

H10947

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey BASIC HYDROGRAPHIC

Field No. WH-80-01-00

Registry No. H10947

LOCALITY

State SOUTH CAROLINA

General Locality NORTH ATLANTIC OCEAN

Locality 100 NM SE OF CHARLESTON

2000

CHIEF OF PARTY
GERD F. GLANG, LCDR, NOAA

LIBRARY & ARCHIVES

DATE *September 28, 2001*

HYDROGRAPHIC TITLE SHEET

H-10947

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 NUMBER:

WH-80-01-00

State: South Carolina

General Locality: ^{North} Atlantic Ocean

Sub-Locality: 100 NM SE of Charleston, SC

Scale: 1:80,000

Date of Survey: April 22 - June 30 1999 and April 3-8, 2000

Instructions Dated: APRIL 15, 1999 and March 20, 2000

Project Number: S-G900-WH

Vessel: NOAA Ship WHITING, S-329

Chief of Party: Lieutenant Commander Gerd F. Glang, NOAA

Surveyed by: WHITING Personnel

Soundings by: Odom Echotrac DF3200 MK II Echosounder

Graphic record scaled by: WHITING Personnel

Graphic record checked by: WHITING Personnel

Protracted by: N/A

HP DesignJet 2500 CP (OFFICE)
Automated Plot: HP-750C (Field)

Verification by: Atlantic Hydrographic Branch Personnel

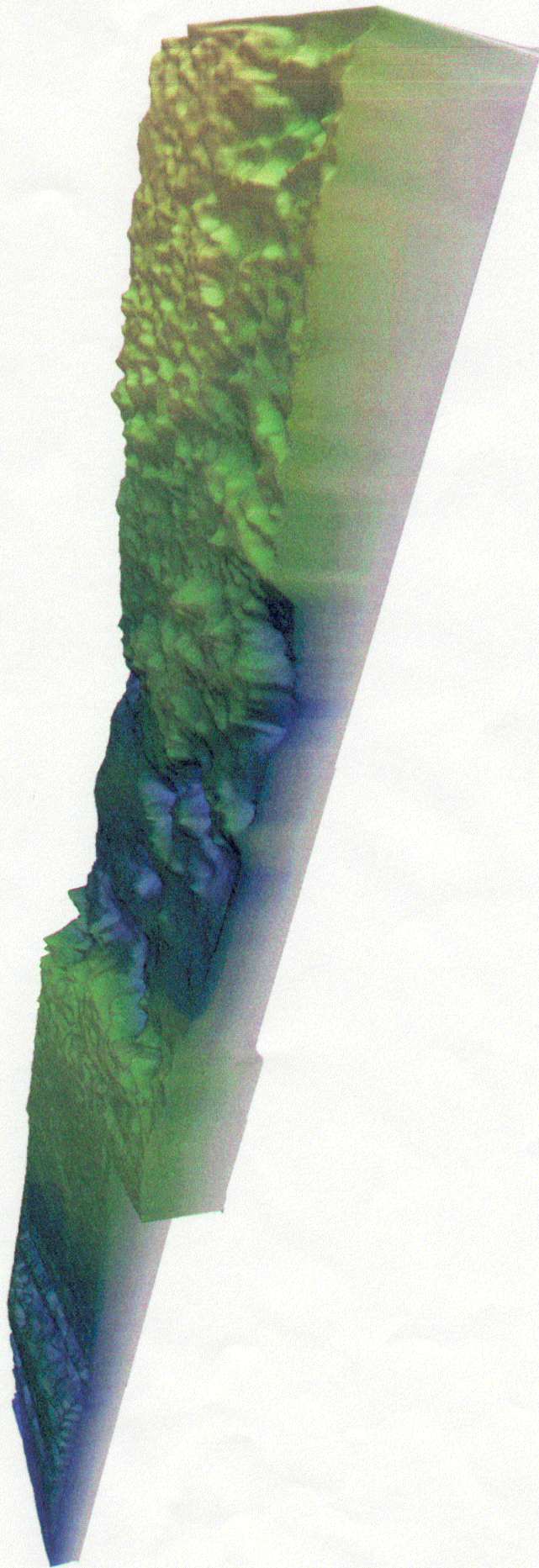
Soundings in: Fathoms
~~Meters~~ at MLLW

Remarks:

- 1) All Times are UTC.
- 2) This is a basic Hydrographic Survey.
- 3) Projection is UTM Zone 17.

