F00444

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. AHP 10-9-98

Registry No. OPR-G301

LOCALITY

State SOUTH CAROLINA

General Locality CHARLESTON HARBOR

Sublocality NORTH SIDE OF NORTH JETTY

19 98

CHIEF OF PARTY
B. A. LINK

LIBRARY & ARCHIVES

DATE OCT 28 1998

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

NOAA FORM 77-28 (10/72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.

OPR-G301 AHP10-9-98

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.

F00444 SHEET "J"

State South Carolina

General locality Atlantic Ocean, East Entrance to Charleston Harbor

Locality North Side of North Jetty

Scale 1:10,000 Date of survey 01 Sept 1998

dated 9-1-98 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 HPS & MAPINFO/ HP PLOTTER

Verification by ATLANTIC HYDROGRAPHIC SECTION, NORFOLK VA.

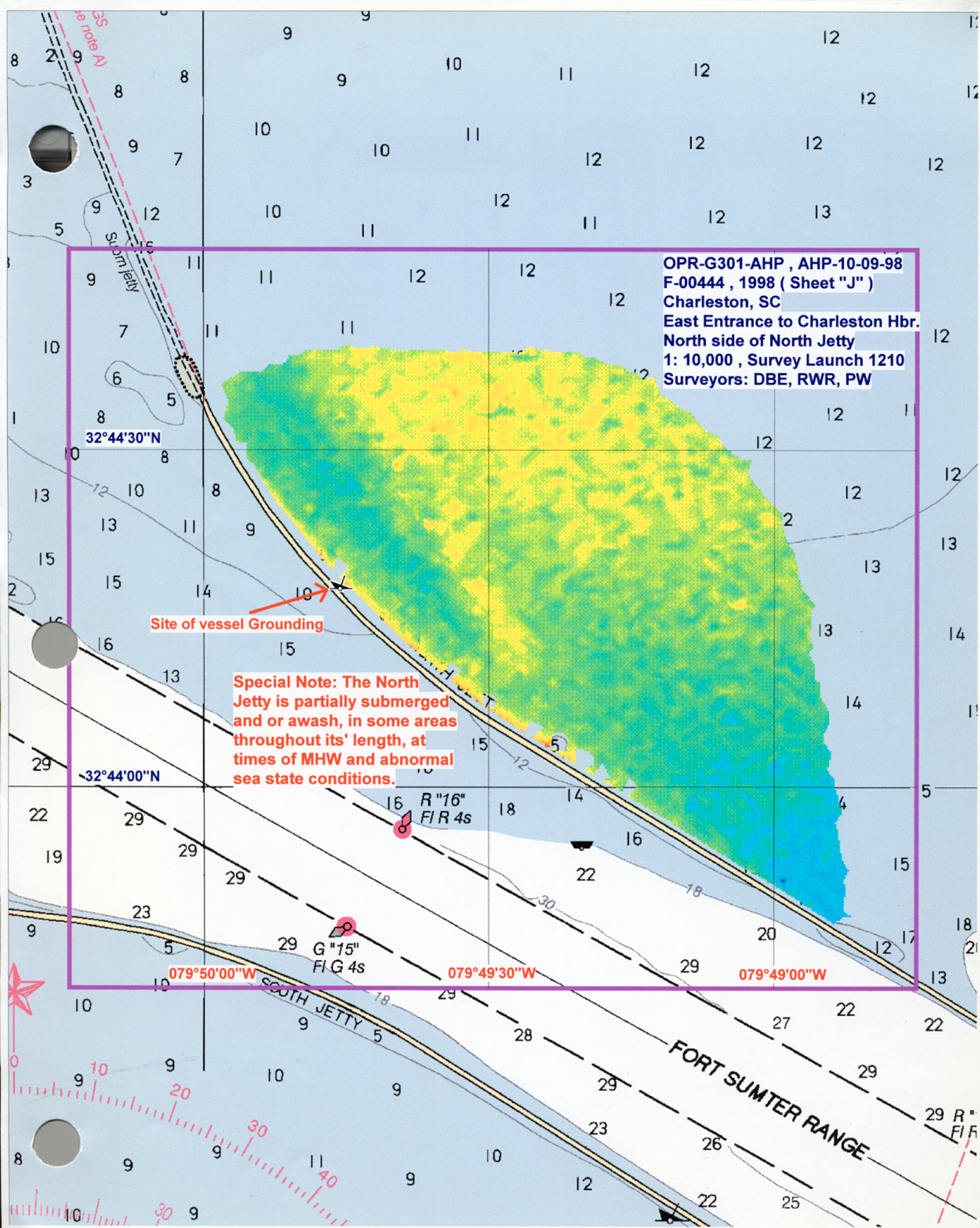
Soundings in meters feet at MLW MLLW

REMARKS:

