) Delete 14-ft rep (2005) NOTE

Survey Summary

Survey Position:	32° 52' 12.7" N, 079° 52' 22.7" W
Least Depth:	6.91 m (= 22.68 ft = 3.781 fm = 3 fm 4.68 ft)
TPU (±1.96σ):	**THU (TPEh)** ±1.969 m ; **TVU (TPEv)** ±0.135 m
Timestamp:	2009-104.14:20:49.074 (04/14/2009)
Survey Line:	h11862 / nrt2_1210_sb / 2009-104 / 003_1403
Profile/Beam:	14206/1
Charts Affected:	11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

Charted 14ft rep (2005) was found not to exist. Common depths in area 20-23 feet @ mllw.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11862/nrt2_1210_sb/2009-104/003_1403	14206/1	0.00	000.0	Primary

Hydrographer Recommendations

Remove chart note "14 ft rep (2005). Apply survey soundings.

Cartographically-Rounded Depth (Affected Charts):

22ft (11524_1, 11521_1)

3 ¾fm (11520_1, 11009_1, 411_1)

S-57 Data

Geo object 1:	Sounding (SOUNDG)
Attributes:	EXPSOU - 1:within the range of depth of the surrounding depth area
	QUASOU - 1:depth known
	TECSOU - 1:found by echo-sounder
	VERDAT - 12:Mean lower low water

Office Notes

AHB concurs w/ the field. Recommend to delete charted 14ft rep (2005) notation and update area with present survey depths.

Feature Images

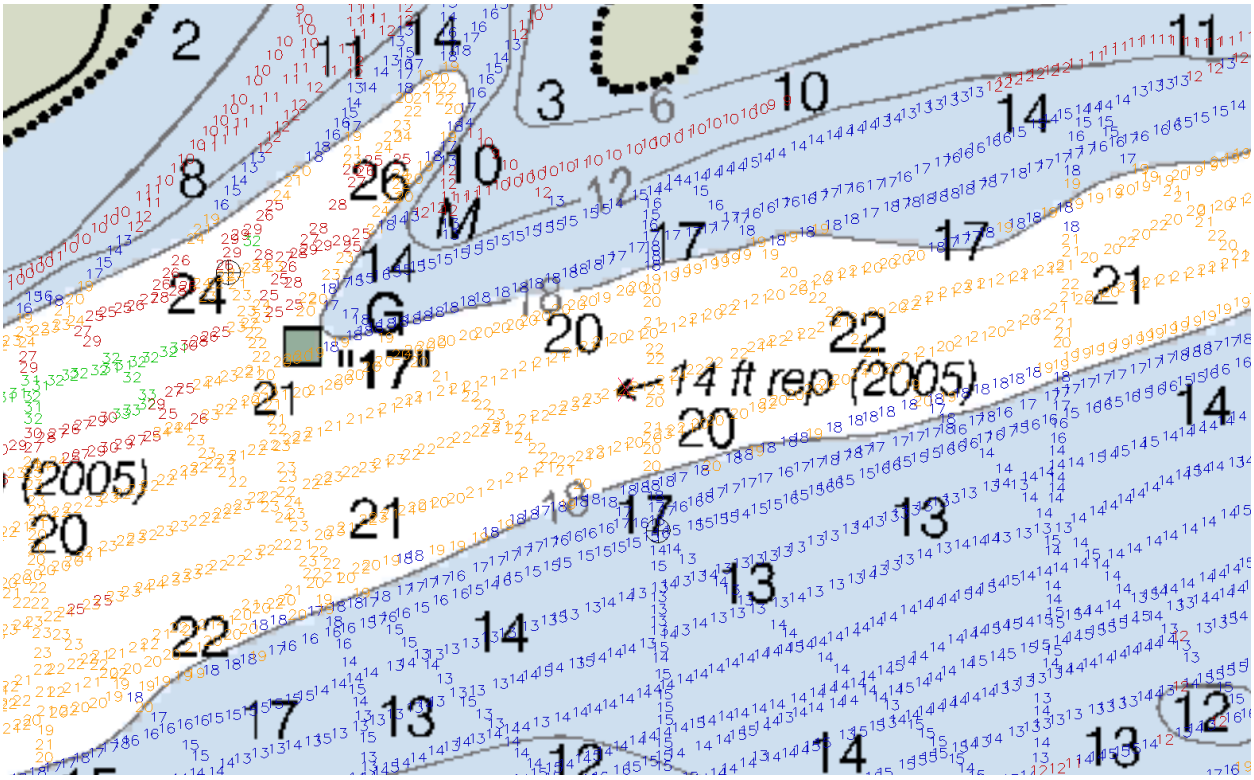


Figure 1.4.1

1.5) Delete 13-ft Rep (2005)

Survey Summary

Survey Position:	32° 52' 10.1" N, 079° 52' 47.1" W
Least Depth:	8.71 m (= 28.59 ft = 4.765 fm = 4 fm 4.59 ft)
TPU (±1.96σ):	**THU (TPEh)** ±1.972 m ; **TVU (TPEv)** ±0.137 m
Timestamp:	2009-111.12:49:27.774 (04/21/2009)
Survey Line:	h11862 / nrt2_1210_sb / 2009-111 / 4_200
Profile/Beam:	11559/1
Charts Affected:	11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

charted 13 ft isolated sounding REP (2005) does not exist. Area soundings range is 28-31ft @ mllw.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11862/nrt2_1210_sb/2009-111/4_200	11559/1	0.00	000.0	Primary

Hydrographer Recommendations

Remove 13 ft isolated sounding REP, and apply survey soundings in area.

Cartographically-Rounded Depth (Affected Charts):

28ft (11524_1, 11521_1)

4 ¾fm (11520_1, 11009_1, 411_1)

S-57 Data

Geo object 1:	Sounding (SOUNDG)
Attributes:	EXPSOU - 1:within the range of depth of the surrounding depth area
	QUASOU - 1:depth known
	TECSOU - 1:found by echo-sounder
	VERDAT - 12:Mean lower low water

Office Notes

Concur. Delete 13 ft depth and Rep (2005) note and update chart with present survey depths.

Feature Images

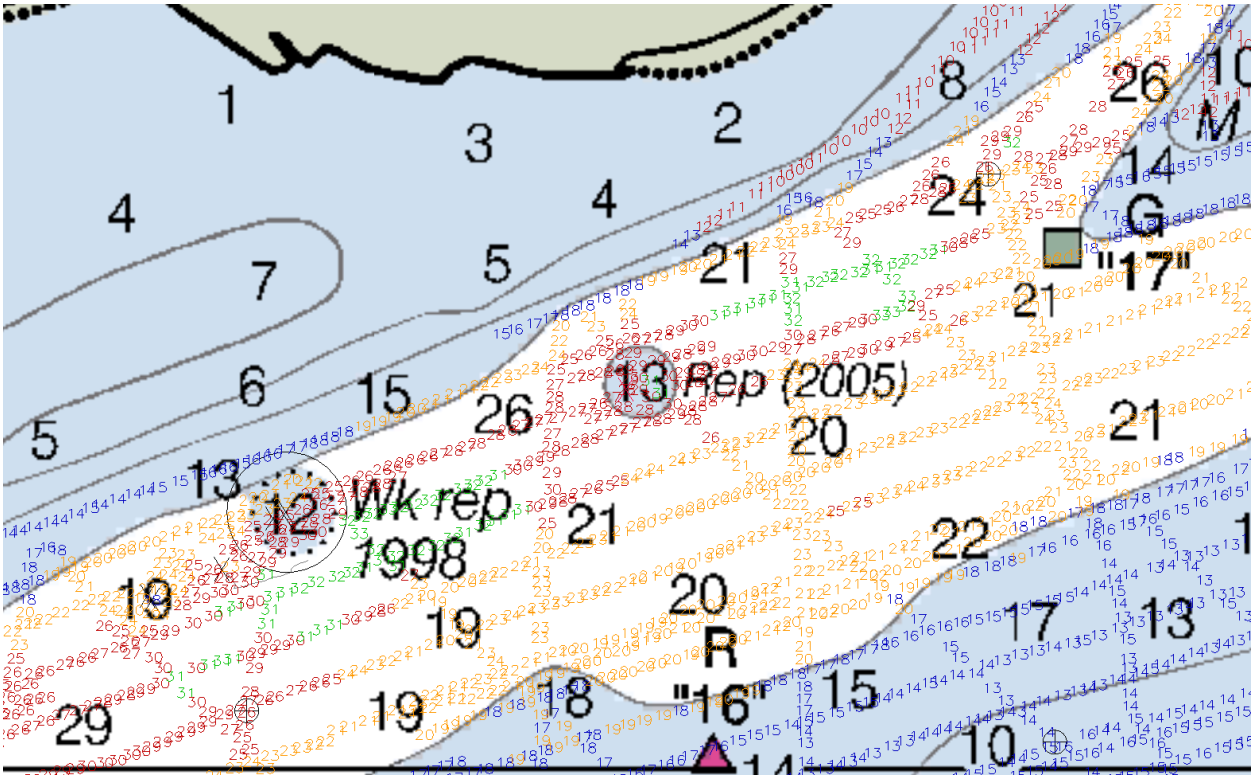


Figure 1.5.1

1.6) Revise note to DOLS

Survey Summary

Survey Position:	32° 51' 32.2" N, 079° 53' 35.1" W
Least Depth:	[None]
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2009-118.16:11:53 (04/28/2009)
GP Dataset:	ChartGPs - Digitized
GP No.:	1
Charts Affected:	11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

Verified three steel mooring dols exist as charted.

Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	1	0.00	000.0	Primary

Hydrographer Recommendations

Remove "Piles" and Add Dols.

S-57 Data

Geo object 1:	Mooring/warping facility (MORFAC)
Attributes:	CATMOR - 1:dolphin
	CONRAD - 1:radar conspicuous
	HEIGHT - 2 m
	OBJNAM - DOLS
	SORDAT - 20090423
	SORIND - US,US,survey,H11862
	VERDAT - 16:Mean high water
	WATLEV - 2:always dry

Office Notes

Concur with clarification. Recommend to revise notation to Dolphons.

Feature Images

Figure 1.6.1

1.7) Oys Sh

Survey Summary

Survey Position: 32° 49' 12.6" N, 079° 54' 06.2" W

Least Depth: [None]

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

Timestamp: 2009-118.16:45:29 (04/28/2009)

GP Dataset: ChartGPs - Digitized

GP No.: 2

Charts Affected: 11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

Bottom sample matched charted.

Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	2	0.00	000.0	Primary

Hydrographer Recommendations

Retain

S-57 Data

Geo object 1: Seabed area (SBDARE)

Attributes: COLOUR - 7:grey

NATSUR - 17:shells

WATLEV - 3:always under water/submerged

Office Notes

Falls outside survey area. No changes to charting required.

Feature Images

[Image file h:/compilation/h11862-g347-nrt2/ahb_h11862/features/pss/photos/tmp7gyas7.ac.png does not exist.]

1.8) S Sh

Survey Summary

Survey Position: 32° 49' 30.4" N, 079° 54' 06.4" W

Least Depth: [None]

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

Timestamp: 2009-118.16:49:26 (04/28/2009)

GP Dataset: ChartGPs - Digitized

GP No.: 3

Charts Affected: 11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

Bottom sample matched charted.

Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	3	0.00	000.0	Primary

Hydrographer Recommendations

Retain

S-57 Data

Geo object 1: Seabed area (SBDARE)

Attributes: COLOUR - 8,8:brown,brown

NATQUA - 2,4:medium,broken

NATSUR - 4,17:sand,shells

WATLEV - 3:always under water/submerged

Office Notes

Same as charted. Retain as charted.

Feature Images

[Image file h:/compilation/h11862-g347-nrt2/ahb_h11862/features/pss/photos/tmpfmlemv.ac.png does not exist.]

1.9) M

Survey Summary

Survey Position: 32° 49' 46.9" N, 079° 53' 48.8" W

Least Depth: [None]

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

Timestamp: 2009-118.16:52:39 (04/28/2009)

GP Dataset: ChartGPs - Digitized

GP No.: 4

Charts Affected: 11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	4	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

Geo object 1: Seabed area (SBDARE)

Attributes: COLOUR - 2:black

NATQUA - 6:soft

NATSUR - 1:mud

WATLEV - 3:always under water/submerged

Office Notes

Same as charted. Retain as charted.

Feature Images

[Image file h:/compilation/h11862-g347-nrt2/ahb_h11862/features/pss/photos/tmplt_4ax.ac.png does not exist.]

1.10) S Sh

Survey Summary

Survey Position:	32° 51' 00.8" N, 079° 53' 54.2" W
Least Depth:	[None]
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2009-118.16:54:22 (04/28/2009)
GP Dataset:	ChartGPs - Digitized
GP No.:	5
Charts Affected:	11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

Bottom sample matched charted.

Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	5	0.00	000.0	Primary

Hydrographer Recommendations

Retain

S-57 Data

Geo object 1:	Seabed area (SBDARE)
Attributes:	COLOUR - 8,8:brown,brown
	NATQUA - 2,4:medium,broken
	NATSUR - 4,17:sand,shells
	WATLEV - 3:always under water/submerged

Office Notes

Same as charted. Retain as charted.

Feature Images

[Image file h:/compilation/h11862-g347-nrt2/ahb_h11862/features/pss/photos/tmp_kng4a.ac.png does not exist.]

1.11) Delete 3-ft Rep (2005)

Survey Summary

Survey Position:	32° 50' 53.7" N, 079° 53' 38.4" W
Least Depth:	3.32 m (= 10.89 ft = 1.815 fm = 1 fm 4.89 ft)
TPU (±1.96σ):	**THU (TPEh)** ±1.965 m ; **TVU (TPEv)** ±0.131 m
Timestamp:	2009-103.16:19:16.580 (04/13/2009)
Survey Line:	h11862 / nrt2_1210_sb / 2009-103 / 156_1612
Profile/Beam:	5192/1
Charts Affected:	11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

3 ft REP (2005) was found not to exist.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11862/nrt2_1210_sb/2009-103/156_1612	5192/1	0.00	000.0	Primary

Hydrographer Recommendations

Remove charted 3ft REP, and apply survey soundings.

Cartographically-Rounded Depth (Affected Charts):

11ft (11524_1, 11521_1)

1 ¾fm (11520_1, 11009_1, 411_1)

S-57 Data

Geo object 1:	Sounding (SOUNDG)
Attributes:	EXPSOU - 1:within the range of depth of the surrounding depth area
	QUASOU - 1:depth known
	TECSOU - 1:found by echo-sounder
	VERDAT - 12:Mean lower low water

Office Notes

AHB concurs w/ the field. Delete charted 3-ft Rep (2005) note and update with present survey depths.

Feature Images

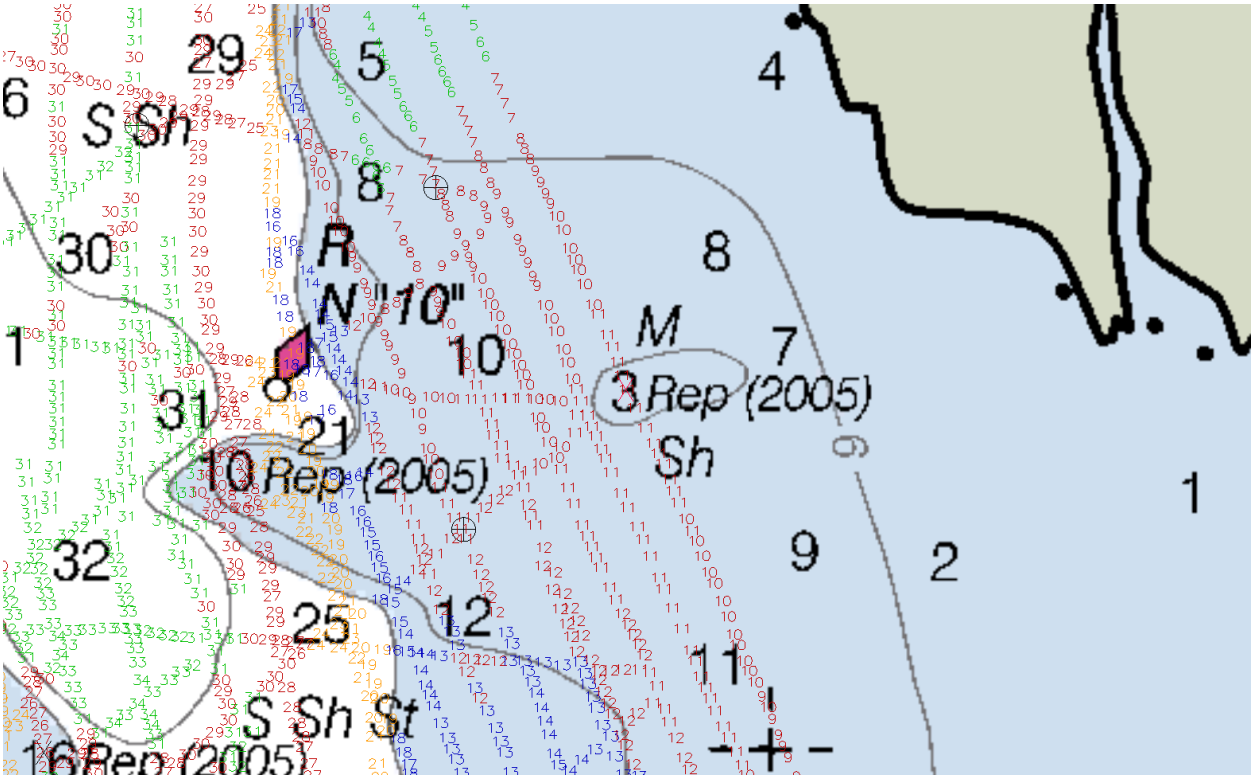


Figure 1.11.1

1.12) Delete 10-ft Rep (2005)

Survey Summary

Survey Position:	32° 50' 51.3" N, 079° 53' 50.6" W
Least Depth:	8.05 m (= 26.40 ft = 4.400 fm = 4 fm 2.40 ft)
TPU (±1.96σ):	**THU (TPEh)** ±1.971 m ; **TVU (TPEv)** ±0.137 m
Timestamp:	2009-090.13:57:59.379 (03/31/2009)
Survey Line:	h11862 / nrt2_1210_sb / 2009-090 / 021_1350
Profile/Beam:	6585/1
Charts Affected:	11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

Development of this contour extension into the channel, and the 10 ft Rep (2005) show no such sounding exist as well as the contours need to be changed to match the survey sounding data.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11862/nrt2_1210_sb/2009-090/021_1350	6585/1	0.00	000.0	Primary

Hydrographer Recommendations

Remove the 10ft Rep , and apply the survey sounding data.

Cartographically-Rounded Depth (Affected Charts):

26ft (11524_1, 11521_1)

4 ¼fm (11520_1, 11009_1, 411_1)

S-57 Data

Geo object 1:	Sounding (SOUNDG)
Attributes:	EXPSOU - 1:within the range of depth of the surrounding depth area
	QUASOU - 1:depth known
	TECSOU - 1:found by echo-sounder
	VERDAT - 12:Mean lower low water

Office Notes

AHB concurs w/ the field. Delete charted 10-ft Rep (2005) note. Update the chart with present survey depths.

Feature Images

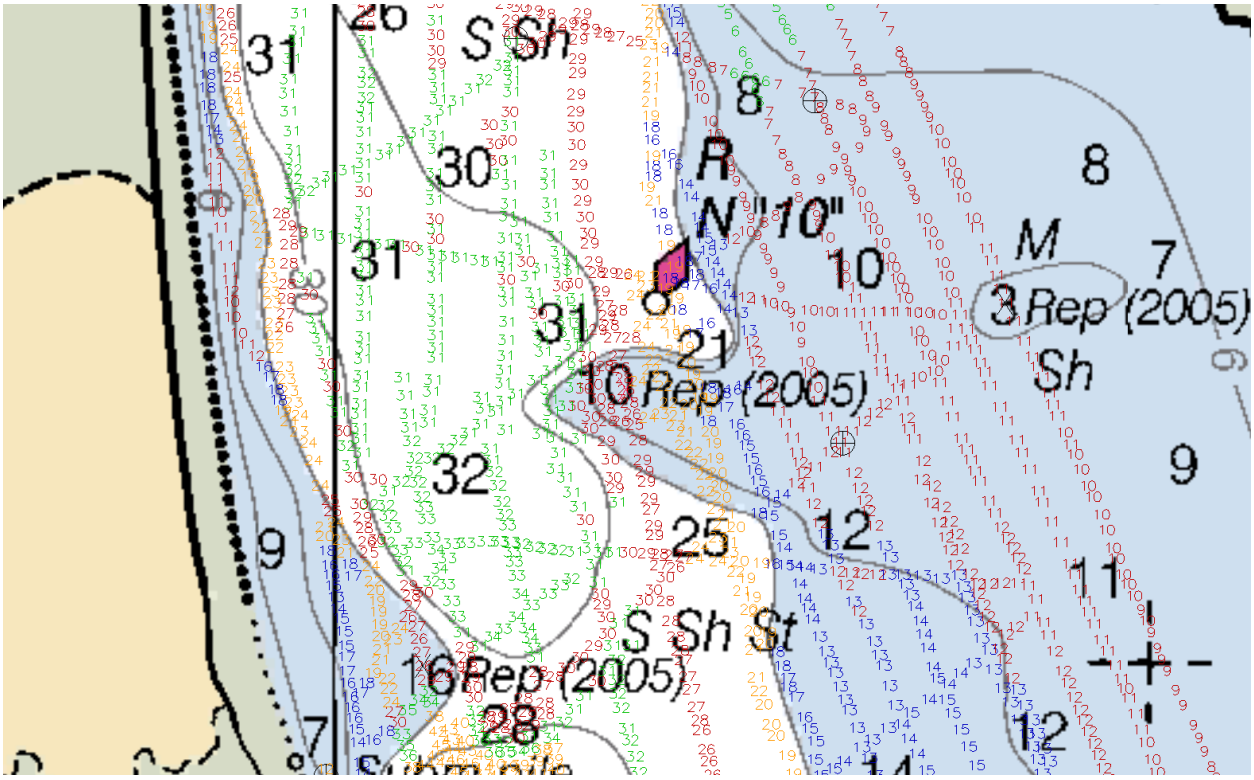


Figure 1.12.1

1.13) Delete 16 Rep (2005)

Survey Summary

Survey Position:	32° 50' 43.9" N, 079° 53' 57.1" W
Least Depth:	7.98 m (= 26.17 ft = 4.361 fm = 4 fm 2.17 ft)
TPU (±1.96σ):	**THU (TPEh)** ±1.973 m ; **TVU (TPEv)** ±0.135 m
Timestamp:	2009-113.15:42:20.765 (04/23/2009)
Survey Line:	h11862 / nrt2_1210_sb / 2009-113 / 006_1541
Profile/Beam:	452/1
Charts Affected:	11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

16 ft Rep (2005) does not exist.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11862/nrt2_1210_sb/2009-113/006_1541	452/1	0.00	000.0	Primary

Hydrographer Recommendations

Remove the 16ft Rep, and add survey soundings in area.

