

H10842

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic/Side Scan Sonar

Field No. AHP-5-2-98

Registry No. H10842

LOCALITY

State South Carolina

General Locality Cooper River

Locality Grove Creek to Cote Bas

1998

CHIEF OF PARTY
Brian A. Link

LIBRARY & ARCHIVES

DATE SEP 9 1999

HYDROGRAPHIC TITLE SHEET

OPR-G301

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

FIELD NO.

H-10842

State South Carolina

General locality Cooper River

CREAK

Locality Grove ~~Ck~~ to Cote Bas

Scale 1:5,000

Date of survey 10 Sept 1998 -- 16 November 1998

dated 3-19-97

Project No. OPR-G301-AHP

Vessel 1210

Chief of party Mr. Brian Link

Surveyed by *DBE, *RWR, *PMW

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

by

Graphic record checked by *DBE, *RWR, *PMW

Protracted by N/A

Automated plot by Hewlett Packard Design Jet 2500CP (office)

Verification by ATLANTIC HYDROGRAPHIC Branch Personnel

Soundings in meters feet at MLW MLLW

REMARKS

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

* Notes in Descriptive Report were made in Red
During Office Processing.

6/25/98

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY H-10842
OPR-G301-AHP
FIELD NO. AHP-5-2-98
SCALE: 1: 5,000
1998
ATLANTIC HYDROGRAPHIC PARTY TWO
CHIEF OF PARTY: Brian A. Link

A. PROJECT

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

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

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

B. AREA SURVEYED

This area surveyed is designated as sheet "E" in the Project Instructions. The approximate survey limits are:

North - 33°01'30"N
South - 32°58'24"N
East - 079°53'35"W
West - 079°56'02"W

This survey was conducted from September 10, 1998 (DN: 253) through November 16, 1998 (DN: 320).

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. HPS version 8.2 programs updated through May 29, 1998 and HP Tools version 1.72 were used for data processing. MapInfo Professional Version 4.5 and Vertical Mapper Version 1.5, were used to support processing and plot all survey data. The NOS program VELOCITY (Ver. 3.0) was also used during this survey.

E. SONAR EQUIPMENT

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

A coverage of 200% was obtained in all the required survey areas and AWOIS items where water depth and/or hazards permitted. Side scan sonar coverage was conducted to the 12-foot depth curve and single beam reduced line spacing was performed in other areas where warranted. The towfish was deployed off the starboard quarter of the vessel, which proved very stable. Distorted images caused by strong tidal currents were seen periodically. All contacts and shadows were manually scaled and entered into a DPS contact table to determine the height off the bottom. The significant contacts were then compared by position, as well as common depth and relationship to channels to determine if diver investigations were needed. There were no diving investigations conducted. A total of 87 contacts were found during H-10842. A total of 38 contacts were addressed by reduced line spacing star pattern development. A total of 49 contacts were deemed insignificant to warrant further investigation. All areas surveyed were track line/swath line plotted to insure complete coverage. Additional information can be found in the Survey Separates* *Data filed with 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 in the following table:

<u>Cast No.</u>	<u>Table No.</u>	<u>Deepest * Depth(m)</u>	<u>Applicable DN(s)</u>	<u>Cast Position</u>		<u>Day Taken</u>
1	1	20.7	253-258	33°00'56"N	079°54'12"W	253
2	2	20.0	265-267	33°00'54"N	079°55'18"W	265
3	3	25.2	293-295	32°00'30"N	079°54'00"W	293
4	4	25.6	308	32°59'36"N	079°55'24"W	308
5	5	20.8	313-316	32°59'30"N	079°55'24"W	314
6	6	18.4	320	32°59'36"N	079°55'24"W	320

*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 January 6, 1998. Data quality assurance tests were performed after each cast. Program VELOCITY was used for computing the correctors. Corrections were applied to the sounding plot using the HPS REAPPLY program. Copies of the velocity tables and support documentation are in the Survey Separates. ✕

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

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

Field tide reduction of soundings is based on unverified actual heights from the internet (<http://www.opsd.nos.noaa.gov/ftp/pwldata.html>) from stations 866-4022, General Dynamics & 866-5530, Charleston, SC. Correctors for seven tidal zones on this survey were used as designated by the Project Instructions. The zones were exported to HPS by HPS tools and applied by DPAS tides utilities

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

Approved tide levels were requested from the Product and Services Branch, Datums Section, N/OES23, in a letter dated November 18, 1998. A copy is appended to this report. *Approved Tides and Zones were applied during office processing.*

** Data Filed with Field Records.*

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

H. CONTROL STATIONS *see also Evaluation Report.*

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

I. HYDROGRAPHIC POSITION CONTROL

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

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

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

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

J. SHORELINE *see also Evaluation Report.*

There was no photogrammetric source data for this project.