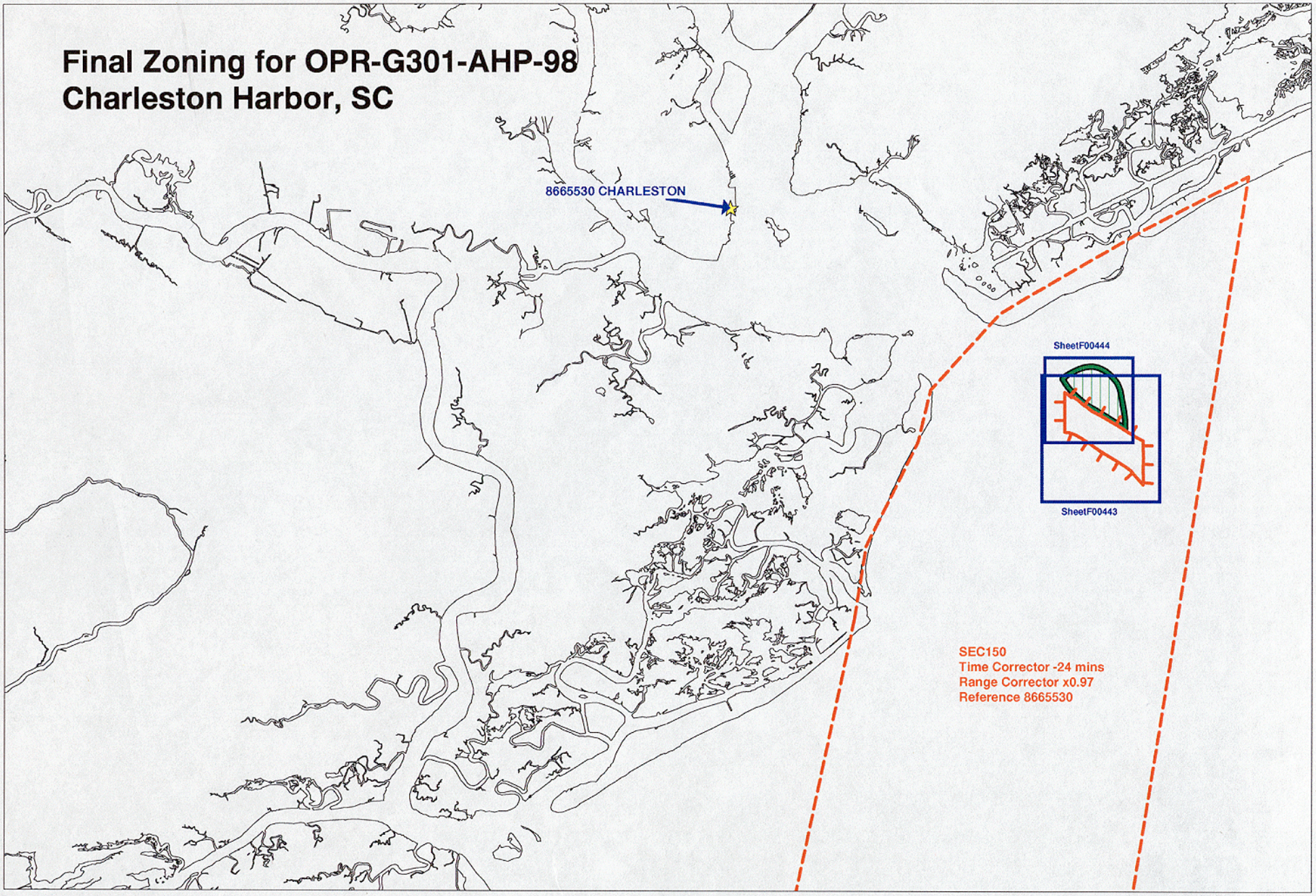
*David B. Elliott, Robert W. Ramsey Jr., Philip M. Wolf

AWOIS ✓ & SURF ✓ by MBH 10/26/98

NOAA FORM 77-28 SUPERSEDES FORM C & GS-837.


