H10784

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-10-6-97

Registry No. H10784

LOCALITY

State South Carolina

General Locality Charleston Harbor

Locality Fort Sumter to Daniel Bend

1998

CHIEF OF PARTY
Brian A. Link (acting)

Substitute for NOAA Form 77-28

Register No: H-10784

Hydrographic Title Sheet

Field No: AHP-10-06-97

State: South Carolina

General locality: Charleston Harbor

Locality: Fort Sumter to Daniel Bend

Scale 1:10,000 Dates of Survey: 10/15/97-6/16/1998

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 (HEWLETT PACKARD DESIGNJET 2500 CP (AHB) (FIELD)

Verification by: Atlantic Marine Center

Soundings in : ~~Meters~~ FEET at MLLW

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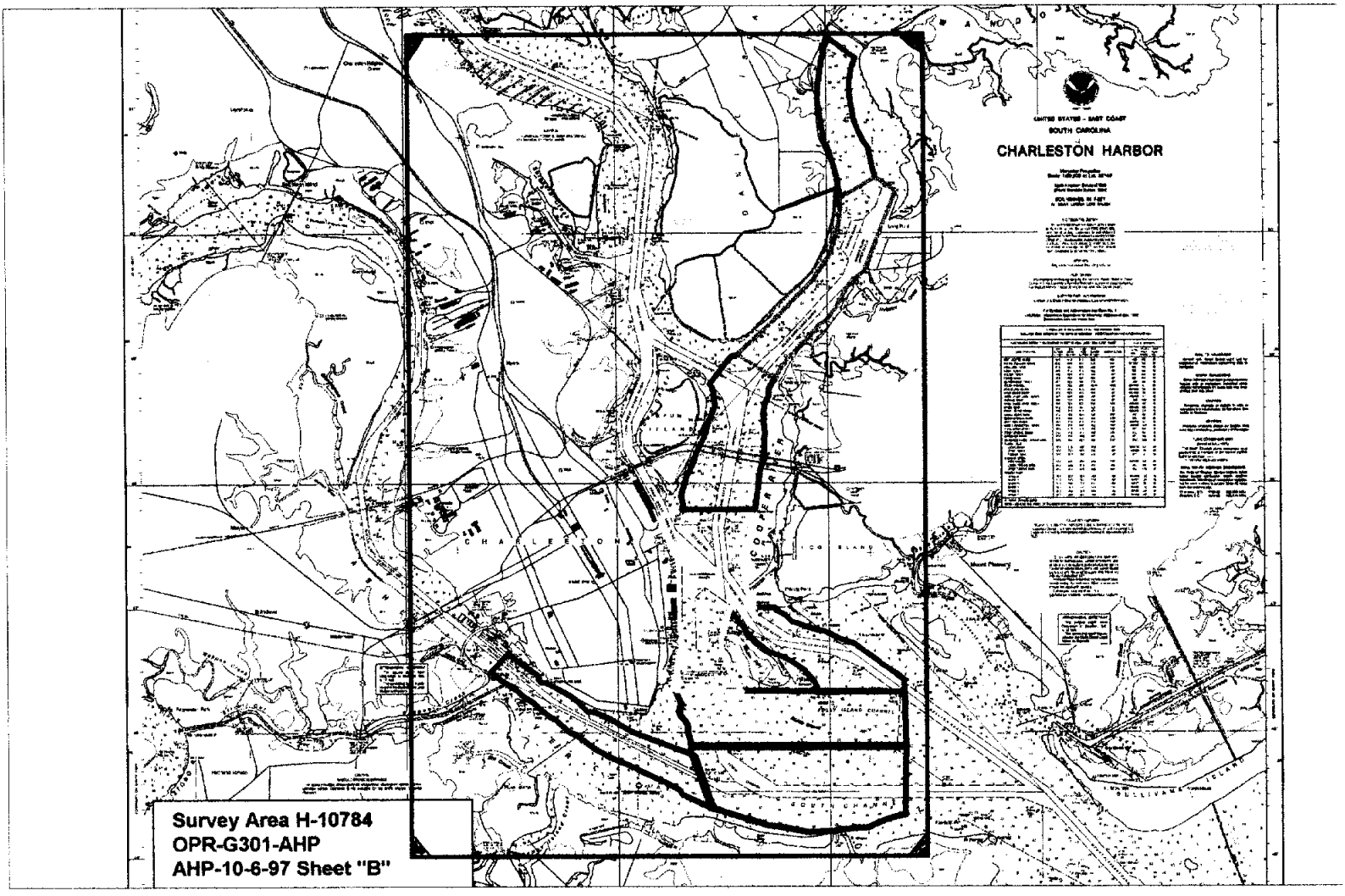
Remarks: DBE = David B. Elliott
RWR = Robert W. Ramsey
PMW = Philip M. Wolf

NOTES IN DESCRIPTIVE REPORT WERE MADE IN RED DURING OFFICE PROCESSING.


CHARLESTON HARBOR
Survey Area H-10784
OPR-G301-AHP
AHP-10-6-97 Sheet "B"

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY H-10784
OPR-G301-AHP
FIELD NO. AHP-10-6-97
SCALE: 1:10,000
1997-98
ATLANTIC HYDROGRAPHIC PARTY
CHIEF OF PARTY: Brian A. Link, NOAA (Acting)

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 and Change No. 1 dated April 9, 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 "B" and includes Charleston Harbor, South Carolina from Fort Sumter to Daniel Island Bend. The approximate survey area limits are :

32°51'38"N	
~~32°48'18"N~~	32° 45' 18" N
~~079°57'58"W~~	79° 57' 12" W
~~079°55'31"W~~	79° 52' 55" W

This survey was conducted from October 15,1997 (DN: 288) through June 16 1998 (DN: 167).

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 the Evaluation Report

HYPACK version 7.1A was used for on-line data acquisition. The HPS programs version 8.2, updated through May 29, 1998 and HP Tools version 1.72 were used for data processing.

MapInfo Professional version 4.5 with Vertical Mapper version 1.5, were used to support processing and plot all survey data.. The NOS programs VELOCITY (version 3.0) and Microsoft Word 97 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. 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 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 five diver investigations were made on this survey, utilizing a Diver Hand Held sonar (DLS) as the primary targeting tool. A total of 316 contacts were identified during H-10784, 89 of which were deemed significant and resolved by reduced line spacing and star pattern developments. All areas surveyed were track line/swath area plotted to insure complete coverage. Additional information can be found in Survey Separates, section V and VI. DATA FILED WITH ORIGINAL FIELD RECORDS

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.

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	18.2	288-295	32°47'48"N	079°55'00"W	288

2	2	16.8	307-311	32°45'42"N	079°52'54"W	308
3	3	18.0	314-315	32°45'30"N	079°52'42"W	315
4	4	19.9	321-323	32°46'04"N	079°52'48"W	322
5	5	12.2	336-338	32°46'12"N	079°56'43"W	337
6	6	18.8	342-343	32°47'13"N	079°55'06"W	343
7	7	20.2	014-015	32°46'30"N	079°53'46"W	015
8	8	18.1	022	32°48'30"N	079°54'48"W	022
9	9	20.2	029-033	32°50'06"N	079°53'36"W	029
10	10	18.3	063-065	32°47'48"N	079°54'55"W	063
11	11	19.2	075-082	32°46'00"N	079°52'56"W	077
12	12	17.6	082-085	32°46'00"N	079°53'00"W	083
13	13	18.7	092-093	32°46'36"N	079°54'00"W	092
14	14	10.5	140	32°46'36"N	079°54'00"W	133
15	15	17.8	155	32°47'24"N	079°54'54"W	155
16	16	22.1	159-162	32°48'42"N	079°54'48"W	160
17	17	17.7	167	32°48'36"N	079°54'48"W	167

* = 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. This unit was calibrated by the manufacturer 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 three tidal zones on H-10784 were used as designated by the project instructions. The zones were numbered with the following correctors:

* DATA FILED WITH ORIGINAL FIELD RECORDS

	Time (min.)		
	High Water	Low Water	Range Ratio
Zone #CH2	+ 00 min	+ 00 min	x1.00
Zone #CH3	+ 12 min	+ 12 min	x1.03
Zone #CH27	+ 18 min	+ 18 min	x1.05

All elevations and soundings on survey H-10784 are based on MLLW unless otherwise specified.

Approved tide levels were requested from the Product and Services Branch, Datums Section, N/OES23, in a letter dated July 9, 1998. A copy is appended to this report.
APPROVED TIDES AND ZONING HAVE BEEN APPLIED DURING OFFICE PROCESSING.
All tides gauges required for survey H-10784 were NGWLMS gauges installed by Atlantic Hydrographic Party and Atlantic Operations Section personnel.

H. CONTROL STATIONS

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 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 imported into MapInfo, Version 4.5.

K. CROSSLINES

A total of 15.9 linear nautical miles of crosslines were run. Crossline soundings agree with the main scheme soundings within 0.2 meter, with the exception of some 0.5 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-10744	1997	1:10,000	Southeast
H-10801	1998	1:10,000	North

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-10784."

N. ITEM INVESTIGATION REPORTS

There were a total of 25 AWOIS items addressed for 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 that can be found in "Separates, part VI, Item Investigation Data".* DATA FILED WITH ORIGINAL FIELD RECORDS

- AWOIS No. 523 Unknown 32°48'55.13"N 079°54'25.31"W Chart:11524

Reported as a visible wreck during survey H5433A/33-34 and found covered by 4 feet at MLW on H9731/77-78. This wreck was found during side scan sonar operations. A dive was performed at this site and a detached position was taken at the center (PN 12230) of the wreck at 32°48'55.53" N, 079°54'26.21" W. A least depth of 1.1m (3.6 ft) corrected with ~~predicted~~ Approved tides

to MLLW was taken with the divers least depth gauge. The wreck is charted as covering 4 feet which agrees with this survey. The hydrographer recommends revising the charted position to the position found on this survey. CONCUR REVISE (4) WK TO (3) WK

- AWOIS No. 7593 Obstruction 32°45'13.00"N 079°53'55.50"W Chart:11524

Reported as a COE permit for an underwater intake pipe on CL814/77. The CL1245/77--COE authorizes construction of the intake. This item was found to exist as a submerged intake and is marked by a sign onshore (see figure 1). A detached position was taken at the offshore end (PN 6355). A least depth was taken by leadline of 1.1m (3.6 ft) at MLLW corrected by ~~predicted~~ Approved tides. The intake is at 32°45'11.97"N, 079°53'58.64"W and is recommended for charting. It should be noted that the intake charted on the eastern shore at Fort Johnson should remain as charted as it was visually verified as existing at low tide. CONCUR RETAIN AS CHARTED CONCUR ADD ! REVISE NOTE "INTAKE" TO "INTAKES"

There is a 16-foot sounding approximately 14 meters northeast of the center of this AWOIS, on top of a submerged rock pile at 32°45'13.22"N, 079°53'55.20"W. This feature was found during side scan sonar coverage and later developed by echo sounder star pattern. The feature has a 15-meter radius and should be charted. The hydrographer recommends removing the obstruction PA and charting a 15-foot sounding obstruction at the survey position above. CONCUR

DELETE 0 Obstn PA
ADD (15) Obstn

figure 1

- AWOIS No. 7594 Obstruction 32°45'53.63"N 079°54'17.31"W Chart:11524

Reported as numerous visible rocks at low tide by USCG ship RAMBLER on CL668/83. The danger is marked by a white and orange daybeacon. This item was found to exist while conducting side scan sonar operations. The white and orange daybeacon marking this

obstruction was found visually and a detached position (PN 85) was taken alongside. The submerged rocks are at 32°45'53.61"N, 079°54'18.97"W. The hydrographer recommends charting the obstruction at the survey position. Concur

DELETE: Subm rocks rep May 1983

ADD: Subm rocks

REVISE W OR BN PA → W OR BN

- AWOIS No. 7595 Unknown 32°46'00.63"N 079°53'41.31"W Chart:11524

Reported as a submerged barge (wreck) by the Merrit Dredging Company on LNM 3/82. This item was determined not to exist while conducting side scan sonar operations. A 300-meter radius area covered with 200% side scan sonar coverage revealed 4 significant contacts, none of which were the barge-wreck. The four contacts were later developed with echo sounder star patterns. They are small features which pose no dangers to navigation. The hydrographer recommends removing the wreck PA from the chart. Concur DELETE PA

- AWOIS No.7596 Obstruction 32°46'18.50"N 079°53'34.00"W Chart:11524

Reported as four charted submerged piles originating from T-12282/63 which were made ED by BP86378/73. BP86378/73 is the source of the western pile of this group. CL741/80—USPS states that the charted piling ED is not visible. This 300-meter radius search area was surveyed with 200% side scan sonar coverage and was found to contain four submerged contacts. The contacts did not have sonar shadows that resembled submerged pilings. Three of these were developed with a ten-meter line spaced star pattern echo sounder search. The fourth was insignificant. The result of the search investigations with regards to submerged pilings were negative. The hydrographer recommends removing the submerged piles ED from the chart. Concur

DELETE Subm piling Ed

- AWOIS No. 7599 Obstruction 32°46'07.63"N 079°55'54.81"W Chart: 11524

Reported as five submerged piles from NOAA ship Pierce on CL456/71. The piles were associated with a pier and referenced with dolphins which were removed in 1984. The piles were found visually near the charted location. A detached position was taken in the center between the piles (PN 6354) at 32°46'07.82"N, 079°55'54.62"W. The piles are exposed 1.8 (1.7) m (5.9 (5.6) ft) at MLLW corrected with ~~predicted~~ APPROVED tides. The hydrographer recommends removing the charted "Obstn rep 1971" and charting piles at the surveyed position. Concur DELETE Obstn rep (1971)

ADD 6 Piles

- AWOIS No. 7600 Unknown 32°46'09.63"N 079°56'45.52"W Chart: 11524

Reported as a submerged boiler awash on H8352/53. This item was found to exist while conducting 200% side scan sonar coverage near the charted location. The survey position is 32°46'09.63 (09.72)"N, 079°56'45.52 (45.37)"W. This position agrees with the position in the AWOIS listing, however the center of the charted wreck symbol lies approximately sixty meters to the west. The least depth found after ten-meter line spacing echo sounder coverage was ~~four~~ 3.9 (1.2m) feet corrected with ~~predicted~~ tides to MLLW. The wreck is approximately 32 meters long lying in a NNE

Approved

orientation. The hydrographer recommends removing the ~~submerged~~ SUNKEN wreck symbol from the chart and charting a ~~submerged~~ 4 ft SOUNDING IN A (1.2m) wreck at the survey position for this item. CONCUR

DELETE ~~+++~~ BOILER

ADD 4 WK

- AWOIS No. 7601 Unknown 32°46'33.63"N 079°56'50.32"W Chart: 11524

Reported as a wreck (boiler) on H8352/57 and CL421/94--USPS. A visual investigation at the charted geographic location revealed the wreck along shore as charted (figure 2). A detached position was taken alongside the wreck (PN 92) at 32°46'32.80"N, 079°56'50.90"W. The wreck is exposed 2.0m (~~6.6~~ 7.2 ft) at MLLW corrected with ~~predicted~~ APPROVED tides. The hydrographer recommends removing the wreck symbol PA and charting a wreck symbol at the survey position. CONCUR

REVISE ~~PA~~ TO ~~PA~~

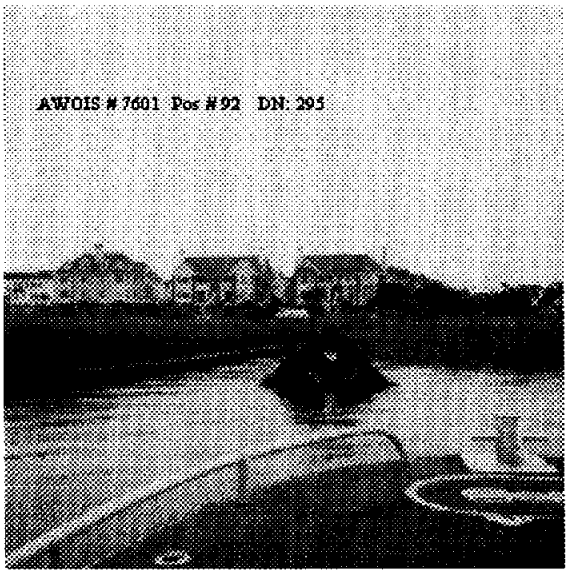


figure 2

- AWOIS No. 7602 Obstruction 32°46'43.83"N 079°55'02.91"W Chart: 11524

Reported as a obstruction on CL751/76—SP-AMC-1-AHP-76, after the U.S. Navy "MSO FEARLESS" ran aground in navigable waters. This obstruction was found during 200% side scan sonar operations. The feature is marked by red daybeacon No. 36 and is in close proximity to the charted position. It should be noted that the currently charted position for red daybeacon No. 36 is 50 meters south-southwest of this survey's position for the daybeacon. A detached position was taken at the center of the obstruction (PN 6356). A leadline least depth of 1.1 m (~~3.6~~ 3.4 ft) at MLLW corrected with ~~predicted~~ APPROVED tides was obtained. The obstruction was located at 32°46'43.86"N, 079°55'02.80"W. The hydrographer recommends charting the obstruction at the survey position. CONCUR

REVISE OBSTN TO 7 OBSTN

- AWOIS No. 7603 Unknown 32°47'26.63"N 079°55'29.31"W Chart: 11524

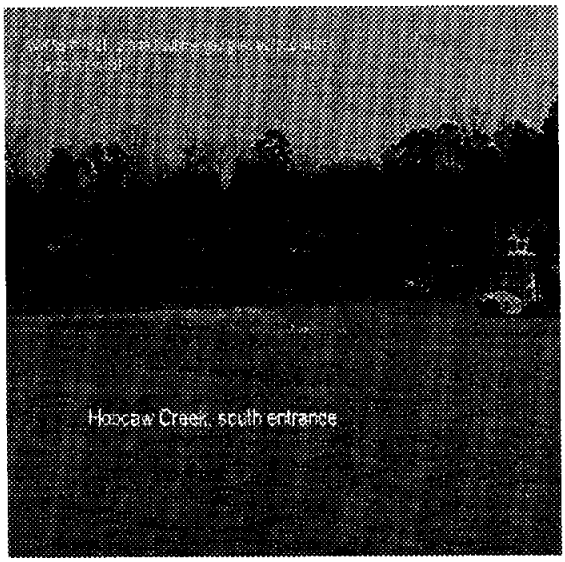
Reported as a visible wreck on BP93651—NOS Photo Revision. This feature was investigated with 200% side scan sonar coverage. The result of this investigation was negative. The hydrographer recommends removing the visible wreck symbol from the chart. The Charleston Aquarium is under construction at this site. Concur DELETE

- AWOIS No. 7605 Obstruction 32°47'42.43"N 079°55'07.31"W Chart: 11524

Reported as a obstruction on BP80374—NOS Air Photo Correction, 1969. This feature was investigated with 200% side scan sonar coverage. There were no contacts within the 100-meter search radius assigned for this item. The least depth in this region was 29 feet at 32°47'43.10"N, 079°55'08.58"W (PN 9009). The result of this investigation with regard to an obstruction was negative. The hydrographer recommends removing the obstruction from the chart. Concur DELETE OBSTN

- AWOIS No. 7621 Obstruction 32°49'25.00"N 079°53'49.50"W Chart: 11524

Reported as a permit issued by the C.O.E. for five mooring piles located in a row on CL1132/71. This feature was investigated with 200% side scan sonar coverage and by visual inspection. The result of this investigation was negative. There are five charted submerged piles in a row centered at 32°49'24.69"N, 079°53'50.08"W. These piles are portrayed extending across a marsh at Hobcaw Point (see figure 3) running southwest to northeast. These piles do not exist. The hydrographer recommends removing the submerged piles from the chart. Concur There was one pile located during this investigation at PN 12219. This pile is new and is in close proximity to a previously charted pile. The pile should be charted at 32°49'~~05.97~~ 25.02"N, 079°~~54'13.65~~ 53' 53.46"W. Concur



Delete

ADD 0 pile

figure 3

- AWOIS No. 7622 Obstruction 32°49'57.33"N 079°53'57.80"W Chart: 11524

Reported as a pile baring 3 feet at MLW on H9409/73-76 by NOS field party. A visual investigation at the charted geographic location revealed a 10-inch diameter pile, 0.1m below the water surface marked with a steel mooring drum. A detached position was taken alongside the pile (PN 87) at 32°49'55.08"N, 079°53'58.15"W. The pile is exposed 0.4m (1.3 ft) at MLLW corrected with ~~predicted~~ Approved tides. The hydrographer recommends charting a pile at the survey position. Concur w/ C/Authorization ADD o (AT SURVEY POSITION)
RETAIN o (AWOIS POSITION)
REVISE NOTATION Subm Pile to Subm Piles

- AWOIS No. 7623 Obstruction 32°50'00.63"N 079°53'55.10"W Chart: 11524

Reported as a dolphin on T5175/33. Reported as removed by observer on CL1932/68 and retained as submerged on H9409/73-76-OPR-436-HFP, as investigation was inadequate. This feature was investigated with 200% side scan sonar coverage. The result of this investigation was negative. The hydrographer recommends removing the submerged piling ED from the chart. Concur
DELETE o Subm piling Ed

- AWOIS No. 9667 Anchorage B 32°45'20.60"N 079°54'12.30"W Chart: 11524

Charted as anchorage area "B", this region was investigated with 200% side scan sonar coverage. The result of this investigation revealed three significant contacts. These three contacts were developed with ten-meter line spacing echo sounder searches. The contacts were identified as 1692.p1 (5.5 ft), 1765.p6 (3.6 ft), and 1899.p7 (3.3 ft). The hydrographer recommends charting the soundings found by these survey developments on H-10784. Concur
Results from processing of side scan records revealed contacts to be insignificant. GKH 4-26-99.