Cartographically-Rounded Depth (Affected Charts):

26ft (11524_1, 11521_1)

4 ¼fm (11520_1, 11009_1, 411_1)

S-57 Data

Geo object 1:	Sounding (SOUNDG)
Attributes:	EXPSOU - 1:within the range of depth of the surrounding depth area
	QUASOU - 1:depth known
	TECSOU - 1:found by echo-sounder
	VERDAT - 12:Mean lower low water

Office Notes

AHB concurs w/ the field. Delete charted 16-ft Rep (2005) note. Update area with present survey depths.

Feature Images

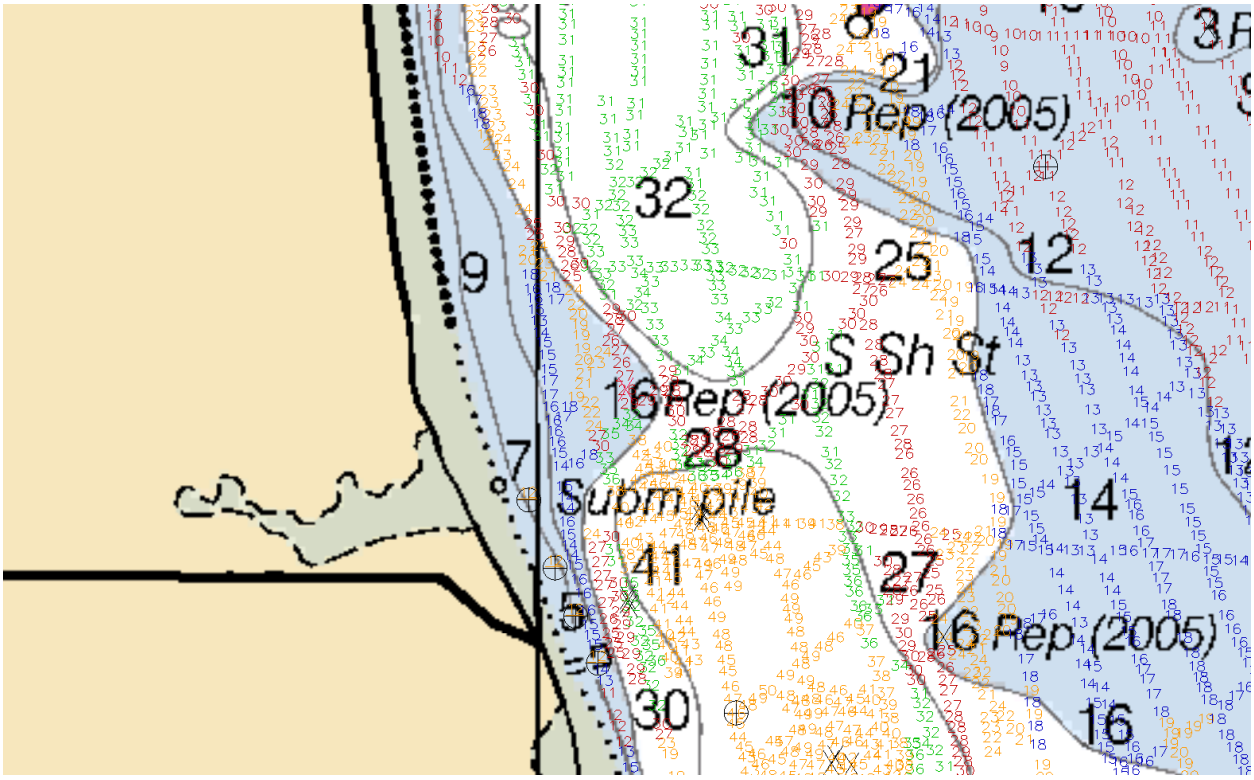


Figure 1.13.1

1.14) Delete 16 Rep (2005)

Survey Summary

Survey Position:	32° 50' 37.3" N, 079° 53' 46.9" W
Least Depth:	7.43 m (= 24.38 ft = 4.064 fm = 4 fm 0.38 ft)
TPU (±1.96σ):	**THU (TPEh)** ±1.973 m ; **TVU (TPEv)** ±0.136 m
Timestamp:	2009-103.17:16:04.492 (04/13/2009)
Survey Line:	h11862 / nrt2_1210_sb / 2009-103 / 007_1715
Profile/Beam:	586/1
Charts Affected:	11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

16 ft Rep (2005) does not exist.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11862/nrt2_1210_sb/2009-103/007_1715	586/1	0.00	000.0	Primary

Hydrographer Recommendations

Remove 16 ft Rep and apply survey soundings.

Cartographically-Rounded Depth (Affected Charts):

24ft (11524_1, 11521_1)

4fm (11520_1, 11009_1, 411_1)

S-57 Data

Geo object 1:	Sounding (SOUNDG)
Attributes:	EXPSOU - 1:within the range of depth of the surrounding depth area
	QUASOU - 1:depth known
	TECSOU - 1:found by echo-sounder
	VERDAT - 12:Mean lower low water

Office Notes

AHB concurs w/ the field. Delete charted 16-ft Rep (2005) note. Update area with present survey depths.

Feature Images

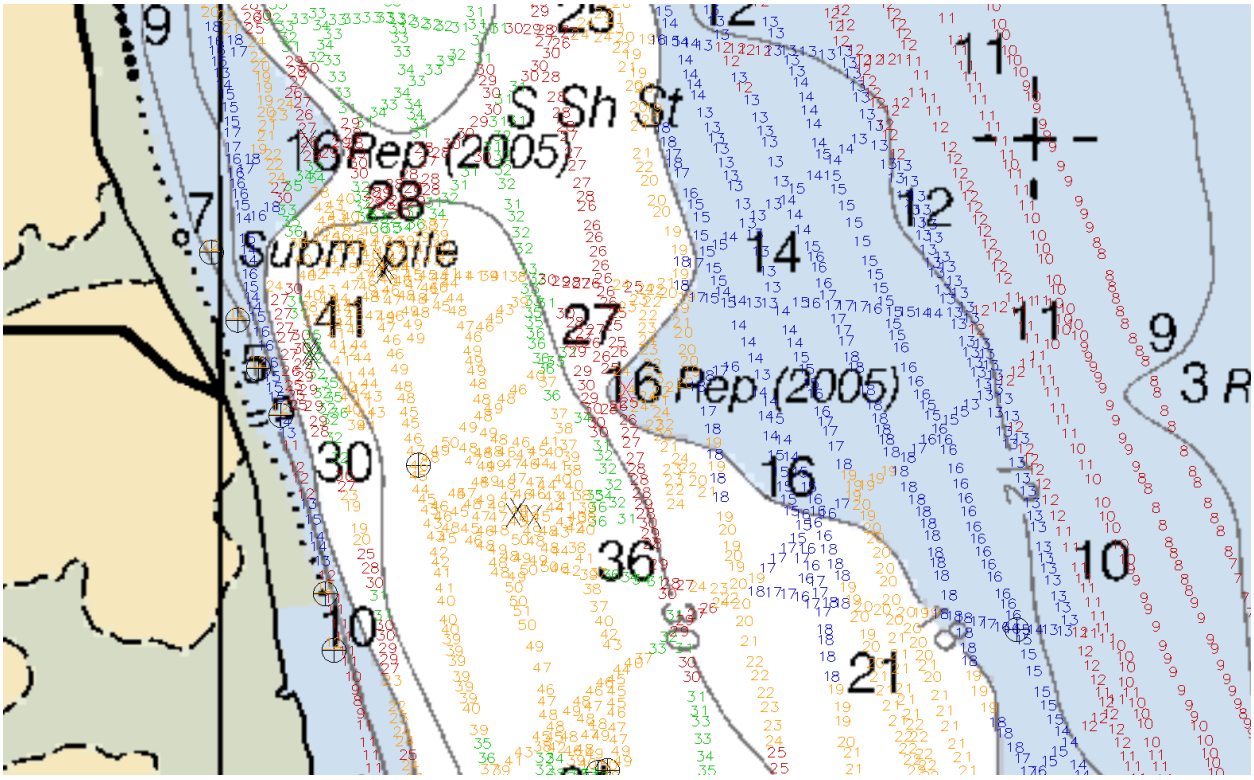


Figure 1.14.1

H11862 DR Appendix II

Registry Number: H-11862
State: South Carolina
Locality: Charleston Harbor
Sub-locality: Wando River
Project Number: OPR-G347-NRT2-08
Survey Dates: 04/13/2009 - 04/23/2009

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11524	51st	02/01/2008	1:20,000 (11524_1)	USCG LNM: 04/14/2009 (06/09/2009) NGA NTM: 09/18/1999 (06/13/2009)
11521	29th	02/01/2008	1:80,000 (11521_1)	[L]NTM: ?
11520	43rd	10/01/2008	1:432,720 (11520_1)	[L]NTM: ?
11009	38th	12/01/2006	1:1,200,000 (11009_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	AWOIS 9895 - Delete subm pipe	Shoal	1.04 m	32° 50' 19.7" N	079° 53' 53.8" W	9895
1.2	AWOIS 7625	Pile	[None]	32° 52' 39.6" N	079° 51' 26.0" W	7625
1.3	AWOIS 523 - Remove 3 ft dangerous sunken wreck	Shoal	-5.26 m	32° 48' 55.8" N	079° 54' 26.5" W	523
1.4	Awois# 10392 delete charted 12-ft Wk	Shoal	7.85 m	32° 52' 06.7" N	079° 52' 58.0" W	10392

Appendix II - DR_AWOIS

1.1) AWOIS 9895 - Delete subm pipe

Primary Feature for AWOIS Item #9895

Search Position: 32° 50' 19.7" N, 079° 53' 53.5" W

Historical Depth: -0.50 m

Search Radius: 0

Search Technique: [None]

Technique Notes: [None]

History Notes:

AWOIS ITEM 9895 HISTORY H9409/73-76--NOS FIELD PARTY; LOCATED PIPE BARING 1-FOOT AT MLW IN LAT. 32/50/19.4, LONG. 079/53/53.9 (NAD83). (ENTERED 2/97 BY MBH) H10784/98--OPR-G301-AHP; OBSTRUCTION FOUND AS A 12-INCH DIAMETER PIPE EXPOSED 0.5 METER (1.6 FEET) AT MLLW IN LAT. 32/50/19.73N, LONG. 079/53/53.50W (NAD83). (UPDATED 4/99 BY MBH) OPR-G347-NRT2-08 // H-11862,2009: LD in common area. Small contact investigated, with no desenable results. Proximity to shore and depths less than 3ft throughout would be of more concern. Recommendation: Remove charted Subm Pipe.RWR

Survey Summary

Survey Position: 32° 50' 19.7" N, 079° 53' 53.8" W

Least Depth: 1.04 m (= 3.41 ft = 0.568 fm = 0 fm 3.41 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.962 m ; **TVU (TPEv)** ±0.130 m

Timestamp: 2009-103.15:57:11.868 (04/13/2009)

Survey Line: h11862 / nrt2_1210_sb / 2009-103 / 101_1556

Profile/Beam: 270/1

Charts Affected: 11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

LD in common area. Small contact investigated, with no discernable results. Proximity to shore and depths less than 3ft throughout would be of more concern.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11862/nrt2_1210_sb/2009-103/101_1556	270/1	0.00	000.0	Primary
h11862/nrt2_1210_klein3000hf_100sss/2009-090/sss090331132400	0004	5.91	065.5	Secondary
AWOIS	AWOIS # 9895	9.04	254.2	Secondary

Hydrographer Recommendations

Remove charted subm pipe.

Cartographically-Rounded Depth (Affected Charts):

3ft (11524_1, 11521_1)

0 ½fm (11520_1, 11009_1, 411_1)

S-57 Data

Geo object 1:	Sounding (SOUNDG)
Attributes:	EXPSOU - 1:within the range of depth of the surrounding depth area
	QUASOU - 1:depth known
	TECSOU - 1:found by echo-sounder
	VERDAT - 12:Mean lower low water

Office Notes

Concur. Based upon the insignificant height above the river bottom, it is recommended to chart shoaler depths in the common area. Recommend to delete the Subm pipe from the chart and ENC. Update area with present survey depths.

Feature Images

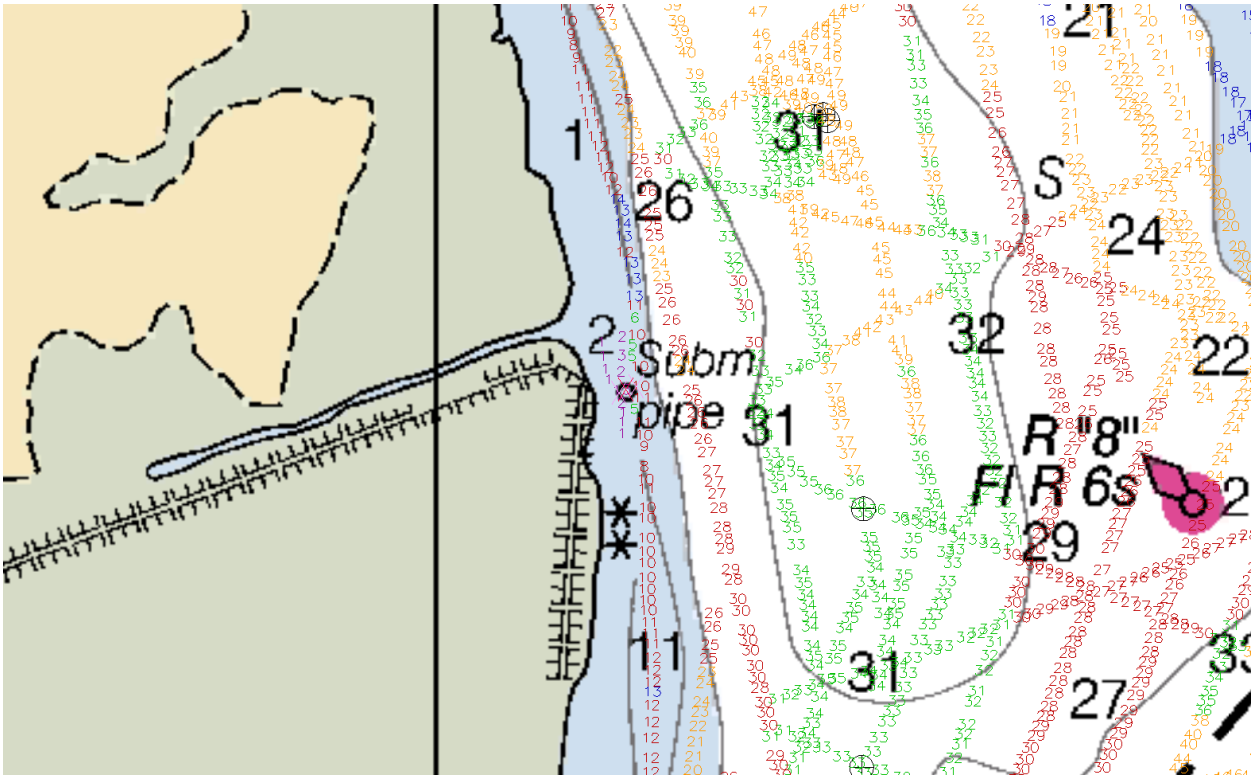


Figure 1.1.1

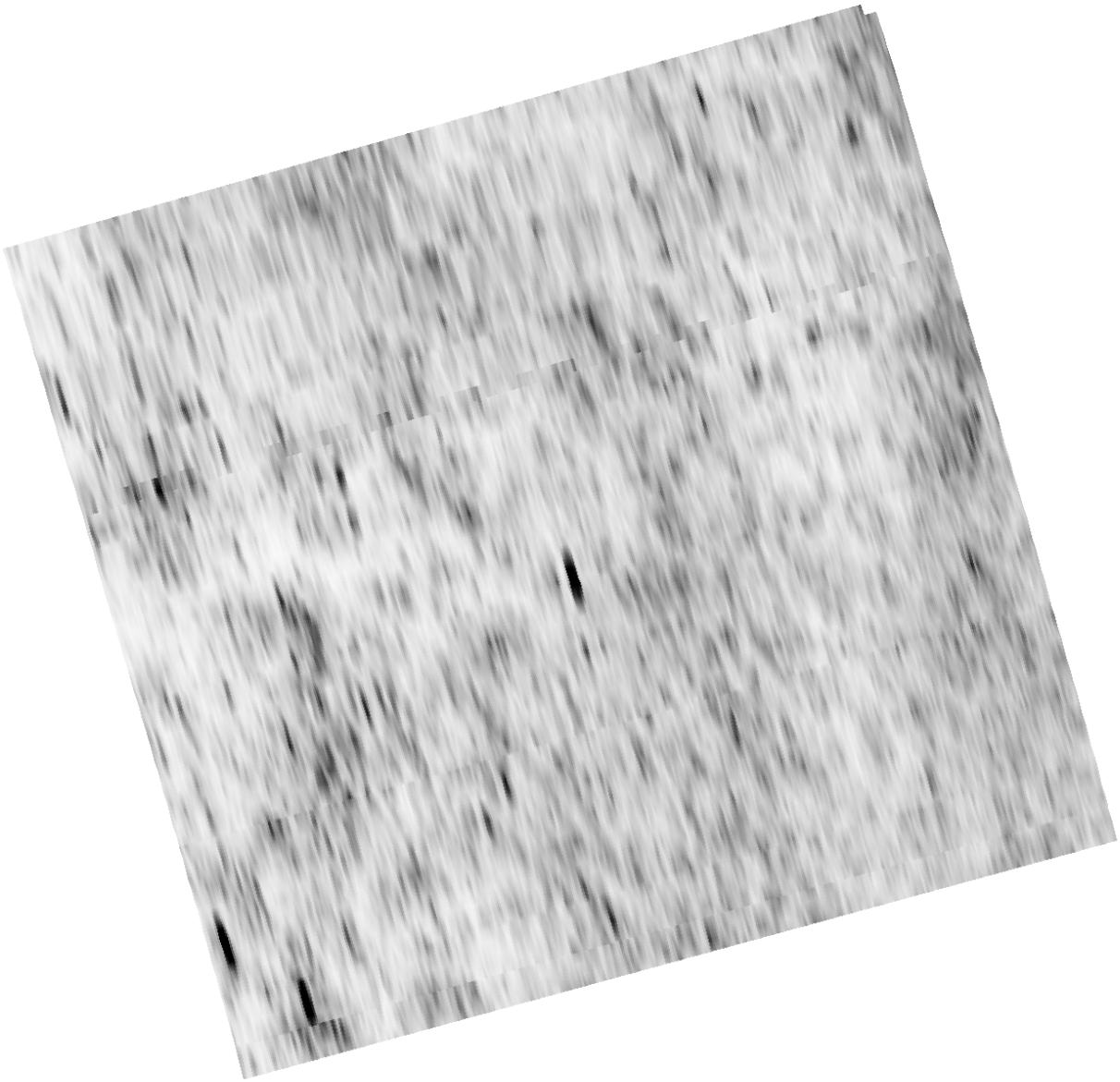


Figure 1.1.2

1.2) AWOIS 7625

Primary Feature for AWOIS Item #7625

Search Position: 32° 52' 39.4" N, 079° 51' 26.1" W

Historical Depth: [None]

Search Radius: 0

Search Technique: [None]

Technique Notes: [None]

History Notes:

AWOIS ITEM 7625 HISTORY BP87925--CMP-T13020, CLASS 3;PLATFORM RUINS AWASH AT MHW LOCATED IN POS. LAT.32-52-39N, LONG.79-51-26.7W. PHOTOGRAPHY FLOWN IN 1972. (ENTERED 3/90 MCR) H10801/98-- OPR-G301-AHP; SINGLE PILE VISUALLY LOCATED IN LAT. 32-52-39.41N, LONG. 79-51-26.06W. IT IS A 12-INCH DIA.WOODEN PILE EXPOSED 1.5 METERS. EVALUATOR RECOMMENDS REMOVING THE CHARTED PLATFORM AND CHARTING THE PILE AS SURVEYED. (UP 6/22/99, SJV) OPR-G347-NRT2-08 // H-11862,2009: Pile baring was visual observed to exist as charted. Recommendation: Retain as charted.RWR

Survey Summary

Survey Position: 32° 52' 39.6" N, 079° 51' 26.0" W

Least Depth: [None]

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

Timestamp: 2009-110.07:07:08 (04/20/2009)

Survey Line: h11862 / nrt2_1210_klein3000hf_100sss / 2009-104 / sss090414161100

Contact/Point: 0001/1

Charts Affected: 11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

baring pile. Awois

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11862/nrt2_1210_klein3000hf_100sss/2009-104/sss090414161100	0001	0.00	000.0	Primary
AWOIS	AWOIS # 7625	4.87	026.8	Secondary

Hydrographer Recommendations

[None]

S-57 Data

[None]

Office Notes

Charted pile located and verified. Retain as charted.