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

AWOIS ✓ SURF ✓ by MBH on 8/31/01



NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

Survey:
State: South Carolina
Locality: Atlantic Ocean
Sub-Locality: 100 NM SE of Charleston

Field Sheet Number: WH-80-01-00
Scale of Survey: 1:80,000
Horizontal Datum: NAD 83
Projection: UTM Zone 17

Project:
Sounding Units: Meters
Sounding Datum: MLLW
Central Meridian: 081° 00' 00"
Scale Factor: 0.9996

Surveyed By: NOAA Ship WHITING
LCDR Gerd F. Glang
Commanding

Date of Survey:
April 22, 1999 - April 8, 2000

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* Data filed with field records,

A. PROJECT

A.1. This basic hydrographic survey was conducted in accordance with Hydrographic Survey Letter Instructions S-G900-WH, H-10947 basic hydrographic survey, Atlantic Ocean, Charleston, SC.

A.2. The original instructions are dated April 15, 1999. New instructions issued for 2000 operations were dated March 20, 2000. Due to the survey area size, data acquired in 1999 and 2000 were consolidated onto one 1:80,000 scale sheet with the same registry number. This change was approved by telephone conversation with N/CS31.

A.3. At present, no written change has been received from N/CS31.

A.4. This Descriptive Report covers H-10947 of S-G900-WH. H-10947 lies 100 nm East Southeast of Charleston, SC. See section B.2 for exact survey boundaries.

A.5. Project S-G900-WH responds to an urgent request from the South Carolina Department of Natural Resources to perform a hydrographic survey of an area locally known as the "Charleston Bump".

B. AREA SURVEYED

B.1. This survey covers a 503 sqnm area 100 nm East Southeast of Charleston, SC.

B.2. The survey comprises one sheet with the following boundaries, starting at the NE corner and proceeding clockwise:

<u>Latitude</u>	<u>Longitude</u>
32°00'11" N	078°42'40" W
31°35'17" N	078°42'19" W
31°36'43" N	078°45'37" W
31°15'00" N	078°45'35" W
31°15'00" N	078°52'58" W
32°00'10" N	078°53'02" W

B.3. Data collection for 1999 began on April 22, 1999, (DN 112) and concluded on June 30, 1999 (DN 180). Data collection continued in 2000 on April 3, 2000 (DN 094) until April 8, 2000 (DN 099).

C. SURVEY VESSELS

C.1. NOAA Ship WHITING was used exclusively for all data acquisition during this survey.

C.2. No unusual vessel configurations were used during this survey.

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

D.1. A detailed list of data acquisition and processing software used for this survey can be found in appendix H.*

Vertical beam echosounder (VBES) data acquisition was accomplished using Coastal Oceanographics **HYPACK** software. VBES data processing was accomplished using **HPS** (HYDROGRAPHIC PROCESSING SYSTEM) software and assorted utility programs contained on the **HYDROSOFT** version 9.4 compact disk provided by the Hydrographic Systems and Technology Programs (N/CS11).

E. SONAR EQUIPMENT

No side scan sonar equipment was employed during this survey.

F. SOUNDING EQUIPMENT

F.1. All hydrographic soundings were acquired using an ODOM ECHOTRAC DF3200 MKII precision survey echosounder. The following ECHOTRAC sounders were used:

Vessel	EDP Number	Dates of use	ECHOTRAC S/N
NOAA Ship WHITING	2930	1999	9656
		2000	9643

F.2. No other sounding equipment was used for this survey.

F.3. There were no faults in sounding equipment that affected data accuracy or quality.

F.4. High (100kHz) frequency depths were recorded during data acquisition.

G. CORRECTIONS TO SOUNDINGS

G.1(a) Velocity of sound through water was determined using Sea-Bird SBE 19 SeaCat Sound Velocity Profiler (SVP s/n 192472-286). SeaCat Data Quality Assurance Tests were conducted IAW with the FPM after each cast. The SeaCat SVP unit was calibrated January 14, 1999 and December 2, 1999, by Sea-Bird Electronics, Inc.

All sound velocity data were processed using **VELOCIWIN** version 4.0 in 1999 and 5.0 in 2000. Computed velocity correctors were entered into HPS sound velocity tables and re-applied during post-processing to high frequency depths.

* Data filed with field records.

The following is a list of sound velocity casts which apply to this survey, H-10947:

Table	DN	Vessel	Position Of Cast		DN Period	Cast Depth (M)
			Latitude	Longitude		
4	112 1999	2930	31°15'00"N	078°44'12"W	112-181 1999	681.2
2	094 2000	2930	31°45'36"N	078°44'48"W	094-098 2000	387.8
3	098 2000	2930	31°42'00"N	078°47'00"W	098-099 2000	514.2

G.1(b) The following dual Leadline comparison with the ECHOTRAC DF 3200 MKII were conducted for this project and apply to this survey, H-10947:

Vessel	Area	Latitude	Longitude	DN
2930	Delaware Bay	38°55'24"N	075°07'30"W	230

Weather and sea conditions were calm and proved ideal for the leadline comparison. No corrections to soundings were needed. Leadlines were calibrated on May 17, 1999 and March 13, 2000; both calibrations confirmed that leadline errors were negligible.

G.1(c) The static draft correction for WHITING (3.2 meters) was measured on May 3, 1999 at Mayport Naval Station, Florida (HPS Offset Table 9). Static draft correctors were applied to all soundings during data processing.

G.1(d) Settlement and squat values for WHITING were determined on April 19, 1999 (HPS Offset Table 9) using level rod method. *Refer to Separate I.

G.1(e) WHITING is equipped with a TSS DMS-05 Dynamic Motion Sensor. Heave correctors determined by the DMS-05 sensor were acquired in HYPACK during data acquisition and applied to raw data during processing.

Vessel	EDP Number	DMS-05 S/N
NOAA Ship WHITING	2930	2066

G.4. No Diver Least Depth Gauge was used for this survey.

* Data filed with field records.

G.5. The vertical relief of the Charleston Bump causes the flow of the Gulf Stream to be redirected upward which in turn causes unusual mixing in the water column (as noted by the 'boiling effect' seen at waters surface). After review of the data in post processing it is apparent this mixing caused localized variations in the sound velocity profile. This was noted in the higher temperature and salinities as indicated by sound velocity profile 2. 2000 data initially corrected with Table 2 exhibited differences with adjacent soundings of up to 5 fathoms. When the same data were corrected with Table 3, differences diminished to less than 2 fathoms or were eliminated altogether. Based on this, Table 3 was used for all 2000 sounding corrections.

G.6(a) The tidal datum for this project is Mean Lower Low Water (MLLW). The operating tide station at Charleston, SC (866-5530) served as reference for predicted and verified tides.

G.6(b) Zoning for this survey is consistent with the project instructions. **HPTools** was used for Tide table creation and was used for the application of Verified Water Level Data during data processing. The following tide zones were used:

Zone Station	Time Corrector (Minutes)	Range Ratio	Predicted Reference
ATL784	-24	x0.87	866-5530
ATL807	-24	x0.85	866-5530
ATL808	-24	x0.89	855-5530

Approved tides for H-10947 were requested by letter to N/OPS1 dated May 10, 2000 *See Appendix D.

H. Hydrographic Position Control - See also Evaluation Report

H.1. The horizontal datum for this survey is North American Datum of 1983 (NAD 83). No horizontal control stations were established for this survey.

H.2. This survey was conducted using the Global Positioning System (GPS) corrected by U.S. Coast Guard (USCG) Differential GPS reference stations.

H.3. USCG DGPS stations used were Cape Canaveral, FL and Charleston, SC.

H.4. No horizontal control stations were used during the survey.

H.5. The Horizontal Dilution of Precision (HDOP) and Expected Position Error (EPE) specified by the Draft NOAA Hydrographic Project Instructions were monitored during on-line data collection. If the positioning degraded beyond the acceptable limits while on-line, the data were either smoothed or rejected.

Performance checks for WHITING were conducted with the program **Pcheck** (from the Hydrossoft 9.4 CD-ROM). A summary of the DGPS performance checks is included in Appendix F. All DGPS performance checks confirmed that the equipment was working properly.

H.6. Serial numbers for the Trimble DSM212L receivers are as follows:

Vessel	EDP Number	DSM212L S/N
NOAA Ship WHITING	2930	System 1: 0220159721 System 2: 0220159722

Trimble receivers were initialized to the appropriate station and frequency using the **Trimble TSIP Talker** software.

H.7(a) There were no unusual methods used to operate or calibrate electronic positioning equipment.

H.7(b) No equipment malfunctions affected the quality of survey data acquired.

H.7(c) No unusual atmospheric conditions affected data quality.

H.7(d) The maximum allowed HDOP value of 4.0 was never exceeded. Weak differential signals or satellite problems did not affect the survey data quality.

H.7(e) No systematic errors were detected which required adjustments.

H.7(f) DGPS antenna offsets were measured on April 15, 1999 for WHITING. For VBES data, offsets and laybacks were measured using the high-frequency echosounder transducer as the reference point. Correctors were entered into Offset Table 9. A minimum of four satellites were used throughout this survey providing altitude-unconstrained positioning.

H.7(g) No antenna to tow-point calculation was necessary for this survey since no towed sonar were employed.

I. SHORELINE

No shoreline is contained within the boundaries of this survey.

J. CROSSLINES

J.1. A total of 98.3 linear nautical miles of crossline hydrography, representing approximately 7% of the 1412.5 nm of mainscheme hydrography, were acquired for this survey. *Done in year 2000*

J.2. Mainscheme and crossline soundings were compared at their common intersections. Agreement was good, given the depth of water and rapidly changing bathymetry. The majority of mainscheme and crossline soundings were found to agree within 1 fathom of each other.

Y filed with field records

J.3. No significant discrepancies between mainscheme and crossline soundings were observed. Depth differences were between 0 to 1%.

J.4. Crossline soundings acquired in 2000 were compared with soundings acquired in 1999 and 2000.

K. JUNCTIONS

K.1. Data acquired during 1999 was compared to data acquired during 2000.

K.2. Soundings acquired in 1999 generally agreed with soundings acquired in 2000 within 1 to 2 fathoms (<1% water depth).

K.3. Sounding data acquired in 1999 was originally corrected with sound velocity profile Table 1. An error was found in the cast's processing and was subsequently re-processed (in 2000) and given the new name of *Table 4. Sounding data acquired in 2000 were originally corrected with *Table's 2 and 3. However, soundings corrected with *Table 2 proved to differ up to five fathoms from soundings corrected with *Table's 3 and 4. Upon closer review of *Table 2, it could be seen that there was generally a higher water temperature and greater salinity than any of the other casts taken during this survey. In light of this information, all 2000 soundings were then corrected using *Table 3 which brought the mainscheme and crossline soundings into closer correlation. The variations in Table's could be explained by the proximity of the Gulf Stream and the unusual up welling in the stream created by the Charleston Bump. It is expected that this mixing causes localized variations in the water column's salinity/temperature/depth profile and that these areas change over time. It is therefore expected that there will be small areas where the disparity in sounding correlation may be greater due to these localized water column disturbances.

L. COMPARISON WITH PRIOR SURVEYS - See also Evaluation Report.

A comparison with prior surveys is not required for this survey as stated in the hydrographic survey letter instructions.

M. ITEM INVESTIGATION REPORTS

No item investigations were conducted for this survey.

N. COMPARISON WITH THE CHART - See also Evaluation Report

N.1. Three charts are affected by this survey:

Chart No. 411
Gulf Of Mexico
47nd Ed., October 24, 1998
1:2,160,000

Chart No. 11009
Cape Hatteras to Straits of Florida
35th Ed., August 7, 1999
1:1,200,000

Chart No. 11480
Charleston Light to Cape Canaveral
36th Ed., July 3, 1999
1:449,659

N.2. No Danger to Navigation Reports were issued as a result of this survey.

N.3(a) Survey depths were converted from meters to fathoms and overlaid on the largest scale raster chart of the area using **MapInfo**. In general, survey depths varied considerably with charted depths. Soundings 200 fathoms shoaler than a charted sounding were found in the Northern portion of the survey. Soundings in the Southern portion were all deeper than charted soundings by up to 34 fathoms.

N.3(b) Charted sounding comparison was inconclusive given the sparse amount charted soundings and the inability to determine any bathymetric trends based on those soundings. It is therefore difficult to draw any conclusions based on the charted soundings, other than that the soundings acquired during this survey correlate poorly with what is charted.

N.3(c) Data acquired during the course of this survey indicate significant differences between charted depths and surveyed soundings.

N.3(d) There are no controlled or maintained channels within these survey limits.

N.3(e) There are no safety fairways, traffic schemes, or range lines within these survey limits.

N.4(a) There are no other non-sounding charted features not previously discussed for this survey.

N.4(b) There were no charted features found in this survey.

N.4(c) No AWOIS items were present in the limits of this survey.

N.4(d) No features were found during the course of this survey.

N.4(e) No bridges, overhead cables, or pipelines were present in the limits of this survey.

N.4(f) No submarine cables were present within the limits of this survey.

N.4(g) No pipelines were within the limits of this survey.

N.4(h) No ferry routes were within the limits of this survey.

N.4(i) No ferry terminals were within the limits of this survey.

O. ADEQUACY OF SURVEY - See also Evaluation Report

This survey is sufficiently complete and fully adequate to supersede prior survey data within common areas.

P. AIDS TO NAVIGATION

P.1-6. No aids to navigation are found within these survey limits.

Q. STATISTICS

	Total number of Non-Rejected Positions	252628
Q.1.a.	Linear Nautical Miles of SS.	0.0
Q.1.b.	Linear Nautical Miles of VBES-only.1412.5
Q.1.c.	Square Nautical Miles of VBES378.6
Q.1.d.	Square Nautical Miles of SS0.0
Q.2.a.	Days of Data Acquisition	13
Q.2.b.	Total Number of Soundings.	252627
Q.2.c.	Number of Soundings on Final Field Sheet	13300
Q.2.d.	Number of Detached Positions	0
Q.2.d.	Number of Bottom Samples	0
Q.2.e.	Number of Velocity Casts	3
Q.2.f.	Number of Tide Stations Installed.	0

R. MISCELLANEOUS - See also Evaluation Report

R.1(a) Based on the sparsity of existing sounding data no conclusions can be drawn as to shoaling or deepening in the area.

R.1(b) The data acquired during this survey describes an area with significant bathymetric relief. This feature is oriented SW to NE with a vertical relief of 147.6 fathoms and is large enough to effect the flow of the Gulf Stream. Eddy currents observed during the course of this survey caused WHITING to crab or sheer from the planned line azimuths by significant amounts. These currents were also observed to cause distinct lanes of rough or choppy water where they flowed counter to prevailing winds. The vertical mixing of the water column that this feature caused is known to attract various species of pelagic fishes which is of extreme interest to local commercial fishermen.

R.1(c) No unusual or anomalous tidal conditions were evident.

R.1(d) No current measurements were recorded, however drastic changes in current direction were noted near areas of current eddies.

R.1(e) Magnetic measurements were not conducted for this survey.

R.2. Bottom samples were not submitted to the Smithsonian Institution.

S. RECOMMENDATIONS

No further survey work is recommended.

T. REFERRAL TO REPORTS

Not applicable for this survey.

Respectfully Submitted,



Marc S. Moser
Ensign, NOAA
Junior Officer
NOAA Ship Whiting

MM 8-29-00
Date

APPENDIX K

APPROVAL SHEET

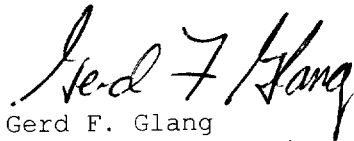
S-G900-WH
South Carolina
Atlantic Ocean
100 NM SE Charleston

Survey Registry No. H-10947

Field operations for this basic hydrographic survey were conducted under my daily supervision with frequent checks of progress and adequacy. All field sheets, this Descriptive Report, and all accompanying records and data are approved.

This survey is adequate to supersede all prior surveys in common areas, and for application to the relevant NOS nautical charts.

Respectfully,



Gerd F. Glang
Lieutenant Commander, NOAA
Commanding Officer
NOAA Ship WHITING

SEPTEMBER 19, 2000
Date



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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: September 8, 1999

HYDROGRAPHIC BRANCH: Atlantic

HYDROGRAPHIC PROJECT: S-G900-WH-99

HYDROGRAPHIC SHEET: H-10872

LOCALITY: South Carolina, Atlantic Ocean- 100 NM SE of Charleston

TIME PERIOD: April 22 - April 26, 1999

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: ATL807 & ATL808.

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 V. Yero 9/8/99

CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION



Final tide zone node point locations for S-G900-WH-99,
Sheet H-10872.

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 ATL807			
-78.825169 32.169754	8665530	-24	0.85
-78.795728 31.819025			
-78.874109 31.433323			
-79.070115 30.98691			
-79.45273 30.642235			
-79.35412 30.306929			
-78.838299 30.757313			
-78.558542 31.25514			
-78.442822 31.651604			
-78.563584 31.847311			
-78.825169 32.169754			
Zone ATL808			
-78.943431 32.959247	8665530	-24	0.89
-79.265869 32.923352			
-79.496778 32.851426			
-79.42315 32.477492			
-79.305493 32.202992			
-79.214622 31.886346			
-79.221802 31.541159			
-79.424607 31.073384			
-79.486542 31.012044			
-79.45273 30.642235			
-79.070115 30.98691			
-78.874109 31.433323			
-78.795728 31.819025			
-78.825169 32.169754			
-78.933029 32.502503			
-78.965707 32.796274			
-78.943431 32.959247			

Final Tidal Zoning for S-G900-WH-99 Charleston Bump, SC - Sheet H-10872

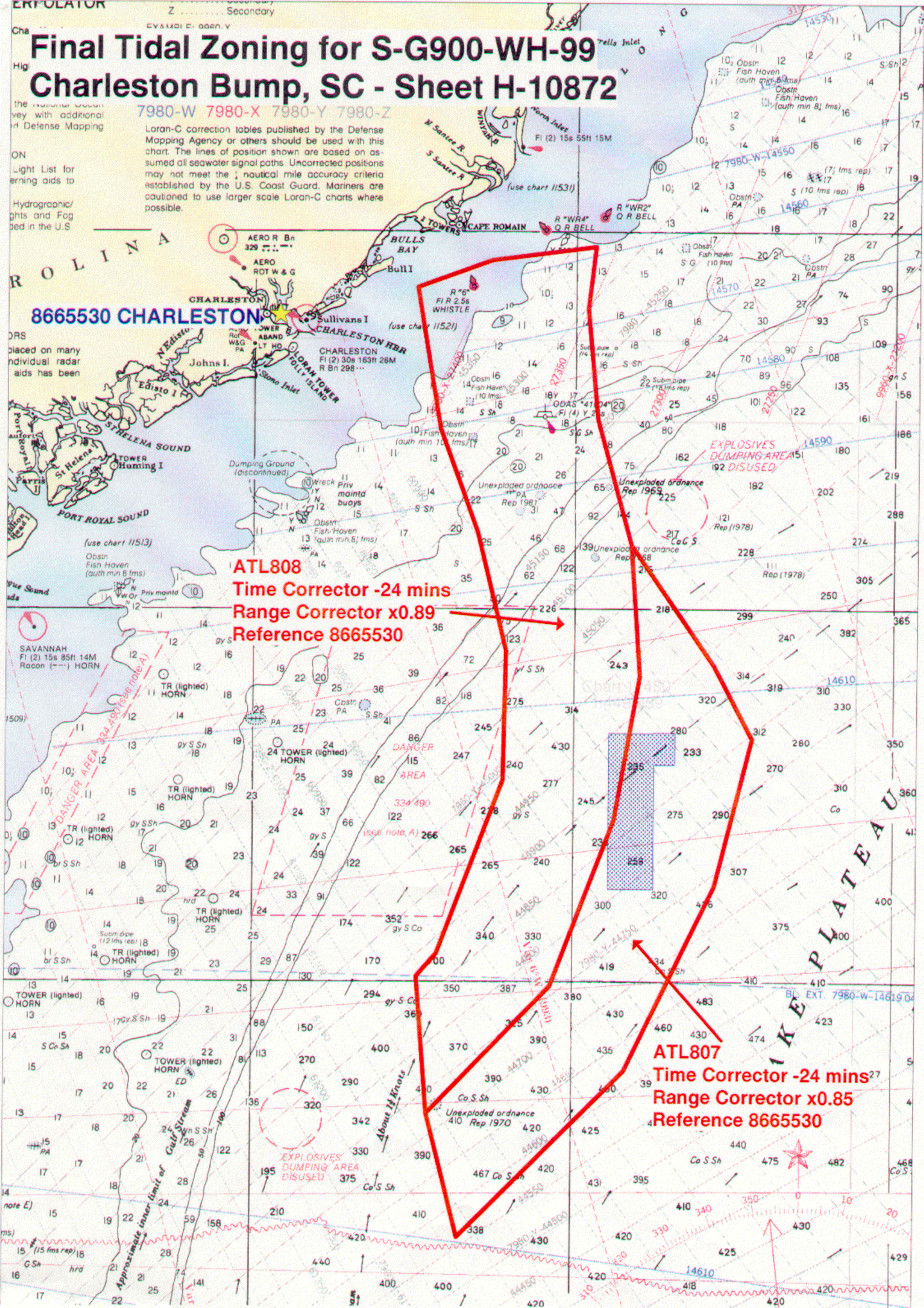
7980-W 7980-X 7980-Y 7980-Z

Loran-C correction tables published by the Defense Mapping Agency or others should be used with this chart. The lines of position shown are based on assumed all seawater signal paths. Uncorrected positions may not meet the 1 nautical mile accuracy criteria established by the U.S. Coast Guard. Mariners are cautioned to use larger scale Loran-C charts where possible.

8665530 CHARLESTON

ATL808
Time Corrector -24 mins
Range Corrector x0.89
Reference 8665530

ATL807
Time Corrector -24 mins²⁷
Range Corrector x0.85
Reference 8665530





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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: August 25, 2000

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: S-G900-WH-2000
HYDROGRAPHIC SHEET: H-10947

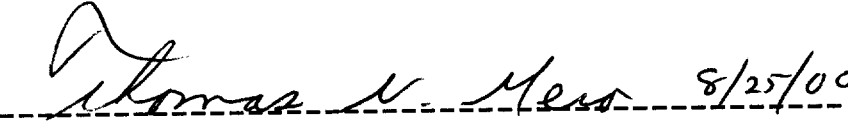
LOCALITY: 100 nm South East of Charleston, SC
TIME PERIOD: April 22 - June 30, 1999;
April 3 - April 8, 2000

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: ATL784, ATL807 & ATL808

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.



CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION



PULSE REPETITION INTERVAL: 98.600 microseconds
 7980-YE DESIGNATIONS: 79.800 microseconds
 STA NAME DESIGNATIONS: (see individual Sta for name designation)
 Tower M

Final Tidal Zoning for S-G900-WH-2000 Charleston Bump, SC - Sheet H-10947

AUTHORITIES

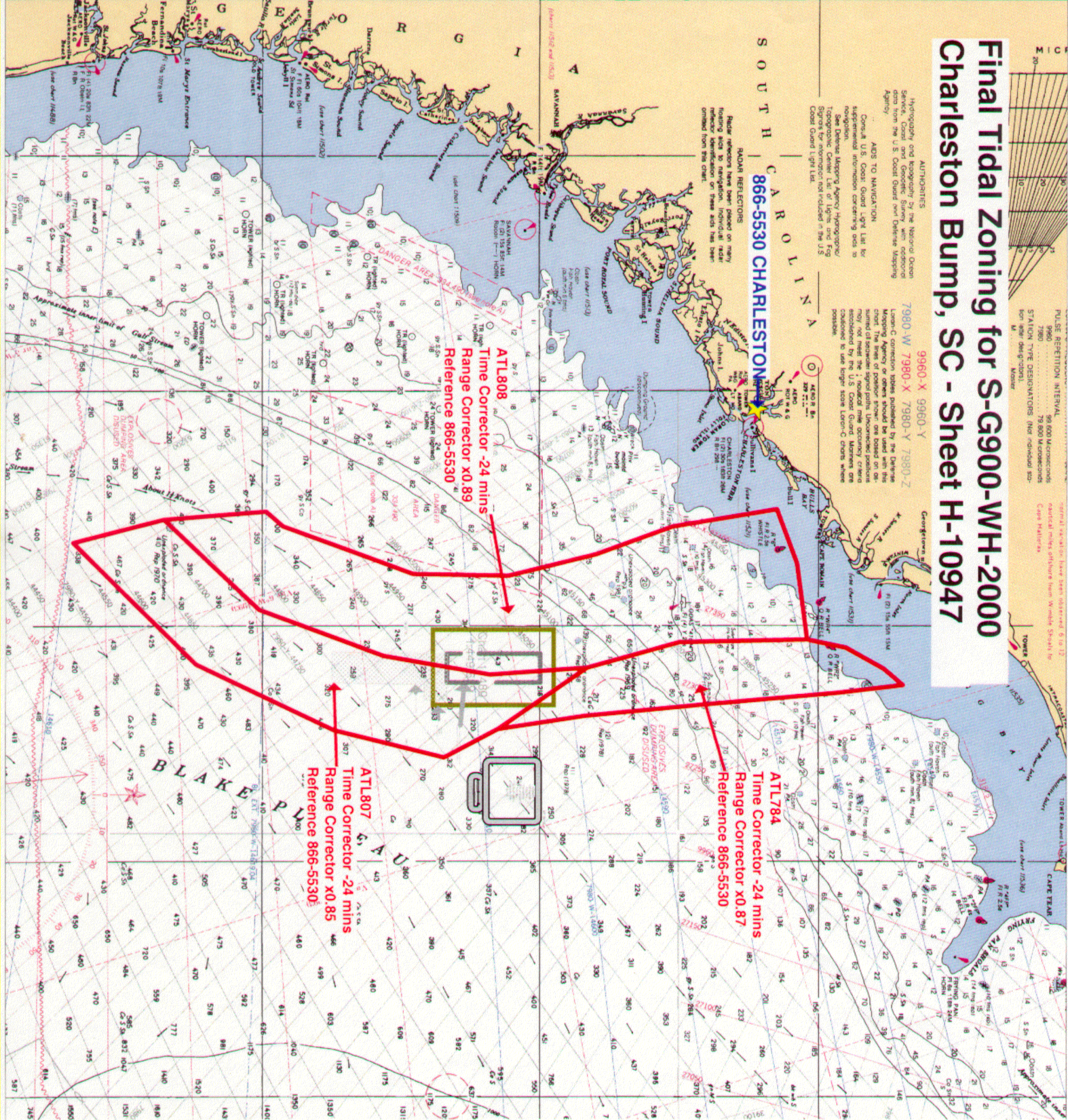
Hydrographically and bathymetrically, the National Ocean Service, Coastal and Geomatics Survey will coordinate data from the U.S. Coast Guard and Defense Mapping Agency.

ADDS TO NAVIGATION

Consult U.S. Coast Guard Light List for supplemental information concerning adds to the U.S. Coast Guard Light List. See Defense Mapping Agency Hydrographic/Topographic Catalog List of Lights and Fog Signals for information not included in the U.S. Coast Guard Light List.

866-5530 CHARLESTON

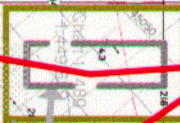
BOARD REFLECTORS
 Please note: unless otherwise noted on many floating aids to navigation, individual radar reflector identification or their aids has been omitted from this chart.



ATL808
 Time Corrector -24 mins
 Range Corrector x0.89
 Reference 866-5530

ATL784
 Time Corrector -24 mins
 Range Corrector x0.87
 Reference 866-5530

ATL807
 Time Corrector -24 mins
 Range Corrector x0.85
 Reference 866-5530



TOWER IDENTIFICATION: 98.600 microseconds
 7980-YE DESIGNATIONS: 79.800 microseconds
 STA NAME DESIGNATIONS: (see individual Sta for name designation)
 Tower M

Final tide zone node point locations for S-G900-WH-2000,
Sheet H-10947.

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 ATL784	866-5530	-24	0.87
-78.751273 33.300391			
-78.821038 33.231408			
-78.910006 33.096914			
-78.943431 32.959247			
-78.933029 32.502503			
-78.825169 32.169754			
-78.563584 31.847311			
-78.619288 32.159958			
-78.667911 32.590244			
-78.717865 33.068875			
-78.751273 33.300391			
Zone ATL807	866-5530	-24	0.85
-78.825169 32.169754			
-78.795728 31.819025			
-78.874109 31.433323			
-79.070115 30.98691			
-79.45273 30.642235			
-79.35412 30.306929			
-78.838299 30.757313			
-78.558542 31.25514			
-78.442822 31.651604			
-78.563584 31.847311			
-78.825169 32.169754			
Zone ATL808	866-5530	-24	0.89
-78.943431 32.959247			
-79.265869 32.923352			
-79.496778 32.851426			

-79.42315 32.477492
-79.305493 32.202992
-79.214622 31.886346
-79.221802 31.541159
-79.424607 31.073384
-79.486542 31.012044
-79.45273 30.642235
-79.070115 30.98691
-78.874109 31.433323
-78.795728 31.819025
-78.825169 32.169754
-78.933029 32.502503
-78.943431 32.959247

GEOGRAPHIC NAMES

H-10947

Name on Survey	<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">A ON CHART NO. 11000 11480</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>											
	A	B	C	D	E	F	G	H	K			
CHARLESTON (title)	X		X								1	
NORTH ATLANTIC OCEAN	X		X								2	
SOUTH CAROLINA (title)	X		X								3	
											4	
											5	
											6	
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											25	

Dennis J. Kowalski
NOV 14 2008

LETTER TRANSMITTING DATA

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

- ORDINARY MAIL AIR MAIL
 REGISTERED MAIL EXPRESS
 GBL (Give number) _____

DATE FORWARDED 08/15/2001

NUMBER OF PACKAGES 1

TO:

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

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

H10947

SOUTH CAROLINA, NORTH ATLANTIC OCEAN, 100 NM SE OF CHARLESTON

ONE TUBE CONTAINING THE FOLLOWING:

- 1 SMOOTH SHEET FOR SURVEY H10947
- 1 ORIGINAL DESCRIPTIVE REPORT
- 1 RECORD OF APPLICATION TO CHART FORM (NOAA FORM #75-96)
- 1 H-DRAWING ON MYLAR FOR NOS CHART 11480
- 3 COMPOSITE DRAWINGS ON PAPER FOR NOS CHART 11480

FROM: (Signature)

Delores A. Blund

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

[NOAA \ NATIONAL OCEAN SERVICE]
 ATLANTIC HYDROGRAPHIC BRANCH N/CS33
 439 WEST YORK STREET
 NORFOLK, VA. 23510-1114]

08/15/2001

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H10947

NUMBER OF CONTROL STATIONS		2
NUMBER OF POSITIONS		12388
NUMBER OF SOUNDINGS		12388
	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	34.0	10/06/2000
VERIFICATION OF FIELD DATA	204.0	07/11/2001
QUALITY CONTROL CHECKS	0.0	
EVALUATION AND ANALYSIS	46.0	
FINAL INSPECTION	7.0	02/22/2001
COMPILATION	21.0	07/02/2001
TOTAL TIME	312.0	
ATLANTIC HYDROGRAPHIC BRANCH APPROVAL		06/29/2001

**ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H10947 (1999-2000)**

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
I/RAS B, version 5.01

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

H. CONTROL STATIONS

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD 83). 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 0.765 seconds (23.576 meters or 0.295 mm at the scale of the survey) north in latitude, and 0.921 seconds (24.279 meters or 0.303 mm at the scale of the survey) east in longitude.

L. COMPARISON WITH PRIOR SURVEYS

A comparison with prior surveys was not done during office processing in accordance with section 6.9 of the Hydrographic Survey Letter of Instruction dated May 20, 2000.

**N. COMPARISON WITH CHART 411 (47th Edition, OCT 24/98)
11009 (35th Edition, AUG 07/99)
11480 (36th Edition, JUL 03/99)**

Hydrography

The charted hydrography originates with prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in section N. of the Descriptive Report.

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

O. ADEQUACY OF SURVEY

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

R. 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 National Ocean Survey Charts were compiled using the present survey:

11480 37th Edition, OCT 21/00 449,659

H10947

Franklin L. Saunders

Franklin L. Saunders

Cartographic Technician

Verification of Field Data

Evaluation and Analysis

APPROVAL SHEET
H10947

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
Cartographer,
Atlantic Hydrographic Branch

Date: 6-28-01

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.



James S. Verlaque
Lieutenant Commander, NOAA
Chief, Atlantic Hydrographic Branch

Date: 6/29/2001

Final Approval:

Approved: 

Samuel P. DeBow
Captain, NOAA
Chief, Hydrographic Surveys Division

Date: September 28, 2001

