

H10858

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey . HYDROGRAPHIC/SIDE SCAN SONAR .

Field No. AHP-5-2-99

Registry No. H10858

LOCALITY

State SOUTH CAROLINA

General Locality COOPER RIVER

Sublocality DANIEL ISLAND BEND TO

GOOSE CREEK

19 99

CHIEF OF PARTY

B. A. LINK, NOAA

LIBRARY & ARCHIVES

DATE SEP 8 2000

HYDROGRAPHIC TITLE SHEET

~~OPR-G301-AHP-05-02-99~~

H110858

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 NO.

AHP-5-2-99
~~H-10858 Sheet "H"~~

State South Carolina

General locality Cooper River

Locality Daniel Island Bend to Goose Creek

Scale 1:5,000

Date of survey March 18, 1999 to June 4, 1999

Instructions

~~dated~~ dated: 3-19-97

Project No. OPR-G301-AHP

Vessel 1210

Chief of party Mr. Brian Link

Surveyed by DBE, RWR, PMW **

Soundings taken by echo sounder, hand lead, pole Innerspace MN# 448 SN#188

by DBE, RWR, PMW **

Graphic record checked by DBE, RWR, PMW **

Protracted by N/A

Automated plot by HP DesignJet 2500CP
HPS & MAPINFO/ HP PLOTTER

Verification by ATLANTIC HYDROGRAPHIC ^{Branch} SECTION, NORFOLK VA. Personnel

Soundings in meters feet at MLW MLLW w/ unverified actual water levels applied

REMARKS

* Change No. 1 dated April 9, 1998 and Change No. 2 dated August 18, 1998

** David B. Elliott, Robert W. Ramsey Jr., Phillip M. Wolf

Handwritten notes in the Descriptive Report were made during office processing.

Awois/SURP ✓ 7/01/00, 556

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY, H-10858
OPR-G301-AHP
FIELD NO. AHP-5-2-99
SCALE: 1: 5,000
1999
ATLANTIC HYDROGRAPHIC PARTY TWO
CHIEF OF PARTY: Brian A. Link

A. PROJECT

This survey was conducted according to Hydrographic Project Instructions OPR-G301-AHP, Charleston Harbor, South Carolina and adjoining waterways, dated March 19, 1997, change No.1 dated April 9, 1998, and change No. 2 dated August 18, 1998.

The purpose of project OPR-G301-AHP is to provide a navigable area survey with 200-percent side scan sonar coverage within the assigned area of the Cooper River, Daniel Island Bend to Goose Creek, South Carolina, to the 12-foot contour, except as modified by the Project Instructions.

The survey is being conducted in response to a request from the Charleston Branch Pilots Association.

B. AREA SURVEYED

The area surveyed as specified by the Project Instructions is defined as Sheet "H." The approximate survey limits are:

North - 32°54'07"N
South - 32°50'51"N
East - 079°56'15"W
West - 079°58'10"W

This survey was conducted from March 18, 1999 (DN: 077) through June 4, 1999 (DN: 155).

C. SURVEY VESSEL

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

D. AUTOMATED DATA ACQUISITION AND PROCESSING - See also Evaluation Report

HYPACK version 8.9 was used for on-line data acquisition. HPS programs version 9.4.0 and HP Tools version 9.4.0 were used for data processing. MapInfo Professional Version 5.0 and Vertical Mapper Version 2.0, were used to support processing and for plotting all survey data. The NOS program VELOCITY (Ver. 4.0) was also used during this survey.

E. SONAR EQUIPMENT

An Edge Tech model 260-TH image correcting side scan sonar recorder (S/N 020417) with a model 272-TD towfish (S/N 020892), was used throughout this survey. The side scan sonar equipment was used to conduct dual beam surveying and investigate AWOIS items using NOAA launch 1210. The system frequency used was 100 kHz. The recorder was set on one of either 50/75/100/150-meter range scales. There were no water depths greater than 25 meters. The confidence checks were performed daily on existing buoys in the Charleston, SC channels at 100kHz.

A coverage of 200% was obtained in all the required survey areas and AWOIS items where water depth and/or hazards permitted. Side scan sonar coverage was conducted to the 12-foot depth curve and single beam reduced line spacing was performed in other areas where warranted. The towfish was deployed off the starboard quarter of the vessel, which proved very stable. Distorted images caused by strong tidal currents were seen periodically. All contacts and shadows were manually scaled and entered into a DPS contact table 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 diver investigations were needed. A total of 56 contacts were entered into the contact table. There were 18 contacts addressed by star pattern reduced line spacing development. A total of 38 contacts were deemed insignificant to warrant further investigation. All areas surveyed were track line/swath line plotted to insure complete coverage. Additional information can be found in the Survey Separates.*

F. SOUNDING EQUIPMENT

An Innerspace model 448 depth sounder, S/N 188, was used to collect all echo soundings on this survey. A standard lead line calibrated in meters, S/N 1210, was used during this survey for comparison with the echo sounder. No problems were encountered with any of the sounding equipment.

*Data filed with original field records.