- AWOIS No. 9668 Anchorage C 32°46'09.40"N 079°54'54.90"W Chart: 11524

Charted as anchorage area "C", this region was investigated with 200% side scan sonar coverage. No contacts were found within this area. The hydrographer recommends charting representative soundings from this survey. Concur

- AWOIS No. 9669 Anchorage D 32°47'00.30"N 079°55'13.00"W Chart: 11524

Charted as anchorage area "D", this region was investigated with 200% sidescan sonar coverage. No contacts were found in this area. The hydrographer recommends charting representative soundings from this survey. Concur

- AWOIS No. 9892 Obstruction 32°46'17.10"N 079°54'04.80"W Chart: 11524

Reported as a group of four piles PA on BP121636--94 and CL1225/95--USPS as no longer visible. This group of piles was investigated with 200% side scan sonar coverage. The result of this search was negative. The hydrographer recommends removing these piles from the chart. Concur

Delete Piles PA ○

- AWOIS No. 9893 Obstruction 32°46'30.50"N 079°53'43.80"W Chart: 11524

Reported as a visible pile and transferred to chart 11524 from 11523. This area was investigated with 200% side scan sonar coverage. The result of this search was negative with the exception of the buoy anchor for Fl Green buoy 3. The hydrographer recommends removing the pile from the chart. Concur

Delete Pile ○

- AWOIS No. 9894 Obstruction 32°47'41.00"N 079°54'57.40"W Chart: 11524

Reported as submerged dolphin on BP76685—1969, NAVY. This area was investigated with 200% side scan sonar coverage. The result of this search was negative with the exception of the buoy anchor for Fl Red buoy 12. The hydrographer recommends removing the submerged dolphin from the chart. Concur

Delete ○ Subm dol

- AWOIS No. 9895 Obstruction 32°50'19.40"N 079°53'53.90"W Chart: 11524

Reported as a pipe baring 1 foot at MLW on H9409/73-76 by NOS field party. A visual investigation at the charted geographic location revealed a 12-inch diameter pipe, awash. A detached position was taken alongside the pipe (PN 86) at 32°50'19.73"N, 079°53'53.50"W. The pipe is exposed ~~1.0~~ 0.5m (~~3.3~~ 1.6ft) at MLLW corrected with ~~predicted~~ Approved tides. The hydrographer recommends charting the pipe at the survey position. Concur

REVISE visible pipe to ○ pipe awash (slanted)

- AWOIS No. 9896 Obstruction 32°50'36.70"N 079°53'58.10"W Chart: 11524

Reported as pier ruins on T-5175/33. A visual investigation at the charted geographic location revealed numerous piles in ruins (figure 4). A detached position was taken at the offshore center of the ruins (PN 88) at 32°50'36.58"N, 079°53'58.01"W. They are exposed 1.6m (5.2ft) at MLLW corrected with ~~predicted~~ Approved tides. The hydrographer recommends charting the pier ruins at the survey position. Concur

Retain as charted

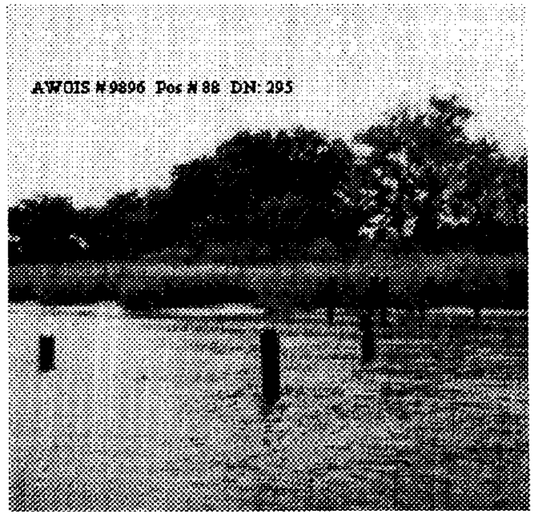
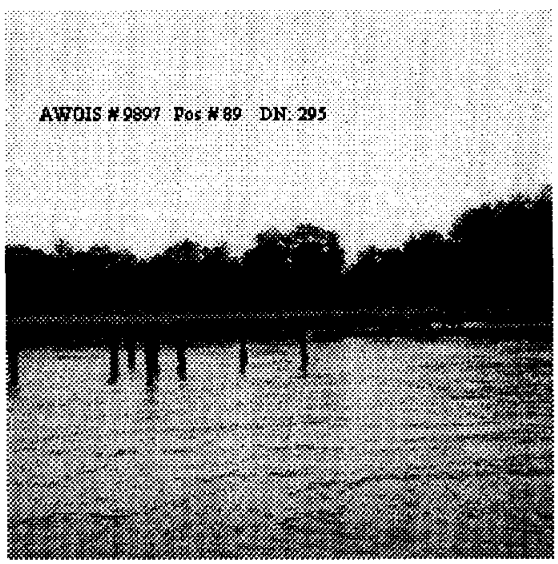


figure 4

- AWOIS No. 9897 Obstruction   32°51'19.90"N   079°54'05.70"W   Chart: 11524

Reported as pier ruins on T-5175/33, H9409/73-76—NOS field party verified the ruins. A visual investigation at the charted geographic location revealed numerous piles in ruins (figure 5). A detached position was taken at the offshore center of the ruins (PN 89) at 32°51'20.17"N, 079°54'05.56"W. The ruins are exposed 1.6m (5.2ft) at MLLW corrected with ~~predicted~~ APPROVED tides. The hydrographer recommends charting the pier ruins at the survey position.



Concur w/clarification

Delete ○

Revise vertical notation Piles to Piles (submerged)

Retain \ as charted

figure 5

- AWOIS No. 9898 Obstruction 32°51'37.10"N 079°53'57.80"W Chart: 11524

Reported as pier ruins on T-5175/33, H9409/73-76—NOS field party verified the ruins. A visual investigation at the charted geographic location revealed numerous piles in ruins (figure 6). A detached position was taken at the offshore center of the ruins (PN 90) at 32°51'36.87"N, 079°53'57.66"W. The ruins are exposed 1.7m (5.6ft) at MLLW corrected with ~~predicted~~ tides. The hydrographer recommends charting pier ruins at the survey position. Approved

Concur w/ clarification

Retain

Revise vertical notation

Piles to Piles (slanted)