OPR-G301-AHP , AHP-10-09-98
F-00444 , 1998 (Sheet "J")
Charleston, SC
East Entrance to Charleston Hbr.
North side of North Jetty
1: 10,000 , Survey Launch 1210
Surveyors: DBE, RWR, PW
32°44'30"N
32°44'00"N
Site of vessel Grounding
Special Note: The North Jetty is partially submerged and or awash, in some areas throughout its' length, at times of MHW and abnormal sea state conditions.
R "16" Fl R 4s
G "15" Fl G 4s
079°50'00"W
079°49'30"W
079°49'00"W
SOUTH JETTY
FORT SUMTER RANGE
Submerged jetty

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



DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY F00444
OPR-G301-AHP
FIELD NO. AHP-10-9-98
SCALE: 1:10,000
1998
ATLANTIC HYDROGRAPHIC PARTY TWO
CHIEF OF PARTY: Brian A. Link (acting)

A. PROJECT

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

The purpose of FE00444 is to provide information for an upcoming National Transportation Safety Board investigation into the grounding of the P/C Morning Dew.

B. AREA SURVEYED

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

North - 32°44'~~47~~40"N
South - 32°43'~~04~~16"N
East - 079°48'~~45~~51"W
West - 079°~~50'14~~49'56"W

This survey was conducted on 01 September 1998 (DN:244).

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 Ver. 4.5 and Vertical Mapper Ver. 1.5, were used for plotting all survey data.. The NOS program VELOCITY (Ver. 3.0) and Microsoft Word 97 (Ver. 7.0) were also

used during this survey.

E. SONAR EQUIPMENT

No side scan sonar data was required by the Project Instructions for this survey.

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 cast listed below:

Cast No.	Table No.	Deepest * Depth(m)	Applicable DN(s)	Cast Position		Day Taken
1	1	8.2	244	32°43'54"N	079°48'42"W	244

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 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 unverified actual heights obtained from the NOAA Water Levels Observations website page (HTTP:/www.opsd.nos,noaa.gov/ftp/pwldata.html)

*Data filed with original field records.

using the following zoning:

Zone	HW Time Corr	LW Time Corr	Hgt. Ratio
EC150	- 24 min	- 24 min	x0.97

All elevations and soundings on survey F00444 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 September 10, 1998. A copy is appended to this report. Approved tides and zoning were applied during office plotting

All tides gauges required for survey F00444 were NGWLMS gauges installed by the 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 Charleston DGPS 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°45'27.2"N 079°50'34.3'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.

* Data filed with field records

K. CROSSLINES

A total of 3.35 linear nautical miles of crosslines were run. Crossline soundings agree with the main scheme soundings within ~~0.2 meter~~ 1.0 foot. The only exceptions were some 0.4-meter differences caused by sea state influence. The application of smooth tides will create a closer agreement in sounding comparison. concur

L. JUNCTIONS See also E+A Report

This survey junctions with the following:

Survey No.	Year	Scale	Junction Area
FE-00443	1998	1:10,000	South of Jetty

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 F00444".

N. ITEM INVESTIGATION REPORTS

There were no AWOIS items assigned for this survey.

N.1 DIVE INVESTIGATIONS

There were no dives conducted in conjunction with this survey.

O. COMPARISON WITH THE CHART See also Evaluation Report.

Comparison was made with the following charts:

Chart No.	Source Edition	Raster Edition	Edition Date
11521	24th ED	4	Dec. 13, 1997
11523	18th ED	3	Sept. 20. 1997
11524	43rd ED	3	Nov. 1, 1997

There were no Danger to Navigation letters submitted for F00444.

In general the survey soundings show agreement with the charted soundings within ~~1~~ 0 2 to ~~3~~ feet.

A special note should be made on the charts that states that the north jetty is partially submerged and awash in areas throughout its full length at times of MHW and/or abnormal sea states. Because of this, the mariner approaching from the northeast should take care not to mistake the south jetty for the north jetty. The south jetty extends above MHW at all stages of the tide. All survey soundings from F00444 should supersede those currently charted in the common area. Concur

P. ADEQUACY OF SURVEY See also Evaluation Report

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

Q. AIDS TO NAVIGATION

There were no aids to navigation within the confines of F00444.