K. CROSSLINES

A total of 2.0 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.

X DATA FILED WITH FIELD RECORDS

L. JUNCTIONS *see also Evaluation Report.*

This survey junctions with the following contemporary survey:

<u>Survey No.</u>	<u>Year</u>	<u>Scale</u>	<u>Junction Area</u>
H-10856	1998	1:5,000	Southern 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 also Evaluation Report.*

See the Atlantic Hydrographic Branch's "Evaluation Report for H-10842".

N. ITEM INVESTIGATION REPORTS

There were six AWOIS items, described below, addressed on this survey.

- AWOIS 9900 - Obstruction 33°00'33.60"N 079°55'10.60"W Chart:11527

This feature is charted as a submerged obstruction, and originated as two piles. During H9681/77 a NOS field party identified the submerged piles as snags during a bottom drag investigation. The charted geographic region was covered by 200% side scan sonar. There was evidence of an obstruction within the 100-meter radius search area. The obstruction was at survey position 33°00'32.47"N, 079°55'10.50"W. After being targeted by SSS, this feature was developed with reduced star pattern line spacing development. The least depth by echo sounder was 32 ft at (9.0 m) MLLW. The hydrographer recommends removing the two charted obstructions and charting a single obstruction at the survey position above. *CONCUR*

*Chart (29) Obstr
Delete (2) Subm ObstrNS*

- AWOIS 9901 - Obstruction 33°00'53.00"N 079°54'25.30"W Chart:11527

This feature was charted as 5 of 13 pilings by CL1124/85--USPS in the vicinity of overhead power cables. One piling was targeted by SSS and later developed by reduced line spacing star patterns. The survey position was 33°00'52.97"N, 079°54'24.78"W. The least depth by echo sounder was 24 ft at MLLW. The hydrographer recommends charting a single submerged pile at the survey position above and removing the remaining submerged piles from the chart. *CONCUR w/clarification*

*Chart (21) Obstr
Delete 4 Piles PA*

- AWOIS 9902 - Obstruction 33°01'01.50"N 079°54'23.50"W Chart:11527

This feature was charted as 3 of 13 pilings by CL1124/85--USPS in the vicinity of overhead power cables. There was no evidence of these pilings during 200% side scan sonar coverage. The hydrographer recommends removing these submerged piles from the chart. *CONCUR*

Delete & Piles PA

- AWOIS 9903 - Obstruction 33°00'55.40"N 079°54'33.00"W Chart:11527

This feature was charted as 3 of 13 pilings by CL1124/85--USPS in the vicinity of overhead power cables. There was no evidence of these pilings during 200% side scan sonar coverage. The hydrographer recommends removing these submerged piles from the chart. *CONCUR*

Delete & Piles PA

- AWOIS 9904 - Obstruction 33°01'01.10"N 079°54'33.10"W Chart:11527

This feature was charted as 2 of 13 pilings by CL1124/85--USPS in the vicinity of overhead power cables. There was no evidence of these pilings during 200% side scan sonar coverage. The hydrographer recommends removing these submerged piles from the chart. *CONCUR*

Delete & Piles PA

- AWOIS 9905 - Obstruction 33°01'12.70"N 079°54'49.60"W Chart:11527

This feature ¹⁵was charted as a shoal by CL1124/85--USPS at a PA and plotted on a chart section with several one foot depths. This shoal was found to exist. The area was covered with 400% side scan sonar coverage. This region has soundings of ^{3 (c. 7m)} feet at MLLW at 33°01'09.34"N, 079°54'45.18"W. The hydrographer recommends updating the charted sounding note to reflect survey data from H-10842. *Do NOT CONCUR*

*Delete note Shl rep July 1985
Chart Soundings from present Survey*

N.1 DIVE INVESTIGATIONS

There were no dive investigations conducted on H-10842.