G. CORRECTIONS TO ECHO SOUNDINGS

Correctors for the velocity of sound through water were determined from the casts listed in the following table:

<u>Cast No.</u>	<u>Table No.</u>	<u>Deepest * Depth(m)</u>	<u>Applicable DN(s)</u>	<u>Cast Position</u>		<u>Day Taken</u>
1	1	19.4	077-082	32°54'13"N	079°57'12"W	081
2	2	16.6	088-090	32°52'30"N	079°57'54"W	088
3	3	18.4	095-099	32°51'48"N	079°57'36"W	095
4	4	17.5	103-105	32°51'14"N	079°56'38"W	103
5	5	17.1	110-111	32°51'26"N	079°57'10"W	111
6	6	17.6	116	32°51'25"N	079°57'06"W	116
7	7	19.2	155	32°51'06"N	079°55'54"W	154

*extended depth after processing

The instrument used for determining corrections for the speed of sound through the water column was a Seabird-Seacat velocity profiler, model 19-03, S/N 198671-1477. The manufacturer calibrated this unit on October 23, 1998. Data quality assurance tests were performed after each cast. Program VELOCITY was used for computing the correctors. Corrections were applied to the sounding plot using the HPS REAPPLY program. Copies of the velocity tables and support documentation are in the Survey Separates*

The lead line for launch 1210 was calibrated using a steel tape on January 6, 1997. No corrections were necessary. A copy of the calibration form is in the Survey Separates*. A static draft of 0.5 meter was applied to the final sounding plot by the HPS REAPPLY program. The draft was measured by subtracting the difference from a punch mark on the side of launch 1210, 0.6 meter above the transducer, to the water surface.

Settlement and squat measurements for launch 1210 were taken on September 23, 1997 (DN: 266). These measurements were conducted in the Cooper River, Charleston, SC using the level method. The data from this test is included in the Survey Separates*. Settlement and squat correctors were applied to the final sounding plot using the HPS REAPPLY program.

Field tide reduction of soundings is based on unverified actual heights from the tides internet site (<http://www.opsd.nos.noaa.gov/ftp/pwldata.html>) for 866-5530, Charleston, SC. Correctors for three tidal zones on this survey were used as designated by the Project Instructions. The zones were exported to HPS by HPS tools and applied by DPAS tides utilities

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

* Data filed with original records.

Approved tide levels were requested from the Chief, Requirements and Engineering Branch, N/CS41, in a letter dated June 18, 1999. A copy is appended to this report. Approved tides and zones were applied during office processing.

All tides gauges required for this survey were NGWLMS gauges installed by Atlantic Hydrographic Party and Atlantic Operations Section personnel.

H. CONTROL STATIONS - See also Evaluation Report

The horizontal control datum for this project is the North American Datum (NAD) of 1983. The control reference station used for this survey was the USCG DGPS Charleston beacon (Station ID #808), located at 32°45.45357'N, 079°50.57225'W.

I. HYDROGRAPHIC POSITION CONTROL

Differential GPS (DGPS) was used for all hydrographic data acquired on this survey. A Starlink DGPS Beacon Receiver (S/N 795) and antenna (S/N 4132) were used as the remote station on launch 1210.

DGPS performance checks were conducted in accordance with FPM 3.4.4 by comparing the DGPS position of the vessel to the position of the following calibration point:

Opening / Closing: Mt. Pleasant Rear Range Lt. 32°45.45357'N 079°50.57225'W

To obtain a performance check, the launch was brought alongside the checkpoint and the easting, northing, number of SVs, HDOP, and time of observation were noted on the echogram. These values were then entered into an Excel spreadsheet which computes the acceptable error margin (based on the HDOP) and also the observed difference between the known and observed position. The table of these comparisons is included in the Survey Separates. All of the observed differences fell well within the allowable limit.

J. SHORELINE - See also Evaluation Report

There was no photogrammetric source data for this project.

K. CROSSLINES

A total of 15.3 linear nautical miles of crosslines were run. Crossline soundings agree with the main scheme soundings within 0.2 meter. The only exceptions were some 0.3 meter differences caused by weather influence on the tides. The application of smooth tides will create a closer agreement in sounding comparison.

* Data filed with original field records.

L. JUNCTIONS - See also Evaluation Report

This survey junctions with the following:

<u>Survey No.</u>	<u>Year</u>	<u>Scale</u>	<u>Junction Area</u>
H-10857	1999	1:5,000	Southern edge
H-10863	1999	1:5,000	Northern edge

Junction soundings and soundings from this survey are in close agreement with survey H-10858, with differences of 0.4 meters or less, except where noted in Section "O" of this report. Junction soundings with H-10863 were not available yet, as the survey is currently in progress.

M. COMPARISON WITH PRIOR SURVEYS - See also Evaluation Report

See the Atlantic Hydrographic Branch's "Evaluation Report for H-10858".

N. ITEM INVESTIGATION REPORTS

There was one AWOIS items assigned to H-10858.

AWOIS 524 - Unknown 32°51'19.63"N 079°56'19.31"W Chart: 11524

This feature is charted as a submerged wreck PD from LNM41/76--14 ft boat reported burned and sunk in about 12 ft of water at position approximate. The wreck is not located and may be adrift according to the AWOIS printout. This geographic region was covered with 200% side scan sonar and nothing was found. The hydrographer recommends removing the submerged wreck PD from the chart. *Concur*

O. COMPARISON WITH THE CHART - See also Evaluation Report

Comparison was made with the following charts:

<u>Chart No.</u>	<u>Source Edition</u>	<u>Raster Edition</u>	<u>Edition Date</u>
11524	43rd ED	03	Nov. 1, 1997
11527	15th ED	02	Aug. 9, 1997

One feature, discussed in this section, was included in a Danger to Navigation letter dated April 26, 1999 and sent to the USCG Seventh District. A copy of the letter is included in the Descriptive Report Appendices.

Chart comparison notes are included on the raster image sounding plot.

- The soundings outside of the channel were found to be ^{two} five to six feet deeper than charted. *Concur*
- The charted sign at 32°52'12.72"N, 079°57'56.71"W, no longer exists. It was disproved by 200% side scan sonar and should be removed from the chart. *Concur*
- An uncharted restricted waterway sign at 32°51'^{2 12.73}55.99"N, 079°57'^{42.13}26.43"W, should be charted. *Concur*
- An uncharted pier at 32°51'⁶55.98"N, 079°57'²26.47"W, should be charted. *Concur*
- An uncharted restricted waterway sign at 32°51'^{31.98}32.00"N, 079°56'43.87"W, should be charted. *Concur*
- Two charted unexploded ordinance reports at 32°51'38.05"N, 079°57'39.24"W, and 32°50'55.98"N, 079°56'19.12"W, no longer exist and should be removed from the chart. *Concur*
This information was obtained from Mr. Henry Sheppard, Naval Base custodian. For further information, contact Mr. Sheppard at 843-743-9985 ext.14.
- A submerged obstruction was found and identified by divers at 32°51'26.79⁷"N, 079°57'10.05³⁴"W. The obstruction is two cylindrical tanks with a least depth by Diver Least Depth Gage of 35 feet at MLLW corrected with actual ~~unverified~~ heights. The tanks are approximately 12-feet in diameter and 16-feet long. A danger to navigation letter was submitted for this feature. The USACOE is contracting the removal of this obstruction and the Atlantic Hydrographic Party is awaiting the salvage documentation letter. This information will be forwarded to AHB once received. *Concur*
- The foul limit at 32°53'45.7" N, 079°57'53.1" W, exists and should remain as charted. ✓
- The foul limit at 32°53'37.5" N, 079°57'57.1" W, exists and should remain as charted. ✓

The following list of positions are items that have been visually identified by the hydrographer. Most of these objects are outside of the survey limits and this visual identification is to assist the verifier in chart compilation. The investigations, ^{Concur} although visual, were conducted at low tide and are quite thorough for charting or removal. The charted position is given on the center of the items that appear in clusters. These features are also noted on the raster image of the chart.

Item	Charted Position	Status
Piles (3)	32°53'34.9" N, 079°57'57.5" W	exists
Piles (4)	32°53'29.0" N, 079°57'59.1" W	exists
Dols (3)	32°53'25.1" N, 079°57'59.1" W	exists
Dols (5)T	32°53'16.3" N, 079°58'00.0" W	exists
Dols (X)S	32°53'10.3" N, 079°58'02.5" W	exists

Dols (5)	32°52'45.6" N, 079°58'04.1" W	exists
Pier	32°52'42.8" N, 079°58'03.1" W	does not exist
Dols (7)	32°52'40.4" N, 079°58'03.6" W	exists
Sign	32°52'13.2" N, 079°57'55.5" W	does not exist (See previous page)
Dols (6)	32°52'05.1" N, 079°57'52.8" W	exists
Dol (4)	32°52'02.8" N, 079°57'52.4" W	exists
Piles (2)	32°52'00.2" N, 079°57'50.8" W	exists
Sign	32°51'58.5" N, 079°57'26.0" W	does not exist
Dol	32°51'42.4" N, 079°57'18.4" W	exists
Piles (2)	32°51'38.1" N, 079°57'09.1" W	exists
Piles (4)	32°51'22.5" N, 079°57'21.7" W	exists
Dols (X)	32°51'19.2" N, 079°57'17.1" W	exists
Obstn	32°51'00.4" N, 079°56'29.5" W	exists - retain as charted
Pile	32°51'34.9" N, 079°56'27.2" W	exists
Pile	32°51'30.4" N, 079°56'16.8" W	exists

P. ADEQUACY OF SURVEY - See also Evaluation Report

This survey was conducted at forty-meter line spacing to ensure 200% side scan coverage.

Sounding data between the numerous piers at the Naval Base could not be acquired due to moored ships and barges in these areas.

An additional crossline was run the full length of sheet "H" on DN 155, June 4, 1999 for comparison of soundings related to questionable zoning correctors. An additional tide gage was installed at Army Depot, Cooper River, SC (866-4662) by the Atlantic Operations Group. A single beam development was also conducted on the submerged steel tanks that were diver identified on this survey. The tanks were the only danger to navigation within the confines of H-10858. These soundings are to be used for evaluation by AHB in final verification to ensure zoning in this region does not affect previously collected sounding data.

This is a complete basic hydrographic survey of the area required by the Project Instructions and is adequate to supersede all prior surveys within the common area.

Q. AIDS TO NAVIGATION - *see also Evaluation Report*

There is one non-floating aid and nine floating aids to navigation, maintained by the U.S. Coast Guard, that lie within the survey area. Positions of these aids were determined by DGPS during hydrographic operations and are included in the hydrographic records.

The position for the following non-floating aid disagrees with the charted position: *Concur*

Name	LL No.	Survey Position	Bearing/Distance (from charted location)
Fl Red "58"	2920	32°53'43.1 ^s 7 "N, 079°57'41.9 ^t 5 W	94 meters/216°

- There are no overhead power cables within the limits of this survey.
- There is one cable and pipeline area charted at 32°51'36.9" N, 079°57'21.5" W.
- All currently charted ranges serve their intended purpose.

R. STATISTICS

<u>Description</u>	<u>Quantity</u>
Total Number of Positions	4162
Total Linear Nautical Miles of Hydrography	15.2
Total Linear Nautical Miles of Cross Lines	15.3
Total Linear Nautical Miles of (SSS) Hydrography	47.8
Square Nautical Completed	2.0
Days of Production	14
Detached Positions	29
Bottom Samples	14
Velocity Casts	7

S. MISCELLANEOUS - *see also Evaluation Report*

Bottom samples were taken and submitted as directed in Section 6.7 of the Project Instructions.

Secchi disk observations were not acquired on this survey due to the continually poor water clarity. The flood and ebb tidal currents were visually observed at two to three knots within the survey limits.

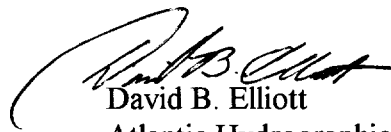
T. RECOMMENDATIONS

No additional fieldwork was identified after field processing was completed. Specific recommendations are made in section N and O of this report.

U. REFERRAL TO REPORTS

There are no reports referred to that are not submitted with this report.

Submitted by:

A handwritten signature in black ink, appearing to read 'D. B. Elliott', written in a cursive style.

David B. Elliott
Atlantic Hydrographic Party

32°47'04.84831
079°53'40.49917

CJ0887 DESIGNATION - MT PLEASANT RANGE REAR LT
CJ0887 PID - CJ0887
CJ0887 STATE/COUNTY- SC/CHARLESTON
CJ0887 USGS QUAD - CHARLESTON (1979)
CJ0887
CJ0887 *CURRENT SURVEY CONTROL
CJ0887

E. 15507.442
N. 14935.660

CJ0887* NAD 83(1986) - 32 47 04.84831(N) 079 53 40.49917(W)
ADJUSTED
CJ0887* NAVD 88 -
CJ0887

CJ0887 LAPLACE CORR- -2.87 (seconds)
DEFLEC96
CJ0887 GEOID HEIGHT- -33.19 (meters)
GEOID96
CJ0887
CJ0887 HORZ ORDER - THIRD
CJ0887

CJ0887. The North Carolina/South Carolina HARNs have been completed but, CJ0887. due to contractual restrictions, coordinates for these stations CJ0887. will NOT be published in the near future. In the interim, the CJ0887. published coordinates in North and South Carolina will not be CJ0887. consistent with the Continuously Operating Reference Stations CJ0887. (CORS). The HARN coordinates for these stations are available CJ0887. upon request. Contact Gary Thompson (919-33-3836), or Sid CJ0887. Miller (803-896-7700).
CJ0887.

CJ0887. In addition, the published North and South Carolina positions CJ0887. (NAD 83 (1986)) are NOT consistent with those determined in CJ0887. adjacent state readjustments. The discontinuity between stations CJ0887. located in North or South Carolina and those in adjacent states CJ0887. which have been adjusted to the HARN may be as much as 5 CJ0887. decimeters. This will result in a significant loss of accuracy CJ0887. over lines crossing such state borders.
CJ0887.

CJ0887. The horizontal coordinates were established by classical geodetic methods CJ0887. and adjusted by the National Geodetic Survey in July 1986.
CJ0887

CJ0887. The Laplace correction was computed from DEFLEC96 derived deflections.
CJ0887

CJ0887. The geoid height was determined by GEOID96.
CJ0887

Converg.	North	East	Units	Scale
CJ0887; SPC SC - 36 46.2	347,964.56	2,339,710.82	IFT	0.99991188 +0
CJ0887; SPC SC - 36 46.2	106,059.599	713,143.813	MT	0.99991188 +0
CJ0887; UTM 17 - 35 55.0	3,627,957.724	603,518.213	MT	0.99973213 +0

CJ0887
CJ0887 SUPERSEDED SURVEY CONTROL
CJ0887

CJ0887 NAD 27 - 32 47 04.21567(N) 079 53 41.18421(W)



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE, Office of Coast Survey
Atlantic Hydrographic Party
439 West York Street
Norfolk, VA 23510-1114

April 26, 1999

Commander (oan)
U.S. Coast Guard District Seven
Brickell Plaza Federal Bldg.
909 SE First Ave.
Miami, Florida 33131-3050

Dear Sir:

While conducting a hydrographic survey of the Cooper River, South Carolina (registry H-10858, project OPR-G301-AHP) an uncharted submerged obstruction was found in the Clouter Creek Reach of the Cooper River Channel, as listed below. I recommend this information be included in the Local Notice to Mariners. The position is based on NAD 83 datum and the sounding has been reduced to Mean Lower Low Water (MLLW) using predicted tides. This feature was located using Differential GPS.

This information affects the following chart:

<u>CHART NO.</u>	<u>EDITION</u>	<u>DATE</u>
11524	42 nd	Nov 11/96
<u>DESCRIPTION</u>	<u>NAD 83 POSITION</u>	<u>DEPTH (ft)</u>
Submerged Obstruction	32°51'26.79"N 079°57'10.05"W	35

This is advance information which is subject to office review. A chart section showing the location of this danger is attached. Questions concerning this report should be directed to LCDR Andrew L. Beaver, Chief of the Atlantic Hydrographic Branch at (757) 441-6746.

Sincerely,

Brian A. Link
Chief, Atlantic Hydrographic Party

Attachment

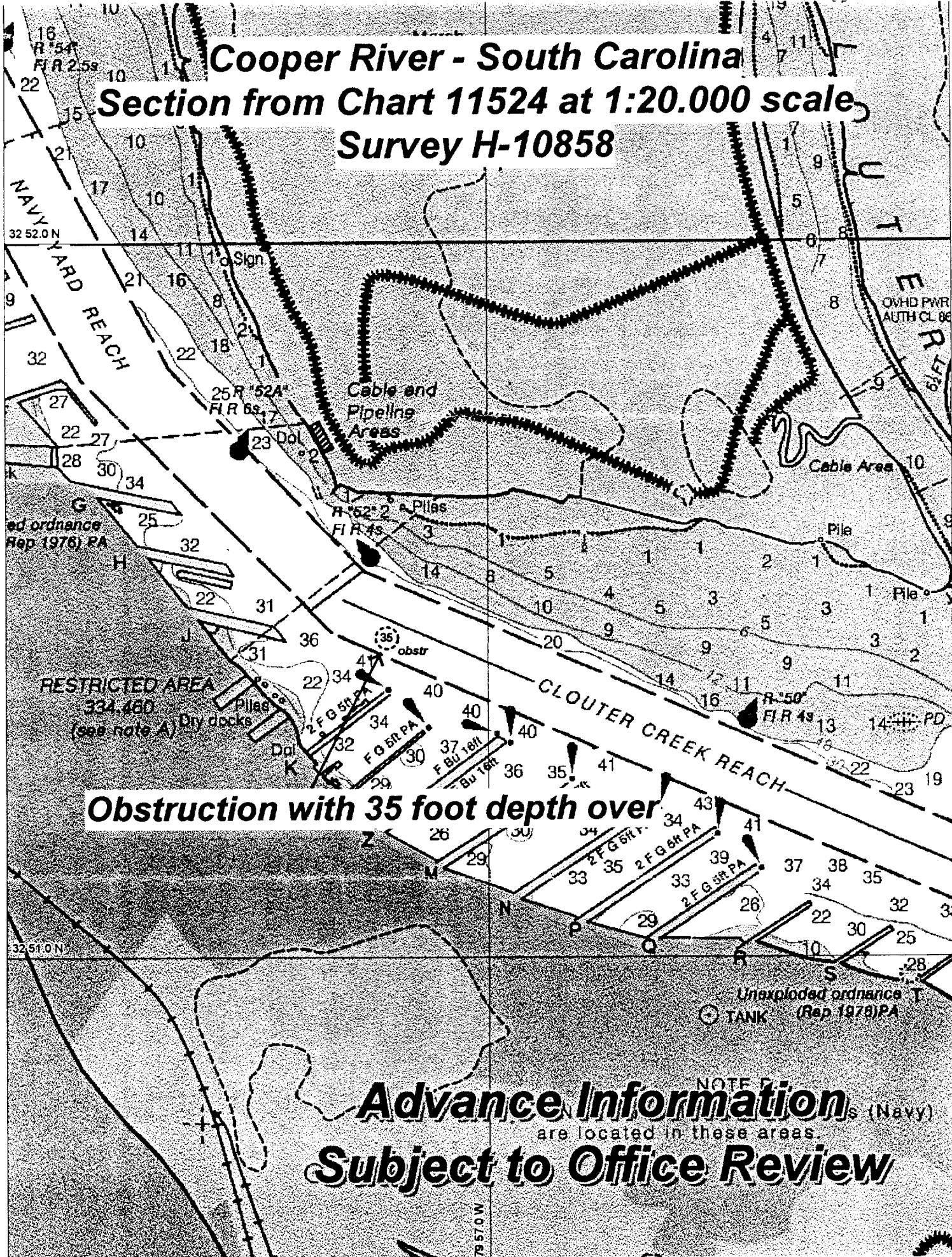
cc: N/CS26
N/CS33
NIMA/NMD/STD44
Charleston Branch Pilots Assoc.



Cooper River - South Carolina

Section from Chart 11524 at 1:20,000 scale

Survey H-10858



Obstruction with 35 foot depth over

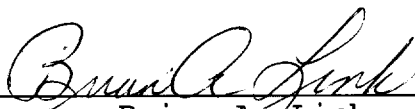
Advance Information (Navy)
are located in these areas.
Subject to Office Review

Unexploded ordnance T
TANK (Rep 1976) PA

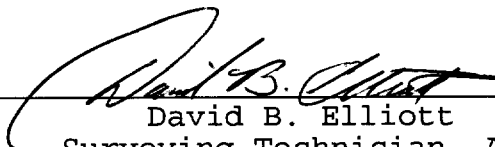
APPROVAL SHEET
Basic Hydrographic Survey
OPR-G301-AHP
AHP-5-2-99
H-10858
1999

This basic hydrographic survey was completed in accordance with the Project Instructions for OPR-G301-AHP, the Hydrographic Manual, the Hydrographic Survey Guidelines, and the Field Procedures Manual. All reports, records, and survey plots were reviewed by Mr. David B. Elliott, Launch-hydrographer-in-charge of this project. The Descriptive Report was also reviewed by the Chief, AHP. The chief of party did not directly supervise any part of this survey.

This survey is a complete basic hydrographic survey for the area described in Section B of this report.



Brian A. Link
Chief, Atlantic Hydrographic Party



David B. Elliott
Surveying Technician, AHP



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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: November 16, 1999

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: OPR-G301-AHP
HYDROGRAPHIC SHEET: H-10858

LOCALITY: Charleston, SC - Cooper River
Daniel Island Bend to Goose Creek

TIME PERIOD: March 18, 1999 - June 4, 1999

TIDE STATION USED: 866-4662 Army Depot, SC
Lat. 32° 54.6'N Lon. 79° 57.0'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.722 meters

TIDE STATION USED: 866-5530 Charleston, SC
Lat. 32° 46.9'N Lon. 79° 55.5'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.664 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: CH30, CH31 & CH32.

Refer to attachments for zoning information.

Note 1: Provided time series data are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time.

Note 2: Use tide data from the appropriate station for each zone according to the order in which they are listed in the Tidezone corrector files. For example, tide station one (TS1) would be the first choice for an applicable zone followed by TS2, etc. when data are not available. All zones within a survey sheet may not have the same order of applicable tide stations.

Thomas N. Mero 11/17/99

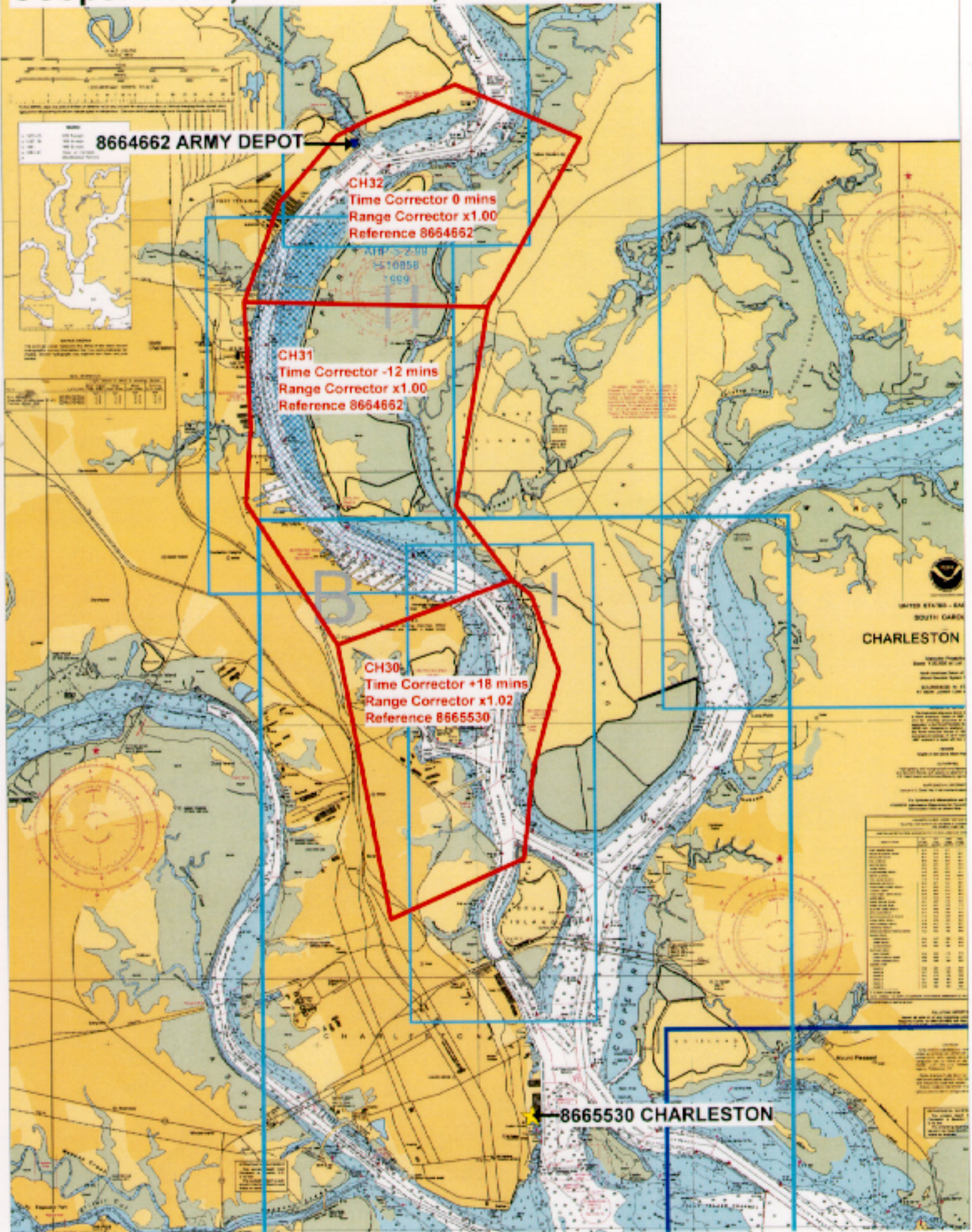
CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION

Final tide zone node point locations for OPR-G301-AHP-99,
Sheet H-10858.

Format: Longitude in decimal degrees (negative value denotes
Longitude West),
Latitude in decimal degrees
Tide Station (in recommended order of use)
Average Time Correction (in minutes)
Range Correction

	Tide Station Order	AVG Time Correction	Range Correction
Zone CH30			
-79.927366 32.852263	866-5530	+18	1.02
-79.924516 32.850223			
-79.920241 32.840262			
-79.924493 32.827004			
-79.925964 32.81559			
-79.946914 32.807729			
-79.954906 32.843902			
-79.927366 32.852263			
Zone CH31			
-79.954906 32.843902	866-4662	-12	1.00
-79.968998 32.862688	866-5530	+30	1.03
-79.968125 32.872704			
-79.968997 32.889198			
-79.930944 32.888314			
-79.936181 32.862099			
-79.927366 32.852263			
-79.954906 32.843902			
Zone CH32			
-79.930944 32.888314	866-4662	0	1.00
-79.916281 32.910399	866-5530	+42	1.03
-79.935743 32.917608			
-79.949093 32.913162			
-79.954358 32.910939			
-79.963411 32.902155			
-79.968997 32.889198			
-79.930944 32.888314			

Final Tidal Zoning for OPR G301-AHP-99 Cooper River, Charleston, SC - Sheet H-10858



GEOGRAPHIC NAMES

H-10858

Name on Survey	A ON CHART NO. 11574		B ON PREVIOUS SURVEY NO.		C ON U.S. QUADRANGLE MAPS		D FROM LOCAL INFORMATION		E ON LOCAL MAPS		F P.O. GUIDE OR MAP		G RAND McNALLY ATLAS		H U.S. LIGHT LIST		K	
COOPER RIVER	X			X														1
DANIEL ISLAND	X			X														2
DANIEL ISLAND BEND	X			X														3
CLOUTER CREEK	X			X														4
CLOUTER CREEK REACH	X																	5
FILBIN CREEK	X			X														6
FILBIN CREEK REACH	X																	7
GOOSE CREEK(title)	X			X														8
NAVY YARD REACH	X			X														9
NOISETTE CREEK	X			X														10
NORTH CHARLESTON REACH	X																	11
PORT TERMINAL	X			X														12
PORT TERMINAL REACH	X																	13
SOUTH CAROLINA (title)	X			X														14
																		15
																		16
																		17
																		18
																		19
																		20
																		21
																		22
																		23
																		24
																		25

Approved:

Dennis J. Rosenberg
Chief Geographer

SEP 22 1999

N/CS33-44-2000

LETTER TRANSMITTING DATA

DATA AS LISTED BELOW WERE FORWARDED TO YOU BY
(Check):

ORDINARY MAIL AIR MAIL

REGISTERED MAIL EXPRESS

GBL (Give number) _____

DATE FORWARDED

JULY 12, 2000

NUMBER OF PACKAGES

ONE TUBE

TO:

CHIEF, DATA CONTROL GROUP, N/CS3x1
NOAA/NATIONAL OCEAN SERVICE
STATION 6815, SSMC3
1315 EAST-WEST HIGHWAY
SILVER SPRING, MARYLAND 20910-3282

NOTE: A separate transmittal letter is to be used for each type of data, as tidal data, seismology, geomagnetism, etc. State the number of packages and include an executed copy of the transmittal letter in each package. In addition the original and one copy of the letter should be sent under separate cover. The copy will be returned as a receipt. This form should not be used for correspondence or transmitting accounting documents.

H10858

SOUTH CAROLINA, COOPER RIVER, DANIEL ISLAND BEND TO GOOSE CREEK

(ONE) TUBE CONTAINING THE FOLLOWING:

- 1 SMOOTH SHEET FOR SURVEY H10858
- 1 ORIGINAL DESCRIPTIVE REPORT
- 1 DRAWING HISTORY FORM (NOAA FORM #76-71) FOR NOS CHART 11524
- 1 RECORD OF APPLICATION TO CHART FORM (NOAA FORM #75-96) FOR SURVEY H10858
- 1 H-DRAWING FOR NOS CHART 11524
- 1 COMPOSITE DRAWING FOR NOS CHART 11524

FROM: (Signature)

DEBORAH A. BLAND



RECEIVED THE ABOVE

(Name, Division, Date)

Return receipted copy to:

ATLANTIC HYDROGRAPHIC BRANCH
N/CS33
439 WEST YORK STREET
NORFOLK, VA 23510-1114

07/11/2000

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H10858

NUMBER OF CONTROL STATIONS		2
NUMBER OF POSITIONS		4162
NUMBER OF SOUNDINGS		4162
	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	232.0	09/23/1999
VERIFICATION OF FIELD DATA	177.5	01/06/2000
QUALITY CONTROL CHECKS	0.0	
EVALUATION AND ANALYSIS	167.5	
FINAL INSPECTION	21.0	04/14/2000
COMPILATION	79.0	07/11/2000
TOTAL TIME	677.0	
ATLANTIC HYDROGRAPHIC BRANCH APPROVAL		06/05/2000

**ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H10858 (1999)**

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.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

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

Hydrographic Processing System (HPS)
MicroStation 95, version 5.05
SiteWorks, version 2.01
NADCON, version 2.10
I/RAS B, version 5.01

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

H. CONTROL STATIONS

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD 83). The smooth sheet has been annotated with ticks showing the computed mean shift between the NAD 83 and the North American Datum of 1927 (NAD 27).

To place this survey on the NAD 27 datum, move the projection lines 0.629 seconds (19.383 meters or 3.88 mm at the scale of the survey) north in latitude and 0.688 seconds (17.885 meters or 3.58 mm at the scale of the survey) east in longitude.

J. SHORELINE

Brown shoreline originates with National Ocean Service (NOS) chart 11524, (44th Edition, dated SEP 11/99), and is for orientation purposes only.

L. JUNCTIONS

H10857 (1999) to the North
H10863 (1999) to the South

Standard junctions were effected between the present survey and surveys H10857 (1999) and H10863 (1999).

Present survey depths are in harmony with the charted hydrography.

M. COMPARISON WITH PRIOR SURVEYS

Hydrographic

H9731 (1977-78) 1:5,000
H9745 (1978) 1:5,000

A comparison of prior surveys was done in the areas of the present survey not covered with 200% Side Scan Sonar. This is in accordance with section 4. of the memorandum titled *Changes to Hydrographic Survey Processing*, dated May 24, 1995. This also applies to 100% Side Scan coverage with 100% Multibeam coverage.

1. Prior survey H9731 (1977-78) covers a portion of the present survey south of the Clouter Creek Reach channel. The present survey soundings agree with the prior survey soundings plus or minus 1 to 2 feet except in the vicinities of Latitude 32°51'10"N, Longitude 79°56'52"W and Latitude 32°51'07"N, Longitude 79°56'37"W, where the present survey soundings are 12 to 15 feet shoaler than the prior survey soundings.

2. Prior survey H9745 (1978) covers a portion of the present survey south of the Clouter Creek Reach channel. Present survey soundings are from 4 to 16 feet shoaler than the prior survey soundings.

Differences between the present and prior surveys can be attributed to natural changes in the bottom configuration, cultural change, and/or improved hydrographic surveying methods.

The present survey is considered adequate to supersede the prior surveys within the common area, except as noted in this report.

O. COMPARISON WITH CHARTS 11524 (43rd Edition, Nov. 01/97)
11527 (15th Edition, Aug. 09/97)

Hydrography

The charted hydrography originates with prior surveys. Agreement between charted depths and present survey soundings is adequate except as noted:

1. Present survey soundings in the vicinity of Latitude 32°53'55"N, Longitude 79°57'25"W are generally 2 to 5 feet deeper than charted depths.

2. Present survey soundings in the vicinity of Latitude 32°51'50"N, Longitude 79°57'50"W are generally 7 to 9 feet shoaler than charted depths.

3. Present survey soundings in the vicinity of Latitude 32°50'59"N, Longitude 79°56'12"W, south of the Clouter Creek Reach channel are generally 2 to 14 feet shoaler than charted depths.

4. Present survey soundings in the vicinity of Latitude 32°51'22"N, Longitude 79°56'35"W are generally 3 to 5 feet deeper than charted depths.

5. Charted ruins in Latitude 32°51'39"N, Longitude 79°57'17"W were not investigated by the field. Fathometer and side scan sonar records indicate the existence of an unknown object that does not appear to pose a danger. It is recommended that the ruins be retained as charted.

Controlling Depths

Agreement between the channel controlling depths and present survey soundings is adequate except as noted:

1. A sounding of 41.3 feet in Latitude 32°51'17.76"N, Longitude 79°56'45.63"W conflicts with the controlling depth of 41.5 feet for the left outside quarter of the Clouter Creek Reach channel.

2. A sounding of 38.0 feet in Latitude 32°51'28.12"N, Longitude 79°57'01.00"W conflicts with the controlling depth of 38.3 feet for the right outside quarter of the Clouter Creek Reach channel.

3. A sounding of 41.6 feet in Latitude 32°51'36.78"N, Longitude 79°57'21.41"W conflicts with the controlling depth of 41.9 feet for the left inside quarter of the Navy Yard Reach channel.

4. A sounding of 31.8 feet in Latitude 32°53'52.58"N, Longitude 79°57'46.96"W conflicts with the controlling depth of 34.7 feet for the left outside quarter of the Port Terminal

Reach channel.

The present survey is adequate to supersede the charted hydrography in the common area, except as noted in this report.

P. ADEQUACY OF SURVEY

This is an adequate hydrographic survey and should supersede all prior surveys within the common area with the exception of those items noted above.

Q. AIDS TO NAVIGATION

One fixed aid and nine floating aids to navigation were located by the field unit and are shown on the present survey. These aids appear adequate to serve their intended purpose. The following should be noted:

Cooper River Light 58, Light List Number 2920, was found by this survey to be 94 meters from its charted position. The light is presently shown on NOS Chart 11524 with the notation PA. It is recommended that Cooper River Light 58 be revised and charted in the present survey location of Latitude 32°53'43.15"N, Longitude 79°57'41.96"W and that the notation PA be deleted from the chart.

S. MISCELLANEOUS

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

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

11524 (44th Edition, Sept. 11/99)

H10858

Marilyn Schlüter


Marilyn L. Schlüter

Cartographic Technician
Verification of Field Data
Evaluation and Analysis

APPROVAL SHEET
H10858

Initial Approvals:

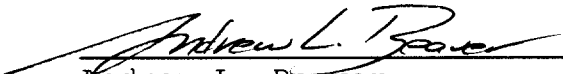
The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disproval of charted data. The digital data have been completed and all revisions and additions made to the smooth sheet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



Date: 6/5/2000

Deborah A. Bland
Cartographer,
Atlantic Hydrographic Branch

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



Date: 6/5/00

Andrew L. Beaver
Lieutenant Commander, NOAA
Chief, Atlantic Hydrographic Branch

Final Approval:

Approved: 

Date: 10/2/2000

Samuel P. De Bow, Jr.
Captain, NOAA
Chief, Hydrographic Surveys Division