R. STATISTICS

Description	Quantity
Total Number of Positions	3001
Total Linear Nautical Miles of Hydrography	38.76
Total Linear Nautical Miles of Cross Lines	3.35
Total Linear Nautical Miles of (SSS) Hydrography	0
Square Nautical Completed	1
Days of Production	1
Detached Positions	0
Bottom Samples	0
Velocity Casts	1

S. MISCELLANEOUS - See also Evaluation Report

Bottom samples were not taken as directed in Section 6.7 of the Project Instructions. There ~~are~~ 13 one ~~no~~ bottom sample symbols charted in this survey area. OPR

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.

There are no submerged cable areas, or overhead power cables within the confines of F00444.

T. RECOMMENDATIONS- See also Section P of the Evaluation Report

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

U. REFERRAL TO REPORTS

Title	Transmittal Information
Descriptive Report for F00443	Atlantic Hydrographic Branch N/CS331, Norfolk, VA (1998)

Submitted by: Brian A. Fink for David B. Elliott
Atlantic Hydrographic Party

DGPS PERFORMANCE CHECK FORM - ATLANTIC HYDROGRAPHIC PARTY (Charleston, SC)

OPR: G301-AHP AHP 10-9-98 F00444 SHEET J
East Ent. of Charleston Harbor. North side of North Jetty.
Charleston Antenna Beacon RESTA Ant. Location (A) (016)
Lat: 32°45' 27.21"N Lon: 079° 50' 34.33"W

Cal. Point- Mt Pleasant Rear Range Lt. Lat 32° 47' 4.848"N Long 079° 53' 40.499"W

East : 15507.4
North: 14935.6

Date	DN	Time	SVs	HDOP	Max. Allow. Error ' (4*HDOP)	Observed East	Observed North	Observed Diff
01-Sep-98	244	13:13	9	0.8	3.2	15507.6	14935.2	0.447214

APPROVAL SHEET
Field Examination Survey
OPR-G301-AHP
AHP-10-9-98
F00444
1998

This field examination survey was conducted 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 sheets were reviewed by the Launch Hydrographer-in-charge. The descriptive report was reviewed and approved by the Chief of Party. The Chief of Party did not directly supervise any part of this survey

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

Brian A. Link
Chief, Atlantic Hydrographic Party (acting)

Brian A. Link
David B. Elliott
Launch Hydrographer-in-charge

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: September 22, 1998

HYDROGRAPHIC BRANCH: Atlantic

HYDROGRAPHIC PROJECT: OPR-G301-AHP
HYDROGRAPHIC SHEET: F00444

LOCALITY: Charleston Harbor, SC

TIME PERIOD: September 1, 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: SEC150.

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. Neu 9/22/98

CHIEF, REQUIREMENTS AND ENGINEERING BRANCH

Final tide zone node point locations for OPR-H300-AHP-98, F00444.

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 SEC150			
-79.890309 32.684928	866-5530	-24	0.97
-79.887072 32.70193			
-79.872458 32.726677			
-79.86897 32.738784			
-79.849823 32.756581			
-79.842504 32.760363			
-79.809105 32.776502			
-79.78007 32.789013			
-79.896408 32.178136			
-79.980575 31.916102			
-80.020937 31.785394			
-80.16679 31.797539			
-80.019476 32.169959			
-79.890309 32.684928			

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

FE-444

Name on Survey	A ON CHART NO.	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	
NORTH ATLANTIC OCEAN	X		X							1
SOUTH CAROLINA (title)	X		X							2
										3
										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25

Approved:

Dennis J Rinehart

Chief Geographer SEP 28 1998

10/23/98

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: F00444

NUMBER OF CONTROL STATIONS	2
NUMBER OF POSITIONS	3001
NUMBER OF SOUNDINGS	3001

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	4	09/29/98
VERIFICATION OF FIELD DATA	88.50	10/15/98
EVALUATION AND ANALYSIS	8	
FINAL INSPECTION	2	10/15/98
COMPILATION	12	10/22/98
TOTAL TIME	115	

ATLANTIC HYDROGRAPHIC BRANCH APPROVAL 10/19/98

NOAA FORM 61-29
(12-71)

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

REFERENCE NO.

N/CS33-98-98

LETTER TRANSMITTING DATA

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

☐ ORDINARY MAIL ☐ AIR MAIL

☐ REGISTERED MAIL ☒ EXPRESS

☐ GBL *(Give number)* _____

TO:

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

DATE FORWARDED

OCT 23, 1998

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.

F00444

SOUTH CAROLINA, ATLANTIC OCEAN,
EAST ENTRANCE TO CHARLESTON HARBOR
NORTH SIDE OF NORTH JETTY

(ONE) 1 TUBE CONTAINING THE FOLLOWING:

ORIGINAL DESCRIPTIVE REPORT AND ACCOMPANYING SMOOTH SHEET FOR F00444
1 DRAWING HISTORY FORM (NOAA FORM #76-71) FOR NOS CHART 11523
1 RECORD OF APPLICATION TO CHART FORM (NOAA FORM #75-96) FOR SURVEY F00444
1 H-DRAWING FOR NOS CHART 11523
1 COMPOSITE DRAWING FOR NOS CHART 11523

FROM: *(Signature)*

Deborah A. Bland Deborah A. Bland

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

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

NOAA FORM 61-29 SUPERSEDES FORM C & GS 413 WHICH MAY BE USED. *U.S.GPO:1983-0-664-006/1192

This form was electronically produced by ELite Federal Forms' Forms Manager

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR F00444 (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 (HPS)
NADCON, version 2.10
SITE WORKS 02.01.02.00
MicroStation 95, version 5.05
I/RAS B, version 5.01

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

H. CONTROL STATIONS

7. 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 datum move the projection lines 0.638 seconds (19.660 meters or 1.97 mm at the scale of the survey) north in latitude, and 0.698 seconds (18.179 meters or 1.82 mm at the scale of the survey) east in longitude.

All geographic positions listed in this report are on NAD 83 datum unless otherwise specified.

J. SHORELINE

Brown shoreline originates with National Ocean Survey (NOS) Chart 11523, 18th Edition, dated September 20, 1997 and is for orientation purposes only.

L. JUNCTIONS

There are no contemporary junctional surveys. Present survey depths are in harmony with the charted soundings in the junctional areas.

M. COMPARISON WITH PRIOR SURVEYS

Hydrographic

H08781 (1964) 1:20,000

H08781 (1964) covers the entire survey area. Present survey depths are generally 0 to 3 feet (0 to 0^9 m) shoaler than the prior survey depths.

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

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

O. COMPARISON WITH CHART 11521 (24th Edition, Dec. 13/97)
11523 (18th Edition, Sep. 20/97)
11524 (43rd Edition, Nov. 1/97)

The charted hydrography originates with prior surveys and miscellaneous sources. The hydrographer makes adequate chart comparisons in Section O. of the Descriptive Report.

P. ADEQUACY OF SURVEY

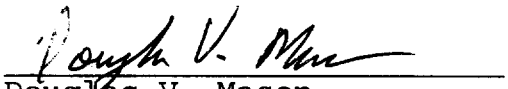
This is an adequate hydrographic survey. No additional work is recommended.

S. MISCELLANEOUS

Chart compilation using the present survey was done by Atlantic Hydrographic Branch personnel in Norfolk, Virginia. Compilation data has been forwarded to Marine Chart Division, Silver Spring, Maryland.

The following NOS chart was used for compilation of the present survey:

11523 (18th Ed., September 20/97) 1:20,000



Douglas V. Mason
Cartographic Technician
Verification of Field Data
Evaluation and Analysis

APPROVAL SHEET
F00444

Initial Approvals:

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

Deborah A Bland Date: 19 OCT 98

Deborah A. Bland
Cartographer,
Atlantic Hydrographic Branch

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

Robert J Robertson Date: 19 OCTOBER 1998

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

****

Final Approval:

Approved: Andrew A. Armstrong III Date: 27 Oct. 1998

Andrew A. Armstrong, III
Captain, NOAA
Chief, Hydrographic Surveys Division

79° 50' 00"

79° 49' 30"

79° 49' 00"

79° 48' 30"

79° 48' 00"

32° 44' 30"

32° 44' 00"

79° 48' 30"W

NAD 27

32° 44' 30"N

CHECKED BY: DVM
09/17/98

F00444
SOUTH CAROLINA
ENTRANCE TO CHARLESTON HARBOR
NORTH SIDE OF NORTH JETTY
01 SEP 1998
1:10,000
VERTICAL DATUM: SOUNDINGS IN FEET AT MLLW
HORIZIONAL DATUM: NAD 83
SHEET 1 OF 1
SPECIAL INVESTIGATION FOR NTSB
Brown shoreline originates with NOS Chart 11523, 28th Ed., July 19, 1997 and is for orientation purposes only

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. F00444

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
11523	10-21-98	D.A. Bland	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
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			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.