O. COMPARISON WITH THE CHART *See Also EVALUATION Report.*

Comparison was made with the following charts:

<u>Chart No.</u>	<u>Source Edition</u>	<u>Raster Edition</u>	<u>Edition Date</u>
11521	24 th ED	04	Dec. 13, 1997
11527	15 48 th ED	03	<i>Aug</i> Sept. 20, 1997
11524	43rd ED	03	Nov. 1, 1997

One danger to navigation report was submitted for this survey concerning an uncharted submerged obstruction located at 33°00'14.81²N, 079°54'02.49²W. The least depth by echo sounder was 17 feet at MLLW. The feature has a radius of three meters and is outside of the channel. The hydrographer recommends charting an obstruction at the survey position above. A copy of the letter sent to the USCG 7th District regarding this danger is included in the Appendix of this report. *Chart (14) Obstr*

In general the soundings from this survey agree with the charted soundings within 1³ to 3⁵ feet, although some signs of erosion and scouring were also noted. All survey soundings from H-10842 should supersede those currently charted in the common area. *Concur*

- There is an uncharted submerged gas pipeline located under the charted overhead cables. The survey position of this pipeline is from 33°00'57.79"N, 079°54'33.44"W to 33°00'54.96"N, 079°54'22.90"W. There is a sign onshore. *Concur*
- There is a second overhead power cable parallel to the currently charted cable with the same vertical clearance. The new cable is at survey position from 33°00'56.71"N, 079°54'33.04^{32.90}W to 33°00'54.91³N, 079°54'23.85³¹W. *Concur*
- The currently charted shoal at 33°00'51"N, 079°54'48"W, extending from shore, no longer exists. *Concur*
- Eighteen foot soundings, corrected by unverified tide heights, were found in an area currently charted as 17-foot at 33°00'26.19"N, 079°54'46.70"W. The hydrographer recommends retaining the 17-foot sounding. *Do not Concur, Revise using Soundings from Present Survey.*
- A new commercial ship slip was found in Mopreland at 33°00'29.92"N, 079°53'51.50"W. Detached positions were taken at the four corners which depict the inshore and offshore limits of the slip. This feature should be charted. *Concur w/ Clarification, need to consult "AS BUILT Drawings"*
- The five charted piles at 33°00'26"N, 079°53'57"W, were not found during 200% side scan sonar coverage in this area. The hydrographer recommends deleting the piles from the chart. *Concur Delete 5 Piling*
- The charted piling at 33°00'18"N, 079°53'59"W, was not found during 200% side scan sonar coverage in this area. The hydrographer recommends deleting the piling from the chart. *Concur Delete 6 Piling*
- The currently charted shoal at 32°59'41"N, 079°55'01"W, extending from shore, no longer exists. Depths from this survey should be charted in this area. *Concur*
- The currently charted shoal at 32°59'02"N, 079°55'14"W, extending from shore, has diminished in size and separated from shore, the shoalest sounding is now nine feet at 32°59'04.46"N, 079°55'18.44"W. Charted depths in this area should be revised using soundings from this survey. *Concur*
- All currently charted ranges serve their intended purpose.

P. ADEQUACY OF SURVEY *see also EVALUATION REPORT.*

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

Q. AIDS TO NAVIGATION *see also EVALUATION REPORT.*

There are 16 non-floating aids to navigation and no floating aids within the limits of H-10842, maintained by the U.S. Coast Guard. Positions of these aids were determined by DGPS during hydrographic operations and are included in the hydrographic records.

- The monitoring station light "D", LL # 3210 was found to be located at 32°59'26.01"N, 079°55'33.05"W, 46 meters southeast of the charted position. This position should be revised on the next edition of the chart. *CONCUR*
- There were three non-floating aids to navigation positioned during H-10842 that are not charted. They are listed below:

Red Daybeacon "114" LL# 3243	33°00'18.26"N, 079°54'01.30"W
Red Daybeacon "2" LL# none	33°01'07.15"N, 079°54'41.81"W
Green Daybeacon "3" LL# none	33°01'09.75"N, 079°54'59.64"W

These aids should be charted. NOAA Form 76-40 is included in the Descriptive Report Appendices. All other aids to navigation are accurately charted. *CONCUR*

R. STATISTICS

<u>Description</u>	<u>Quantity</u>
Total Number of Positions	3589
Total Linear Nautical Miles of Hydrography	6.9
Total Linear Nautical Miles of Cross Lines	2.0
Total Linear Nautical Miles of (SSS) Hydrography	70.8
Square Nautical Completed	1
Days of Production	15
Detached Positions	31
Bottom Samples	19
Velocity Casts	6

S. MISCELLANEOUS *see also Evaluation Report.*

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

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

The flood and ebb tidal currents were observed at two to three knots within the survey limits.