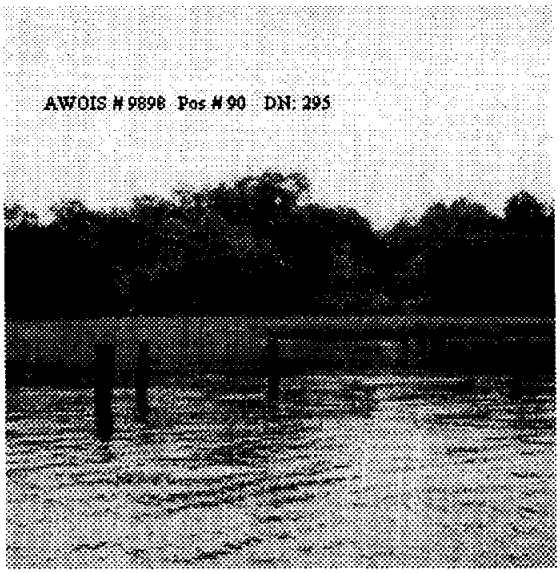


figure 6

- AWOIS No. 9899 Obstruction 32°51'36.70"N 079°53'54.50"W Chart: 11524

The CL1639/75--USPS is the source for this pile symbol, identified as piles. The charted geographic location is approximately 35 meters from the position for AWOIS No. 9898 listed above. The hydrographer believes the position for AWOIS 9899 and AWOIS 9898 to be the same feature. This area was investigated with 200% side scan sonar coverage. The result of this search was negative. The only contacts in this region were the pier ruins identified as AWOIS 9898. The hydrographer recommends removing this pile from the chart. Concur Delete

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 were no danger to navigation letters submitted with H-10784.

Ashley River

- The white/orange nun buoy charted at 32°46'35.55" N, 079°57'02.25" W, was not found during this survey. No evidence of this buoy was apparent during the 200% side scan sonar coverage in the charted vicinity of the buoy. Concur

- The dolphin charted at 32°46'36.81"N, 079°56'58.02"W exists and should remain as charted. Concur

- The ~~submerged~~ Sunken (15' JON boat) wreck PA charted at 32°46'29.66"N, 079°56'56.71"W was not found during the 200% side scan sonar coverage of the area. The wreck should be deleted from the chart. Concur Delete ~~PA~~

- The 21 foot report of ~~April 1995~~ Oct 1996 was found to be 23 feet corrected with ~~predicted~~ Approved tides at 32°46'26.44"N, 079°56'53.59"W. Concur Revise to "23FT FOR A WIDTH OF 300 FT JUNE 1998"

- The 14 foot report of ~~April 1995~~ Oct 1996 was found to be 15 feet corrected for ~~predicted~~ Approved tides at 32°45'~~36.98~~ 58.0"N, 079°~~55'10.02~~ 56'00"W. Concur Revise to "15FT FOR A WIDTH OF 300FT JUNE 1998"

- The pile PA charted at 32°46'30.66" N, 079°56'53.16"W was not found during the 200% side scan sonar coverage of the area. The pile should be deleted from the chart. Concur Delete 0 Pile PA

- The two dolphins charted at the USCG base at 32°46'26.62"N, 079°56'43.39"W, and 32°46'25.67"N, 079°56'44.20"W were found to exist at their charted locations. Concur Retain as charted

- The sign charted at 32°46'25.30"N, 079°57'08.47"W, was found to exist at the charted location. Concur Retain as charted

- The pier charted at 32°46'08.64"N, 079°55'57.22"W, was not found. Concur The obstruction identified as AWOIS 7599 in close proximity does exist and was positioned. See section N. Item Investigation Reports. Delete 1

- The white/orange daybeacon charted at 32°46'03.54"N, 079°55'40.17"W, was found at the charted location. Concur

Charleston Harbor, South Channel

- The pile charted at 32°45'18.48"N, 079°54'51.26"W, was found at the charted location. Retain as charted

- The three pilings charted at 32°45'15.90"N, 079°54'45.97"W, were found at the charted location. Retain as charted

- The ~~submerged~~ Sunken wreck PA charted at 32°45'22.17"N, 079°53'09.03"W, was not found during the 200% side scan sonar coverage in the area. The wreck should be deleted from the chart. Concur

Delete PA ~~PA~~

Middle Grounds

- The 5-foot sounding charted at 32°45'58.20"N, 079°54'15.00"W, was not found. The shoalest sounding in this area was 7 feet. Concur

Charleston Harbor

- The three piles charted at 32°46'38.16"N, 079°55'25.53"W, were found at the charted location. Concur Retain as charted
- The dolphin charted at 32°46'49.23"N, 079°55'25.36"W, was found at the charted location. Concur Retain as Charted
- The pile charted at 32°47'18.22"N, 079°55'26.52"W, was found at the charted location. concur Retain as charted
- Red daybeacon 36 was found 50 meters north-northwest of it's charted position. This daybeacon is marking a charted obstruction (AWOIS # 7602). Concur
- The pile charted at 32°47'26.84"N, 079°55'29.22"W, was not found during 200% side scan sonar coverage in the area* This feature is in close proximity to AWOIS # 7603 which also does not exist. See section N. Item Investigation Reports. * concur Delete ○
- The two dolphins charted at of 32°47'30.67"N, 079°55'30.44"W, were found at the charted location. Concur Retain as charted
- The "36 foot July 1995" report charted at 32°47'34.88"N, 079°55'17.30"W was found to be 42 to 47 feet throughout this region. Delete the 36 ft July 1995 note and chart representative soundings in this area. Do Not Concur Depths w/approved tides are 36-48 FT Revise to "36 FT JUNE 1998"
- The 18 foot sounding charted at 32°46'03.00"N, 079°55'13.20"W, was not found. The shoalest sounding in this region was 22 foot. Concur
- The two piles charted at 32°46'27.84"N, 079°54'17.76"W, were found at the charted location. concur Retain as charted
- The ~~submerged~~ pile charted at 32°46'51.16"N, 079°54'13.56"W, was not found during the 200% side scan sonar coverage in this area. The ~~submerged~~ pile should be deleted from the chart. Do Not Concur - insufficient Side Scan coverage Revise vertical datum Pile to charted Pile ○
- The marker charted at 32°46'13.86"N, 079°53'58.67"W, was not found during the 200% side scan sonar coverage in this area. The marker should be deleted from the chart. concur Delete MARKER ⊙

- The submerged pile charted at 32°47'01.31"N, 079°54'34.25"W, was not investigated due to it's location inside of an active spoil area. It should be noted that approximately 200 meters south-southwest of the pile's position are numerous contacts which lie just outside of the southern limit of the spoil area. The spoil area limits should be enlarged to encompass these contacts. Concur * Retain Subm pile o

- The 9-foot sounding charted at 32°47'45.70"N, 079°55'22.50"W, was not found. The shoalest sounding in this region is 16 15 foot. Representative survey soundings should be charted in this area. Concur

- The 18-foot sounding charted at 32°47'45.10"N, 079°54'52.50"W, was found NOT to exist. Concur

- The 18-foot contour at 32°47'37.10"N, 079°54'46.20"W, has moved westerly towards the channel approximately 150 meters. Concur

Wando River

- The two rocks charted at 32°50'15.90"N, 079°53'54.06"W, were found to exist and visually verified at low tide at their charted location. Retain as charted

- The piles charted at 32°50'41.27"N, 079°54'01.16"W, were found to exist at the charted location. These piles were visually identified at low tide. Retain as charted

- The charted 17-foot sounding at the Wando Terminal Turning Basin at 32°49'52.70"N, 079°53'54.80"W, was found 40 meters west of it's charted location. Concur

- The survey soundings in the vicinity of 32°50'17.20"N, 079°53'46.50"W, at the center of the Wando River are 5 to 6 foot deeper than currently charted. Concur

- The survey soundings along the left center of the Wando River from of 32°50'27.50"N, 079°53'51.30"W to 32°50'45.00"N, 079°53'55.70"W are 12 to 20 foot deeper than currently charted. This region was dredged prior to sounding acquisition on H-10784. Concur

- The 18-foot shoal sounding charted at 32°51'12.10"N, 079°53'57.80"W, was not found. The shoalest sounding in this region was 21 30 foot. Representative survey soundings should be charted in this area. Concur

In general the surveyed soundings show agreement within 0.2 - 0.5m when compared to the charted soundings, however, some signs of erosion and scouring of 4 to 5 feet in charted water less than 30 feet deep was evident. All soundings from H-10784 should supersede those currently charted in the common area. Concur

There are numerous field edit notes located on the MapInfo raster image plot submitted with H-10784. This plot also contains all detached positions, significant and non-significant contacts, and bottom samples. These notes are intended to aid the verifier during compilation with features

that are outside of the survey limits. Any features that have no remark were inaccessible by the survey launch.

P. ADEQUACY OF SURVEY

SEE ALSO THE 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 THE 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. 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, 1996 positions. The results are shown in the following table:

Position No.	Name and (Light List No.)	Light List Position	Survey Position	Chart: 11524 (Source) Distance/Bearing from Charted Position
44	Fl Red Lt. "4" LL # 2515	None	32°46'42.78"N 079°53'45.26"W	40m NNE
47	Range C Front Rng Lt LL # 2545	32°46.6N 079°54.5W	32°46'36.77"N 079°54'30.30"W	On Station
62	Range A Front Rng Lt LL # 3290 (Wando River)	32°48.4N 079°55.1W	32°48'26.81"N 079°55'08.65"W	On Station
63	Range A Rear Rng Lt. LL # 3295 (Wando River)	None	32°48'23.43"N 079°55'12.48"W	On Station
71	Fl Green Lt. "9" LL # 2555	32°46.9N 079°54.9W	32°46'57.45"N 079°54'56.20"W	On Station
72	Range D Front Rng. Lt. LL # 2580	32°46.9N 079°55.0W	32°46'54.11"N 079°54'58.28"W	10m SSW
73	Red Daybeacon "36" LL # 2685	None	32°46'43.96"N 079°55'03.16"W	50m NNW
76	Degaussing Rng. East Platform Lt. Fl R LL # 2665	32°46.5N 079°55.1W	32°46'28.32"N 079°55'02.32"W	70m E
77	Degaussing Rng. West Platform Lt. Fl G LL # 2670	None	32°46'28.09"N 079°55'21.86"W	On Station
78	Green Daybeacon "33" LL # 2660	None	32°46'11.38"N 079°55'22.33"W	30m S

82	Fl Green Lt. "3" Ashley River LL # 3590	32°46.2N 079°56.7N	32°46'12.19"N 079°56'41.25"W	10m S
84	Approach Rng. Front Lt. Ashley River Fl R LL # 3570	32°46.4N 079°57.1W	32°46'25.95"N 079°57'05.24"W	30m WNW
85	Ripley Daybeacon W/O "Danger DBN LL # 2645 (AWOIS 7594)	32°45.9N 079°54.3W	32°45'53.61"N 079°54'18.97"W	40m S

R. STATISTICS

Description	Quantity
Total Number of Positions	15115
Total Linear Nautical Miles of Hydrography	317.2
Total Linear Nautical Miles of Cross Lines	15.9
Total Linear Nautical Miles of (SSS) Hydrography	239.0
Square Nautical Completed	6
Days of Production	41
Detached Positions	61
Bottom Samples	42
Velocity Casts	17

S. MISCELLANEOUS SEE ALSO THE 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.

There were Dredging Operations ongoing during H-10784 between April 3, 1998 (DN 093) and June 4,1998 (DN 155). This accounts for the time lapse of sounding data on H-10784 as dredging halted the towing of side scan operations. The dredging took place at the Highway 17 Charleston Bridges and the Wando River Port Terminal. Launch 1210 returned to these areas and resumed survey operations upon completion of the dredging. There were dredge pipes on the east side of Drum Island that were marked with floats and these features were annotated on the side scan records. No investigations were conducted in these areas as the dredging company will remove these pipes prior to leaving the area, as per conversation with the American Dredging Company.

The soundings from February 2, 1998 (DN 033) were not smooth plotted (NSP) due to the aforementioned dredging activity. The contacts and swath plots from this region were plotted.

* DATA FILED WITH ORIGINAL FIELD RECORDS

The sounding coverage for the NSP data was rerun on June 9, 1998 (DN 160) to insure agreement after dredging operations were completed.

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.

There are no submerged pipelines or cable crossings noted within the limits of H-10784. Do Not Concur

Charted Cable Areas: 32/47/47 79/55/35; 32/47/47 79/54/58; 32/46/29 79/55/30; 32/46/18 79/55/12; 32/46/18 79/54/51

Sewer Outfall: 32/46/02 79/56/18; 32/45/41 79/56/53

T. RECOMMENDATIONS

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

U. REFERRAL TO REPORTS

Title	Transmittal Information
Descriptive Report for H-10744	Atlantic Hydrographic Branch N/CS331, Norfolk, VA (1997)
Descriptive Report for H-10801	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

APPROVAL SHEET
Basic Hydrographic Survey
OPR-G301-AHP
AHP-10-6-98
H-10784
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 (acting)

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: December 9, 1998

HYDROGRAPHIC BRANCH: Atlantic

HYDROGRAPHIC PROJECT: OPR-G301-AHP
HYDROGRAPHIC SHEET: H-10784

LOCALITY: Charleston Harbor, SC
Fort Sumter To Daniel Island Bend

TIME PERIOD: October 15, 1997 - June 16, 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

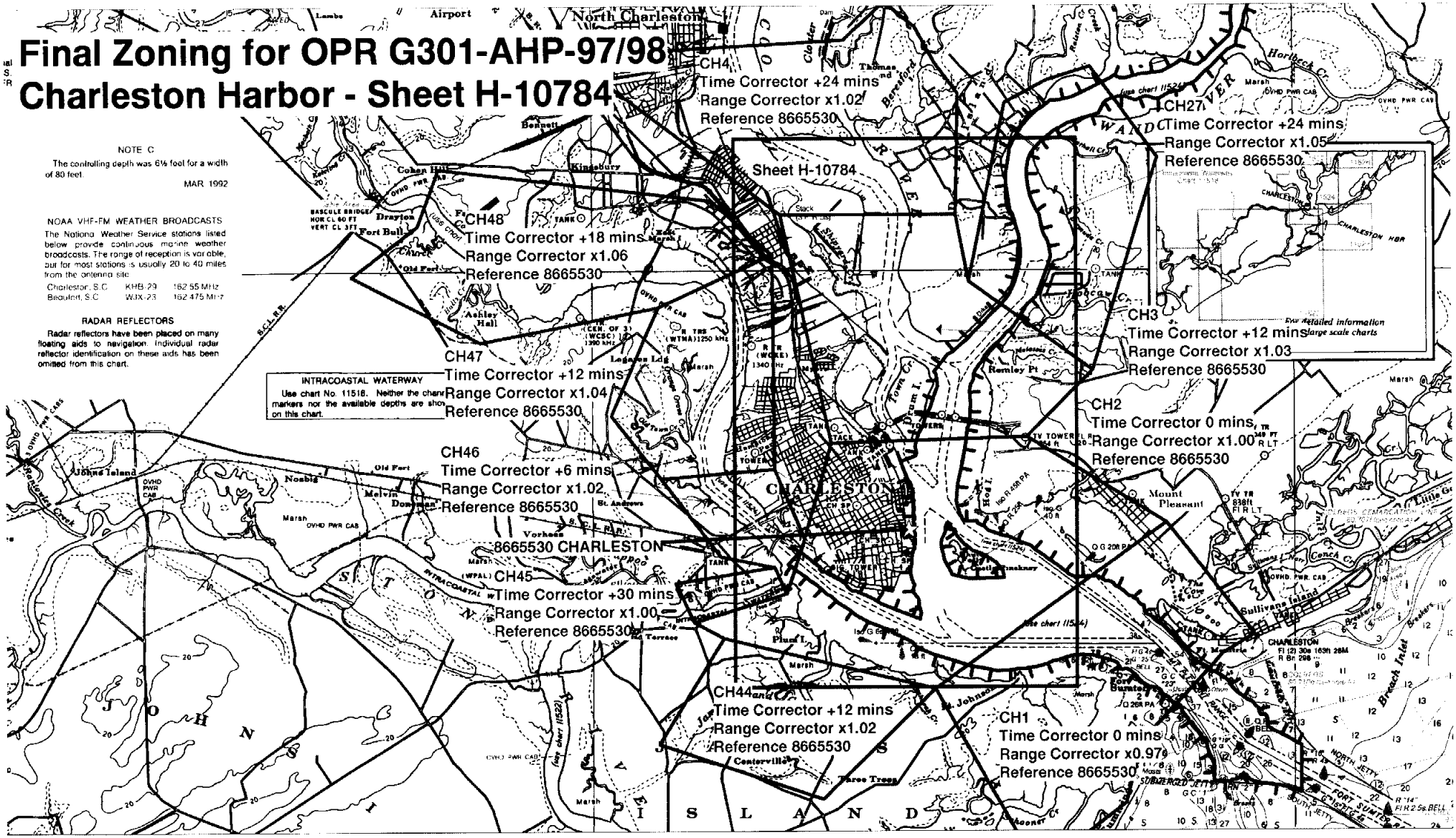
REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: CH1, CH2, CH3, CH4, CH27, CH44, CH45, CH46, CH47, CH48.

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.

Thomas N. Meo 12/10/98
CHIEF, REQUIREMENTS AND ENGINEERING BRANCH

Final Zoning for OPR G301-AHP-97/98
Charleston Harbor - Sheet H-10784



Final tide zone node point locations for OPR-G301-AHP-97/98, Sheet H-10784.

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 CH1			
-79.863602 32.78283	866-5530	0	0.97
-79.918673 32.749685			
-79.89418 32.713162			
-79.873213 32.726721			
-79.869683 32.738817			
-79.850308 32.756599			
-79.842902 32.760377			
-79.863602 32.78283			
Zone CH2			
-79.943274 32.798847	866-5530	0	1.00
-79.896761 32.800035			
-79.863602 32.78283			
-79.918673 32.749685			
-79.968909 32.759851			
-79.975967 32.763007			
-79.9539 32.768706			
-79.949669 32.77966			
-79.943274 32.798847			
Zone CH3			
-79.943274 32.798847	866-5530	+12	1.03
-79.95518 32.844445			
-79.913553 32.844445			
-79.910526 32.831105			
-79.881009 32.81332			
-79.896761 32.800035			
-79.943274 32.798847			
Zone CH4			
-79.95518 32.844445	866-5530	+24	1.02
-79.996049 32.870488			
-79.993778 32.87684			
-79.940043 32.879381			
-79.930204 32.887003			
-79.923116 32.882034			
-79.91834 32.874741			

-79.912906 32.868645
-79.913553 32.844445
-79.95518 32.844445

Zone CH27

-79.910526 32.831105	866-5530	+24	1.05
-79.901834 32.866775			
-79.891811 32.871204			
-79.881331 32.87395			
-79.865514 32.855804			
-79.881009 32.81332			
-79.910526 32.831105			

Zone CH44

-79.968909 32.759851	866-5530	+12	1.02
-79.984273 32.738641			
-79.945246 32.727598			
-79.918673 32.749685			
-79.968909 32.759851			

Zone CH45

-79.9539 32.768706	866-5530	+30	1.00
-79.975967 32.763007			
-79.980365 32.77083			
-79.95684 32.774015			
-79.9539 32.768706			

Zone CH46

-79.9539 32.768706	866-5530	+6	1.02
-79.95684 32.774015			
-79.969599 32.776142			
-79.983783 32.791768			
-79.95678 32.793622			
-79.949669 32.77966			
-79.9539 32.768706			

Zone CH47

-79.983783 32.791768	866-5530	+12	1.04
-79.95678 32.793622			
-79.957215 32.836445			
-79.984449 32.825997			
-79.995545 32.804404			
-79.983783 32.791768			

Zone CH48

-79.984449 32.825997	866-5530	+18	1.06
-80.026591 32.819019			
-80.057326 32.832182			
-80.041518 32.842378			
-80.036468 32.853686			
-79.971662 32.847272			
-79.957215 32.836445			
-79.984449 32.825997			

NOAA FORM 76-155
(11-72)

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

SURVEY NUMBER

H-10784

GEOGRAPHIC NAMES

Page 1 0f 2

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	
ASHLEY RIVER	X		X							1
BATTERY	X									2
BERMUDA CREEK	X		X							3
CASTLE PINCKNEY	X		X							4
CHARLESTON	X		X							5
COOPER RIVER	X		X							6
CRAB BANK	X									7
DANIEL ISLAND	X		X							8
DILL CREEK	X		X							9
DRUM ISLAND	X		X							10
FOLLY ISLAND CHANNEL	X		X							11
FORT JOHNSON	X		X							12
HOBCAW CREEK	X		X							13
HOBCAW POINT	X		X							14
HOBCAW POINT (ppl)	X		X							15
HOG ISLAND	X									16
JAMES ISLAND	X		X							17
JAMES ISLAND CREEK	X		X							18
KUSHIWAH CREEK	X		X							19
LONG POINT	X									20
MIDDLE GROUND	X									21
MOLASSAS CREEK	X		X							22
PATROITS POINT	X		X							23
PLUM ISLAND	X		X							24
POTTS SHOAL	X		X							25

Approved

Chief Geographer SEP 28 1988

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10784

Page 2 of 2

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	
RATHALL CREEK	X		X							1
REMLEY POINT	X		X							2
SHUTES FOLLY ISLAND	X		X							3
WANDO RIVER	X		X							4
WAPPOO CREEK	X		X							5
										6
										7
										8
										9
										10
										11
										12
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										24
										25

[redacted]
Chief Cartographer

SEP 28 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/CS 33-27-99

LETTER TRANSMITTING DATA

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

☐ ORDINARY MAIL ☐ AIR MAIL

☐ REGISTERED MAIL ☒ EXPRESS

☐ GBL *(Give number)* _____

TO:

NOAA / National Ocean Service
Chief, Data Control Group, N/CS3x1
SSMC3, Station 6815
1315 East-West Hwy.
Silver Spring, MD 20910-3282

DATE FORWARDED

4-8-99

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.

H10784 OPR-G301-AHP-97

South Carolina
Charleston Harbor

1 Descriptive Report
1 Drawing History form 76-71 for NOS Charts 11524

1 Smooth Sheet

1 Mylar H-Drawing for NOS Chart 11524
2 Paper Composite Plots for NOS Chart 11524

FROM: *(Signature)* Maxine Fetterly

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

Maxine Fetterly
Atlantic Hydrographic Branch
439 W. York St.
Norfolk, VA 23510

NOAA FORM 61-29 SUPERSEDES FORM C & GS 413 WHICH MAY BE USED.

04/07/99

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H10784

NUMBER OF CONTROL STATIONS	2
NUMBER OF POSITIONS	15115
NUMBER OF SOUNDINGS	15115

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	21	08/18/98
VERIFICATION OF FIELD DATA	116	03/30/99
EVALUATION AND ANALYSIS	22	
FINAL INSPECTION	52.50	01/27/99
COMPILATION	165.50	04/06/99
TOTAL TIME	426	

ATLANTIC HYDROGRAPHIC BRANCH APPROVAL 02/11/99

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H10784 (1997)

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 STATIONS

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 0.634 seconds (19.523 meters or 1.95 mm at the scale of the survey) north in latitude, and 0.686 seconds (17.849 meters or 1.78 mm at the scale of the survey) east in longitude.

J. SHORELINE

Brown shoreline shown on the present survey originates with National Ocean Service (NOS) chart 11524, (43rd Edition, Nov. 1/97), and is for orientation purposes only.

L. JUNCTIONS

H10744 (1997) to the southeast
H10801 (1998) to the north

A standard junction could not be effected between the present survey and H10744 (1997). The junctional survey is archived at NOS headquarters, Silver Spring, Maryland. Any adjustments to the depth curves in the junctional areas will have to be made on the chart during compilation.

A standard junction could not be effected between the present survey and H10801 (1998). This survey has not reached a stage in office processing for comparison. The junction between the present survey and H10801 (1998) will be addressed in the Evaluation report for H10801 (1998).

There are no junctional surveys to the west. Present survey depths are in harmony with the charted hydrography to the west.

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.

O. COMPARISON WITH CHART 11521 (22ND EDITION, JAN 29/96) 11524 (41ST EDITION, FEB 24/96)

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 charted features originate with miscellaneous sources and were neither verified nor disproved by the field unit. The following revisions to the chart are

recommended:

Feature	Latitude (N)	Longitude (W)
pile to Subm pile	32°46'12"	79°56'14"
Piles to Subm piles	32°46'21"	79°54'41"
Pile to Subm pile	32°46'29"	79°55'27"
pile to Subm pile	32°46'30"	79°55'03"
3 piles to Subm piles	32°49'22"	79°53'50"

2. A charted pier, in Latitude 32°45'13.0"N, Longitude 79°53'56.5"W, originates with Chart Letter 1245 of 1977, (CL1245/77) and is considered disproved by the field unit. It is recommended that the pier be removed from the chart.

3. The charted notation 13 ft rep 1996, in Latitude 32°45'07"N, Longitude 79°53'56"W, originates with Chart Letter 1603 of 1996 (CL1603/96). The field unit found depths from 4 to 8 feet (1^2-2^4 m) in this area. It is recommended that the notation be removed from the chart and depths be charted as shown on the present survey.

4. The following charted features originate with miscellaneous sources. These features were disproved by the field unit:

Feature	Latitude (N)	Longitude (W)
Marker	32°46'51.18"	79°54'02.69"
Marker	32°46'58.75"	79°54'14.40"
Marker	32°46'25.26"	79°54'16.63"

It is recommended that the features be removed from the chart.

5. The following charted features originate with miscellaneous sources and were verified by the field unit:

Feature	Latitude (N)	Longitude (W)
Obstn	32°48'10"	79°55'20"
dolphins	32°48'12"	79°54'51"

dolphins	32°48'14"	79°55'00"

No change in charting status is recommended.

6. A charted sunken Wk PA in Latitude 32°49'32"N, Longitude 79°53'19" W, originates with an unknown source. This feature was neither verified nor disproved by the field unit. It is recommended that the sunken Wk PA be revised to sunken Wk ED, unless subsequent information indicates otherwise.

7. The following charted features originate with miscellaneous sources and were neither verified nor disproved by the field unit:

Feature	Latitude (N)	Longitude (W)
5 Markers	32°48'15"	79°54'55"
Subm pile	32°46'14"	79°56'52"

No change in charting status is recommended.

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

CONTROLLING DEPTHS

A conflict exists with the controlling depths in the northern section of Wando River Upper Reach in the vicinity of Latitude 32°50'19"N, Longitude 79°53'24"W. The present survey shows depths from 30-35 feet (9^{1}-10^{7} m) with controlling depths of 36.8 to 38.3 feet (11^{2}-11^{7} m).

A conflict exists with the controlling depths in the Wando River Turning Basin in Latitude 32°49'57"N, Longitude 79°53'49"W. The present survey shows depths of 31-36 feet (9^{4}-11^{0} m) with the controlling depths of 32.8-37.2 feet (10^{0}-11^{3} m).

A conflict exists with a controlling depth in the Wando River Lower Reach in Latitude 32°48'56"N, Longitude

NOTE: CHANNEL TABULATION !

79°54'34"W. The present survey shows a depth of 40 feet (12² m) with the controlling depth of 41.5 feet (12⁶ m).

A conflict exists with the controlling depths in the Hog Island Reach in Latitude 32°47'45"N, Longitude 79°54'59"W. The present survey shows depths from 34-37 feet (10⁴-11³ m) with the controlling depth of 38.3 feet (11⁷ m).

A conflict exists with the controlling depth in the vicinity of Custom House Reach and Horse Reach in Latitude 32°47'12"N, Longitude 79°55'03"W. The present survey shows a depth of 42 feet (12⁸ m) with the controlling depths from 43-44 feet (13¹-13⁴ m).

A conflict exists with the controlling depth in Horse Reach in Latitude 32°46'57"N, Longitude 79°54'46"W. The present survey shows a depth of 42 feet (12⁸ m) with a controlling depth of 43 feet (13¹ m).

P. ADEQUACY OF SURVEY

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

Q. AIDS TO NAVIGATION

Twenty six floating aids, fourteen fixed aids and two private maintained aids were located by the field and are shown on the present survey. These aids 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 used for compilation of the present survey: 11524 (43rd Edition, November 1/97).

Robert Snow

Robert Snow
Cartographic Technician
Verification of Field Data
Evaluation and Analysis

APPROVAL SHEET
H10784

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 disapproval of charted data. The digital data have been completed and all revisions and additions made to the smooth sheet during survey processing have been entered in the digital data for this survey. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Date: 2/10/99

Maxine Fetterly
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: 2/11/99

Andrew L. Beaver
Lieutenant Commander
Chief, Atlantic Hydrographic Branch

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Final Approval:

Approved: Samuel P. DeBow, Jr. Date: May 7, 1999

Samuel P. DeBow, 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. H10784

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
11324	3/5/99	[illegible]	Full Part Before After Marine Center Approval Signed Via
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SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED