H10801

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-10-3-98

Registry No. H10801

LOCALITY

State SOUTH CAROLINA

General Locality WANDO RIVER

Sublocality RATHALL CREEK TO CAINHOY

19 98

CHIEF OF PARTY
BRIAN A. LINK

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DATE JUL 6 1999

*U.S. GOV. PRINTING OFFICE: 1967---756-980

Substitute for NOAA Form 77-28

Register No: H-10801

Hydrographic Title Sheet

Field No: AHP-10-03-98

State: South Carolina

General locality: ~~Charleston~~, Wando River

Locality: Rathall Creek to Cainhoy

Scale 1:10,000 Dates of Survey: 4/16/98-6/02/98

Instruction dated: March 19,1997 & Change No. 1 Dated April 9, 1998

Vessel: 1210

Chief of Party: Mr. Brian Limk (Acting)

Surveyed by: DBE, RWR & PMW

Soundings taken by echo sounder & leadline: Innerspace Fatho ss#188

Graphic record scaled by: RWR, DBE, PMW,

Graphic record checked by RWR, DBE, PMW.

Protracted: N/A Automated plot by: ~~Mapinfo/HP750C~~ HP DesignJet 2500 CP Plotter

Verification by: Atlantic Marine Center Atlantic Hydrographic Branch Personnel

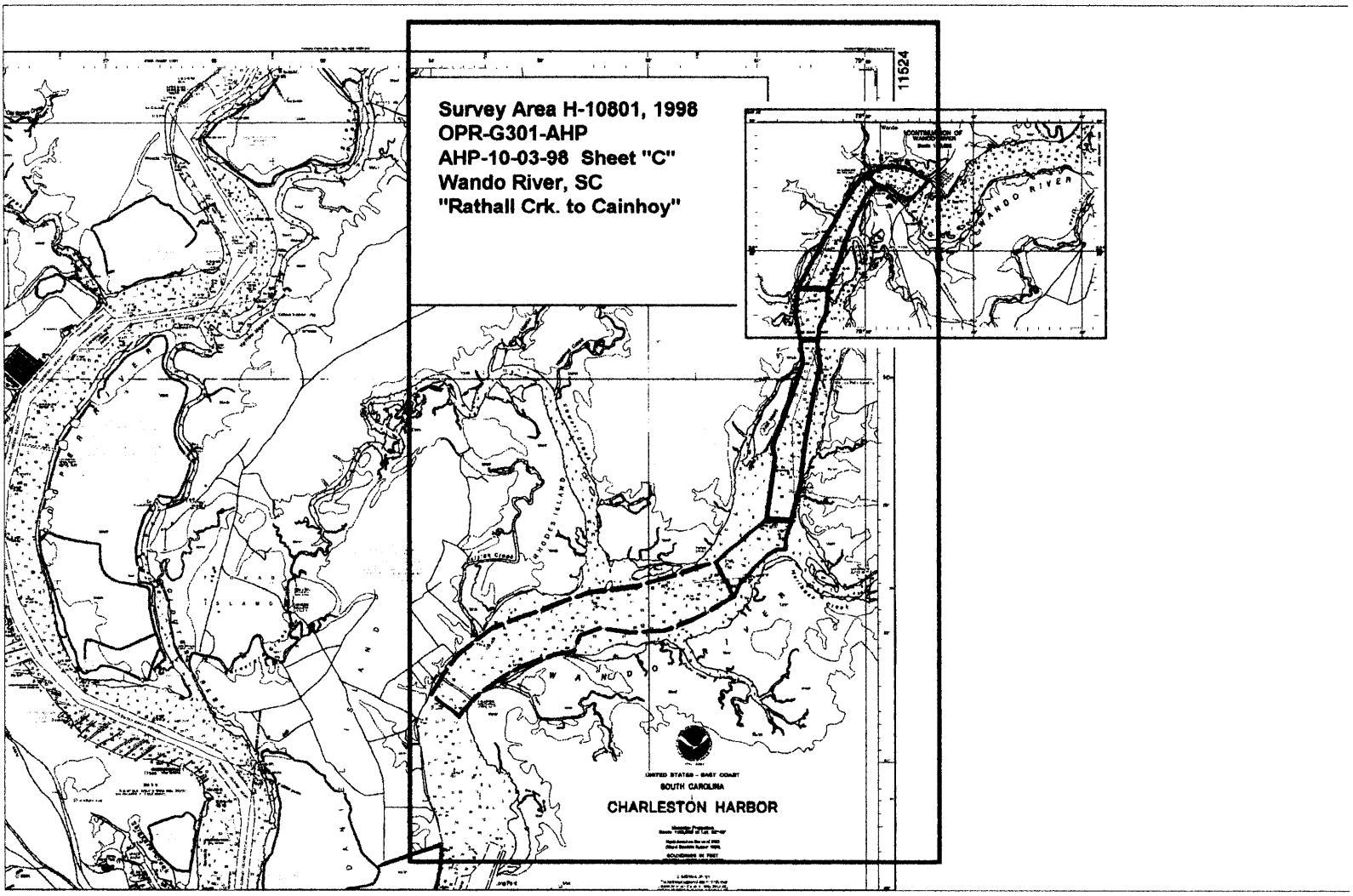
Soundings in : ~~Meters~~ Feet at MLLW

==========

Remarks: DBE = David B. Elliott
RWR = Robert W. Ramsey
PMW = Philip M. Wolf
Notes in the Descriptive Report were made in red during office processing