Feature Images

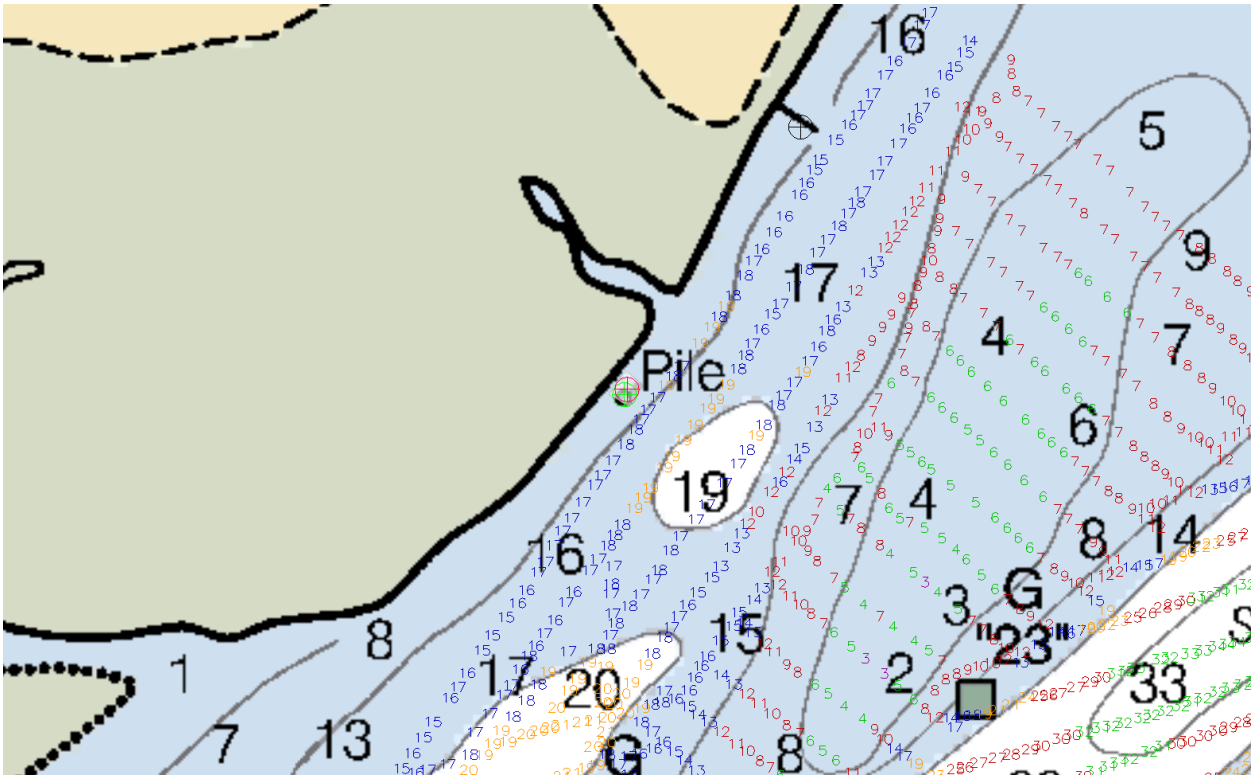


Figure 1.2.1

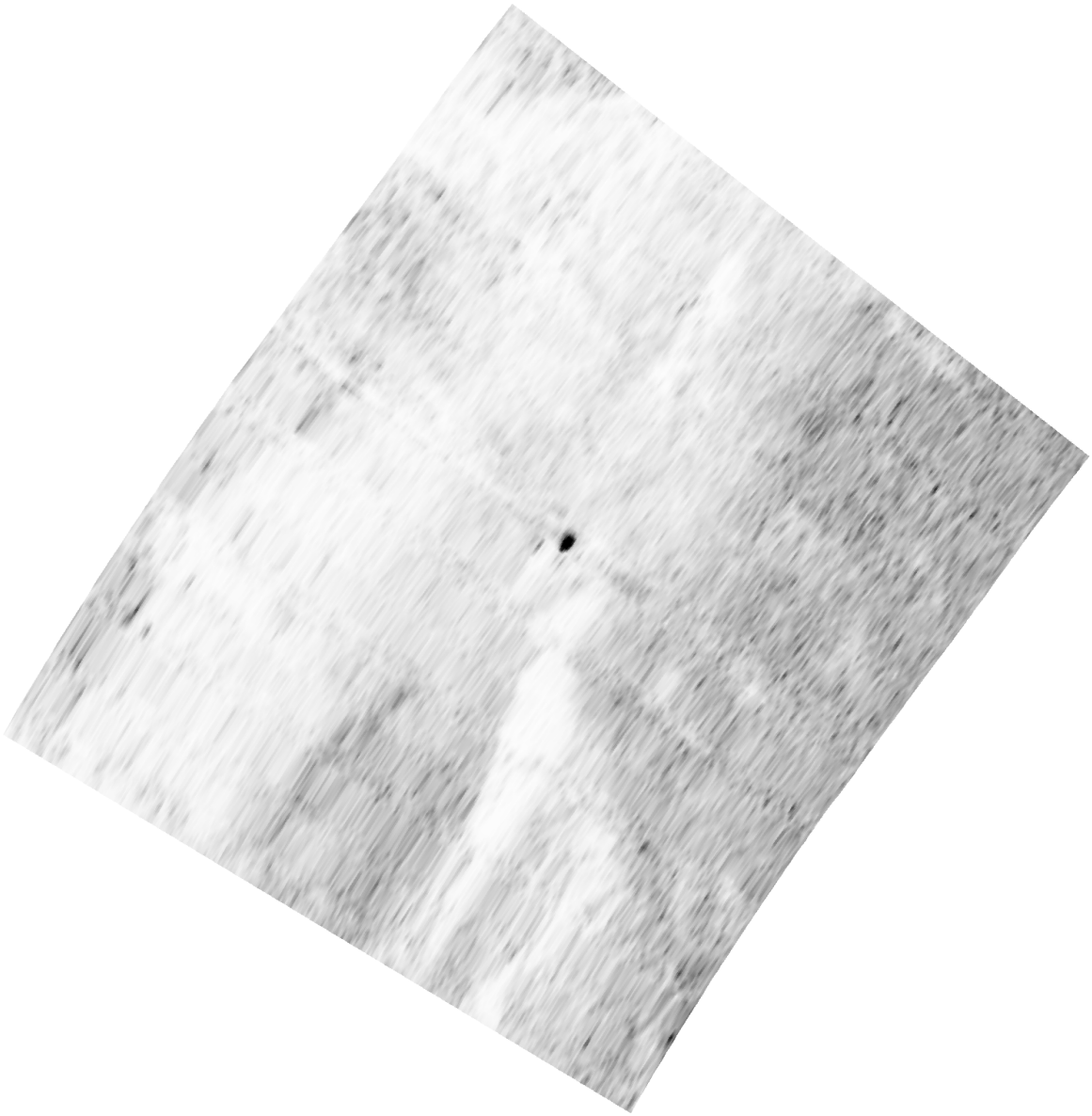


Figure 1.2.2

Figure 1.2.3

Figure 1.2.4

1.3) AWOIS 523 - Remove 3 ft dangerous sunken wreck

Primary Feature for AWOIS Item #523

Search Position: 32° 48' 55.5" N, 079° 54' 26.2" W

Historical Depth: 1.00 m

Search Radius: 100

Search Technique: S2,ES,DI,SD

Technique Notes: [None]

History Notes:

H5433A/33-34--VISIBLE WRECK BARES 8 FEET MLW. H9731/77-78--FOUND THE WRECK SUNKEN AND COVERED BY 4 FEET MLW IN ì LAT. 32/48.9, LONG. 079/54.42 (ENTERED 2/97 BY MBH) H10784/98--OPR-G301-AHP; SUNKEN WRECK (UNDESCRIBED) FOUND IN LAT.32/48/55.53N, LONG. 079/54/26.21W (NAD83). DIVERS OBTAINED A LEAST DEPTH OF 1.0 METER (3.3 FEET) AT MLLW. (UPDATED 4/99 BY MBH)

Survey Summary

Survey Position: 32° 48' 55.8" N, 079° 54' 26.5" W

Least Depth: -5.26 m (= -17.27 ft = -2.878 fm = -2 fm 5.27 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.966 m ;**TVU (TPEv)** ±0.132 m

Timestamp: 2009-113.14:47:23.000 (04/23/2009)

DP Dataset: h11862 / nrt2_1210_dpnonechosounder / 2009-113 / 04232009_dps

Profile/Beam: 2/1

Charts Affected: 11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

Offshore end pier with covered boat slips. Located on top of charted WK. Pier extends perpendicular from shore.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11862/nrt2_1210_dpnonechosounder/2009-113/04232009_dps	2/1	0.00	000.0	Primary
AWOIS	AWOIS # 523	8.26	289.4	Secondary

Hydrographer Recommendations

Remove charted WK, and add Pier.

Cartographically-Rounded Depth (Affected Charts):

-18ft (11524_1, 11521_1)

-2 ¾fm (11520_1, 11009_1, 411_1)

S-57 Data

Geo object 1:	Cartographic symbol ($CSYMB)
Attributes:	SORDAT - 20090423
	SORIND - US,US,Survy,H11862
Geo object 2:	Shoreline Construction (SLCONS)
Attributes:	CATSLC - 4:pier (jetty)
	HEIGHT - 5.3 m
	NATCON - 6:wooden
	OBJNAM - Pier
	SORDAT - 20090423
	SORIND - US,US,survy,H11862
	STATUS - 1:permanent
	WATLEV - 2:always dry

Office Notes

AHB concurs w/ the field. Remove charted 3 ft dangerous sunken wreck. Add pier to chart in vicinity of surveyed location (see orthoimagery). Add white and orange special purpose buoy (Defer to MCD for charting). See USGS High Resolution Orthoimagery for the Charleston, South Carolina Urban Area, 2007 for pier.

Feature Images

Figure 1.3.1

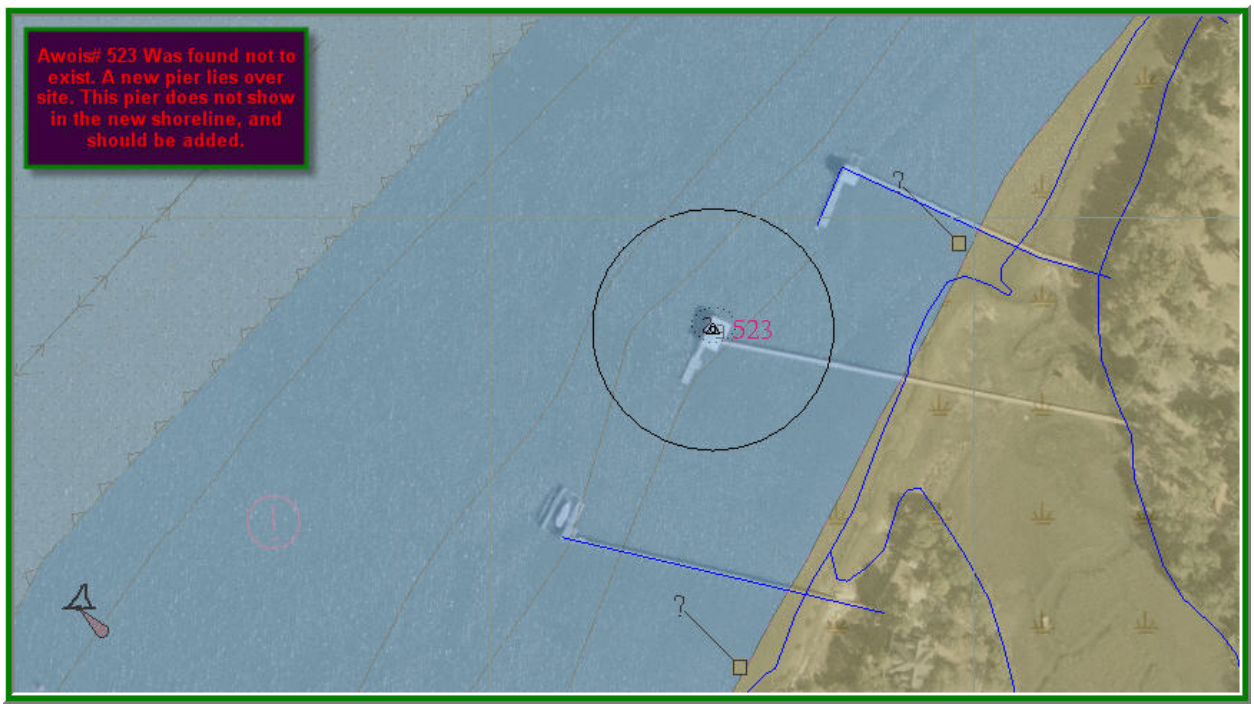


Figure 1.3.2

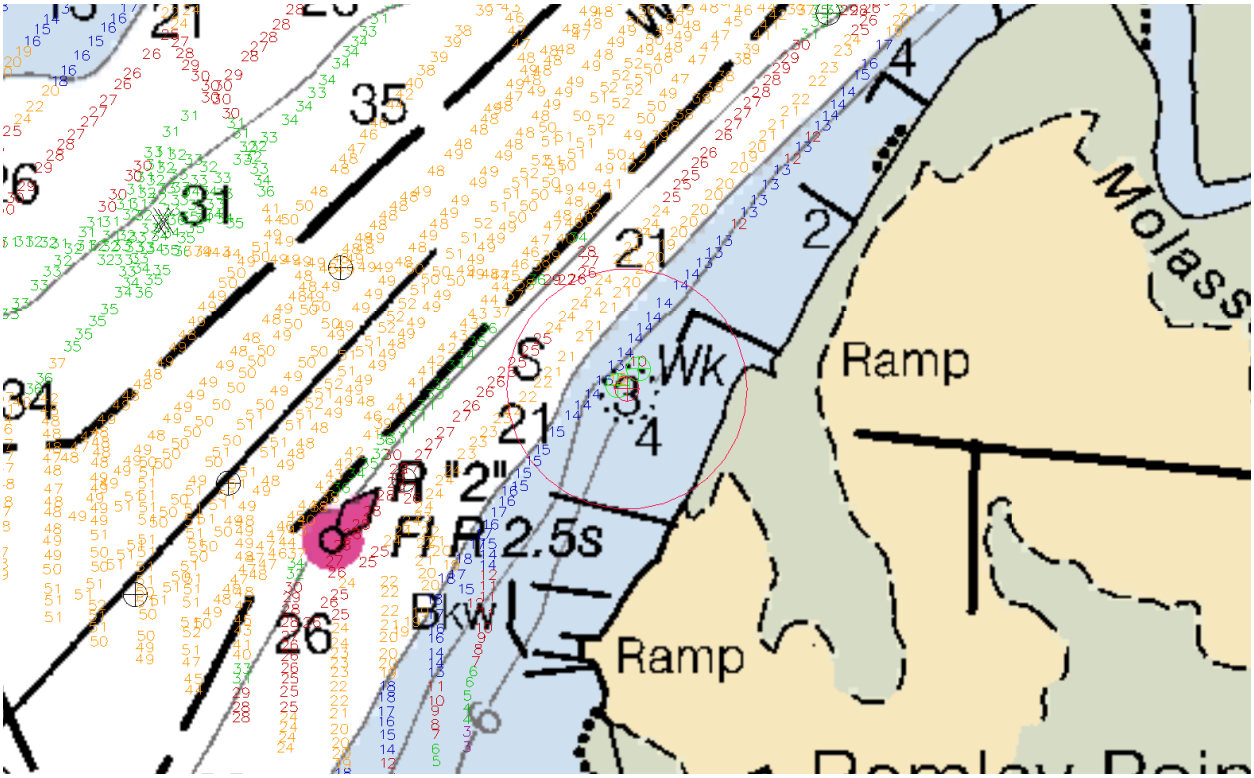


Figure 1.3.3

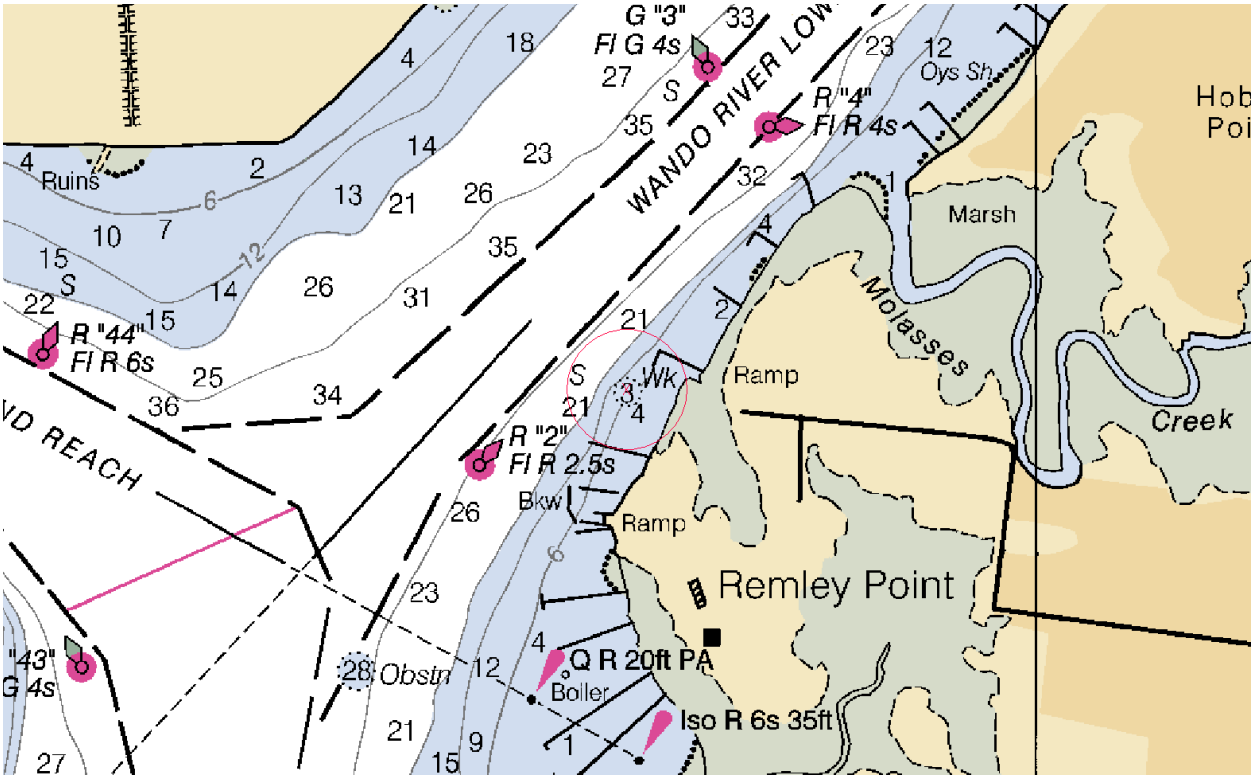

G "3"
Fl G 4s
WANDO RIVER LOW
R "4"
Fl R 4s
Oys Sh
Marsh
Molasses
Creek
Ruins
R "44"
Fl R 6s
R "2"
Fl R 2.5s
Wk
Ramp
Bkw
Ramp
Remley Point
Q R 20ft PA
Boller
Iso R 6s 35ft
Obstn
VD REACH

Figure 1.3.4

Figure 1.3.5

1.4) Awois# 10392 delete charted 12-ft Wk

Primary Feature for AWOIS Item #10392

Search Position: 32° 52' 06.8" N, 079° 52' 58.0" W

Historical Depth: 3.66 m

Search Radius: 50

Search Technique: S2, ES

Technique Notes: [None]

History Notes:

H10801/98-- OPR-G301-AHP; UNCHARTED DANGEROUS SUBMERGED WRECK LOCATED IN LAT. 32-52-06.80N, LONG. 79-52-57.99W. LD 12 FEET. EVALUATOR RECOMMENDS CHARTING A 12 WK AS SURVEYED. (ENT 6/22/99, SJV) OPR-G347-NRT2-08 // H-11862,2009: 200% SSS coverage was conducted throughout the search area. No signs of the charted wreck associated with Awois# 10392 were found to exist. There were signs of minor debris of an insignificant nature in the area, apparently ground tackle. There was a new wk located 463 meters @ 137° from the currently charted position, though this could be the same feature, moved by storms scene the original dive ops position, that can not be verified. Recommendation:Remove the charted WK and apply survey soundings.RWR

Survey Summary

Survey Position: 32° 52' 06.7" N, 079° 52' 58.0" W

Least Depth: 7.85 m (= 25.75 ft = 4.291 fm = 4 fm 1.75 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.970 m ; **TVU (TPEv)** ±0.135 m

Timestamp: 2009-111.15:12:43.381 (04/21/2009)

Survey Line: h11862 / nrt2_1210_sb / 2009-111 / 013_1512

Profile/Beam: 391/1

Charts Affected: 11524_1, 11521_1, 11520_1, 11009_1, 411_1

Remarks:

200% SSS coverage was conducted throughout the search area. No signs of the charted wreck associated with Awois#10392 were found to exist. There were signs of minor debris of an insignificant nature in the area, apparently ground tackle. There was a new wk located 463 meters @ 137° from the currently charted position, though this could be the same feature, moved by storms scene the original dive ops position, that can not be verified.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11862/nrt2_1210_sb/2009-111/013_1512	391/1	0.00	000.0	Primary
AWOIS	AWOIS # 10392	2.66	206.5	Secondary

h11862/nrt2_1210_klein3000hf_100sss/2009-104/sss090414150800	0002	9.77	074.0	Secondary
h11862/nrt2_1210_klein3000hf_200sss/2009-104/sss090414143400	0002	41.74	341.0	Secondary
h11862/nrt2_1210_klein3000hf_200sss/2009-104/sss090414143400	0001	68.91	049.1	Secondary (grouped)

Hydrographer Recommendations

Remove the charted WK and apply survey soundings.

Cartographically-Rounded Depth (Affected Charts):

25ft (11524_1, 11521_1)

4 ¼fm (11520_1, 11009_1, 411_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)

Attributes: EXPSOU - 1:within the range of depth of the surrounding depth area

QUASOU - 1:depth known

TECSOU - 1:found by echo-sounder

VERDAT - 12:Mean lower low water

Office Notes

AHB concurs w/ field. 200% SSS shows no sign of charted wreck. AHB recommends deleting charted 12-ft wreck. Chart survey depths within the common area.

Feature Images

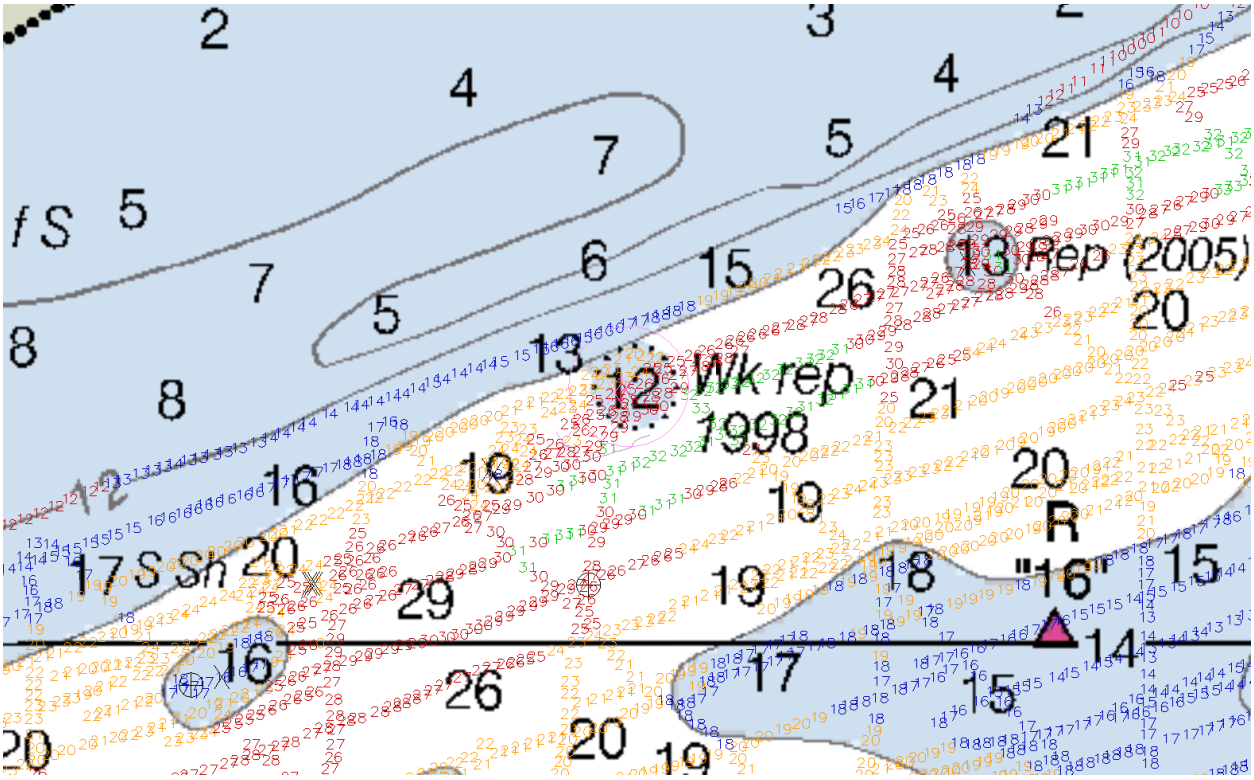


Figure 1.4.1

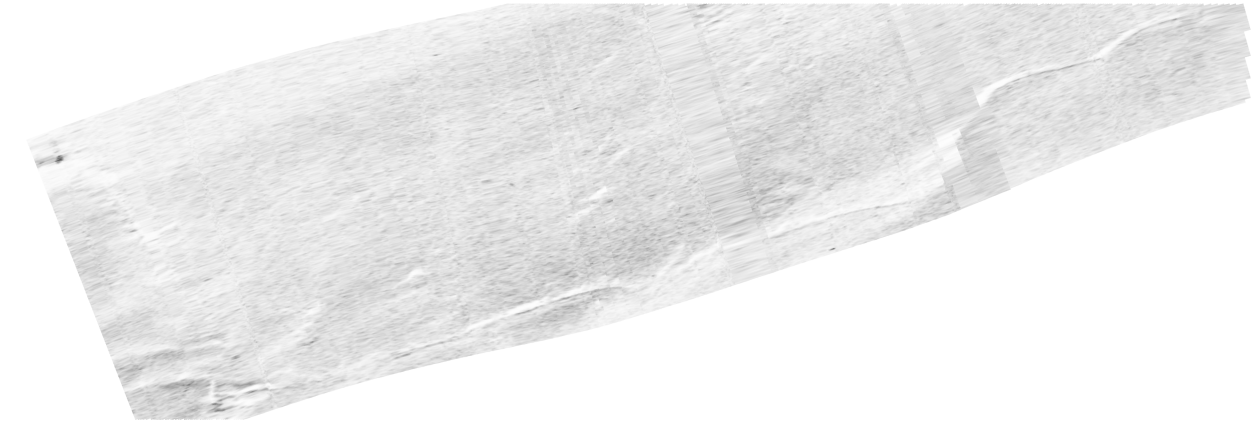


Figure 1.4.2

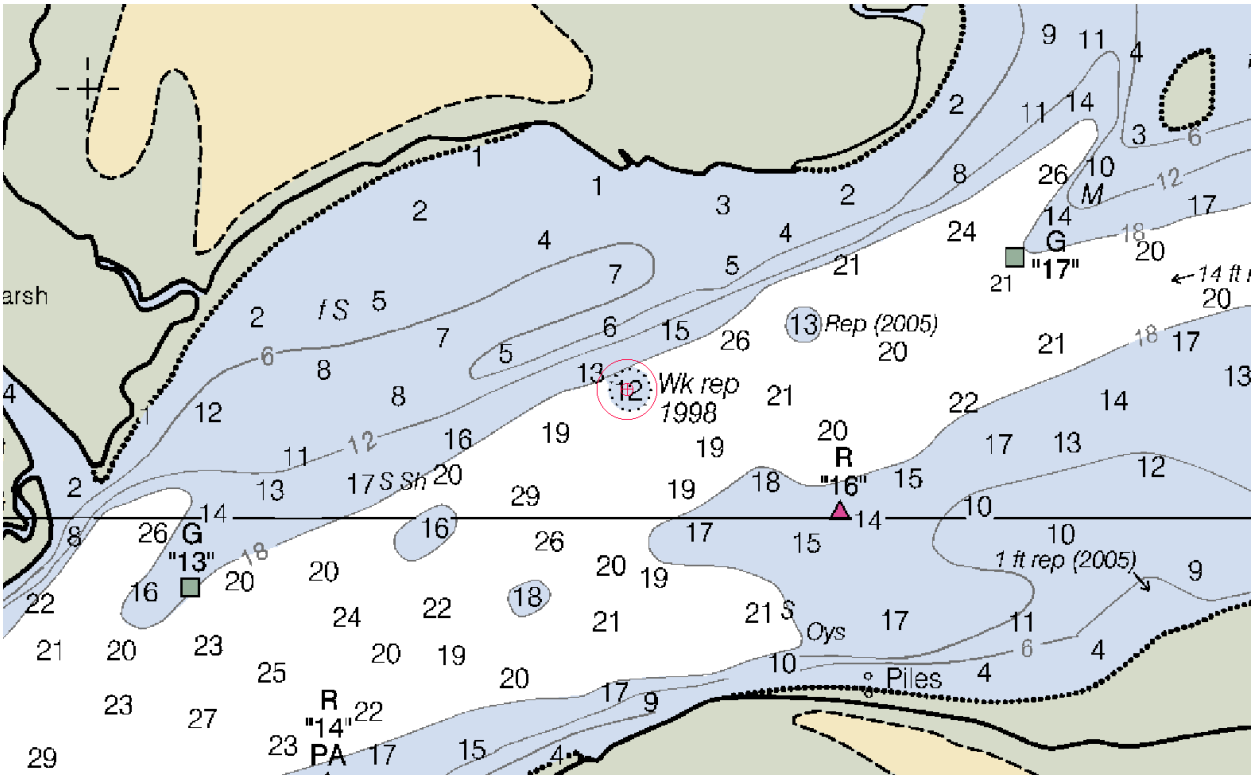


Figure 1.4.3

APPENDIX III
FINAL PROGRESS SKETCH AND SURVEY

APPENDIX IV
TIDES AND WATER LEVELS

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : May 20, 2009

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: OPR-G347-NRT2-2008
HYDROGRAPHIC SHEET: H11862

LOCALITY: Wando River, Charleston Harbor, SC
TIME PERIOD: March 16 - April 23, 2009

TIDE STATION USED: 866-5530 Charleston, SC
Lat. 32° 46.9'N Long. 79° 55.5' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.648 meters

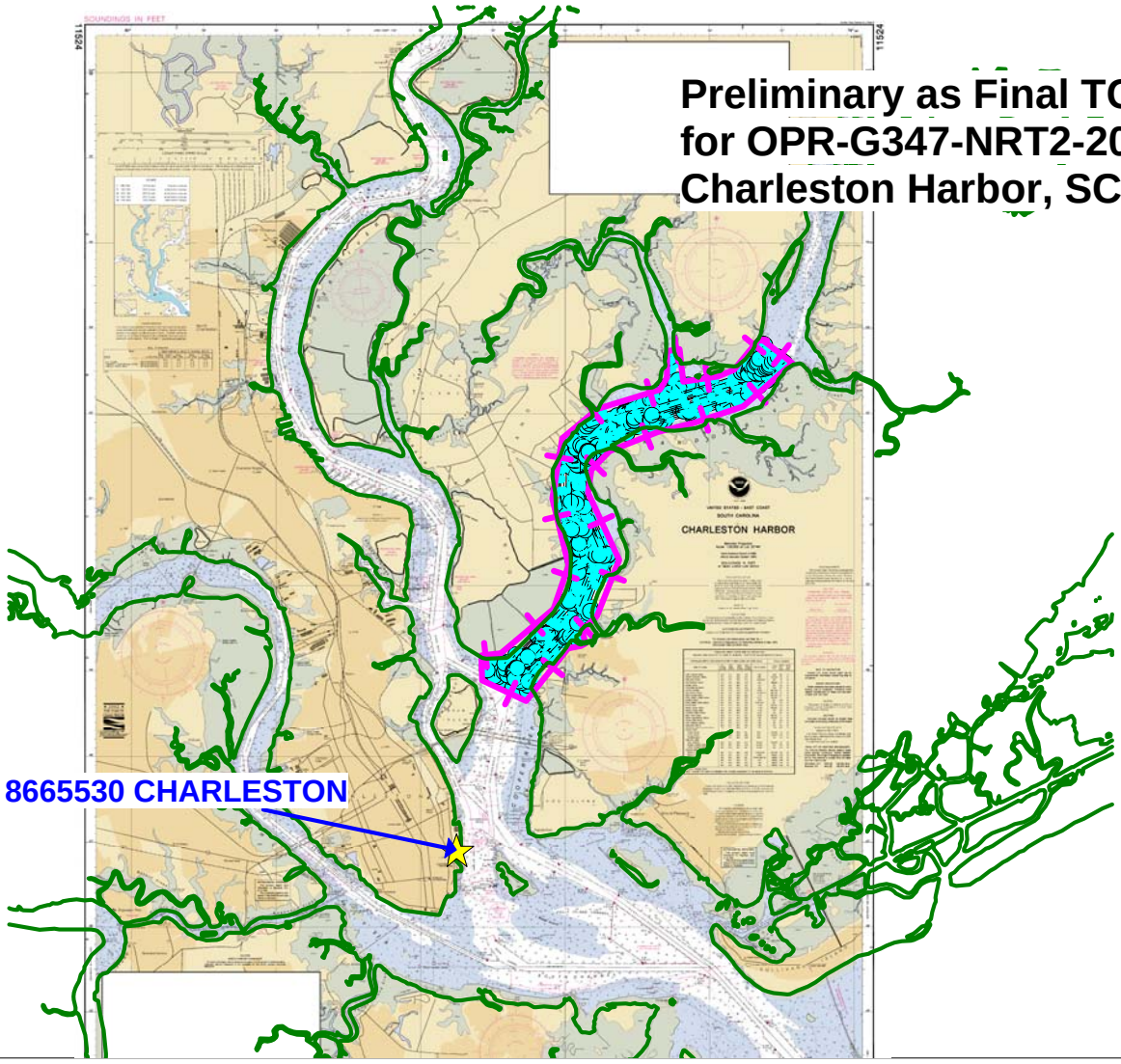
REMARKS: RECOMMENDED GRID

Please use the TCARI grid "G347NRT22008-TCARI" as the final grid for project OPR-G347-NRT2-2009, H11862, during the time period between March 16 and April 23, 2009

Refer to attachments for grid 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).

_____
CHIEF, OCEANOGRAPHIC DIVISION


Preliminary as Final TCARI Grid
for OPR-G347-NRT2-2008, H11862
Charleston Harbor, SC
CHARLESTON HARBOR
8665530 CHARLESTON

APPENDIX V
SUPPLEMENTAL SURVEY AND CORRESPONDENCE

From Marilyn.L.Schluter@noaa.gov
Sent Monday, June 8, 2009 2:54 pm
To Robert.Ramsey@noaa.gov
Subject Return Receipt (displayed) - OPR-G347-NRT2-08 // H-11862
Attachments MDNPart2.txt 1K MDNPart3.txt 1K

This is a Return Receipt for the mail that you sent to Marilyn.L.Schluter@noaa.gov.

Note: This Return Receipt only acknowledges that the message was displayed on the recipient's computer. There is no guarantee that the recipient has read or understood the message contents.

Return-path: <Robert.Ramsey@noaa.gov>
Disposition-notification-to: Robert.Ramsey@noaa.gov
Received: from noaa.gov ([127.0.0.1])
by mail.nos.noaa.gov (Sun Java System Messaging Server 6.2-7.05 (built Sep 5
2006)) id <0KKX0060171GC800@mail.nos.noaa.gov>
(original mail from Robert.Ramsey@noaa.gov); Mon,
08 Jun 2009 10:54:36 -0400 (EDT)
Received: from noaa.gov ([127.0.0.1])
by mail.nos.noaa.gov (Sun Java System Messaging Server 6.2-7.05 (built Sep 5
2006)) with ESMTP id <0KKX0057XDF0N9D0@mail.nos.noaa.gov> for
LTDSubmission.AHB@noaa.gov; Mon, 08 Jun 2009 10:54:36 -0400 (EDT)
Received: from [74.178.8.3] by mail.nos.noaa.gov (mshttpd); Mon,
08 Jun 2009 14:54:36 +0000 (GMT)
Date: Mon, 08 Jun 2009 14:54:36 +0000 (GMT)
From: Robert.Ramsey@noaa.gov
Subject: OPR-G347-NRT2-08 // H-11862
To: LTD Submission <LTDSubmission.AHB@noaa.gov>
Message-id: <9ed2c12a79be59e4.4a2d262c@noaa.gov>
MIME-version: 1.0
X-Mailer: Sun Java(tm) System Messenger Express 6.2-7.05 (built Sep 5 2006)
Content-type: multipart/mixed; boundary=--18c0dfe57517520f204ba9dd4109ffbe
Content-language: en
X-Accept-Language: en
Priority: normal
Original-recipient: rfc822;LTDSubmission.AHB@noaa.gov

From David.Elliott@noaa.gov
Sent Monday, June 8, 2009 1:48 pm
To Robert Ramsey <Robert.Ramsey@noaa.gov>
Subject Fwd: Final Tides for OPR-G347-NRT2-2008, H11862
Attachments H11862.pdf 507K

11862?

----- Original Message -----
From Lijuan Huang <Lijuan.Huang@noaa.gov>
Date Thu, 28 May 2009 14:29:59 -0400
To Norris A Wike <Norris.A.Wike@noaa.gov>, David Elliott <David.Elliott@noaa.gov>
Cc "_NOS.CO-OPS.HTP" <NOS.COOPS.HPT@noaa.gov>
Subject Final Tides for OPR-G347-NRT2-2008, H11862

DATE: 05/28/2009

MEMORANDUM FOR: LCDR Shepard Smith
Chief, Atlantic Hydrograhic
Branch

FROM: Gerald Hovis
Oceanographic
Division/Requirements and Development Division, N/OPS1

SUBJECT: Delivery of Tide Requirements for
Hydrographic Surveys

This is notification that the preliminary TCARI grid is accepted as the final grid for survey project OPR-G347-NRT2-2008, Registry No. H11862 during the time period between March 16 and April 23, 2009. The accepted reference station for Registry No. H11862 is Charleston, SC (866-5530).

Included with this memo is Tide Note in .PDF format , stating the preliminary grid have been accepted as the final grid.

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

DATE: 05/28/2009

MEMORANDUM FOR: LCDR Shepard Smith
Chief, Atlantic Hydrograhic Branch

FROM: Gerald Hovis
Oceanographic Division/Requirements and Development Division, N/OPS1

SUBJECT: Delivery of Tide Requirements for Hydrographic Surveys

This is notification that the preliminary TCARI grid is accepted as the final grid for survey project OPR-G347-NRT2-2008, Registry No. H11862 during the time period between March 16 and April 23, 2009. The accepted reference station for Registry No. H11862 is Charleston, SC (866-5530).

Included with this memo is Tide Note in .PDF format , stating the preliminary grid have been accepted as the final grid.

From Douglas Harpine <Douglas.Harpine@noaa.gov>
Sent Monday, May 11, 2009 5:28 pm
To Robert Ramsey <Robert.Ramsey@noaa.gov>
Cc Diane Melancon <Diane.Melancon@noaa.gov> , Steve Soherr <Steve.Soherr@noaa.gov>
Subject [Fwd: RE: Wando River, SC]
Attachments vCard(Douglas_Harpine) 1K

Bob

Here is the response from the 7th USCG about the bridge crossing the Wando River. It sounds as if this will stay a swing bridge for some time even though it hasn't been opened in years. Too many agencies involved to get this resolved without stepping on somebody's toes.

I will let you of any changes.

doug
-------- Original Message --------
Subject: RE: Wando River, SC
Date: Mon, 11 May 2009 12:42:40 -0400
From: Tate, William <William.G.Tate@uscg.mil>
To: Douglas.Harpine@noaa.gov
References: <4A0430C2.9030203@noaa.gov>

Doug,
Interesting case - thanks for giving me this research assignment. According to bridge file #71 and CFR 117.939; "The draw of the SR41 bridge, mile 10.0 near Cainhoy, shall open on signal if at least 12 hours notice is given."

So, it is not a fixed bridge yet, and still opens on occasion. I see correspondence dating back to 2008 indicating that a bridge replacement was planned by SC Dept of Transportation, and it was proposed that a high level fixed bridge be built. However, locals, wanting to prevent development and deter increased vessel traffic, didn't want a higher bridge. SC State law requires the town to sign off on any bridge replacement, and they would not do so for anything higher than 35 feet. However, the USCG felt that this lower clearance wouldn't meet the "reasonable needs of navigation".

A Feb 2009 e-mail says "...it was agreed that a joint effort to conduct a more current survey of actual public waterway needs would be a helpful course of action..."

So, plans are on hold for now, and the bridge still opens with a 12 hour advance notice.

W. Gwin Tate III
Associate Bridge Management Specialist
Commander (dpb)
7th Coast Guard District
909 SE 1st Ave Ste 432
Miami FL 33131
PH:(305) 415-6747
FX:(305) 415-6763
E-mail: William.G.Tate@uscg.mil

-----Original Message-----
From: Douglas.Harpine@noaa.gov [mailto:Douglas.Harpine@noaa.gov]

Sent: Friday, May 08, 2009 9:17 AM
To: Tate, William
Subject: Wando River, SC

William

NOAA has been informed by someone in the private sector that a swing bridge (state route 41), is no longer being used as a swing bridge. This bridge crosses the Wando River, SC It just stays in the fixed position. NOAA currently is showing on our charts a Swing Bridge, Hor Cl 62ft, Vert cl 6ft.

What is the procedure that the USCG uses when this happens? Do you just send out a CG-4599 form with a check in the "conversion to fixed" box. If so, what starts the process in revising the bridge?

Regards

Doug

From David.Fischman@noaa.gov
Sent Tuesday, May 5, 2009 1:58 pm
To Robert.Ramsey@noaa.gov
Subject Return Receipt (displayed) - Raw Data Size H11862
Attachments MDNPart2.txt 1K MDNPart3.txt 1K

This is a Return Receipt for the mail that you sent to david.fischman@noaa.gov.

Note: This Return Receipt only acknowledges that the message was displayed on the recipient's computer. There is no guarantee that the recipient has read or understood the message contents.

Return-path: <Joseph.E.Salazar@noaa.gov>
Disposition-notification-to: Robert.Ramsey@noaa.gov
Received: from mail.nos.noaa.gov (mail.nos.noaa.gov [140.90.114.20])
by email.boulder.noaa.gov
(iPlanet Messaging Server 5.2 HotFix 2.01 (built Aug 26 2004))
id <0KJ600001BATSI@email.boulder.noaa.gov>
(original mail from Robert.Ramsey@noaa.gov); Tue,
05 May 2009 13:58:15 +0000 (GMT)
Received: from mail.nos.noaa.gov (mail.nos.noaa.gov [140.90.114.20])
by email.boulder.noaa.gov
(iPlanet Messaging Server 5.2 HotFix 2.01 (built Aug 26 2004))
with ESMTP id <0KJ6000Y9C52A4@email.boulder.noaa.gov> for hydro.info@noaa.gov;
Tue, 05 May 2009 13:58:14 +0000 (GMT)
Received: from noaa.gov ([127.0.0.1])
by mail.nos.noaa.gov (Sun Java System Messaging Server 6.2-7.05 (built Sep 5
2006)) with ESMTP id <0KJ600I86C52OS00@mail.nos.noaa.gov> for
hydro.info@noaa.gov (ORCPT hydro.info@noaa.gov); Tue,
05 May 2009 09:58:14 -0400 (EDT)
Received: from [74.243.250.127] by mail.nos.noaa.gov (mshttpd); Tue,
05 May 2009 13:58:14 +0000 (GMT)
Date: Tue, 05 May 2009 13:58:14 +0000 (GMT)
From: Robert.Ramsey@noaa.gov
Subject: Raw Data Size H11862
To: Hydro Info <hydro.info@noaa.gov>, Shep Smith <Shep.Smith@noaa.gov>
Cc: "Lawrence T. Krepp" <Lawrence.T.Krepp@noaa.gov>
Message-id: <d9fbd8234213a81d.4a0045f6@noaa.gov>
MIME-version: 1.0
X-Mailer: Sun Java(tm) System Messenger Express 6.2-7.05 (built Sep 5 2006)
Content-type: text/plain; charset=us-ascii
Content-language: en
Content-transfer-encoding: 7bit
Content-disposition: inline
X-Accept-Language: en
Priority: normal

From <Robert.Ramsey@noaa.gov>

Sent Tuesday, May 5, 2009 1:58 pm

To Hydro Info <hydro.info@noaa.gov> , Shep Smith <Shep.Smith@noaa.gov>

Cc Lawrence T. Krepp <Lawrence.T.Krepp@noaa.gov>

Subject Raw Data Size H11862

Survey Directory Size for Raw Data Only:

OPR-G347-NRT2-08 / Survey # H11862
(Sheet "C") Wando River, SC
NOAA Launch 1210
VBES= 9.07 gb / SSS= 11.02 gb

Submission Planned:

May, 2009 from Charleston, SC
to Atlantic Hydrographic Branch, Norfolk, VA

From OCS.NDB@noaa.gov
Sent Monday, May 4, 2009 2:26 pm
To Robert.Ramsey@noaa.gov
Subject Return Receipt (displayed) - Coast Pilot Review// OPR-G347-NRT2-08 // H11862
Attachments MDNPart2.txt 1K MD NPart3.txt 1K

This is a Return Receipt for the mail that you sent to ocs.ndb@noaa.gov.

Note: This Return Receipt only acknowledges that the message was displayed on the recipient's computer. There is no guarantee that the recipient has read or understood the message contents.

Return-path: <Robert.Ramsey@noaa.gov>
Disposition-notification-to: Robert.Ramsey@noaa.gov
Received: from noaa.gov ([127.0.0.1])
by mail.nos.noaa.gov (Sun Java System Messaging Server 6.2-7.05 (built Sep 5
2006)) with ESMTP id <0KJ400FFZEFT7Q70@mail.nos.noaa.gov>; Mon,
04 May 2009 08:52:41 -0400 (EDT)
Received: from [74.243.249.179] by mail.nos.noaa.gov (mshttpd); Mon,
04 May 2009 12:52:41 +0000 (GMT)
Date: Mon, 04 May 2009 12:52:41 +0000 (GMT)
From: Robert.Ramsey@noaa.gov
Subject: Coast Pilot Review// OPR-G347-NRT2-08 // H11862
To: Steve Soherr <Steve.Soherr@noaa.gov>, ocs ndb <OCS.NDB@noaa.gov>
Message-id: <d13f121b73208382.49fee519@noaa.gov>
MIME-version: 1.0
X-Mailer: Sun Java(tm) System Messenger Express 6.2-7.05 (built Sep 5 2006)
Content-type: multipart/mixed; boundary=--d66ebad331a3476f3a6a3c77ebe18ee
Content-language: en
X-Accept-Language: en
Priority: normal

From Smooth.Tides@noaa.gov
Sent Wednesday, April 29, 2009 12:24 pm
To Robert.Ramsey@noaa.gov
Subject Return Receipt (displayed) - Smooth Tides request OPR-G347-NRT2-08
Attachments MDNPart2.txt 1K MDNPart3.txt 1K

This is a Return Receipt for the mail that you sent to Smooth.Tides@noaa.gov.

Note: This Return Receipt only acknowledges that the message was displayed on the recipient's computer. There is no guarantee that the recipient has read or understood the message contents.

Return-path: <Robert.Ramsey@noaa.gov>
Disposition-notification-to: Robert.Ramsey@noaa.gov
Received: from noaa.gov ([127.0.0.1])
by mail.nos.noaa.gov (Sun Java System Messaging Server 6.2-7.05 (built Sep 5
2006)) with ESMTP id <0KIV00JT535SHA30@mail.nos.noaa.gov> for
smooth.tides@noaa.gov; Wed, 29 Apr 2009 08:10:41 -0400 (EDT)
Received: from [74.243.244.90] by mail.nos.noaa.gov (mshttpd); Wed,
29 Apr 2009 12:10:40 +0000 (GMT)
Date: Wed, 29 Apr 2009 12:10:40 +0000 (GMT)
From: Robert.Ramsey@noaa.gov
Subject: Smooth Tides request OPR-G347-NRT2-08
To: Smooth Tides Request <Smooth.Tides@noaa.gov>
Message-id: <e6fd7fdc1d86a32c.49f843c0@noaa.gov>
MIME-version: 1.0
X-Mailer: Sun Java(tm) System Messenger Express 6.2-7.05 (built Sep 5 2006)
Content-type: multipart/mixed; boundary=--d678d167440a712f710d11be301ca36d
Content-language: en
X-Accept-Language: en
Priority: normal
Original-recipient: rfc822;smooth.tides@noaa.gov

From <Robert.Ramsey@noaa.gov>
Sent Monday, May 4, 2009 12:52 pm
To Steve Soherr <Steve.Soherr@noaa.gov> , ocs ndb <ocs.ndb@noaa.gov>
Bcc Chris Hare <Christopher.Hare@noaa.gov>
Subject Coast Pilot Review// OPR-G347-NRT2-08 // H11862
Attachments CP4-07-39Ed-pages 268-281_edited for H11862.docx 53K

Please find attached the Coast Pilot section review , modified for survey H-11862.

OPR-G347-NRT2-08
H-11862, 2009
1:10,000

This document is an ongoing review, with one outstanding edited to be completed during H-11863.
H-11863 additions will deal with the survey area of the Cooper River.

This review for H-11862 deals with the Wando River.

Any questions may be directed to NRT2 at 843-881-5590

Thank You

Bob Ramsey

From Brian.Mohr@noaa.gov
Sent Friday, May 1, 2009 4:13 pm
To Robert.Ramsey@noaa.gov
Subject Return Receipt (displayed) - OPR-G347-NRT2-08, H-11862 Survey Outlines
Attachments MDNPart2.txt 1K MD NPart3.txt 1K

This is a Return Receipt for the mail that you sent to brian.mohr@noaa.gov.

Note: This Return Receipt only acknowledges that the message was displayed on the recipient's computer. There is no guarantee that the recipient has read or understood the message contents.

Return-path: <ocs.mailadmins@noaa.gov>
Disposition-notification-to: Robert.Ramsey@noaa.gov
Received: from noaa.gov ([127.0.0.1])
by mail.nos.noaa.gov (Sun Java System Messaging Server 6.2-7.05 (built Sep 5
2006)) id <0KIY00801YKZ3C00@mail.nos.noaa.gov>
(original mail from Robert.Ramsey@noaa.gov); Fri,
01 May 2009 11:53:49 -0400 (EDT)
Received: from noaa.gov ([127.0.0.1])
by mail.nos.noaa.gov (Sun Java System Messaging Server 6.2-7.05 (built Sep 5
2006)) with ESMTP id <0KIZ00IF82TMHW60@mail.nos.noaa.gov> for
Survey.Outlines@noaa.gov; Fri, 01 May 2009 11:53:46 -0400 (EDT)
Received: from [74.243.244.90] by mail.nos.noaa.gov (mshttpd); Fri,
01 May 2009 15:53:46 +0000 (GMT)
Date: Fri, 01 May 2009 15:53:46 +0000 (GMT)
From: Robert.Ramsey@noaa.gov
Subject: OPR-G347-NRT2-08, H-11862 Survey Outlines
To: Survey Outlines <survey.outlines@noaa.gov>
Message-id: <f292cb3218a5ba23.49fb1b0a@noaa.gov>
MIME-version: 1.0
X-Mailer: Sun Java(tm) System Messenger Express 6.2-7.05 (built Sep 5 2006)
Content-type: multipart/mixed; boundary=--e192a57239c9e23058b3ca091ced8d79
Content-language: en
X-Accept-Language: en
Priority: normal

From <Robert.Ramsey@noaa.gov>
Sent Friday, May 1, 2009 3:53 pm
To Survey Outlines <Survey.Outlines@noaa.gov>
Subject OPR-G347-NRT2-08, H-11862 Survey Outlines
Attachments H11862_FinalSurveyCoverage.zip 5K

Please find attached,

For OPR-G347-NRT2-08 // H-11862,2009 1:10,000 scale.

Mapinfo Tables depicting the FBD (Full Bottom Detection/200%sss) , and VBES (Vertical Beam Echo Sounder coverage) coverage for the above survey.

Information request to RW Ramsey

Thank You,

Bob Ramsey

From <Robert.Ramsey@noaa.gov>
Sent Wednesday, April 29, 2009 12:10 pm
To Smooth Tides Request <smooth.tides@noaa.gov>
Subject Smooth Tides request OPR-G347-NRT2-08
Attachments H11862_Accepted_SmoothTides.zip 491K

Please find attached smooth tides request for the following survey:

OPR-G347-NRT2-08
H-11862, 2009
S-1210
1:10,000

Charleston SC primary 866-5530
using "G347NRT22008-TCARI.tc", renamed for survey to "H11862_Verified.tc"

Question 843-881-5590

Thank You,

Bob Ramsey
NRT2 Team Lead

From Hugh Rein <Hugh.Rein@noaa.gov>
Sent Thursday, April 2, 2009 5:10 pm
To Castle E Parker <Castle.E.Parker@noaa.gov> , Dave Neander <Dave.Neander@noaa.gov> , Ed Martin <Ed.Martin@noaa.gov> , Howard Danley <Howard.Danley@noaa.gov> , James M Crocker <James.M.Crocker@noaa.gov> , Joseph Robinson <Joseph.Robinson@noaa.gov> , Ken Forster <Ken.Forster@noaa.gov> , Kevin Shaw <Kevin.Shaw@noaa.gov> , Mark Griffin <Mark.Griffin@noaa.gov> , "ocs.ndb" <OCS.NDB@noaa.gov> , Richard Sillcox <Richard.Sillcox@noaa.gov> , Shep Smith <Shep.Smith@noaa.gov> , Thomas Loeper <Thomas.Loeper@noaa.gov> , Travis Newman <Travis.Newman@noaa.gov> , Robert.Ramsey@noaa.gov
Subject [Fwd: [Fwd: DTON/AntiDTON]]
Attachments H11862_DTON_04012009.pdf 3.4MB H 11862_DTON_04012009.xml 6K v Card(hugh_rein) 1K

L-469/09 and DD-13826 have been registered by the Nautical Data Branch
and directed to Products Branch E for processing.

The DTON/ATON is an existing charted subm pile, which has a private aid
at the same location in Wando River, SC.

The following chart is affected:
11524 kapp 215

The following ENC is affected:
US5SC14M

References:
H-11862
OPR-G347-NRT2-08

The information was discovered by NRT2 and was submitted by AHB.

----- Original Message -----
From "ocs.ndb" <OCS.NDB@noaa.gov>
Date Thu, 02 Apr 2009 13:06:35 -0400
To Hugh Rein <Hugh.Rein@noaa.gov>
Subject [Fwd: DTON/AntiDTON]

-------- Original Message --------
Subject: DTON/AntiDTON
Date: Wed, 01 Apr 2009 18:54:04 +0000 (GMT)
From: Robert.Ramsey@noaa.gov
To: Douglas Harpine <Douglas.Harpine@noaa.gov>, ocs ndb <OCS.NDB@noaa.gov>

```
Attached please find DTON / Anti DTON. If the photos in the pdf did not make it, it is because of our email attachment size restrictions.

Bob Ramsey
NOAA / NRT2
```

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Additional review conducted during H-11862, 2009, deals with the Wando River. Review will continue as Project OPR-G347-NRT2-08 continues. Highlighted "Yellow or underlined red" indicates changed, modified verbiage; "Red" is recommended for complete removal.

U.S. Coast Pilot 4, 39th Ed., 2007
Chapter 6, Page 268 - Paragraph 90 through Page 281 – Paragraph 236
Reviewed through LNM 12/08, CGD7

Charts 11523, 11524, 11521

(90)
Charleston Harbor, 264 miles southwestward of Cape Hatteras and 65 miles northeastward of Savannah River, is the approach to the city of Charleston and to the Cooper, Wando and Ashley Rivers. The harbor is easy of access day or night in clear weather, and is one of the best harbors of refuge on the South Atlantic coast. **Charleston Harbor Wildlife Sanctuary** is a Marine Managed Area (MMA); (See **MMA 6-1**, Appendix C, for additional information.)

Caution

The entrance to Charleston Harbor is between converging jetties. The north jetty is almost completely submerged at MHW. There are no lights on the jetties and smaller craft approaching from the north close to shore at MHW should exercise extreme caution not to confuse the south jetty for the north jetty. It is recommended all vessels align seaward of Lighted Buoy 18 before final approach to the jetty entrance.

(91)
The areas generally to the east and southeast of Charleston Harbor are used extensively by the U.S. Navy and other military services to conduct various types of surface, subsurface, and aircraft training exercises. Fleet Area Control and Surveillance Facility (FACSFAC), Jacksonville, FL, exercises cognizance of the operating areas, makes area assignments, insures promulgation of firing notices, issues schedules, and prescribes necessary additional regulations.

(92)
Charleston, the largest city and port in South Carolina, is at the confluence of Cooper and Ashley Rivers. The distance from the end of the jetties to the southernmost wharves at Charleston is about 7 miles. The city is a center of a rich agricultural district for which it is the distributing point. Numerous manufacturing plants are in and near the city. The principal wharves are along the west bank of Cooper River and the east bank of the Wando River. Imports are building cement, plywood, wool, bananas, nonferrous ores, chemicals, fertilizer, frozen meats, automobiles, steel products, naval stores and petroleum products. Exports are soybeans, clay, paper products, corn, woodpulp, lumber, heavy machinery, chemicals, fertilizer, textiles, automobiles and general cargo.

Prominent features

(93)
The entrance to Charleston Harbor is between converging jetties which extend nearly 3 miles seaward. Prominent to the northward of the entrance are several tanks on Sullivans Island and one on Isle of Palms, and the Charleston Light. **Fort Moultrie** and the town of **Sullivans Island** are on the north side of the entrance; the 155-foot conical tower of the abandoned old Charleston Lighthouse on Morris Island is south of the entrance; **Fort Sumter** is on the southwest side of the channel just inside the entrance.

Comment [to1]: Verified Prominent features

(94)
The prominent fixed red lights marking the top of the central span of the Arthur Ravenel Bridge can be seen from the channel between the jetties~~.~~ ~~and are useful in connection with Mount Pleasant Range. When Mount Pleasant Range line is extended northwestward to the bridge, it intersects the bridge just west of the midpoint between the two bridge lights.~~ Prominent fixed red lights also mark the top of the central span of the bridge where it crosses Town Creek, west of Drum Island.

(95)
Charleston Light (32°45'28"N., 79°50'35"W.) 163 feet above water, is shown from a triangular tower, upper half black, lower half white, on Sullivans Island.

COLREGS Demarcation Lines

(96)
The lines established for Charleston Harbor are described in **80.710**, chapter 2.

Charleston Harbor Navigational Guidelines

(97)
In recent years, a substantial number of oceangoing vessels of increased size and draft have begun calling at the Port of Charleston. Although the waterways of Charleston Harbor compare favorably with other ports of the same approximate volume of shipping, the maritime interests of the port have prudently considered the publication of a number of safe navigational practices and procedures that have evolved in recent years. These practices and procedures are known as the Charleston Harbor Navigational Guidelines.

(98)
It is recommended that all vessels, particularly those which must navigate in the channel because of draft constraints, hereafter referred to as deep-draft vessels, strictly adhere to these guidelines. Nothing in them shall supersede nor alter any applicable laws or regulations. In construing and complying with these guidelines, regard shall be had to all dangers to navigation and collision and to any special circumstances, including the limitations of the vessels involved,

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which may make a departure from the guidelines necessary to avoid immediate danger.

(99)

For purposes of these guidelines, **poor-handling vessels** are those, which because of their configuration, history of loss of controllability, or steering characteristics, or low power, are unable to consistently navigate within the channel half width or cannot maintain a speed of 8 knots through the water. If an adequate number of tugs are made fast to provide maneuverability, power, and a capable speed through the water of at least 8 knots, the assisted vessel will not be considered a poor handling vessel. Tandem tows, except for small scows and nondescript vessels which operate outside the main channel should not be attempted.

(100)

For the purposes of these guidelines, the inbound approach to the U.S. Route 17, Ravenel fixed bridge span over Hog Island Reach commences at Lighted Buoy 28 (32°46'22"N., 79°53'15"W.) on Rebellion Reach. Inbound vessels intending to transit the Cooper River upstream of the Ravenel bridge should give a Security call on VHF-FM channel 13 upon entering Mount Pleasant range (32°44.4'N., 79°50.7'W.). Commercial vessels outbound from piers above the bridge should give a similar Security call when unmoored or beginning the down bound transit. Poor-handling vessels intending to transit reaches of the Cooper River above Rebellion Reach should be prepared to delay their transit to allow other vessels to clear outbound or to allow full-powered and more maneuverable vessels to precede them. Inbound poor-handling vessels should not proceed in Rebellion Reach past Buoy 28 but rather should anchor or heave-to out of the channel to await the passage of outbound vessels or more maneuverable inbound vessels. Outbound poor-handling vessels should not depart their berths until inbound vessels have passed clear of their berths, or until other vessels scheduled to depart have left their berths and have preceded them down the reaches of the Cooper River.

Comment [NRT22]: The use of "twin bridges" should be changed to " The Ravenel Bridge"; this is a single bridge that crosses both the Hog Island Reach, and Town Crk Reach.

(101)

The maritime interests at the Port of Charleston construe that the navigation safety regulations contained in Title 33, Code of Federal Regulations, Part 162.65, exist to preserve the safety of the port and waterways of Charleston. These regulations are supported by these local interests and reports of violations of those regulations on the part of noncomplying vessel operators will be reported to Coast Guard authorities.

Draft limitations

(102)

While the project depths for Charleston Bar and Charleston Harbor are published as 47 feet and 45 feet, respectively, private dredging operations and natural influences have normally permitted vessels of slightly greater draft than 45 feet to transit the main channels of Charleston Harbor. Tidal ranges average 5.2 feet in most harbor locations. Bar and harbor pilots at Charleston consider actual depths based upon recent soundings, the state of the tide, and the need for under keel clearances to allow for both static and dynamic hydraulic effects between harbor bottom, hull, and the ship's propeller(s). The pilots generally require a four foot margin for clearance, between the lowest point on the vessel's hull and the harbor bottom, for vessels transiting Charleston's waterways at normal harbor speeds. The pilot office provides guidance on all vessel movements in which the vessel's deepest draft is greater than 36 feet, and for tank vessels with deepest drafts over 34 feet.

Low visibility

(103)

Not infrequently, portions of Charleston Harbor are affected by poor visibility. This occurs during line squalls of heavy rain accompanying the passage of frontal systems, rare snow squalls, and fog. Fog associated with a generalized weather pattern occasionally settles over the entire port area including the fairways offshore. Fog over only a part of the harbor, however, is a reasonably frequent occurrence. Vessels, having unmoored in good visibility, may find during their transit that visibility has become reduced to a few yards. Similarly, vessels proceeding inbound from the sea buoy may commence the transit in good visibility only to lose it while transiting the Charleston Harbor.

(104)

These aforementioned reduced visibility conditions may last for only several hours or they may extend to several days. The purpose of these guidelines is not to amend nor negate the application of the Rules of the Road and good navigational practice, but to assist vessels underway in transiting the harbor expeditiously and with minimum risk to themselves and to the port. The Commissioners of Pilotage for the Port of Charleston have issued policy guidance to pilots that whenever visibility is less than 1,000 yards, pilots should not knowingly get a vessel underway outbound, or proceed inbound inshore of Lighted Buoys 27 and 28 on Rebellion Reach, unless an emergency or other special circumstance exists. The pilots licensed by the Commissioners are required to comply with such policy.

(105)

During periods of low visibility, the Charleston Branch Pilots provide information to Navy Port Services Division and the National Weather Service on actual visibility conditions experienced at the Pilot Office, located on the Battery (32°46.4'N., 79°55.5'W.), on board the Association pilot boats, and on board oceangoing vessels being piloted by Charleston Branch Pilots. The pilot office monitors VHF-FM channels 13, 14, 16 and 18A on a continuous basis.

(106)

The Charleston Branch Pilots Office provides information on visibility and vessel movements to mariners, when requested, and when such information is available. The Charleston Branch Pilots do not accept responsibility for financial losses resulting from information that is provided by their office, nor do they accept liability in the event that

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deaths, injuries and/or property damages may result from the use or misuse of information provided by the pilot office. The pilot office is, however, in the best position to determine when reduced visibility exists in the Lower Harbor. At times when reduced visibility exists, regulatory action by the Coast Guard Captain of the Port may be necessary. The Charleston Branch Pilots Association in coordination with the U.S. Navy may contact the Captain of the Port and recommend such action as may be necessary consistent with the policy guidance of the Commissioners of Pilotage.

(107)

At no time shall the Navigation Rules, International-Inland be abridged or amended by these low visibility navigational guidelines. These guidelines are intended to enhance safety under conditions wherein navigation is not otherwise constrained.

Areas of Particular Concern

(108)

Four areas in the Cooper River are considered to be particularly troublesome. These areas are listed in order of ascension when proceeding from sea.

(109)

(1) **Intracoastal Waterway** (32°45.7'N., 79°52.3'W.). This represents the eastern conjunction of this waterway with Rebellion Reach. Westbound vessels proceeding on the waterway into Charleston Harbor are not readily visible to vessels inbound from sea until they are clear of the northernmost part of Sullivans Island. This waterway is extensively used by tows, and its junction with the harbor of Charleston is subject to strong and unpredictable crosscurrents at various stages of the tide. Westbound tows intending to enter Charleston Harbor from the Intracoastal Waterway should give a Security call on VHF-FM channel 13, 15 minutes prior to entry, or upon clearing the Ben Sawyer Bridge (32°46.3'N., 79°50.5'W.), and adjust speed so as to enter the harbor when the channel is clear. Every effort, including holding, should be made to avoid unduly restricting deep-draft vessels transiting the main ship channel, and allow them to clear this area when either inbound or outbound.

(110)

(2) **Drum Island Turn** (32°48.8'N., 79°54.9'W.). Navigation of this turn is complicated by (a) poor visibility caused by Drum Island blocking the view of vessels approaching one another, (b) close proximity, 700 yards, to the fixed bridge spans over Hog Island Reach, and the vulnerability of the bridge to collision in the event vessel control is lost, and (c) crosscurrents on ebb tide from the confluence of the Cooper and Wando Rivers. Vessels should make every effort to avoid meeting at this turn, which includes Hog Island Reach above Lighted Buoy ~~37 (32°47.6'N., 79°55.1'W.).~~41 North of the Ravenel Bridge. Commercial vessels should give another Security call on VHF-FM channel 13, 15 minutes prior to arriving at this turn. The vessel with the fair tide should initiate a proposal for meeting or passing and the vessel stemming the tide should hold as necessary. Any departure from this procedure should be agreed to by both vessels in a timely manner. Poor-handling vessels should not attempt to navigate this turn, except when a suitable number of tugs are immediately available for assistance, because such vessels are likely to become unmanageable, raising a substantial risk of collision with the bridge abutments and, thereby, becoming a threat to the lives of persons in the vehicles on the bridge. Local knowledge is necessary to predict current effects as they tend to set across the channel on both the flood and ebb.

(111)

(3) **Shipyard Creek Junction** (32°49.7'N., 79°55.8'W.). This junction is complicated by the movement of vessel traffic in and out of Shipyard Creek and by ebb currents of unusually high velocity. Upbound low-powered vessels, particularly tugs with deep-draft tows, should not attempt transit of this area, except on flood tide, as their speed over the ground will be so slow that they will effectively restrict the main channel for hours. Tankships moored at the oil terminal facing on the lower portion of Daniel Island Reach are susceptible to current surges and suction from passing deep-draft vessels. Tankships mooring at that facility should employ an array of suitable mooring lines including wire ropes and winches with manually or hydraulically set brakes. It is recommended that a listening watch be maintained on VHF-FM channel 13 so that mooring lines can be tended during the passing of deep-draft vessels whose Security broadcasts have announced their intention to transit the upper Cooper River. In addition, vessels so moored may advise the Office of the Charleston Branch Pilots Association of their working frequencies so that such VHF communications between piloted vessels and moored vessels may be facilitated.

(112)

(4) **North Charleston and Filbin Creek Reaches** (32°52.2'N., to 32°53.8'N., 79°57.9'W.). The main channel in these reaches is immediately adjacent to the pier heads of a number of oil terminals which receive tank vessels. The channel in these reaches is minimally 500 feet in width, thus the passage of deep-draft vessels often occurs in close proximity to moored tank vessels transferring bulk liquid inflammable, combustible and hazardous cargoes. The presence of the Route I-526 highway bridge and its vertical structures that are surrounded by a "rip-rap" protective fender system, further restricts navigation. When tank vessels are moored at any of these facilities, the situation becomes complicated by ~~(a)~~ the wake effect and suction from passing vessels upon cargo hose and mooring lines of moored tank vessels~~, or (b) the possibility of collision between a passing vessel and a moored tank vessel resulting in fire and explosion, deaths and injuries on board the vessels and ashore, and marine pollution; and (c)~~ and the possible loss of visibility of the bridge structure owing to the disbursement of large quantities of water vapor into the atmosphere from a nearby industrial plant. To provide the maximum distance between moored and passing vessels, the area encompassed by these reaches should be limited to one way traffic with respect to the transit of deep-draft vessels past any tank vessel moored at one, or more, of the several oil terminal docks. Likewise, no deep-draft vessel should overtake and pass another vessel in these reaches in the vicinity of moored tank vessels. Deep-draft

Comment [to3]: Verified obstructed view/Bridge

Comment [to4]: Verified (b)

Comment [to5]:

Comment [NRT26]: Areas north of Drum Island Reach will be addressed during completions of the remaining surveys for this project.

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commercial vessels intending to transit these reaches should make a Security call on VHF-FM channel 13, 15 minutes prior to the intended transit and shall adjust speed so as to avoid a meeting or passing situation in the vicinity of moored tank vessels. While passing moored tank vessels, transiting deep-draft vessels shall give due regard for the wake and suction effects upon the moored vessels. Local knowledge is necessary to predict current effects as they tend to set across the channel on both flood and ebb. Poor-handling vessels should be assisted by a suitable number of assist tugs when transiting these reaches to avoid collision with tank vessels moored at the oil terminals. It is recommended that moored tank vessels maintain a listening watch on VHF-FM channel 13 to be alert to the intentions of deep-draft vessels to transit these reaches, and thereby have line handlers prepared to tend mooring lines during the transit. In addition, vessels so moored should advise the Office of the Charleston Branch Pilots Association of their working frequencies so that such VHF communications between piloted vessels and moored vessels may be facilitated.

(113)

To prevent problems which might arise from failure to exchange information necessary for safe meeting and passing on the river, the Coast Guard Captain of the Port conducts spot check monitoring of VHF-FM channel 13.

Seagoing Tugs and Barges

(114)

Seagoing tugs and barges arriving at or departing Charleston Harbor should, upon arrival, make a **security call** 15 minutes prior to entering Fort Sumter Range, or upon departing a dock or anchorage, make a security call 15 minutes before getting underway. Such security calls should be made on VHF-FM channel 13. It is recommended that such vessels further call the Charleston Branch Pilots' Association on VHF-FM channel 16 to ascertain the presence and movement of other vessels on the bar and in the harbor.

Small-craft Precautions

(115)

Small craft should comply with the Federal Regulations of **33 CFR 162.65(b)**, Chapter 2. Small craft should take precautions whenever anchoring or mooring in close proximity to the main shipping channels by always maintaining a proper lookout, displaying proper navigational lights, and exercising good seamanship. Such small craft are subject to the hydraulic and hydrodynamic effects generated by deep-draft vessels passing in the main shipping channels even when such deep-draft vessels are proceeding at minimally slow speeds necessary to maintain steerageway. These effects can cause extreme surging and, in shallow water, can generate high waves. Vessels anchored in shallow water seeing the approach of a deep-draft vessel should get underway and meet these potential hydraulic and dynamic effects in a safe and seamanlike manner. Small craft should never anchor by the stern nor should they moor to the rock jetties, aids to navigation or bridge abutments.

Procedures for docking and undocking in Charleston Harbor

(116)

The procedures for docking and undocking deep-draft vessels in Charleston Harbor have been developed by the Charleston Harbor Navigation Safety Committee. These procedures were developed with conventional vessels in mind; they do not preclude case-by-case consideration of other vessels representing the application of advanced technology in vessel controllability systems or any other mitigating circumstances. The general rules regarding vessels moored at commercial vessel berths are:

(117)

(1) Vessels to be docked must have a 50-foot horizontal clearance at both bow and stern from vessels already docked at berths adjacent to the intended berthing space.

(118)

(2) The South Carolina State Ports Authority Terminal Tariff No. 8, Rule 34-170, requires calling at Authority berths to use tugs.

(119)

(3) The following mooring assist tug guidelines are recommended for vessels calling at Charleston Harbor Terminals:

(120)

Columbus Street Terminal: Vessels calling at all berths at the SCSPA Columbus Street Terminal present a risk of allision with the U.S. Route 17 Arthur Ravenel Bridge span over Town Creek, which is situated less than 1,400 feet from the furthest inland berth at that Terminal, if the movements of those vessels are not safely arrested and controlled during docking and undocking maneuvers. Therefore, an appropriate number and capability of tugs should be employed to assist with the movement of the vessels of various dimension and draft with due consideration to the tidal currents and the direction of vessel movement, i.e. inbound or outbound.

(121)

(a) For docking or undocking, vessels over 50,000 Dead Weight Tons (dwt) should employ two tugs:

(122)

1. A tractor tug as an escort tug capable of rendering assistance through its influence on the speed and direction of travel of the vessel in the event of a casualty, steering or propulsion failure, and thereby reducing the possibility of an allision. The tractor tug should not be less than 4,000 hp; and

(123)

2. A tug employed to control the vessel's head. The tug should not be less than 3,300 hp, unless the vessel is fitted

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with a fully functional bow thruster, in which case a 3,000 hp tug may be used.

(124)

Vessels over 50,000 dwt should not moor starboard side to on ebb tide.

(125)

(b) For docking or undocking, vessels between 30,000 dwt and 50,000 dwt should employ two tugs:

(126)

1. Either a tractor or conventional tug, not less than 3,300 hp, as an escort tug;

(127)

2. A second tug capable of assisting the vessel's head.

(128)

Vessels between 30,000 dwt and 50,000 dwt should not moor starboard side to on ebb tide.

(129)

(c) For docking or undocking, vessels less than 30,000 dwt should employ a tug, not less than 3,300 hp, as an escort and a second tug capable of assisting the vessel's head.

(130)

(d) Tugs employed to the guidelines as escort tugs shall meet up with inbound vessels not later than Rebellion Reach.

(131)

Allied Terminal: Vessels over 40 feet in draft, when docking, shall arrive at the terminal in such time so as to complete mooring operations prior to the commencement of ebb tide. There are no undocking restrictions. Vessels with a draft of 34 feet or less may dock at any time.

(132)

Shipyard River Coal Terminal, Chevron, Braswell and Detyens Shipyards, Salmons: There are no undocking restrictions at these facilities. Docking shall be accomplished on flood tide only (off mouth of Shipyard Creek).

(133)

McCalloy: Docking shall be accomplished at flood tide only (off mouth of Shipyard Creek). Vessels over 535 feet in length shall undock only during daylight. The maximum length of vessels that can be accommodated is 580 feet. There are no other undocking restrictions.

(134)

Navy Facilities: Former Naval Station Pier "K"; North side; docking and undocking of vessels shall be during slack water or flood tide. South side; docking and undocking of vessels shall be on slack water only. Navy small craft are exempt from this restriction. Naval Weapons Station (NWS), Pier "A", 950' "Bob Hope"–class, flood tide only.

(135)

South Carolina State Ports Authority North Charleston Terminal ("Port Terminal"), Grain Dock and the Navy Weapons Station "TC" Dock: There are no undocking restrictions. There are no docking restrictions on vessels less than 700 feet in length. Ships 700 feet and over should not be docked starboardside-to during ebb tide.

(136)

Koch, Alcoa, Fina, North Hess, Marathon, Shell: No restrictions on docking or undocking, except that deep loaded tankships shall not be docked starboardside-to during ebb tide.

(137)

There are no restrictions at any other commercial terminal in Charleston Harbor (i.e., Amoco, Westvaco) provided that adequate depths of water are maintained at dockside.

(138)

In construing and complying with these docking restrictions, regard shall be had to all special circumstances which may make a departure from these guidelines necessary to avoid danger.

(139)

Published tide tables provide tidal conditions at certain selected locations. For specific tidal conditions at the various berths, mariners are urged to consult the docking tug companies.

Channels

(140)

The entrance to Charleston Harbor is between converging jetties, the inner portions of which are submerged. The North Jetty is almost completely submerged ~~from shore, to 32°44'28"N 079°49'56"W, thence awash~~ at M~~H~~HW. Mariners should align seaward of Lighted Buoy 18 on their final approach. ~~to the offshore end located at 32°43'38"N 079°48'36"W.~~ An opening in the south jetty is marked by buoys, GC "1" and RN "2". It should be noted this pass is over the southern submerged jetty, with a controlling depth of 20 feet at ML~~L~~W, at 32°43'51"N 079°51'03"W.

(141)

A Federal project provides for a channel 47 feet deep over the Bar (Ft. Sumter Range) and through the Harbor entrance and, thence 45 feet deep into the major reaches of Cooper River, Wando River and Town Creek to Goose Creek, 13.6 miles above the mouth; and a connecting channel into Shipyard Creek 32 feet deep. A 35-foot Navy-maintained channel extends from the head of the Federal project in Cooper River to a turning basin at a naval facility, about 2.6 miles above Goose Creek; thence 30 feet for another 0.8 mile. The channels require constant dredging to maintain them at or near project depths, due to the silting of Cooper River. (See Notice to Mariners and latest editions of charts for controlling depths.) **South Channel,** from the main channel to off the Battery, is no longer maintained. In September-October 1996, the controlling depths were 24 feet from a junction with Rebellion Reach to a junction with Ashley River channel, thence 24 feet to off the Battery. The channels are well marked by lighted ranges and other aids to navigation. Charleston Entrance Lighted Buoy C (32°37'05"N., 79°35'30"W.) is about 15 miles southeast of

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Charleston Light and is equipped with a racon.

Anchorages

(142)

The principal anchorage for deep-draft vessels is in the triangle westward of the junction of Rebellion Reach of the main channel with South Channel. (See **110.173**, chapter 2, for limits and regulations.)

Dangers

(143)

The danger area of a former World War II minefield is off the entrance to Charleston Harbor. The area is open to unrestricted surface navigation but all vessels are cautioned not to anchor, dredge, trawl, lay cables, bottom, or conduct any similar type of operation because of residual danger from mines on the bottom. An **"anchor at your own risk"** anchorage, within the danger area, is on the north side of the entrance channel about 7 miles NW of Charleston Entrance Lighted Whistle Buoy C. The rectangular anchorage is enclosed by the following points:

(144)

32°42.9'N., 79°42.8'W.;

(145)

32°41.3'N., 79°39.3'W.;

(146)

32°39.9'N., 79°40.2'W.; and

(147)

32°41.6'N., 79°43.7'W.

(148)

The area has been searched on many occasions and no unexploded ordnance has been discovered. Vessels have routinely anchored in this offshore anchorage for many years without mishap.

(149)

A regulated navigation area extends northeastward and southeastward along the northern side of the entrance channel from Charleston Entrance Channel Lighted Buoy 16. (See **165.714**, chapter 2, for limits and regulations.)

Marine Managed Area (MMA)

(150)

Charleston Bump Closed Area-Highly Migratory Species, portion of Exclusive Economic zone (EEZ) extending from southern NC to southern GA near Jekyll Island. (See **MMA 3-6**, Appendix C, for additional information.)

Caution

(151)

Vessels approaching Charleston Harbor must guard against an inshore set which may amount to a knot or more due to indraft of current into the various inlets. In this area, preceding a northeasterly or following a southerly gale, a hazy atmospheric condition may be encountered, which results in low visibility of lights even in fine weather when it is clear overhead. During the periods when this condition prevails, it is reported that excessive inshore sets have been experienced.

(152)

Rattlesnake Shoal, 3 miles offshore and the same distance east-northeastward of the north jetty at the entrance to Charleston Harbor, is about 2 miles long east and west; its least depth is 10 feet. A buoy is E of the outer end of the shoal.

(153)

Two unmarked rectangular drill minefields are about 8 miles northward and 5 miles north-northeastward of the sea buoy (Charleston Entrance Lighted Buoy C). Depths of 30 feet were reported in the northern minefield in 1969. A lighted buoy is about 1.5 miles southeastward of the northern minefield and marks a wreck and fish haven area. There are several drill minefields westward and southwestward of the sea buoy. There are also several unmarked charted dangers inside the sea buoy; caution is advised in this area.

Routes

(154)

From northward, the safer approach to Charleston Harbor, and the one generally used by deep-draft vessels, is outside Frying Pan Shoals Lighted Buoy 16. The course should be shaped west-southwesterly to pick up Cape Romain Lighted Whistle Buoy 6, and then the Charleston sea buoy. From southward, a northeast course, from a point about 3 miles southeastward of Savannah Light, will lead to the Charleston sea buoy.

Tides

(155)

The mean range of tide at Charleston and Fort Sumter is about 5 feet. At Fort Sumter the tides occur about 10 minutes earlier than at Charleston. (See Tide Tables for daily predictions.) It is reported that northeasterly winds or storms of long duration can increase tides by 2 to 3 feet. Increases in tide level can also be expected with southerly winds and falling barometric pressure. Westerly winds and rising pressure tend to reduce tide levels.

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Currents

(156)
Off the entrance to Charleston Harbor the tidal currents are rotary with velocities of about 1 knot. Near the entrance to the jetties the current sets fair with the channel at strengths of flood and ebb and can be expected to set across the channel with a velocity of about 0.2 knot about 3 hours after strength of flood and ebb, setting northeastward and southwestward, respectively.

(157)
It is reported that tide rips, hazardous to small craft, may be encountered off the jetties when wind and current are opposed.

(158)
It is reported that with a west-northwesterly storm the ebb current off Fort Sumter and north of Drum Island attains a velocity of about 4 knots.

(159)
In the channel between the west end of the south jetty and the submerged jetty, the average velocities of the current at strengths of flood and ebb are about 1.2 knots and 2.8 knots, respectively.

(160)
Daily predictions for Charleston Harbor, off Fort Sumter, are contained in the Tidal Current Tables, and predictions for a number of other locations in the harbor and tributaries can be obtained through the use of Table 2 of the Tidal Current Tables. Tidal Current Charts are available for Charleston Harbor, including the entrance thereto, and Wando, Cooper, and Ashley Rivers.

Comment [NRT27]: It has been the observation of this survey unit, that tidal currents within Charleston Hbr, and its main rivers reach 2-3kts flood/ebb.

Weather, Charleston and vicinity

(161)
The temperate climate is modified by its exposure to the ocean. This is most noticeable in winter, when minimum temperatures are often 10° to 15°F (5.6° to 84.4°C) warmer on the peninsula than at the airport. Summers are warm and humid although sea breezes keep 100°F (37.8°C) readings a rarity. This is the rainiest season but most of the precipitation falls as brief, heavy showers or thundershowers. Prevailing winds are generally southerly in summer and spring, compared to the more frequent northerlies of fall and winter. Gales are infrequent and are most likely associated with local spring storms or hurricanes, which may also produce severe thunderstorms and tornadoes. From late September through early November weather is often sunny and pleasant except for the threat of a hurricane, which also exists in summer.

(162)
The average temperature at Charleston is 66°F (18.9°C) with an average high of 76°F (24.4°C) and an average low of 55°F (12.8°C). January is the coolest month with an average high of 59°F (15°C) and an average low of 38°F (3.3°C). July is the warmest month with an average high of 90°F (32.2°C) and an average low of 72°F (22.2°C). The warmest temperature on record is 104°F (40°C) recorded in July 1986 and the coolest temperature on record is 6°F (-14.4°C) recorded in January 1985. June, July, and August have each recorded temperatures in excess of 100°F (37.8°C) while each month, November through April, has recorded temperatures below freezing. Temperatures above 90°F (32.2°C) can be expected on 53 days during any given year while temperatures below 32°F (0°C) can be expected on 33 days during any given year.

(163)
The average annual precipitation of Charleston is 52 inches (1,321 mm). Thanks to an abundance of thunderstorms, averaging 14 each year during July, July is the wettest month with 7.25 inches (184.2 mm). November is the driest month averaging about 2.5 inches (63.5 mm). Snowfall is rare in Charleston averaging less than one inch (25.4 mm) in any given year. However snow has fallen in each month, November through March. The greatest snowfall in a 24-hour period was 6 inches (152.4 mm) in December 1989.

(164)
Charleston Harbor offers few of the characteristics of a haven during hurricane force winds. The following recommendations along with more detailed information can be found in the **Hurricane Havens Handbook for the North Atlantic Ocean** mentioned in chapter 3. Large ships should evade at sea or seek shelter elsewhere when a hurricane threatens. During a severe tropical storm (50-63 knots), some moorings along the Cooper River, Shipyard Creek and Town Creek may be adequate unless the vessel has a large sail area. While anchorage for deep-draft vessels is available in the triangle westward of the confluence of Rebellion Reach (of the main channel) with South Channel, use of this anchorage is not recommended because of the restricted scope while riding at anchor, the hazards of collision, and the difficulty of leaving if necessary.

(165)
The topography of the entire harbor area is nearly flat and at sea level provides little shelter from wind and tide. The highest accurate storm tide on record was 11.2 feet (3.4 m) above mean low water in the August 1893 storm. Smaller vessels, fishing boats and sailing craft should stay fast or seek shelter along the west side of the Cooper River, northward of the Battery.

(166)
Since 1842, 58 tropical storms have come within 50 miles (93 km) of Charleston, 34 of these since 1950. The most noteworthy of recent memory was Hurricane Hugo in 1989. Hugo made landfall near Sullivan's Island, north of Charleston, early in the morning of September 22nd. Highest sustained winds in Charleston were 68 knots with gusts to 85 knots, however local reports noted gusts as high as 94 knots.

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(167)
The National Weather Service Office is at the Municipal Airport about 12 miles outside of the city. **Barometers** may be compared there. (See page for the **Charleston climatological table.)**

Pilotage, Charleston

(168)
Pilotage is compulsory for all foreign vessels and for all U.S. vessels under register in the foreign trade. This compulsory pilotage is regulated pursuant to 46 USC 8501 and Title 54, Chapter 15 of the 1976 South Carolina Code, as amended, and Chapter 136 of the South Carolina Code of Regulations. The State pilotage regulatory agency is the Commissioners of Pilotage, Port of Charleston, P.O. Box 20096, Charleston, SC 29413; telephone 843-577-8659. Pilotage is optional for U.S. vessels in the coastwise trade which have on board a pilot licensed by the Federal Government pursuant to the Federal pilotage requirements of 46 USC 8502 and 46 CFR 15. Both Federal and State pilotage is available from the Charleston Branch Pilots Association, 6 Concord Street, Charleston, SC 29401, telephone 843-577-6695, FAX 843-577-0632. The Association maintains two offshore pilot boats, the FORT SUMTER and the FORT MOULTRIE. They also have two boats, the SIS and the PALMETTO STATE, used primarily as a shuttle and for other harbor work. These four boats have black hulls and aluminum superstructures, and have the word "PILOT" on their sides. Pilots board vessels day or night from the pilot boats in the vicinity of the sea buoy Charleston Entrance Lighted Buoy C (32°37'05"N., 79°35'30"W.). Vessels are requested to maintain a speed of 8 to 10 knots and provide a ladder 2 meters above the water on the leeward side. The pilot boats are equipped with radar and maintain radiotelephone communications on VHF-FM channels 13, 14, 16, and 18A. The pilot office at Charleston monitors these channels on a 24-hour basis. Pilots may be obtained directly by telephone, FAX (above), through the Charleston Marine Operator, or by prior arrangement through ships' agents. The usual practice is for ship agents to FAX orders directly to the pilot office, at 843-557-0632. At least 3 hours advance notice for orders of arrival at the sea buoy and departure from the port is required.

(169)
Public vessels such as Navy and Coast Guard ships are exempt from pilotage requirements but their commanding officers frequently request pilots in an advisory capacity. When pilots are taken, naval vessels may use either federally licensed civilian employees of the Navy or pilots from the Charleston Branch Pilots Association as pilots on their vessels. The Port Services Division of U.S. Naval Station, Charleston, coordinates pilotage for naval vessels through the two groups of pilots.

North Atlantic Right Whales

(170)
Endangered North Atlantic right whales are often within 30 miles of the South Carolina coast in the approaches to Charleston Harbor from November through April. (See **North Atlantic right whales**, indexed as such, chapter 3.)

Comment [NRT28]: There are new rules issued by NOAA NMFS recently in later 2008, major speed restriction are proposed for effect.

Towage

(171)
Tugs are required for docking and undocking. Tugs up to 5,100 hp are available at all hours by arrangements through ships' agents. They usually meet vessels bound for Charleston proper at or near the Customhouse Reach, and vessels bound for North Charleston at or near North Charleston Reach. Tugs can also be engaged for salvage or deep-sea towing.

Quarantine, customs, immigration, and agricultural quarantine.

(172)
(See chapter 3, Vessel Arrival Inspections, and Appendix A for addresses.)

(173)
Quarantine is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) The quarantine office is in the Federal Building. There are several large public and private hospitals in Charleston.

(174)
Charleston is a **customs port of entry.**

Coast Guard

(175)
A **Marine Safety Office** is at the Coast Guard Base (32°46.4'N., 79°56.6'W.) on the east side of the Ashley River. (See Appendix A for address.)

Harbor regulations

(176)
The Coast Guard exercises jurisdiction over the Port of Charleston through the Captain of the Port. The South Carolina State Ports Authority exercises jurisdiction over the authority's facilities through its Executive Director at the headquarters building, located at 176 Concord Street. The ports authority berthing office is manned at all times and can be reached at 843-557-8659 or call Port Harbormaster on VHF-FM channel 16. Additional information can be obtained through the State Ports Authority's Harbormaster at 843-577-8192 or VHF-FM channel 16, call sign, KBP

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636. The Commissioners of Pilotage, Port of Charleston, have issued policy guidelines for safe vessel movement to the pilots regulated by that State agency in the Commissioners of **Pilotage Policies** and **Procedures Manual**. Chapter 136 of South Carolina State Code of Regulations contains regulations concerning vessel traffic restrictions, docking and undocking.

Wharves

(177)

Only the major facilities at Charleston and North Charleston are described. These facilities are all northward of the Battery along the west side of Cooper River and Town Creek, and in Shipyard Creek and the east bank of the Wando River. All of the berths have highway connections and most have either direct or beltline rail connections with the Seaboard System Railroad or the Southern Railway System. Water is also available at most berths. General cargo at the port can be handled by ship's tackle or special equipment which is available at most facilities. Special equipment, if available, is mentioned in the description of the particular facility.

(178)

There are many smaller facilities in Charleston which are used by barges and small vessels, and as vessel-repair berths; these are not described. For a complete description of the port facilities, see Port Series No. 13, published and sold by the U.S. Army Corps of Engineers. (See Appendix A for address.)

(179)

Facilities at Charleston proper, along the west side of Cooper River and Town Creek, northward of the Battery (32°46'08"N., 79°55'44"W.):

(180)

State Pier 2, Union Pier: 0.75 mile north of the Battery; 2,620 feet of berthing space with dolphin off of the south end; 35 feet alongside; deck height, 12 feet; handles general cargo and heavy machinery; passenger terminal; owned and operated by South Carolina State Ports Authority.

(181)

State Pier 8, Columbus Street Terminal: about 1.4 miles north of the Battery; 3,440 feet of berthing space; 40 feet alongside; deck height, 12 feet; three gantry cranes to 125 tons; handles general and containerized cargo including heavy lift items; owned and operated by South Carolina State Ports Authority. Three container cranes are also available.

(182)

State Pier 9: joining State Pier 8 to the northward; marginal type wharf with 437-foot face and 30-foot apron; 35 feet alongside; deck height, 12 feet.

(183)

Allied Terminal Wharf and Barge Dock: 3.4 miles northward of the Battery, just below the entrance to Shipyard Creek; offshore wharf with 78-foot face, 1,000 feet of berthing space with mooring dolphins; 40 feet alongside; deck height, 10 feet; handles asphalt and petroleum products; bunkering vessels.

(184)

Facilities in Shipyard Creek, on the west side of Cooper River about 3.8 miles northward of the Battery:

(185)

Kinder-Morgan Bulk Terminal: south side of Shipyard Creek, just inside the entrance; marginal wharf with 390-foot face; 44 feet alongside; deck height, 14 feet; one 16-ton electric crane; handles miscellaneous liquid and dry bulk commodities including coal and stone.

(186)

Kinder-Morgan Bulk Terminal : west side of Shipyard Creek about 400 yards westward of Shipyard River Terminal Wharf; 130-foot face, berthing for 660-foot vessels with dolphins; 44 feet alongside; deck height, 13 feet; handles petroleum products and bunkering vessels.

(187)

Facilities at North Charleston, along the west side of Cooper River, northward of the Battery:

(188)

Thomas Cement Terminal: (32°52'47"N., 79°58'05"W.): L-shaped offshore wharf with 250-foot face, 550 feet with dolphins; 40 feet alongside; deck height, 11.5 and 16.5 feet; handles petroleum products.

(189)

AlcoaTerminal Wharf: about 250 yards of northward of Koch Terminal Wharf; 520-foot face, 700 feet of berthing space with dolphins; 40 feet alongside; deck height, 14 feet; handles liquid chemicals and alumina.

(190)

Shell Oil Wharf: about 550 yards northward of Koch Terminal Wharf; offshore wharf with 142-foot face, 257 feet of berthing space with dolphins; 40 feet alongside; deck height, 13 feet; handles petroleum products.

(191)

Marathon Petroleum Co. Wharf: about 300 yards northward of Texaco Wharf; offshore wharf with 50-foot face, 275 feet with dolphins; 40 feet alongside; deck height, 14 feet; handles petroleum products .

(192)

Amerada Hess Corp. North Terminal: about 200 yards northward of Marathon Petroleum Co. Wharf; offshore wharf with 68-foot face, 600 feet of berthing space with mooring dolphins; 40 feet alongside; deck height, 12 feet; handles petroleum products.

(193)

Westvaco Corp. Wharf: about 0.65 mile northward of Amerada Hess Corp. North Terminal; marginal type wharf with 480-foot face; 655 feet usable with dolphins; 40 feet alongside; deck height, 12 feet; handles paper products.

(194)

Additional review conducted during H-11862, 2009, deals with the Wando River. Review will continue as Project OPR-G347-NRT2-08 continues. Highlighted "Yellow or underlined red" indicates changed, modified verbiage; "Red" is recommended for complete removal.

State Pier 15, South Carolina State Ports Authority North Charleston Terminal: joining Westvaco Corporation wharf to the northward; marginal wharf with 2,460-foot face; 40 feet alongside; deck height, 12 feet; six container cranes, container handlers and toploaders; handles general cargo, RO/RO, and frozen products; owned and operated by South Carolina State Ports Authority.

(195)

South Carolina State Ports Authority Grain Wharf: about 0.4 mile northward of State Pier 15; marginal type wharf with 380-foot face; 40 feet alongside; deck height, 12 feet; handles dry bulk cargo; operated by South Carolina Farm Bureau Marketing Association.

(196)

Naval Weapons Station TC Dock: about 0.2 mile northward of the South Carolina State Ports Authority Grain Wharf: marginal type wharf with a 1,500-foot face; 40 feet alongside. (For further information contact the operator.)

(197)

The piers at the former Navy Base, and Navy Yard are now under the operation of other government agencies and private corporations. The Maritime Administration uses several of these piers as lay berths for their ships. The U.S. Coast Guard also berths vessels at these piers. Pier "Zulu" is used by commercial vessels for cargo handling. Detyens Shipyard operates drydock facilities and berths at the former Navy Yard.

(198)

Cargo facilities on east bank of Wando River, east of Cooper River:

(199)

WandsWelch Terminal: about 1.7 miles north of Drum Island; 3,800-foot face; 40 feet alongside; deck height, 15½ feet; nine 40-long ton container cranes, container handlers and toploaders; handles containerized general cargo; operated by South Carolina State Ports Authority.

Supplies

(200)

All types of marine supplies and provisions can be obtained in Charleston. Water is available at most of the berths; diesel fuel is available by barge or truck.

Repairs

(201)

Detyens Shipyard, Inc., offers drydocking services at its facilities at the former Navy Yard, and at Cainhoy on the upper Wando Rier, which is described later in this chapter. Another commercial repair facility with a 1,000-ton capacity marine railway is on the south side of Stono River on the Intracoastal Waterway at Mile 476.4. This facility is discussed in chapter 12.

(202)

Several shops, on and off the waterfront, can make above-the-waterline hull repairs, and repairs to gasoline and diesel engines and electronic equipment anywhere in the harbor; the largest shafts that can be produced are 30 feet by 48 inches.

(203)

Wrecking and salvage gear is available at Charleston for normal operations and special equipment can be brought in.

(204)

Repair facilities for small craft are on the Wando and Stono Rivers.

Communication

(205)

The port of Charleston is served by the CSX Transportation and the Southern Railway System, which connect with most of the wharves either directly or through three beltline railroads. A number of steamship lines connect the port with principal foreign ports; frequent sailings are maintained by most of the lines. The Municipal Airport 12 miles northwestward of the Battery is served by four commercial airlines. Truck and bus lines serve the port. There are excellent highway connections with Interstate Route 26 and U.S. Routes 17, 701, 52, 52A, and 78.

Chart 11524

(206)

Ashley River empties into Charleston Harbor from the northwestward on the southwest side of Charleston.

Channels

(207)

A dredged channel in Ashley River leads from a point about 1 mile southeastward of the Battery (32°46'08"N., 79°55'44"W.) to a turning basin about 5.8 miles above the Battery. In 1996-December 2001, the controlling depth was 14.3 feet to the U.S. Route 17 bascule highway bridges; thence in December 2001, the controlling depth was 12.4 feet to the turning basin, thence 7.7 to 16.3 feet in the turning basin from north to south. About 1.0 mile above the U.S. Route 17 bascule bridges, trestle ruins extend from the west side of the channel to about midchannel; extreme caution is advised. Local knowledge is advised for vessels navigating above the turning basin. The river is marked by a lighted approach range, and by buoys and daybeacons to the fixed highway bridge about 8.4 miles above the Battery.

(208)

Comment [NRT29]: H-11861, Nov 2008 show a 13 foot @ mllw soundings as the current controlling depth, located at 32°45'40.265"N , -079°55'16.703"W

Additional review conducted during H-11862, 2009, deals with the Wando River. Review will continue as Project OPR-G347-NRT2-08 continues. Highlighted "Yellow or underlined red" indicates changed, modified verbiage; "Red" is recommended for complete removal.

Charleston Coast Guard Base is on the east side of Ashley River, about 0.9 mile above the Battery.

(209)

A municipal marina is on the northeast side of the Ashley River 1.3 miles above the Battery and 0.3 mile north of the entrance to **Wappoo Creek**, which is a part of the Intracoastal Waterway. Electricity, gasoline, diesel fuel, water, ice, pump-out station, launching ramp, marine supplies, and wet storage are available. In July 2003, depths of 13 feet were reported alongside the berths. A marina, about 600 yards northeast of the municipal marina, has electricity, gasoline, diesel fuel, water, ice, pump-out station, marine supplies, wet storage and engine repairs available. In 1983, good anchorage for small craft was reported on the east side of the river just northward of the municipal marina.

(210)

Special anchorage areas are across the river from the marinas. (See **110.1 and 110.72d**, chapter 2, for limits and regulations.)

(211)

A slow, no-wake speed zone is marked by a buoy just south of the municipal marina.

Bridges

(212)

Several bridges cross the Ashley River above the Battery. The two U.S. Route 17 highway bascule bridges, 100 yards apart, cross about 2 miles above the Battery. The first has a clearance of 18 feet and the second, 14 feet. A fixed highway bridge with a clearance of 56 feet is about 0.3 mile southward of the bascule bridges. State Route 7 highway fixed bridge, 6.2 miles above the Battery, has a clearance of 50 feet at the center span. The overhead power cable 0.4 mile above the bridge has a clearance of 70 feet at the two main spans. The fixed highway bridge about 8.4 miles above the Battery has a clearance of 35 feet. The CSX bridge, 10 miles above the Battery, has a bascule span with a clearance of 3 feet. The overhead power cable just below this bridge has a clearance of 74 feet. (See **117.1 through 117.59 and 117.915**, chapter 2, for drawbridge regulations.)

(213)

An overhead power cable with a clearance of 70 feet crosses the Ashley River about 0.6 mile below Greggs Landing.

(214)

Shem Creek, on the lower east side of Charleston Harbor, is entered from the south through **Mount Pleasant Channel,** a marked dredged channel that leads to a terminal basin about 1.9 miles above the channel entrance and just below the Route 17 highway bridge at **Mount Pleasant.** In June 2003, the reported controlling depth was 6.0 feet to the highway bridge. Shem Creek can be approached from westward via unmarked Hog Island Channel, used by local boatmen only at high water. A marina about 1.2 miles above the dredged channel entrance has gasoline, water, ice, and a launching ramp. Other wharves on the creek are used by fishing vessels. U.S. Route 17 highway bridge has a 36-foot fixed span with a clearance of 12 feet.

(215)

Cooper River enters Charleston Harbor from northward on the eastern side of Charleston; the main channel of the harbor extends several miles up this river. **Drum Island** is 2 miles above the mouth of the river. The channel on the westerly side of this island is known as **Town Creek.**

(216)

A U.S. Government degaussing range, marked by lighted and unlighted dolphins, crosses the channel between **Shutes Folly Island** and Charleston, about 0.3 mile northward of the Battery. A **restricted area** has been established in the immediate vicinity of the range. (See **334.470**, chapter 2, for limits and regulations.)

Bridges

(217)

One fixed bridge~~s,~~ , The U.S. Route17 Arthur Ravenel Bridge about 5.7 miles above the mouth, span Town Creek, Drum Island, and Cooper River on the east side of Charleston. The authorized clearance~~s~~ is 186 feet. ~~for both bridge is: Town Creek, 65 feet for a width of 250 feet; Cooper River, 186 feet for a width of 1,000 feet. As of December 2005, the bridge over the Cooper River continues to be demolished; extreme caution is advised.~~

Comment [NRT210]: Bridge construction has been completed prior to the survey project. This note should be removed.

(218)

The I-526 fixed highway bridge has a clearance of 155 feet and crosses Cooper River, at Filbin Creek Reach, about 6.7 miles above the two fixed bridges. The I-526 fixed highway bridge over the Wando River has a vertical clearance of 138 feet and crosses the Wando River about 3.5 miles abut the junction of the Cooper and Wando Rivers.

(219)

Shipyard Creek joins Cooper River from the west 3.8 miles above the Battery. There is considerable traffic in oil, bulk fertilizer materials, and ore on this waterway.

(220)

Facilities of the U.S. Government extends along the west side of the Cooper River from 4 to 8 miles above the Battery. The large water tank, red and white, is conspicuous at the facility.

(221)

Restricted areas are in the northern portion of Shipyard Creek, and in the Cooper River at the U.S. Government facility. (See **334.460 and 334.470**, chapter 2, for limits and regulations.)

(222)

North Charleston, just north of the government facility, is the site of several oil wharves, a general cargo terminal, several bulk commodity wharves, and the U.S. Army Storage Activity; these facilities have been described earlier under Wharves.

Additional review conducted during H-11862, 2009, deals with the Wando River. Review will continue as Project OPR-G347-NRT2-08 continues. Highlighted "Yellow or underlined red" indicates changed, modified verbiage; "Red" is recommended for complete removal.

Chart 11527

(223)
In 1977, depths of 20 feet or more were available in Cooper River from the upper limit of the Navy-maintained channel about 3.4 miles above Goose Creek to **The Tee,** 26 miles above the Battery. There is ship traffic to and from the Amoco Terminal about 14 miles above the Battery, ship movement is subject to certain restrictions by the Pilots' Association. There is daylight-only ship traffic upstream as far as the Nucor Steel Terminal about 18.5 miles above the Battery. These ships are limited in size to 580 feet long with a 25 foot draft, and subject to certain tidal and current restrictions by the Pilots' Association. This section of the river is bordered by marshland, with occasional bluffs 15 to 20 feet high. A **restricted area** is off the U.S. Naval Ammunition Depot, on the west side of Cooper River about 10 miles northward of the Battery. (See **334.460**, chapter 2, for limits and regulations.)

(224)
An overhead power cable with a clearance of 75 feet crosses Cooper River about 21.1 miles above the Battery.

(225)
In **East Branch** the reported controlling depth in June 1983 was 7 feet to **Pompion Hill Chapel,** 6 miles above The Tee. The channel is narrow and follows the ebbtide bends. In **West Branch,** the reported controlling depth in May 1975 was 15 feet to the CSX bridge 4 miles above The Tee. The first bend west of The Tee is a bad spot; deep water is on the inner side of the bend. The railroad bridge has a swing span with a channel width of 30 feet and a clearance of 8 feet. (See **117.1 through 117.59 and 117.925**, chapter 2, for drawbridge regulations.) Extreme caution is necessary at the bridge; the current is strong, and about 40 minutes is needed to open the draw. An overhead power cable at the bridge has a clearance of 85 feet. The mean range of tide at the bridge is 4.2 feet.

(226)
About 12 miles above The Tee, a tailrace canal enters West Branch from **Lake Moultrie.** The distance along the canal from West Branch to the lake is about 4 miles. Two bridges cross the canal with minimum clearance of 50 feet. A marginal wharf 200 feet long is on the west side of the canal about a mile above the junction with West Branch. The wharf has gasoline available; in June 1987, a reported controlling depth of 3 feet was alongside. In 1987, very strong currents were reported to exist in the canal.

(227)
A depth of about 11 feet is available from the CSX bridge over West Branch to the tailrace canal and thence to the dam. The lock in the dam has a length of 180 feet, a width of 60 feet, and a depth over the miter sills of 12 feet; the vertical lift is 75 feet. A draft of 14 feet has been taken to the lake with favoring tides. Light-draft vessels can navigate to Columbia, S.C., by way of Lake Moultrie, Lake Marion, and the Congaree River. The last 18 miles are treacherous because of the twisting channel and varying water levels caused by a dam above Columbia. The lakes are fouled by submerged trees. Navigation should not be attempted by strangers.

Charts 11524, 11526

(228)
Wando River empties from the northeast into Cooper River eastward of Drum Island.

(229)
Wando River Terminal, previously described, is on the east side of Wando River about 1.7 miles above Drum Island. The channel to the facility is marked by lighted buoys and a private **223°** lighted range.

(230)
A fixed highway bridge with a clearance of 138 feet is about 3.5 miles above Drum Island.

(231)
Nowell Creek empties into the west side of Wando River, about 4.5 miles above Drum Island. The creek, about 5.5 miles above its mouth, joins **Beresford Creek.** Together they form a connection between Wando River and Cooper River. In 1973, shoaling to 2 feet was reported on the east side of the entrance to Nowell Creek.

(232)
An overhead power cable with a clearance of 145 feet crosses Wando River about 8.9 miles above Drum Island.

(233)
Cainhoy is a town on Wando River about 9 miles above Drum Island. Depths of about 17 feet can be taken to Cainhoy and thence, with local knowledge, 11 feet to the mouth of Guerin Creek 1.5 miles above State Route 41 highway bridge at Cainhoy, thence 8 feet for another 3.4 miles, thence 2 feet to Wards Bridge. The channel is marked as far as Cainhoy by buoys and unlighted ranges. ~~In November 1976, shoaling to 10 feet was reported in about 32°52'51"N., 79°50'51"W. along the west edge of the channel in the vicinity of Daybeacon 25.~~

(234)
~~A shipyard on the south side of the river at Cainhoy has three floating drydocks, a large sandblasting facility, and welding, shipfitting, machine, rigging, electrical, carpenter, steel fabrication, and pipe shops. Also, the yard is equipped to handle industrial-type work, and can provide repair services to vessels outside the yard. Water, and electrical shore power and telephone connections are available, as well as a 15-ton floating crane, two 25-ton mobile cranes, and a 25-ton gantry crane that is alongside the largest drydock. The three floating drydocks have the following dimensions; (1) 9,800-ton lifting capacity, 450-foot overall length, 410-foot length on blocks, 114-foot overall width, 86-foot maximum clear width for vessels, and a maximum depth of 24 feet at mean high water over the blocks; (2) 1,000-ton lifting capacity, 231-foot overall length, 161-foot length on the blocks, 82-foot overall width, 61-foot maximum clear width for vessels, and a maximum depth of 17 feet at mean high water over the blocks; and (3) 6,400-~~

Comment [NRT211]: No private range was found to exist.

Comment [NRT212]: US 526 Hwy

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~~ton lifting capacity, 407-foot overall length, 372-foot length on the blocks, 116-foot overall width, 86-foot maximum clear width for vessels, and a maximum depth of 24 feet at mean high water over the blocks. In June 1983, depths of 17 to 28 feet were reported alongside the shipyard repair piers~~.

(235)

State Route 41 bridge and an overhead power cable cross the river about 0.4 mile above Cainhoy; the highway bridge has a swing span with a clearance of 6 feet and the overhead power cable has a clearance of 85 feet. (See **117.1 through 117.59 and 117.939**, chapter 2, for drawbridge regulations.)

(236)

Wando River continues for about 7 miles to **Wards Bridge** at the head of navigation. An overhead power cable crossing the river about a mile south of the bridge has a clearance of 30 feet. **Guerin Creek** flows into Wando River from the northeast about 2 miles above Cainhoy. **Guerin Bridge,** a fixed structure at the head of navigation, is some 3 miles above the mouth of the creek.

Comment [NRT213]: This Shipyard formally owned by Detyens (843)308-8000. has been relocated to the old Navy Base.

Comment [to14]: This is a fixed bridge.

Subject: Re: Survey H11862 Wando River Channel Conflicts
From: David.Elliott@noaa.gov
Date: Thu, 10 Sep 2009 19:09:00 +0000 (GMT)
To: Debbie Bland <Deborah.A.Bland@noaa.gov>
CC: Robert Ramsey <Robert.Ramsey@noaa.gov>

Hi Debbie,

I am forwarding your message to Bob Ramsey as he is the new Team Lead for NRT2 and I really did not do much on this survey. He can answers these questions for you more efficiently.

Best regards, D.

----- Original Message -----
From: Debbie Bland <Deborah.A.Bland@noaa.gov>
Date: Thursday, September 10, 2009 3:00 pm
Subject: Survey H11862 Wando River Channel Conflicts
To: David.Elliott@noaa.gov
Cc: "LCDR Rick Brennan, NOAA" <Richard.T.Brennan@noaa.gov>

> Good Morning Dave,
>
> I am at the final stages of review for survey H11862 and have found some
> areas in the Wando River Channels where the present survey depths are in
> conflict with the published controlling depth. See below:
>
> b. There are no conflicts in the charted controlling depths for the
> Wando River Lower Reach channel and the present survey.
>
> c. There is one conflict in the charted controlling depth of 39.9 feet
>
> for the left outside quarter of the Wando River Upper Reach channel.
> There is a 39.47 foot present survey depth in Latitude 32°50’14.862”N,
>
> Longitude 079°53’31.093”W. There are several conflicts between the
> present survey depths and the 43.1 feet controlling depth for the left
>
> inside quarter. The shallowest is a 40.99 foot depth in Latitude
> 32°50’13.881”N, Longitude 079°53’30.994”W. There are several other 41
>
> foot depths and a 43.0 foot depth within the left inside quarter.
> There
> are two conflicts between the present survey depths and the 45.2 feet
>
> controlling depth for the right inside quarter. The shallowest is a
> 42.519 foot depth in Latitude 32°50’20.643”N, Longitude
> 079°53’23.906”W,
> the other is a 44.799 foot depth in Latitude 32°50’12.084”N, Longitude
>
> 079°53’29.013”W. There is one conflict between the present survey
> depths
> and the 40.8 feet controlling depth for the right outside quarter.
> There
> is a 40.285 foot depth in Latitude 32°49’40.376”N, Longitude
> 079°53’41.906”W.
>
> d. There are several conflicts between the charted controlling depth
> of
> 48.0 feet for the Wando River Turning Basin channel left outside
> quarter
> and the present survey depths. There is a 46.982 foot depth in

Latitude
32°49’55.223”N, Longitude 079°53’50.184”W. There are several 47 foot depths also. There are no conflicts between the present survey and the

controlling depth of 48.4 feet for the left inside quarter. There are no
conflicts between the present survey and the controlling depth of 49.1

feet for the right inside quarter. There are no conflicts between the

present survey and the controlling depth of 48.3 feet for the right outside quarter.

Can you verify whether or not any dredging has taken place in these areas since the survey was completed in April of 2009?

Thanks in advance for your help.

Debbie

Hi Debbie,
>
> I am forwarding your message to Bob Ramsey as he is the new Team Lead
> for NRT2 and I really did not do much on this survey. He can answers
> these questions for you more efficiently.
>
>   Best regards, D.

----- Original Message -----
From: Debbie Bland <Deborah.A.Bland@noaa.gov>
Date: Wednesday, December 9, 2009 8:49 am
Subject: [Fwd: Re: Survey H11862 Wando River Channel Conflicts]
To: David.Elliott@noaa.gov, Edward Owens <Edward.Owens@noaa.gov>, Rick
Whitfield <rwhitfield5@cox.net>

> Dave,
>
> Did you ever get any response from Bob about this. We are trying to
> get
> this survey out of our office but its being held up because we never
> got
> a response about this. HELP.
>
> Debbie
>

Hi Debbie,

I will have Bob get in touch with you.

         Regards, D.

----- Original Message -----
From: Debbie Bland <Deborah.A.Bland@noaa.gov>
Date: Wednesday, December 9, 2009 6:45 pm
Subject: H11862 Wando River Channel conflicts
To: Robert.Ramsey@noaa.gov, Edward Owens <Edward.Owens@noaa.gov>, "LCDR Rick
Brennan, NOAA" <Richard.T.Brennan@noaa.gov>

> Bob,
>
> Ed wants to know if you have any e-mails or hard copy records of what
>
> you passed on to the Corps of Engineers, or correspondence with them
> concerning channel conflicts. If you do, could you forward that to
> us.
>
> Debbie

----- Original Message -----
From: <Robert.Ramsey@noaa.gov>
Date: Friday, December 11, 2009 2:41 pm
Subject: Re: H11862 Wando River Channel conflicts
To: Debbie Bland <Deborah.A.Bland@noaa.gov>
Cc: Edward Owens <Edward.Owens@noaa.gov>,"LCDR Rick Brennan, NOAA"
<Richard.T.Brennan@noaa.gov>

> Debbie,
>
> Will do , I contacted the USACOE POC and they are sending me an email,
> that I will forward explaining our approach and practice.
>
> Thanks,
>
> Bob

Debbie,

Hope this helps. Let me know if you'll still have any questions.

Later,

Bob

From "Wolf, Philip M SAC" <Philip.M.Wolf@usace.army.mil>
Sent Friday, December 11, 2009 3:30 pm
To Robert.Ramsey@noaa.gov
Subject H11862 Wando River Channel conflicts

Mr. Ramsey,

The NOAA NRT-2 provided to the USACE Charleston District copies of the finalized sounding xyz files and weighted grid xyz files of point feature LD's from surveys conducted. The NRT-2 responded quickly of any items of concern in the channels that felt needed to be brought to our attention. After review of this information we evaluated for concerns, and confirmed with our survey vessel to ascertain action needed to be taken. All items and sounding deemed significant, and warranting removal, were then task to local ongoing dredging contracts for removal, and resolution. This joint cooperative effort has greatly benefited both organizations operational efficiency.

Philip M.Wolf
Physical Scientist
Navigation Department
69A Hagood Ave.
Charleston, SC 29403
V-843-329-8069
F-843-329-2331
C-843-297-2679
Philip.M.Wolf@usace.army.mil

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT to ACCOMPANY
SURVEY H11862 (2009)

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 HF 1-6
CARIS Bathy Manager version 2.1 HF 1-7
DKART INSPECTOR, version 5.0 Build 732 SP1
CARIS HOM version 3.3 SP3
CARIS S57 Composer version 2.0
HSTP PYDRO version 8.5 r2537

B.2. QUALITY CONTROL

B.2.1. H-Cell

The AHB source depth grid for the survey's nautical chart update product was the shoal layer from the field submitted 5m VBES grid. The survey scale soundings were created from the shoal surface at 1mm radius at 1:10,000. The chart scale soundings were hand selected for the 20,000 chart scale. The chart scale selected soundings are a subset of the survey scale selected soundings.

Depth curves were created from a 5m_InterpTIN_Shifted surface. The depth curves are forwarded to MCD for reference only. The curves were utilized during chart scale sounding selection and quality assurances efforts at AHB. The depth curves are incorporated into the SS H-Cell product as per 2009 H-Cell Specifications. The charted contours should be updated based on the SS_H-Cell data.

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 SAHOB files included depth areas (DEPARE), depth contours (DEPCNT), sounding selections (SOUNDG), features (BCNSPP, BOYSPP, PILPNT, SBDARE, SLCONS, WRECKS), US5SC14M_Features (SBDARE), Meta objects (M_COVR, M_QUAL), and cartographic Blue Notes ($AREAS, $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. 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 (H11862_CS.000), and one that contains the sounding selection and depth contours (H11862_SS.000). Finally, quality assurance checks were made utilizing CARIS S-57 Composer version 2.0 validation checks and DKART INSPECTOR, version 5.0, tests

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

H11862 CARIS H-Cell final deliverables include the following products:

H11862_CS.000	1:20,000 Scale	H11862 H-Cell with Chart Scale Selected Soundings
H11862_SS.000	1:10,000 Scale	H11862 Selected Soundings (Survey Scale)

B.2.2. Junctions

Survey H11862 (2009) junctions with H11861 (2008) to the south. Comparison between the two surveys was good. Depths agreed within 0-1 foot in all areas. Present survey depths are in harmony with the charted hydrography to the north, east and west.

C. VERTICAL AND HORIZONTAL CONTROL

No Horizontal and Vertical Control Report (HVCR) was submitted for OPR-G347-NRT2-08, survey H11862.

Final vertical correction processing was completed by the field unit with no additional correction required by Atlantic Hydrographic Branch. The field unit personnel applied verified water levels in conjunction with the preliminary tidal zoning which was accepted and approved by N/OPSI CO-OPS as the final zoning for H11862. 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 17.

D. RESULTS AND RECOMMENDATIONS

D.1 CHART COMPARISON — **11524 (51st Edition, Feb./08)**
Corrected through NM 03/21/2009
Corrected through LNM 03/21/2009
Scale 1:20,000

ENC Comparison — **US5SC14M**
Charleston Harbor
Edition 25
Application Date 2009-04-06
Issue Date 2009-04-28

D.1.1 Hydrography

The charted hydrography originates with prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in section "D" and Appendices 1, 2 and 5 of the Descriptive Report. The following exceptions are noted:

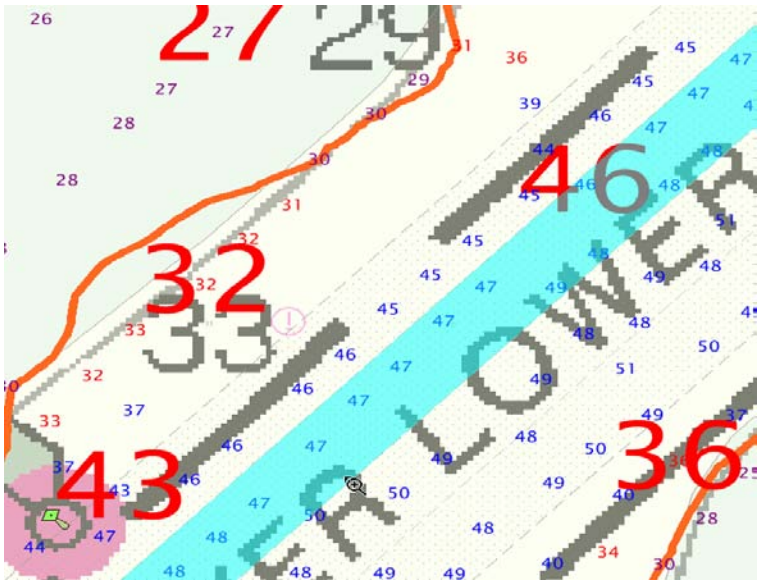
a. Revise the 0 foot contour (low water limits) in the vicinity of Latitude 32°49' 23.116"N, Longitude 079°53'51.775"W.

b. The source for the tabulations (SORIND) on the ENC for the dredged areas (DRGARE) is from 2007 and the raster chart references are from Feb 2009. Recommend revision of the ENC to current clearances. ENC and raster should be the same, and that should be the most recent data available. Also, ENC vs. raster charted channel geometry (limits) are not in agreement in the dredged channel areas. This made for some problems in determining conflicts in the channel. ENC and raster channel limits were used and adhered to when making comparisons in the office, but the raster chart tabulations were used because it was the latest data. Raster charted channel geometry needs to be revised to match the ENC. Any present survey depths in conflict with the raster but not with the ENC were charted and are listed below as being in conflict with the channel tabulations. The

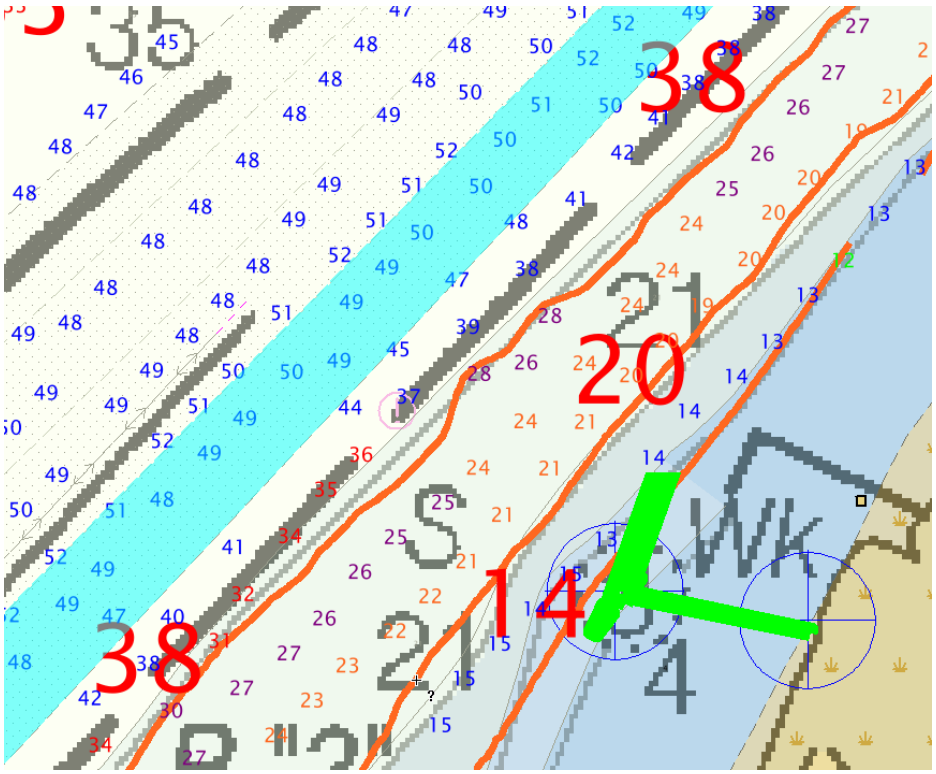
1. The controlling depths for the Wando River Lower Reach channel are 44.2 ft for left outside quarter, 47.2 ft for left inside quarter, 47.6 ft for right inside quarter, and 41.0 ft for right outside quarter. There were no conflicts in the right inside quarter of the channel.

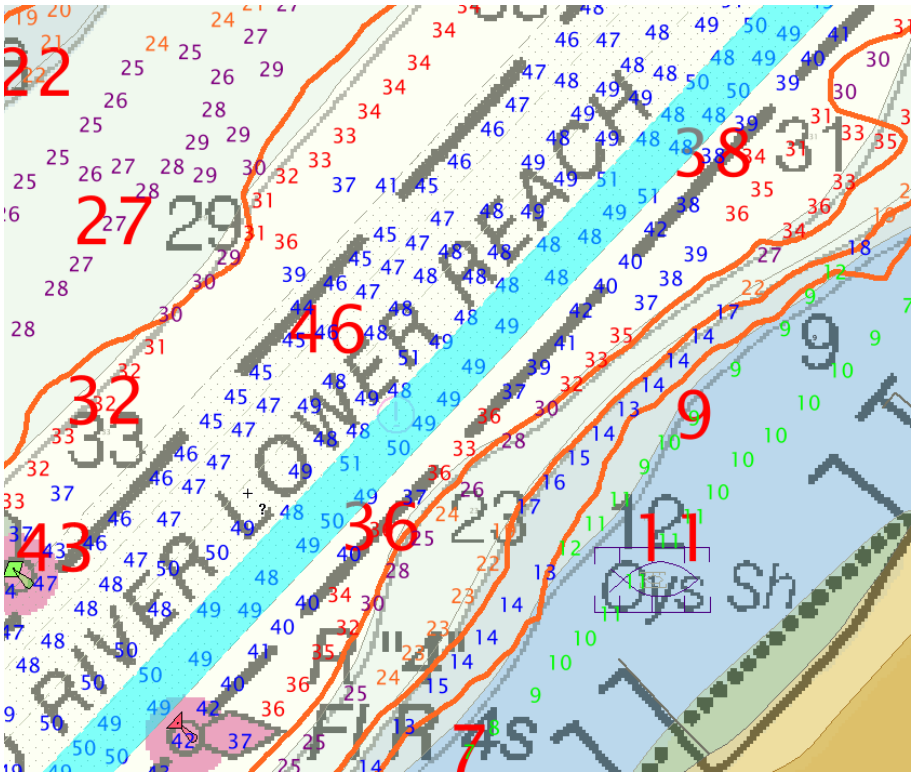
a. There are several conflicts between the tabulated controlling depth of 44.2 feet for the Wando River Lower Reach channel left outside quarter and present survey depths. There is a 4l.1 foot present survey depth in Latitude 32°48'53.745"N, Longitude 079°54'52.279"W, there is 43.7 foot present survey depth in Latitude 32°48'53.570"N, Longitude 079°54'50.743"W, and a 43.6 foot present survey depth in Latitude 32°49'13.273"N, Longitude 079°54'20.122"W.

b. There are several conflicts between the tabulated controlling depth of 47.2 feet for the Wando River Lower Reach channel left inside quarter and present survey depths. There is a 47.1 foot present survey depth in Latitude 32°49'07.630"N, Longitude 079°54'24.614"W. In the vicinity of Latitude 32°49'16.151"N, Longitude 079°54'15.088"W there are several conflicts with depths ranging from 46.7 feet to 47.0 feet. (See Below)



c. There are several conflicts between the tabulated controlling depth of 41.0 feet for the Wando River Lower Reach channel right outside quarter and present survey depths. There is a 38.5 foot present survey depth in Latitude 32°48’46.398”N, Longitude 079°54’34.005”W conflict based on raster chart limits. There is a 38.5 foot present survey depth in Latitude 32°49’02.438”N, Longitude 079°54’25.062”W conflict based on raster chart limits. (See Below first figure) Centered in the vicinity of Latitude 32°49’16.426”N, Longitude 079°54’09.316”W there are several conflicts with depths ranging from 36.2 feet to 40.5 feet because of the raster chart limits. (See Below second figure)





2. The controlling depths for the Wando River Upper Reach channel are 39.0 ft for left outside quarter, 43.1 ft for left inside quarter, 45.2 ft for right inside quarter, and 40.8 ft for right outside quarter.

a. There is one conflict in the charted controlling depth of 39.0 feet for the left outside quarter of the Wando River Upper Reach channel. There is a 32.8 foot present survey depth in Latitude 32°50’22.307”N, Longitude 079°53’28.309”W, which is a conflict based on raster chart limits but not a conflict based on ENC limits.

b. There are several conflicts between the present survey depths and the 43.1 feet controlling depth for the left inside quarter. There are several 41 foot and 43.0 foot depths in the vicinity of Latitude 32°50’13.882”N, Longitude 079°53’30.337”W , the shallowest of which is a 40.99 foot dept. There is a 42.3 foot depth in Latitude 32°50’21.319”N, Longitude 079°53’26.783”W.

c. There are two conflicts between the present survey depths and the 45.2 feet controlling depth for the right inside quarter. The shallowest is a 42.5 foot depth in Latitude 32°50’20.643”N, Longitude 079°53’23.906”W, the other is a 44.8 foot depth in Latitude 32°50’12.084”N, Longitude 079°53’29.013”W.

d. There three conflicts between the present survey depths and the 40.8 feet controlling depth for the right outside quarter. There is a 40.3 foot depth in Latitude 32°49’40.376”N, Longitude 079°53’41.907”W, a 40.2 foot depth in Latitude 32°49’39.571”N, Longitude 079°53’42.686”W, and a 40.2 foot depth in Latitude 32°50’20.143”N, Longitude 079°53’22.374”W.

3. The controlling depths for the Wando River Turning Basin channel are 48.0 ft for left outside quarter, 48.4 ft for left inside quarter, 49.1 ft for right inside quarter, and 48.3 ft for right outside quarter.

a. There are several conflicts between the charted controlling depth of 48.0 feet for the Wando River Turning Basin channel left outside quarter and the present survey depths. There are several 47 foot depths in the vicinity of the 46.982 foot depth in Latitude 32°49’55.224”N, Longitude 079°53’50.184”W.

b. There are no conflicts between the present survey and the controlling depth of 48.4 feet for the left inside quarter. There are no conflicts between the present survey and the controlling depth of 49.1 feet for the right inside quarter. There are no conflicts between the present survey and the controlling depth of 48.3 feet for the right outside quarter.

c. AWOIS Item 9895, a ***Subm pipe*** charted in Latitude 32°50'19.651"N, Longitude 079°53'53.834"W was investigated by SSS and echosounder. The pipe was found, but surrounding depths were shallower than the depth over the pipe. It was decided to chart the depths rather than the pile. Therefore, update the chart based on present survey findings and delete the charted Subm pipe symbol and note.

d. The charted notation ***3 ft Rep (2005)*** in Latitude 32°50'53.666"N, Longitude 079°53'38.426"W was partially investigated by echosounder investigation only. Sidescan coverage was attained west of the item but none was acquired over the item or to the east of it. It is recommended that since the item was not sufficiently investigated for disproval, it should be retained as charted.

e. The seaward end of an ***uncharted pier*** found during present survey operations is in Latitude 32°51'49.524"N, Longitude 079°53'44.360"W. The offshore end of this ***uncharted pier*** is shown on the 2007, USGS High Resolution Orthoimagery for the Charleston, South Carolina Urban Area, in Latitude 32°51'50.596"N, Longitude 079°53'45.876"W. It is not known whether the pier was extended seaward since the orthoimagery or whether there are two new piers in this area. Since there is a conflict between what the survey found and what is shown on the orthoimagery available in the office, it is recommended that this pier be undated by RDS.

f. The following new features or revisions to charted features, found by the present survey, were not on the latest orthoimagery available from the USGS Seamless website. It is recommended that these features be deferred to RSD for proper application to the chart:

Feature	**Latitude(N)**	**Longitude(W)**
Sewer Outfall	32°48’55.010”	79°54’23.181”
Pier	32°50’30.465”	79°53’56.335”
Pier	32°50’31.980”	79°53’56.611”
Pier	32°50’36.772”	79°53’58.054”
Pier	32°50’38.033”	79°53’58.762”
Pier	32°50’39.325”	79°53’59.419”
Pier	32°50’41.149”	79°54’00.275”
Pier ruins	32°52’46.594”	79°51’20.406”

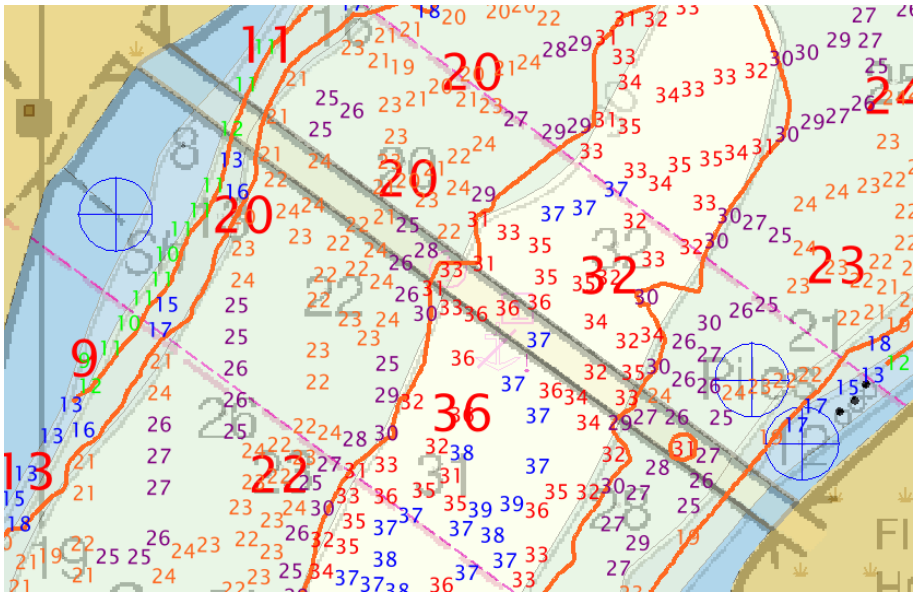
D.2. ADDITIONAL RESULTS

Ortho photo imagery shoreline was downloaded by the field and office. 2007 USGS High Resolution Orthoimagery for the Charleston, South Carolina Urban Area was downloaded, by office personnel, as well as provided by the field unit, from the USGS Seamless website. It is recommended that new aerial imagery be acquired and processed in RSD for application and further updating of NOS chart 11524 in the present survey area.

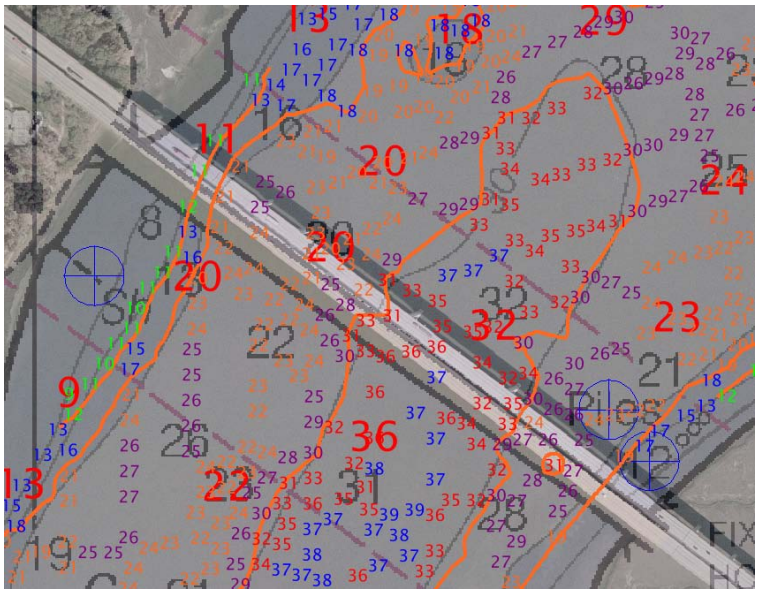
Bridges

The bridge charted in the vicinity of Latitude 32°51'35.209"N, Longitude 079°53'47.019"W is depicted correctly according to the ENC and raster chart for this area, but when the orthoimagery for the area is compared, there are some major conflicts. The south western edge of the bridge in the orthoimagery plots on the north western edge of the bridge on the raster chart and ENC. The ENC is about 20 meters north of the charted image. Near the south eastern edge of the charted bridge, the orthoimagery is only about 6 meters north. The bridge needs to be repositioned north east. (See Below) Final disposition of this item will be left up to RSD.

Bridge as depicted on raster chart and ENC:



Bridge as depicted on raster chart, ENC and orthoimagery:



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 update the raster charted and ENC features investigated by the present survey only. Any features and depths 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.

This Document is for Office Process use only and is intended to supplement, not supersede or replace, information/recommendations in the Descriptive or Evaluation Reports

AHB COMPILATION LOG

General Survey Information	
REGISTRY No.	***H11862***
PROJECT No.	***OPR-G347-NRT2-08***
FIELD UNIT	***Navigation Response Team 2***
DATE OF SURVEY	***03/16/2009- 04/23/2009***
LARGEST SCALE CHART	***11524 (51st Edition, Feb./08), 1:20,000***
ADDITIONAL CHARTS	
SOUNDING UNITS	***Feet***
COMPILER	***Deborah Bland***

Source Grids	***File Name*** ***H:\Compilation\H11862-G347-NRT2\AHB_H11862\AHB_H11862\E-SAR Final Products\GRIDS***
	E-SAR Final Products\GRIDS\H11862_VBES_5m.hns
	E-SAR Final Products\GRIDS\ H11862_VBES_5m_Final.hns
	E-SAR Final Products\GRIDS\ H11862_Shoal.hns
Surfaces	**File Name** H:\Compilation\ ***H11862-G347-NRT2\AHB_H11862\AHB_H11862***\COMPILE\Working
Combined	**HXXXXX_Xm_Combined.hns**
Interpolated TIN	\Surfaces\ **H11862_5m _InterpTIN.hns**
Shifted Interpolated TIN	\Surfaces**H11862_5m_InterpTIN_Shifted.hns**
Product Surface	\Surfaces**HXXXXX_Xm_Product_Surface.hns**
Final HOBs	**File Name** H:\Compilation\HXXXXX ***H11862-G347-NRT2\AHB_H11862\AHB_H11862***\COMPILE\Final_Hobs\
Survey Scale Soundings	**H11862_SS.hob**
Chart Scale Soundings	**H11862_CS_Soundings.hob**
Contour Layer	**H11862_Contours.hob**
Feature Layer	**H11862_Features.hob**
Meta-Objects Layer	**H11862_MetaObjects.hob**
Blue Notes	**H11862_BlueNotes.hob**
ENC Retain Soundings	**H11862_ US5SC14M_Features.hob**

Meta-Objects Attribution	
Acronym	**Value**
M_COVR	
CATCOV	***Coverage Available***
SORDAT	***20090423***
SORIND	***US,US,survy,H11862***
M_QUAL	
CATZOC	***Zone of Confidence U (data not assessed)***
INFORM	***H11862,OPR-G347-NRT2-08,***
POSACC	***10***
SORDAT	***20090423***
SORIND	***US,US,survy,H11862***
SUREND	***20090423***
SURSTA	***20090316***

DEPARE	
DRVALV 1	-0.479 ft
DRVALV2	53.576 ft
SORDAT	***20090423***
SORIND	***US,US,survy,H11862***
M_CSCL	
CSCALE	
SORDAT	
SORIND	

SPECIFICATIONS:

I. COMBINED SURFACE:
   a. Number of ESAR Final Grids: 1
   b. Resolution of Combined (m): 5m

II. SURVEY SCALE SOUNDINGS (SS):
   a. Radius
   b. Shoal biased
   c. Use Single-Defined Radius (mm at Map Scale): ; Radius Value = 1
   d. Queried Depth of All Soundings
      i. Minimum: -0.479 ft
      ii. Maximum: 53.576 ft

III. INTERPOLATED TIN SURFACE:
   a. Resolution (m): 10m
   b. Linear
   c. Shifted value: -0.0229ft *[-0.229m (feet), (≤ 10 fathoms)]*
      [-1.372m (fathoms), (> 10 fathoms)]

IV. CONTOURS:
   a. Use a Depth List: H11862_depth_curves_list.txt
   b. Line Object: DEPCNT
   c. Value Attribute: VALDCO

V. FEATURES:
   a. Total Number of Features: 21
   b. Number of Insignificant Features:

VI. CHART SURVEY SOUNDINGS (CS):
   a. Number of ENC CS Soundings:
   b. Radius
   c. Shoal biased
   d. Use Single-Defined Radius: m on the ground
      i. Radius Value (m):
      ii. Or use a Sounding Space Range Table (if applicable): H11834_SSR.txt
   e. Filter: Interpolated != 1
   f. Number Survey CS Soundings:

VII. Notes:

APPROVAL SHEET
H11862

Initial Approvals:

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

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

Deborah A. Bland

Digitally signed by Deborah A. Bland
DN: cn=Deborah A. Bland, o=Atlantic Hydrographic Branch, ou=NOAA/NOS, email=Deborah.A.Bland@NOAA.gov, c=US
Date: 2009.12.22 10:15:02 -05'00'

Deborah A. Bland
Cartographer
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

Richard T. Brennan
I am approving this document
2009.12.22 22:14:32 -05'00'

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

Christopher Hare

Christopher Hare
AWOIS Check
2009.12.28 15:41:00
-05'00'