T. RECOMMENDATIONS

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

U. REFERRAL TO REPORTS

<u>Title</u>	<u>Transmittal Information</u>
Descriptive Report for H-10856	Atlantic Hydrographic Branch N/CS331, Norfolk, VA (1998)
User Evaluation Report	Atlantic Hydrographic Branch N/CS331, Norfolk, VA (1999)
Coast Pilot Report	Atlantic Hydrographic Branch N/CS331, Norfolk, VA (1999)

Submitted by: David B. Elliott
Atlantic Hydrographic Party

32°47'04.84831
079°53'40.49917

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

E. 15507.442
N. 14935.660

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

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

CJ0887. The North Carolina/South Carolina HARNs have been completed but, CJ0887. due to contractual restrictions, coordinates for these stations CJ0887. will NOT be published in the near future. In the interim, the CJ0887. published coordinates in North and South Carolina will not be CJ0887. consistent with the Continuously Operating Reference Stations CJ0887. (CORS). The HARN coordinates for these stations are available CJ0887. upon request. Contact Gary Thompson(919-233-3836), or Sid CJ0887. Miller(803-896-7700).

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.

	North	East	Units	Scale
CJ0887; SPC SC	- 347,964.56	2,339,710.82	IFT	0.99991188 +0
36 46.2				
CJ0887; SPC SC	- 106,059.599	713,143.658	MT	0.99991188 +0
36 46.2				
CJ0887; UTM 17	- 3,627,957.724	603,516.213	MT	0.99973213 +0
35 55.0				

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

SUPERSEDED SURVEY CONTROL

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

TO BE CHARTED
 TO BE REVISED
 TO BE DELETED

REPORTING UNIT
(Field Party, Ship or Office)

NOAA / AHP Launch 1210 S.C.

STATE

COPPER RIVER

LOCALITY

COPPER RIVER

DATE

11-19-98

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY

- HYDROGRAPHIC PARTY
 - GEODETIC PARTY
 - PHOTO FIELD PARTY
 - COMPILATION ACTIVITY
 - FINAL REVIEWER
 - QUALITY CONTROL & REVIEW GRP.
 - COAST PILOT BRANCH
- (See reverse for responsible personnel)

The following objects HAVE HAVE NOT been inspected from seaward to determine their value as landmarks.

JOB NUMBER

AHP-05-02-98

SURVEY NUMBER

H-10842

DATUM

WGS 84 (DGPS)

POSITION

LATITUDE	LONGITUDE	POSITION	
		D.M. Meters	D.P. Meters
33-00	079-54	18.269	04.302
33-01	079-54	07.153	41.810
33-01	079-54	09.758	59.646

CHARTING NAME

Rdbn "14" Light List # 3243
Rdbn "2" un-listed
Gdbn "3" un-listed

DESCRIPTION
(Record reason for deletion of landmark or aid to navigation.
Show triangulation station names, where applicable, in parentheses)

METHOD AND DATE OF LOCATION
(See instructions on reverse side)

OFFICE	FIELD
	9/10/98 DGPS
	9/10/98 DGPS
	9/10/98 DGPS

CHARTS
AFFECTED

11527
11527
11527

RESPONSIBLE PERSONNEL		ORIGINATOR
TYPE OF ACTION	NAME	<input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
OBJECTS INSPECTED FROM SEAWARD	R. W. RAMSEY JR.	FIELD ACTIVITY REPRESENTATIVE OFFICE ACTIVITY REPRESENTATIVE
EMISSIIONS DETERMINED AND/OR VERIFIED		<input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION' (Consult Photogrammetric Instructions No. 64)		
OFFICE I. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75	FIELD (Cont'd) B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982	III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75 **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.
FIELD I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection 5 - Field identified 6 - Theodolite 7 - Planetable 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75 *FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.	II. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75	



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

January 25, 1999

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

Dear Sir:

While conducting a hydrographic survey of Charleston Harbor, South Carolina (registry H-10842, project OPR-G301-AHP) an uncharted obstruction was found, as listed below. I recommend this information be included in the Local Notice to Mariners. The position is based on NAD 83 datum and the sounding has been reduced to Mean Lower Low Water (MLLW) using unverified actual tides. This feature was located using Differential GPS.

This information affects the following chart:

<u>CHART NO.</u>	<u>EDITION</u>	<u>DATE</u>
11527	15th	Aug 09/97
<u>DESCRIPTION</u>	<u>NAD 83 POSITION</u>	<u>DEPTH (ft)</u>
Submerged Obstruction	33°00'14.81"N 079°54'02.49"W	17

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

Sincerely,

Brian A. Link
Chief, Atlantic Hydrographic Party

Attachment

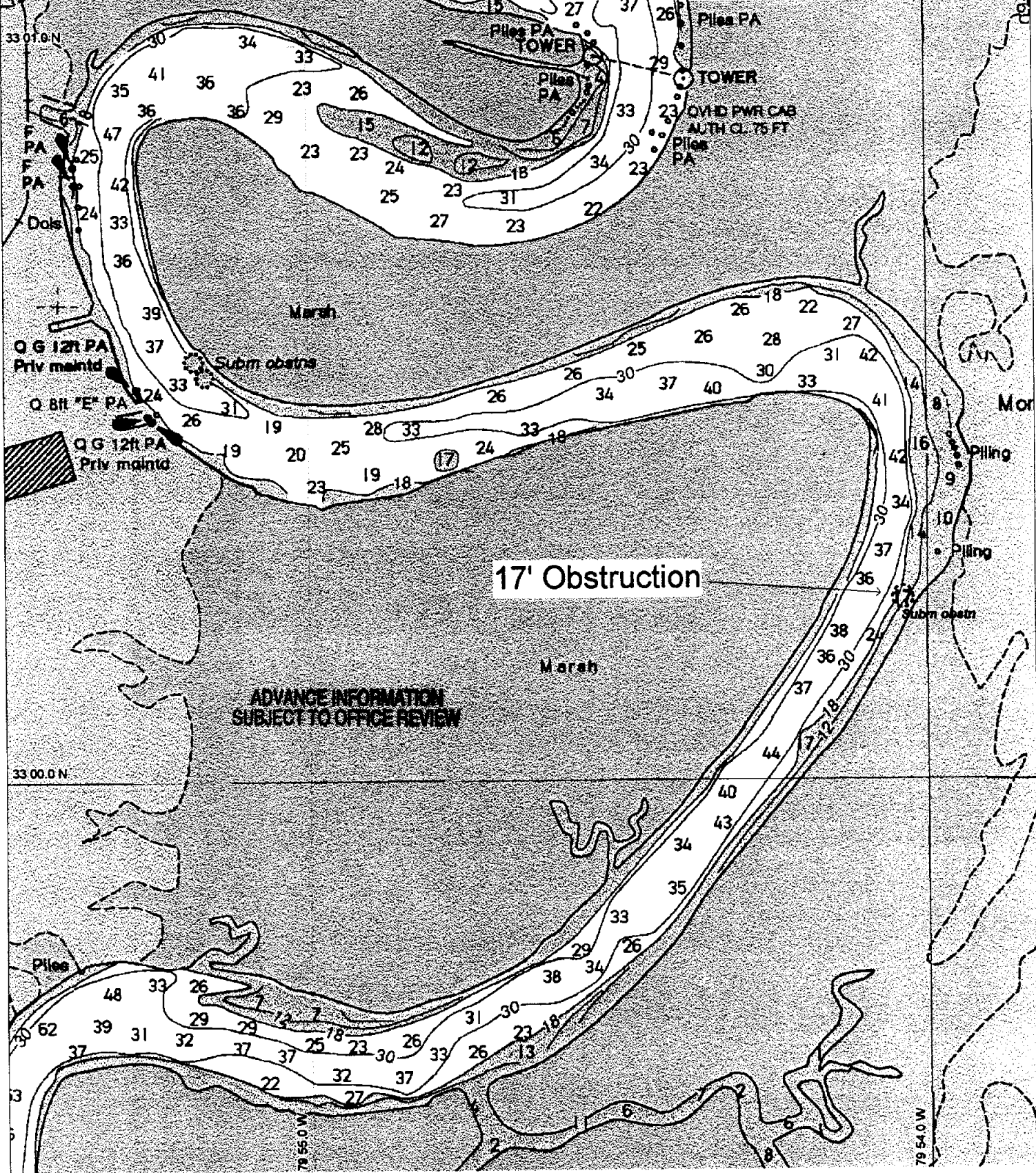
cc: N/CS26
N/CS33
NIMA/NMD/STD44
Charleston Branch Pilots Assoc.



Cooper River - South Carolina

Section from Chart 11527

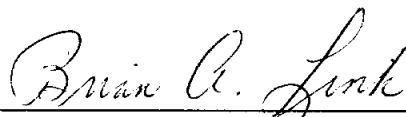
Danger to Navigation from Survey H-10842



APPROVAL SHEET
Basic Hydrographic Survey
OPR-G301-AHP
AHP-5-2-98
H-10842
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-10842

LOCALITY: Charleston, SC - Copper River
Grove Creek to Cote Bas

TIME PERIOD: September 10, 1998 - November 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

TIDE STATION USED: 866-4022 General Dynamics, SC
Lat. 33° 00.5'N Lon. 79° 55.3'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.396 meters

REMARKS: RECOMMENDED ZONING

Use zone(s) identified as: CH14, CH16, CH17, CH18, CH18A, CH19
CH19A, CH20, CH21 & CH22

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.

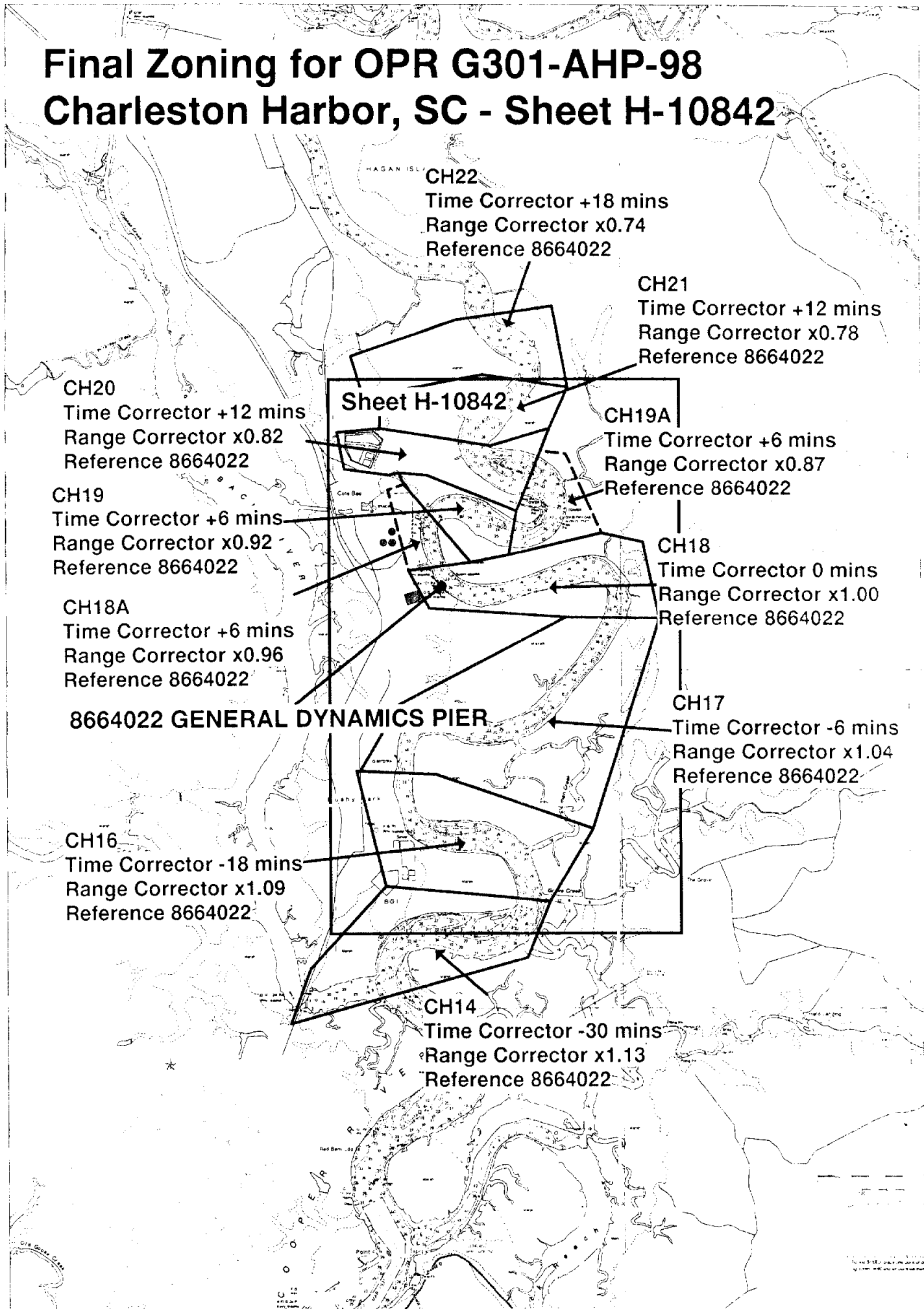
Note 2: Use tide data from the appropriate station with
applicable zoning correctors for each zone according to
the order in which they are listed in the Tidezone
corrector files. For example, tide station one (TS1)
would be the first choice for an applicable zone
followed by TS2, etc. when data are not available.

Thomas M. Mero 2/5/99

CHIEF, REQUIREMENTS AND ENGINEERING BRANCH



Final Zoning for OPR G301-AHP-98 Charleston Harbor, SC - Sheet H-10842



CH22
Time Corrector +18 mins
Range Corrector x0.74
Reference 8664022

CH21
Time Corrector +12 mins
Range Corrector x0.78
Reference 8664022

CH20
Time Corrector +12 mins
Range Corrector x0.82
Reference 8664022

Sheet H-10842

CH19A
Time Corrector +6 mins
Range Corrector x0.87
Reference 8664022

CH19
Time Corrector +6 mins
Range Corrector x0.92
Reference 8664022

CH18
Time Corrector 0 mins
Range Corrector x1.00
Reference 8664022

CH18A
Time Corrector +6 mins
Range Corrector x0.96
Reference 8664022

8664022 GENERAL DYNAMICS PIER

CH17
Time Corrector -6 mins
Range Corrector x1.04
Reference 8664022

CH16
Time Corrector -18 mins
Range Corrector x1.09
Reference 8664022

CH14
Time Corrector -30 mins
Range Corrector x1.13
Reference 8664022

GEOGRAPHIC NAMES

H-10842

Name on Survey	<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">A CHART NO. 11527</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">B ON PREVIOUS SURVEY NO.</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">C ON U.S. QUADRANGLE MAPS</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">D FROM LOCAL INFORMATION</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">E ON LOCAL MAPS</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">F P.O. GUIDE OR MAP</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">G RAND McNALLY ATLAS</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">H U.S. LIGHT LIST</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">K</div> </div>										
	BUSHY PARK	X									
COOPER RIVER	X		X								2
COTE BAS	X		X								3
GROVE CREEK	X		X								4
MORELAND	X		X								5
SOUTH CAROLINA (title)	X		X								6
											7
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Dennis R. ...
Chief Cartographer
MAR 8 1999

N/CS 33-51-99

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

LETTER TRANSMITTING DATA

- 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

6-22-99

NUMBER OF PACKAGES

ONE TUBE

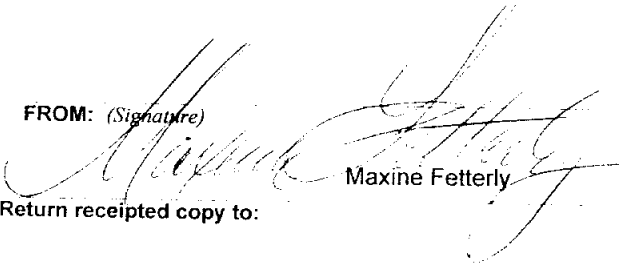
NOTE: A separate transmittal letter is to be used for each type of data, as tidal data, seismology, geomagnetism, etc. State the number of packages and include an executed copy of the transmittal letter in each package. In addition the original and one copy of the letter should be sent under separate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

H10842 OPR-G301-AHP

South Carolina
Cooper River

- 1 Descriptive Report
- 1 Drawing History form 76-71 for NOS Charts 11527
- 1 Smooth Sheet
- 1 Mylar H-Drawing for NOS Chart 11527
- 1 Paper Composite Plot for NOS Chart 11527

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

06/22/99

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H10842

NUMBER OF CONTROL STATIONS		2
NUMBER OF POSITIONS		3589
NUMBER OF SOUNDINGS		3589
	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	4	02/19/99
VERIFICATION OF FIELD DATA	68	06/11/99
EVALUATION AND ANALYSIS	11.50	
FINAL INSPECTION	8.50	05/14/99
COMPILATION	62	06/15/99
TOTAL TIME	194	
ATLANTIC HYDROGRAPHIC BRANCH APPROVAL		05/20/99

**ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H10842 (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 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 0.620 seconds (38.182 meters or 3.82 mm at the scale of the survey) north in latitude, and 0.702 seconds (36.440 meters or 3.64 mm at the scale of the survey) east in longitude.

J. SHORELINE

Brown shoreline originates with National Ocean Service (NOS) chart 11527, (15th Edition, Aug. 9/97), and is for orientation purposes only. Attention is directed to the following:

Shoreline changes are apparent from the limits of hydrography in the vicinity of Latitude 33°01'01.5"N, Longitude 79°54'36"W to Latitude 33°01'11"N, Longitude 79°55'02"W. The shoreline in this area has been omitted from the smooth sheet.

L. JUNCTIONS

H10856 (1998) to the South

A standard junction was effected between the present survey and survey H10856 (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.

O. COMPARISON WITH CHART 11527 (15th EDITION, Aug. 9/97)

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 dolphins originate with unknown sources. These features were verified by the hydrographer and should be retained as charted:

<u>Feature</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
dolphin	33°00'50.93"	79°55'22.17"
dolphin	33°00'48.75"	79°55'22.01"
dolphin	33°00'47.13"	79°55'21.99"
dolphin	33°00'45.40"	79°55'21.92"

dolphin	33°00'31.70"	79°55'16.50"
dolphin	33°00'31.46"	79°55'16.14"
dolphin	33°00'29.56"	79°55'14.41"

2. The following charted piles originate with unknown sources. This area was thoroughly developed by the field unit and the piles no longer exist. It is recommended that the piles be removed from the chart:

<u>Feature</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
pile	33°01'00"	79°54'32"
pile	33°00'58"	79°54'33"
pile	33°00'58"	79°54'23"
pile	33°00'56"	79°54'23"

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.

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: 11527 (15th Edition, Aug. 9/97).

H10842

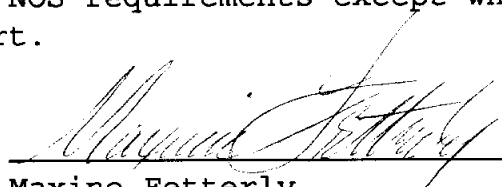
Robert Snow

Robert Snow
Cartographic Technician
Verification of Field Data
Evaluation and Analysis

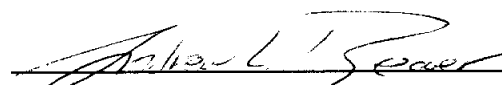
APPROVAL SHEET
H10842

Initial Approvals:

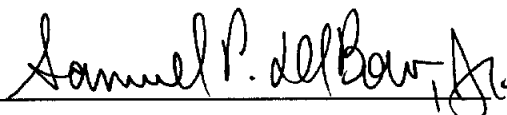
The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disapproval of charted data. The digital data have been completed and all revisions and additions made to the smooth sheet 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: 5/14/99
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.

 Date: 5/31/99
Andrew L. Beaver
Lieutenant Commander
Chief, Atlantic Hydrographic Branch

Final Approval:

Approved:  Date: 9/7/99
Samuel P. DeBow, Jr.
Commander, NOAA
Chief, Hydrographic Surveys Division

MARINE CHART BRANCH
RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H10842

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
11527	6/14/99	<i>M. Gifford</i>	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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