AWOIS/SURF 6/23/99 CJV

INDEX OF SHEETS


Survey Area H-10801, 1998
OPR-G301-AHP
AHP-10-03-98 Sheet "C"
Wando River, SC
"Rathall Crk. to Cainhoy"
11524
WANDO RIVER
CHARLESTON HARBOR
SOUTH CAROLINA

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY H-10801
OPR-G301-AHP
FIELD NO. AHP-10-3-98
SCALE: 1:10,000
1998
ATLANTIC HYDROGRAPHIC PARTY
CHIEF OF PARTY: Brian A. Link (Acting)

A. PROJECT

This survey was conducted according to Hydrographic Project Instructions OPR-G301-AHP, Charleston Harbor, South Carolina and Adjoining Waterways, dated 19 March 1997 and Change No.1, dated 9 April 1998.

The purpose of project OPR-G301-AHP is to respond to requests from the Charleston Branch Pilots Association for updated hydrography on the nautical charts of Charleston Harbor and the adjoining waterways.

B. AREA SURVEYED

The area surveyed as specified by the Project Instructions is defined as Sheet "C" and includes the Wando River from Rathall Creek to Cainhoy.

The approximate survey area limits are :

North - 32°56'48"N
South - 32°50'14"N
East - 079°49'21"W
West - 079°54'11"W

This survey was conducted from April 16,1998 (DN: 106) through June 2, 1998 (DN: 153).

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 7.1A was used for on-line data acquisition. The HPS version 8.2 programs, updated through May 29, 1998 and HP Tools version 1.72 were used for data processing. MapInfo Professional Ver. 4.5 with Vertical Mapper Ver. 1.5, were used to support processing and plot all survey data.. The NOS programs VELOCITY (Ver. 3.0) and Microsoft Word 97 (Ver. 7.0) were 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. This side scan sonar equipment was used to achieve the required 200% bottom coverage and to investigate AWOIS items using NOAA launch 1210. The system frequency used was 100 kHz. The recorder was set on 50/75/100/150-meter range scales. There were no water depths greater than 25.0 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 curve and single beam reduced line spacing was performed in 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 warranted. A total of three diver investigations were made on this survey, utilizing a Diver Hand Held sonar (DLS) as the primary targeting tool. A total of seven contacts were resolved by 10-meter reduced line spacing development . A total of 28 contacts were deemed insignificant to warrant further investigation. All areas surveyed were track line/swath area plotted to insure complete coverage. Additional detailed information can be found in the Survey Separates , section V and VI. *

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 below:

Cast No.	Table No.	Deepest * Depth(m)	Applicable DN(s)	Cast Position		Day Taken
1	1	19.6	106	32°48'48"N	079°54'42"W	105
2	2	13.9	110-112	32°51'12"N	079°53'54"W	111
3	3	15.7	117-119	32°52'30"N	079°51'06"W	118
4	4	8.7	125-127	32°54'42"N	079°50'30"W	127
5	5	10.5	132-148	32°53'48"N	079°50'30"W	133
6	6	11.0	153	32°51'42"N	079°53'30"W	153

* = 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 December 18, 1996. 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 meters 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 predicted tides from station 866-5530, Charleston, SC. The Product and Services Branch, Datums Section, N/OES231, provided predicted tides for this reference station on diskette for HPS. Correctors for four tidal zones on this survey were used as designated by the Project Instructions. The zones were numbered with the following correctors:

	Time (min.)		
	High Water	Low Water	Range Ratio
Zone #CH29	+ 24 min	+ 24 min	x1.07
Zone #CH32	+ 36 min	+ 36 min	x1.10
Zone #CH33	+ 36 min	+ 36 min	x1.14
Zone #CH34	+ 42 min	+ 42 min	x1.17

* Data filed with original field records

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

Approved tide levels were requested from the Product and Services Branch, Datums Section, N/OES231, in a letter dated July 9, 1998. A copy is appended to this report.

All tides gages required for this survey were NGWLMS gauges installed by Atlantic Hydrographic Party and Atlantic Operations Section personnel.
Approved tides and zoning were applied during office processing

H. CONTROL STATIONS See also the 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 ~~See also Evaluation Report~~

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 the Evaluation Report

There was no photogrammetric source data for this project. Survey plots were made using raster images of charts 11524, 41st ED, Feb 24/96 and 11521, 22nd ED, Jan 29/96 imported into MapInfo, Version 4.5.

* Data filed with original field records

K. CROSSLINES

A total of 5.0 linear nautical miles of crosslines were run. Crossline soundings agree with the main scheme soundings within 0.2 meter. The only exceptions were some 0.4 meter differences caused by weather influence on the tides. The application of smooth tides will create a closer agreement in sounding comparison.

L. JUNCTIONS See also the Evaluation Report

This survey junctions with the following:

Survey No.	Year	Scale	Junction Area
H-10784	1998	1:10,000	Northern edge

Junction soundings and soundings from this survey are in close agreement, with differences of 0.2 meters or less, except where noted in Section "O" of this report.

M. COMPARISON WITH PRIOR SURVEYS

See the Atlantic Hydrographic Branch's "Evaluation Report for H-10801."

N. ITEM INVESTIGATION REPORTS

There were a total of 6 AWOIS items addressed on this survey. Methods for investigating the AWOIS items were visual investigations, diver investigations, 200% Side Scan Sonar investigations and echo sounder investigations. The following AWOIS reports are supplemented by Dive reports located in the* Survey Separates, part VI, Item Investigation Data.

- AWOIS No. 7625 Obstruction 32°'52'39.62"N 079°51'26.00"W Chart:11524

This feature is charted as Platform ruins awash on BP87925--CMP-T13020 in 1972. A single pile was visually identified at the charted geographic location. A detached position (Fix No. 19) was taken alongside of the 12-inch diameter wooden pile. The pile is at 32°52'39.41"N, 079°51'26.06"W, and is exposed 1.5 meters. The Hydrographer recommends removing the charted platform and charting a pile at the survey position. Concur

- AWOIS No. 7626 Obstruction 32°52'51.02"N 079°50'50.29"W Chart: 11524

This feature is charted as an obstruction with a least depth of 10 feet at MLW on BP71577--1966 on a non-registered NOS survey. On H9409/73-76--OPR-436-HFP-73 the 10-foot depth was verified in the charted position. The current investigation for this AWOIS included 200% side

* Data filed with original field records

scan sonar and ten-meter line spacing echo sounder coverage. This charted obstruction has obviously been removed as there is no evidence of a 10-foot sounding or contact in this geographic region. There were no side scan contacts within the search radius and soundings in this area range from 16 to 20 feet at MLLW with predicted tides. The Hydrographer recommends removing the 10 ft sounding obstruction from the chart. Concur

- AWOIS No. 7627 Obstruction 32°53'09.02"N 079°50'37.59"W Chart: 11524

This feature is charted as a submerged pile on H4905/28. The item was investigated on H9409/73-76--OPR-436-HFP-73 but was deemed inadequate for disapproval. The current investigation for this AWOIS included 200% side scan sonar coverage. There were no side scan contacts within the search radius for this feature. The Hydrographer recommends removing the submerged pile from the chart. Concur

- AWOIS No. 7628 Obstruction 32°54'16.12"N 079°50'35.89"W Chart: 11524

This feature is charted as a pile on H4905/28. On CL1639/75 the charted pile was reported by a USPS observer as lying on the beach. The current investigation for this AWOIS included 200% side scan sonar coverage. There were no side scan contacts within the search radius for this feature. The Hydrographer recommends removing the pile from the chart. Concur

- AWOIS No. 7629 Obstruction 32°54'20.12"N 079°50'36.79"W Chart: 11524

This feature is charted as a pile on H4905/28. On CL1639/75 the charted pile was reported by a USPS observer as lying on the bank. The current investigation for this AWOIS included 200% side scan sonar coverage. There were no side scan contacts within the search radius for this feature. The Hydrographer recommends removing the pile from the chart. Concur

- AWOIS No. 7630 Unknown 32°54'22.62"N 079°50'39.29"W Chart: 11524

This feature is charted as a visible wreck on BP92829/74—T13020/74 photography. On CL1639/75, a USPS observer reported the wreck at the charted geographic position. This wreck was verified as existing at low tide during hydrographic operations in this region. There was no detached position taken as the item met the description and is adequately charted. The hydrographer recommends retaining the visible wreck at it's currently charted position shown above. Concur

- The submerged pile at 32°51'36.70"N, 079°53'54.50"W, AWOIS #9899 was addressed on H-10784. Delete piles

O. COMPARISON WITH THE CHART See also the Evaluation Report

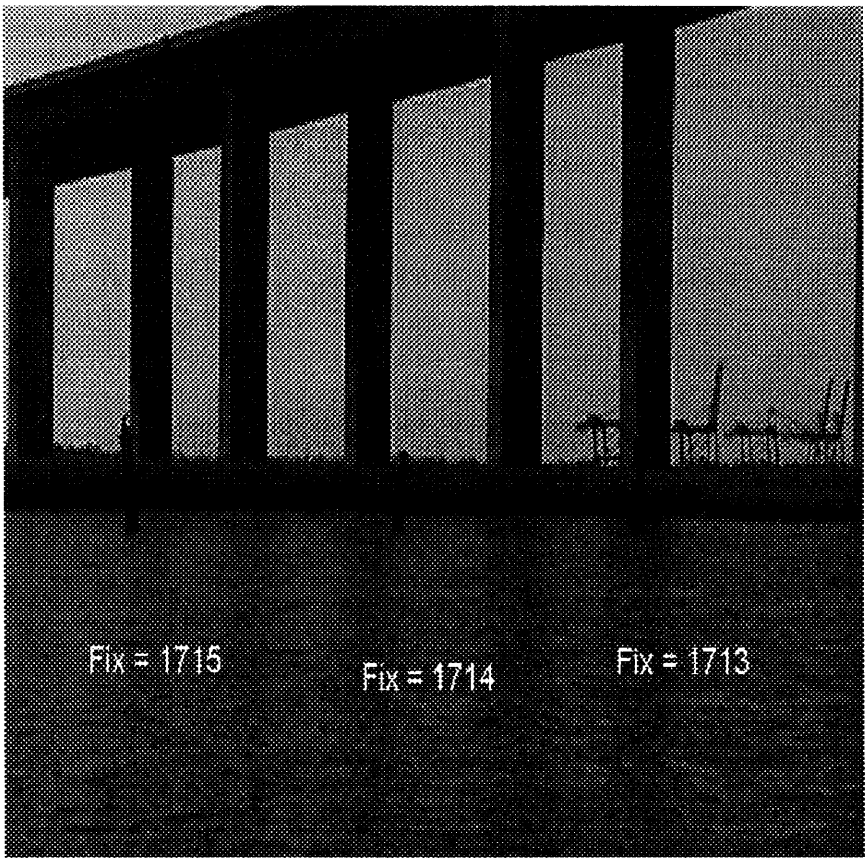
Comparison was made with the following charts:

Chart No.	Edition	Edition Date
11524	41st ED	Feb 24/96
11521	22nd ED	Jan 29/96

There was one Danger to Navigation letter submitted for H-10801. A copy can be found in the Descriptive Report Appendices.

In general the surveyed soundings show agreement with the charted soundings, although some signs of erosion and scouring of 4 to 5 feet in depths less than 30 feet were evident . All survey soundings from H-10801 should supersede those currently charted in the common area. Concur

- There were three uncharted concrete piles found at 32°51'32.24"N, 079°53'35.08"W. Detached positions were taken on these features which are parallel to shore(Fix no 1713-15). The survey position given is on the center pile. These piles should be charted. The piles are not a danger to navigation because of their proximity to shore. Concur



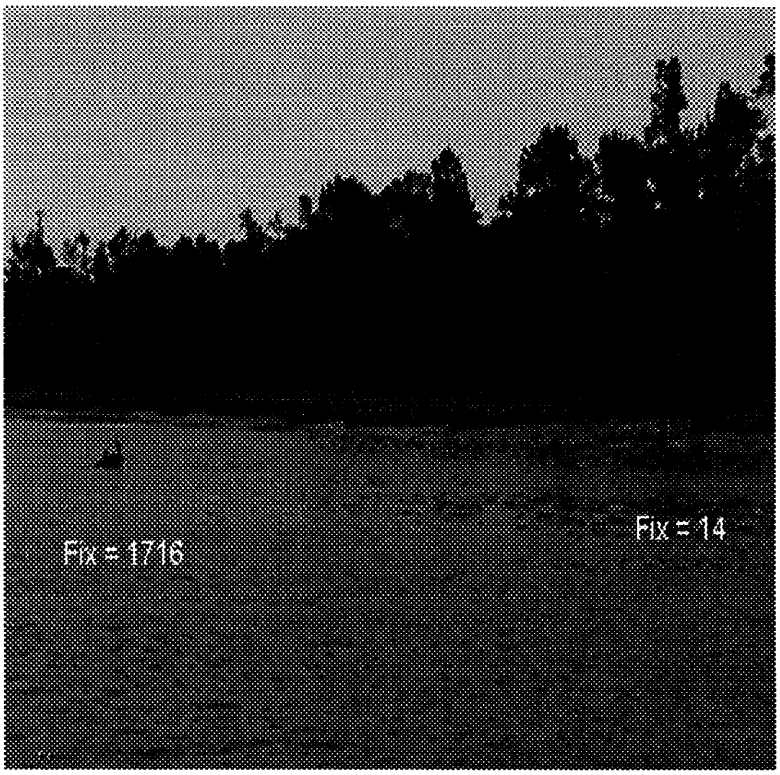
- The 18-foot contour at 32°51'54.58"N, 079°~~43~~ 53'28.16W, has receded to the north 100 meters. Concur

- The 16-foot shoal sounding charted at 32°51'59.93"N, 079°53'11.47"W, was found to be ~~18~~ 16 feet. This region was developed with ten-meter line spacing echo sounder coverage. Concur

- The 18-foot shoal sounding charted at 32°52'03.36"N, 079°52'52.60"W, was found to be ~~20~~ 19 feet. This region was developed with ten-meter line spacing echo sounder coverage. Concur

- The 18-foot contour extending from 32°51'57.14"N, 079°52'59.18"W to 32°52'08.47"N, 079°52'41.34"W, has receded southeast approximately 100 meters. Concur

- The piles charted at 32°51'51.58"N, 079°52'46.12"W, do not exist. Two piles were located east of the charted piles symbol (PN 14 & 1716). The charted piles should be deleted and the piles located by this survey should be charted at the survey position computed between the two located piles at 32°51'51.~~36~~ 52"N, 079°52'42.~~46~~ 35"W. Concur



- The 18-foot contour at 32°52'13.31"N, 079° 52'32.37"W, has receded 70 meters to the northwest. This contour now lies behind Green Daybeacon No. 17. Concur

- The 18-foot contour at 32°52'25.41"N, 079°51'30.53"W, has receded 70 meters to the east. Concur

- The 17-foot shoal sounding charted at 32°52'39.77"N, 079°50'57.09"W, was found to be ~~34~~ 36 feet. This region was developed with ten-meter line spacing echo sounder coverage. The

prior survey H-9409, 1976 shows no evidence of this sounding which should be removed from the chart. Concur

- The 17-foot shoal sounding charted at 32°52'45.23"N, 079°50'53.49"W, was found to be 21 feet. This region was developed with ten-meter line spacing echo sounder coverage. The prior survey H-9409, 1976 shows no evidence of this sounding which should be removed from the chart. Concur

- The 25-meter diameter uncovering shoal charted at 32°52'49.27"N, 079°50'43.76"W, does not exist. This area has depths of 6 feet. Concur

- The piles charted at 32°54'32.75"N, 079°50'38.82"W, do not exist and were disproved by 200% side scan sonar coverage in this area. Concur

- All moorings and pile symbols at Detyens Shipyard in the vicinity of 32°55'28.49"N, 079°49'43.20"W, exist as charted.

- The 18-foot contour at 32°55'34.26"N, 079°49'47.40"W, has receded 210 meters to the east. Concur

- The pile charted at 32°55'33.36"N, 079° 49'34.90"W, does not exist and was disproved by 200% side scan sonar coverage in this area. Concur

P. ADEQUACY OF SURVEY See also Evaluation Report

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

Q. AIDS TO NAVIGATION See also Evaluation Report

The following non-floating aids to navigation are maintained by the U. S. Coast Guard and lie within the survey area. Positions of all aids to navigation were determined by DGPS during hydrographic operations. Equipment and personnel resources were not available for obtaining third-order positions of all the non-floating navigational aids. A comparison of the positions of the fixed aids located on this survey was made with the charted positions and USCG Light List, Volume 3, 1998 positions. The results are shown in the following table:

Position No.	Name and (Light List No.)	Light List Position	Survey Position	Distance/Bearing from Charted Position
11	Green Dbn "13" LL # 3350	none	32°51'56.29"N 079°53'25.65"W	on station

12	Red Dbn "14" LL # 3355	none	32°51'45.71"N 079°53'17.59"W	on station
13	Red Dbn "16" LL # 3360	none	32°52'00.32"N 079°52'44.22"W	on station
15	Green Dbn "17" LL # 3365	none	32°52'13.83"N 079°52'32.92"W	on station
16	Green Dbn "19" LL # 3370	none	32°52'22.30"N 079°51'53.17"W	on station
17	Red Dbn "20" LL # 3375	none	32°52'18.80"N 079°51'39.18"W	on station
18	Green Dbn "21" LL # 3380	none	32°52'26.19"N 079°51'26.53"W	on station
20	Red Dbn "22" LL # 3390	none	32°52'24.34"N 079° 51'17.56"W	on station
21	Green Dbn "23" LL # 3385	none	32°52'31.06"N 079°51'14.96"W	on station
22	Front Rng "B" LL # 3395	32°52.4'N 079°51.2'W	32°52'26.96"N 079°51'08.61"W	on station
23	Rear Rng "B" LL # 3400	none	32°52'27.46"N 079°51'03.05"W	on station
24	Red Dbn "24" LL # 3405	none	32°52'44.80"N 079°50'47.70"W	on station
25	Green Dbn "25" LL # 3410	none	32°52'53.59"N 079°50'51.33"W	109m NNE
26	Rear Rng "C" LL # 3420	none	32°53'01.70"N 079°50'39.71"W	on station
27	Front Rng "C" LL # 3415	32°53.1'N 079°50.7'W	32°53'06.91"N 079°50'39.92"W	on station
28	Green Dbn "27" LL # 3425	none	32°53'14.70"N 079°50'42.32"W	on station
29	Red Dbn "28" LL # 3430	none	32°53'39.09"N 079°50'38.17"W	on station
30	Upper Rear Rng "D" LL # 3440	none	32°53'59.79"N 079°50'24.82"W	on station
31	Upper Front Rng "D" LL # 3435	32°54.1'N 079°50.5'W	32°54'04.89"N 079°50'26.62"W	on station
32	Lower Front Rng "D" LL # 3445	32°54.2'N 079°50.5'W	32°54'13.53"N 079°50'26.97"W	on station
34	Lower Rear Rng "D" LL # 3450	none	32°54'18.52"N 079°50'25.05"W	on station

35	Red Dbn "30" LL # 3455	none	32°54'21.58"N 079°50'27.77"W	on station
36	Green Dbn "29" LL # 3460	none	32°54'15.30"N 079°50'34.37"W	on station
37	Rear Rng "E" LL # 3470	none	32°54'26.65"N 079°50'40.28"W	on station
38	Front Rng "E" LL # 3465	32°54.5'N 079°50.7'W	32°54'30.59"N 079°50'38.18"W	on station
39	Green Dbn "33" LL # 3480	none	32°54'35.94"N 079°50'38.03"W	on station
40	Red Dbn "32" LL # 3475	none	32°54'36.11"N 079°50'32.56"W	on station
41	Red Dbn "34" LL # 3485	none	32°54'51.17"N 079°50'23.20"W	on station
43	Red Dbn "36" LL # 3495	none	32°55'04.81"N 079°50'15.22"W	on station
44	Green Dbn "37" LL # 3490	none	32°55'08.90"N 079°50'19.51"W	on station
45	Green Dbn "39" LL # 3500	none	32°55'31.17"N 079°50'03.62"W	on station
47	Red Dbn "40" LL # 3505	none	32°55'29.88"N 079°49'56.63"W	on station

There was one submerged cable area, one overhead power cable, and two bridges within the limits for of H-10801. All are accurately charted.

R. STATISTICS

Description	Quantity
Total Number of Positions	3744
Total Linear Nautical Miles of Hydrography	81.2
Total Linear Nautical Miles of Cross Lines	5.0
Total Linear Nautical Miles of (SSS) Hydrography	68.3
Square Nautical Miles Completed	3
Days of Production	13
Detached Positions	15
Bottom Samples	42
Velocity Casts	6

S. MISCELLANEOUS See also Evaluation Report

Bottom samples were taken as directed in Section 6.7 of the Project Instructions. Bottom sample positions and descriptions can be found on the DP editor printout appended to this report. The Oceanographic Log Sheet-M, NOAA Form 75-44, is included in the Survey Separates. Bottom samples were submitted to the Smithsonian Institution as requested in the Project Instructions.

Secchi disk observations were not acquired on this survey due to the continually poor water clarity.

No anomalous tidal currents were observed within the survey limits.

T. RECOMMENDATIONS

No additional fieldwork was identified after field processing was completed. Specific recommendations are made on the Item Investigation Reports appended, and in section O of this report.

U. REFERRAL TO REPORTS

Title	Transmittal Information
Descriptive Report for H-10784	Atlantic Hydrographic Branch N/CS331, Norfolk, VA (1998)
User Evaluation Report	Atlantic Hydrographic Branch N/CS331, Norfolk, VA (1998)
Coast Pilot Report	Atlantic Hydrographic Branch N/CS331, Norfolk, VA (1998)

Submitted by: David B. Elliott
Atlantic Hydrographic Party

III. LIST OF HORIZONTAL CONTROL STATIONS

FROM : AHP BALTIMORE PHONE NO. : 4104379932

32°47'04.84831
079°53'40.49917

Calibration Point *

E. 15507.442
N. 14935.660

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

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(919-733-3836), 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
CJ0887.The horizontal coordinates were established by classical
geodetic methods
CJ0887.and adjusted by the National Geodetic Survey in July 1986.
CJ0887
CJ0887
CJ0887.The Laplace correction was computed from DEFLEC96 derived
deflections.
CJ0887
CJ0887.The geoid height was determined by GEOID96.
CJ0887

		North	East	Units	Scale	
CJ0887;onverg.						
CJ0887;SPC SC 36 46.2	-	347,964.56	2,339,710.82	iFT	.99991188	+0
CJ0887;SPC SC 36 46.2	-	106,059.599	713,143.858	MT	.99991188	+0
CJ0887;UTM 17 35 55.0	-	3,627,957.724	603,516.213	MT	.99973213	+0

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

I. DANGER TO NAVIGATION REPORTS

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

June 11, 1998

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 Charleston Harbor, South Carolina (registry H-10801, project OPR-G301-AHP) an uncharted wreck was found, as listed below. I recommend this information be included in the Local Notice to Mariners. The positions are based on NAD 83 datum and the soundings have been reduced to Mean Lower Low Water (MLLW) using predicted tides. This feature was located using Differential GPS and was verified by diver investigation.

This information affects the following chart:

CHART NO.	EDITION	DATE
11524	42nd	Nov 09/96

DESCRIPTION	NAD 83 POSITION	DEPTH (ft)
Submerged Wreck	32°52'06.80"N 079°52'57.99"W	12

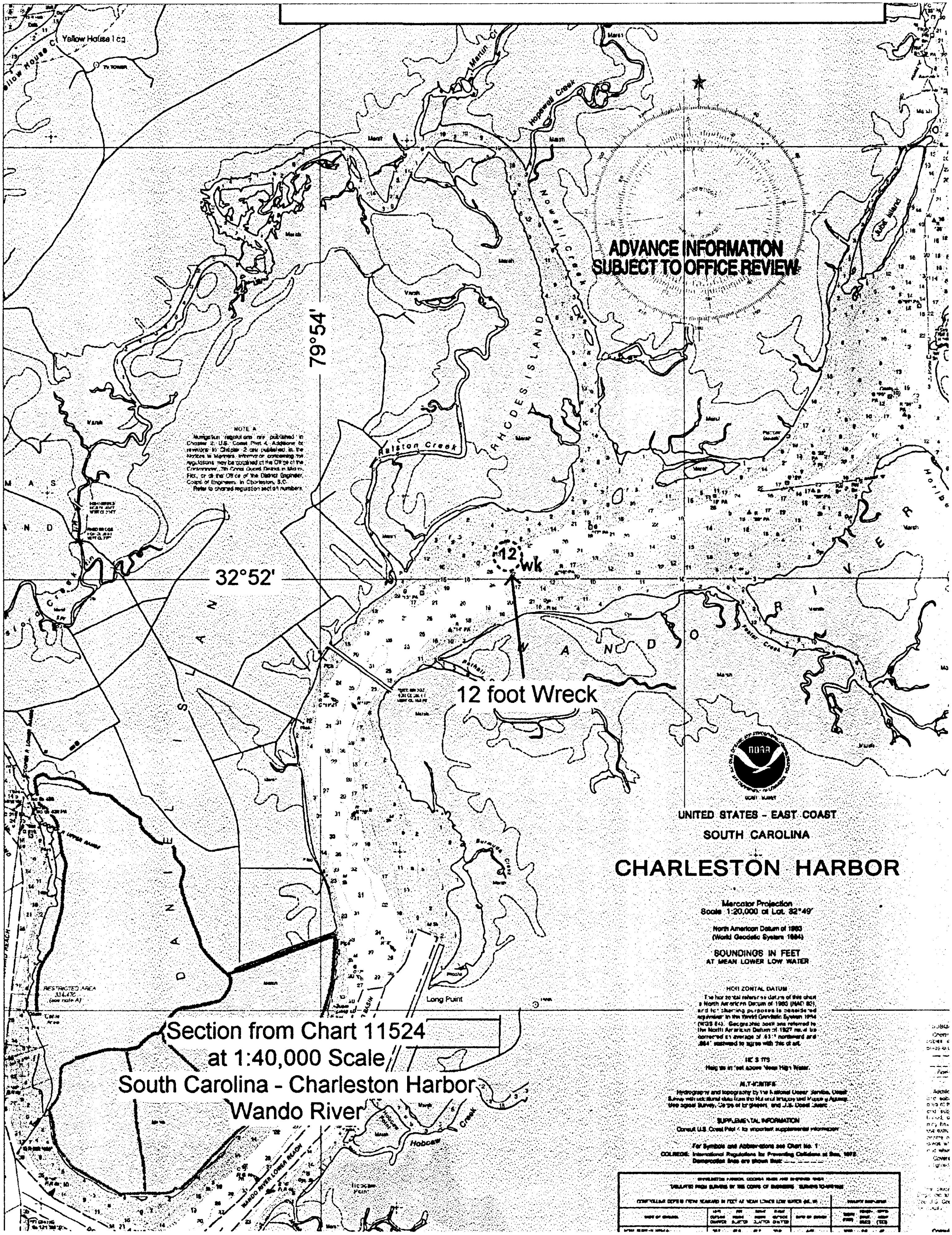
This is advance information which is subject to office review. A chart section showing the location of these dangers is attached. Questions concerning this report should be directed to me at (410) 437-9811.

Sincerely,

Brian A. Link
Chief, Atlantic Hydrographic Party

Attachment

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


ADVANCE INFORMATION
SUBJECT TO OFFICE REVIEW
79°54'
32°52'
12
wk
12 foot Wreck
Ralston Creek
RHODES ISLAND
WANDO RIVER
Long Point
Hobcaw Creek
Section from Chart 11524
at 1:40,000 Scale
South Carolina - Charleston Harbor
Wando River
UNITED STATES - EAST COAST
SOUTH CAROLINA
CHARLESTON HARBOR
Mercator Projection
Scale 1:20,000 at Lat. 32°49'
North American Datum of 1983
(World Geodetic System 1984)
SOUNDINGS IN FEET
AT MEAN LOWER LOW WATER

APPROVAL SHEET
Basic Hydrographic Survey
OPR-G301-AHP
AHP-10-3-98
H-10801
1998

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

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: February 4, 1999

HYDROGRAPHIC BRANCH: Atlantic

HYDROGRAPHIC PROJECT: OPR-G301-AHP
HYDROGRAPHIC SHEET: H-10801

LOCALITY: Charleston Harbor Wando River
Rathall Creek to Cainhoy

TIME PERIOD: April 16, 1998 - June 2, 1998

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

TIDE STATION USED: 866-4545 Cox's Pier, SC
Lat. 32° 55.6'N Lon. 79° 49.8'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.894 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: CH27, CH28, CH29, CH30, CH31, CH32, CH33 & CH34

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 with applicable zoning correctors 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.

Thomas N. Neyo 2/5/99

CHIEF, REQUIREMENTS AND ENGINEERING BRANCH

IV. GEOGRAPHIC NAMES

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10801

Name on Survey	A ON CHART NO. 11524	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	
ANNEVILLE	X									1
CAINHOY	X		X							2
CHARLESTON (title)	X		X							3
FOSTER CREEK	X		X							4
HORLBECK CREEK	X		X							5
JUBA ISLAND	X		X							6
MARTINS POINT LANDING	X		X							7
NOWELL CREEK	X		X							8
RALSTON CREEK	X		X							9
RATHALL CREEK	X		X							10
RHODES ISLAND	X									11
SOUTH CAROLINA (title)	X		X							12
WANDO RIVER	X		X							13
										14
										15
										16
										17
										18
										19
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										21
										22
										23
										24
										25

Approved

Dennis J. Romberg
Chief Cartographer

OCT 29 1998

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 61-29 (12-71)

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

REFERENCE NO.
N/CS33-50-99

LETTER TRANSMITTING DATA

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

☐ ORDINARY MAIL ☐ AIR MAIL
☐ REGISTERED MAIL ☒ EXPRESS
☐ GBL *(Give number)* _____

TO:

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

DATE FORWARDED
June 18, 1999

NUMBER OF PACKAGES
ONE TUBE

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.

H10801

SOUTH CAROLINA, WANDO RIVER, RATHALL CREEK TO CAINHOY

(ONE) TUBE CONTAINING THE FOLLOWING:
1 SMOOTH SHEET FOR SURVEY H10801
1 ORIGINAL DESCRIPTIVE REPORT
2 DRAWING HISTORY FORMS (NOAA FORM #76-71)
FOR NOS CHART 11524 AND 11524 Inset
1 RECORD OF APPLICATION TO CHART FORM (NOAA FORM #75-96)
FOR SURVEY H10801
1 H-DRAWING FOR NOS CHART 11524 ON MYLAR
1 H-DRAWING FOR NOS CHART 11524 Inset ON MYLAR
3 COMPOSITE DRAWINGS FOR NOS CHART 11524
1 COMPOSITE DRAWING FOR NOS CHART 11524 Inset

FROM: *(Signature)*
ROBERT R. HILL Robert R. Hill

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

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

06/29/99

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H10801

NUMBER OF CONTROL STATIONS	2
NUMBER OF POSITIONS	3744
NUMBER OF SOUNDINGS	3744

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	71.0	09/03/98
VERIFICATION OF FIELD DATA	314.0	06/04/99
QUALITY CONTROL CHECKS	12.0	
EVALUATION AND ANALYSIS	194.5	
FINAL INSPECTION	19.0	05/14/99
COMPILATION	115.0	06/17/99
TOTAL TIME	725.5	

ATLANTIC HYDROGRAPHIC BRANCH APPROVAL 06/15/99

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H10801 (1998)

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
NADCON, version 2.10
MicroStation 95, version 5.05
Siteworks, version 2.01
I/RAS B, version 5.01

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

H. CONTROL

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD 83). Office processing of this survey is based on these values. 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, move the projection lines 0.627 seconds (19.31 meters or 1.93 mm at the scale of the survey) north in latitude, and 0.699 seconds (18.18 meters or 1.82 mm at the scale of the survey) east in longitude.

J. SHORELINE

No photogrammetric source data was available for this project. Shoreline for the present survey originates with National Ocean Service (NOS) chart 11524 (43rd Ed., Nov 1/97). The shoreline is shown in brown on the smooth sheet and is for orientation purposes only.

L. JUNCTIONS

H10784 (1998) to the south

A standard junction was effected between the present survey and survey H10784 (1998). There are no junctional surveys to the north. Present survey depths are in harmony with the charted hydrography to the north.

M. COMPARISON WITH PRIOR SURVEYS

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

The present survey is adequate to supersede the prior surveys in the common area.

O. COMPARISON WITH CHARTS 11524 (43rd Edition, Nov 1/97) 11521 (22nd Edition, Jan 29/96)

Hydrography

The charted hydrography originates with the prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in sections N. and O. of the Descriptive Report. Attention is directed to the following:

1) The following uncharted piles, were located by the present survey:

Latitude (N)	Longitude (W)
32°51'31.90"	79°53'35.44"
32°51'32.24"	79°53'35.08"
32°51'32.54"	79°53'34.69"

It is recommended that these piles be charted as shown on the present survey.

2) The charted piles, in Latitude 32°51'51.58"N, Longitude 79°52'46.12"W, originate with an unknown source and are shown on NOS chart 11524. This feature was investigated by the field unit and not found. Two piles, in Latitude 32°51'51.52"N, Longitude 79°52'42.35"W and Latitude 32°51'50.55"N, Longitude 79°52'42.38"W, were located east of the charted piles. It is recommended that the charted piles be deleted, and the two piles located be charted as shown on the present survey.

3) An uncharted dangerous sunken wreck with a least depth of 12 feet (3.7 m), in Latitude 32°52'06.80"N, Longitude 79°52'58.00"W, was located by the hydrographer. This feature was reported by the hydrographer as a danger to navigation. It is recommended that a this feature be charted as shown on the present survey.

4) The following charted dolphins originate with unknown

sources and were not addressed by the hydrographer:

Latitude (N)	Longitude (W)
32°55'28.7"	79°49'40.1"
32°55'27.4"	79°49'39.1"
32°55'26.6"	79°49'37.0"
32°55'26.7"	79°49'36.3"

An adequate disposition was not determined by the field unit for these features. No change in charting is status recommended.

The present survey is adequate to supersede the charted hydrography within the common area.

P. ADEQUACY OF SURVEY

This is an adequate hydrographic/side scan sonar survey. No additional work is recommended.

Q. AIDS TO NAVIGATION

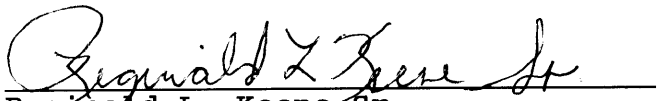
Aids to navigation located by the field unit appear adequate to serve their intended purpose.

S. MISCELLANEOUS

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

The following NOS Chart was compiled using the present survey:

11524 (43rd Edition, November 1/97).



Reginald L. Keene Sr.
Cartographic Technician
Verification of Field Data
Evaluation and Analysis

APPROVAL SHEET
H10801

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.

Robert R. Hill Jr. Date: 6-14-99

Robert R. Hill Jr.
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.

Andrew L. Beaver Date: 6/15/99

Andrew L. Beaver,
LCDR, NOAA
Chief, Atlantic Hydrographic Branch

****

Final Approval:

Approved: Samuel P. De Bow Jr. Dated: July 7, 1999

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

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H10801

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
11524	6/17/99	Robert Hill	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
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			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED