H10704

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. WH-10-8-96

Registry No. H-10704

LOCALITY

State NORTH CAROLINA

General Locality NORTH ATLANTIC OCEAN

Sublocality 14 NM SOUTH OF BALD HEAD ISLAND

19 96

CHIEF OF PARTY

CDR M. R. Kenny, NOAA

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DATE MAR 27 1998

☆U.S. GOV. PRINTING OFFICE: 1987—756-980

NOAA FORM 77-28 (11-72)

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

REGISTRY NUMBER: H-10704

HYDROGRAPHIC TITLE SHEET

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-10-08-96

State: North Carolina
General locality: North Atlantic Ocean
Locality: 14 Nautical Miles South of Bald Head Island

Scale: 1: 10,000 Date of survey: July 23 to Nov 24, 1996

Instructions dated: May 03, 1996 Project Number: OPR-G309-WH-96

Vessel: NOAA Ship WHITING S-329

Chief of Party: CDR Maureen R. Kenny
Surveyed by: M.R. Kenny, A.L. Beaver, P.A. Gruccio, J. Pikulsky, E.J. Sipos, C.E. Parrish, R.C. Jones, J.D. Garte, U.L. Gardner, P.G. Lewit, K.B. Shaver, F.R. Cruz.

Soundings taken by echo sounder, hand lead-line, or pole: DSF-6000N fathometer
Graphic record scaled by: WHITING personnel
Graphic record checked by: WHITING personnel
Protracted by: N/A Automated plot by: Zeta 936 Plotters (FIELD) ENCAD NOVA JET II PLOTTER(S)
Verification by: Hydrographic Surveys Branch PERSONNEL

Soundings in: Feet: ✓ Fathoms: ____ Meters: (✓) at MLW: ____ MLLW: (✓)

Remarks: Time Zone Used: 0 (UTC)

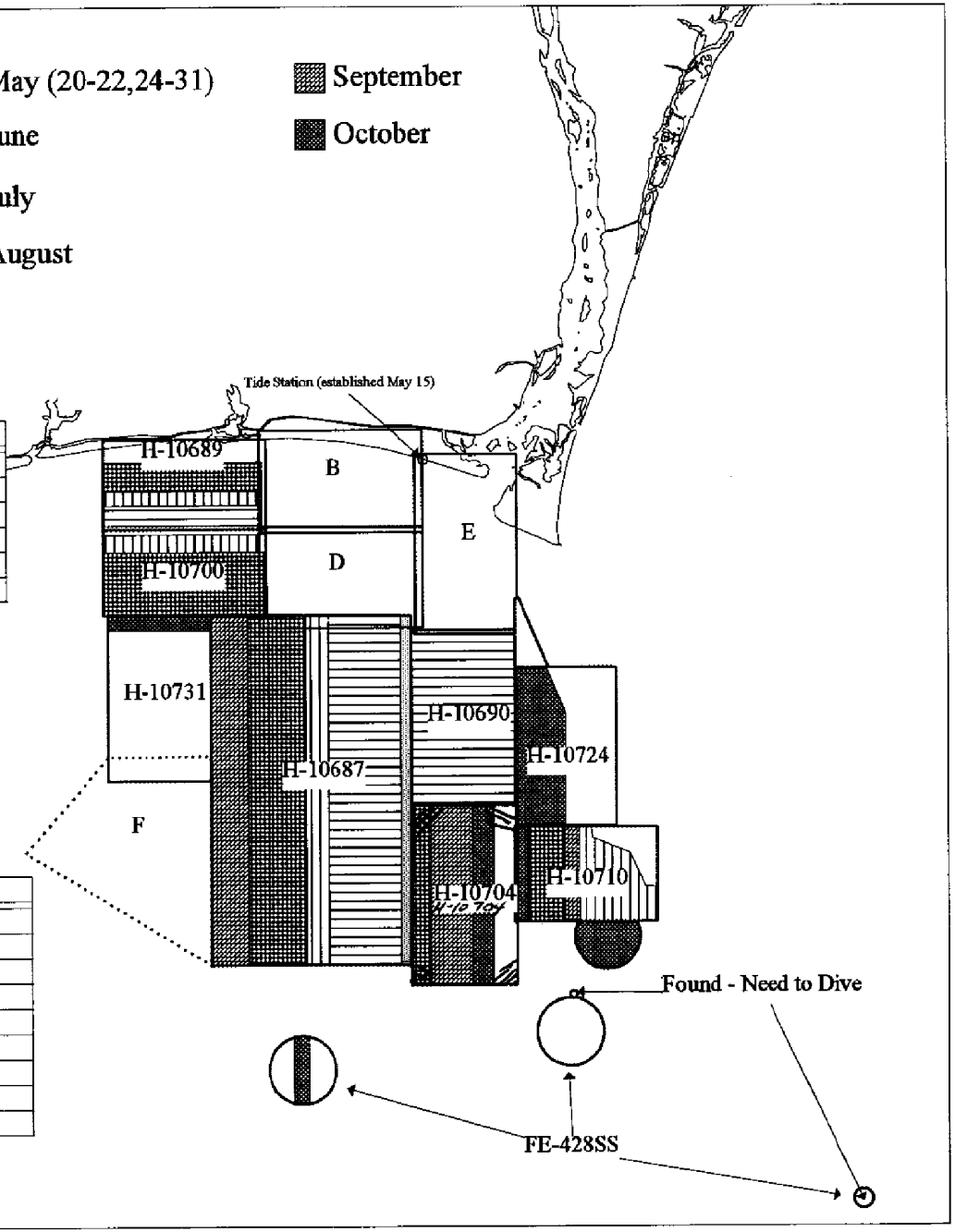
Horizontal Datum: NAD 83

NOTES IN DESCRIPTIVE REPORT WERE made IN RED during Office Processing.

AWOIS + SVRF ✓ 8/98 RWD

PROGRESS SKETCH - OCT 1996
OPR-G309-WH-96
Approaches to Wilmington,NC
NOAA Ship WHITING
CDR Maureen R. Kenny, CMDG.

May (20-22,24-31)
June
July
August
September
October



Accomplished	May	June	July	Aug	Sept	Oct	Nov
LNM Hydro	222	276	120	32	141	121	
LNM SSS	200	1985	659	2205	1041	884	
Sq NM Surveyed	8.5	86	26.8	92.6	37.2	34.3	
AWOIS Items	0	0	0	0	4	2	
Dives	0	7	4	12	6	8	
Bottom Samples	44	36	26	0	28	24	

Downtime_Hrs	May	June	July	Aug	Sept	Oct	Nov
Weather	4	73	218	88	188	237	
Electronics	1	114	13	22	16	8	
Mechanical	0	7	0	0	0	40	
Other	0	7	0	2	4	3	

Reg_No	Started	Est_Complete	Complete	Submitted
H-10687	5/20/96	Completed	10/22/96	
H-10689	5/30/96	Completed	9/27/96	
H-10690	5/31/96	Completed	10/16/96	
H-10700	6/25/96	Completed	10/18/96	
H-10704	7/23/96	11/25/96	65%	
H-10710	8/25/96	11/25/96	95%	
H-10724	9/28/96	11/25/96	70%	
FE-428	8/02/96	11/25/96	25%	
H-10731	10/23/96	11/25/96	10%	

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY
OPR-G309-WH
WH-10-08-96
H-10704

NOAA SHIP WHITING
CDR Maureen Kenny, NOAA
Commanding Officer

A. PROJECT

The purpose of this project is to provide contemporary hydrographic survey data to update existing nautical charts of the approaches to Wilmington, North Carolina. The project is being conducted in response to requests from the United States Coast Guard (USCG), the United States Army Corps of Engineers, the North Carolina State Ports Authority, and the Wilmington-Cape Fear Pilots Association. Project OPR-G309-WH-96 consists of twelve survey sheets. The survey described in this report was designated "K" sheet, field sheet number WH-10-08-96, and registry number H-10704. Survey operations were conducted in compliance with the Hydrographic Project Instructions OPR-G309-WH-96 dated May 3, 1996.

B. AREA SURVEYED

Hydrographic survey H-10704 is located 14 nautical miles south of Bald Head Island, North Carolina. The limits of hydrography are bounded by the following positions:

Position	Latitude	Longitude
1	33° 32' 48" N	077° 59' 41" W
2	33° 40' 03" N	077° 59' 41" W
3	33° 40' 03" N	078° 04' 35" W
4	33° 32' 48" N	078° 04' 35" W

Survey operations commenced on July 23, 1996 (DN 205) and concluded on November 24, 1996 (DN 329).

C. SURVEY VESSELS

NOAA Ship WHITING (vessel number 2930) was used to conduct mainscheme sounding data, side scan sonar, crosslines, sound velocity casts, mainscheme echosounder splits, and bottom

samples. Launch 1014 (vessel number 2932) was used to conduct contact developments and dive operations. No unusual problems or equipment configurations were encountered.

D. AUTOMATED DATA ACQUISITION AND PROCESSING SEE ALSO EVALUATION Report

Survey data acquisition and processing were accomplished using the HDAPS system with the standard HDAPS software dated March 28, 1996. Sound velocity corrections were determined using *CAT* version 2.00 and *VELOCITY* version 2.10. The DGPS stations were checked using *MONITOR* version 1.2. The MOD III Diver Least Depth Gauge was checked using the *DAILYDQA* program. There were no nonstandard automated acquisition or processing methods used.

E. SIDE SCAN SONAR EQUIPMENT

Side scan sonar (SSS) operations were conducted using an EG&G model 260 slant-range corrected SSS recorder and an EG&G 272-T dual-channel towfish. The towfish was operated on the 100 kHz frequency and configured with a 20° beam depression. The following SSS equipment was used:

Vessel	Type	S/N	DN
2930	Towfish	16630	225-256
		11904	263-272
		16699	273-293
		16697	294-307
		16700	309-329
	Recorder	16942	225-234
		16946	254-310
		16942	310-329
2932	Towfish	11591	270
	Recorder	16669	270

On NOAA Ship WHITING, the SSS towfish was deployed from a Reuland winch using one of two armored cables in conjunction with an A-frame on the stern. The armored cable was connected to the SSS recorder by a slip-ring assembly. On launch 1014 the SSS towfish was deployed using a Superwinch in conjunction with an adjustable davit arm on the stern. The SSS towfish was towed with a vinyl-coated Kevlar cable and was connected to the recorder by a slip-ring assembly.

This survey required 200% side scan sonar coverage. Proper coverage was achieved by running mainscheme lines with 55-meter line spacing on the 75-meter range scale. This line spacing

provided for proper overlap as required by Field Procedures Manual, section 7.3.2.2. Adequate coverage was ensured by plotting alternate mainscheme lines on 'A' and 'B' swath plots and verifying 100% coverage on each plot.

The towfish was maintained at a height off the bottom of 8-20 percent of the range scale. Side scan operations were limited to a speed-over-ground of 4-6 knots. Confidence checks were performed by noting changes in linear bottom features extending to the outer edges of the sonargram, by passing aids to navigation, or by towing the sonar by a known contact.

Contacts were measured off the sonargram and entered into an HDAPS contact table* which automatically determined contact heights, positions, and correlation to other contacts. Contacts appearing significant were further investigated by SSS development and then by divers if deemed necessary. Least depths were determined by a MOD III Diver Least Depth Gauge (S/N 68332) and final positioning of significant items was determined with detached positions taken on diver-placed buoys.*

F. SOUNDING EQUIPMENT

Raytheon Digital Survey Fathometer (DSF-6000N) echosounders were used to measure water depths during the survey. The DSF-6000N produced a graphic record of the high frequency (100 kHz) and low frequency (24 kHz) depths. The high and low frequency digital depths were recorded by the HDAPS acquisition system. The high frequency depths were selected as the primary depths and were used for plotting. All echograms were scanned and check-scanned for significant features. Significant features that were not selected as primary soundings were manually inserted.

The following fathometers were used:

Vessel	S/N	DN
2930	C076N	205-234
	B046N	237-329
2932	A108N	270

Electronic technicians performed accuracy checks and preventive maintenance on all of the DSF-6000N echosounders used.

Least depths on diver investigations in the survey area were acquired by using the MOD III Diver Least Depth Gauge (S/N 68332).

G. CORRECTIONS TO SOUNDINGS

* DATA Filed with field records.

Sound velocity profiles of the water column were determined using a Seacat Conductivity, Temperature and Depth (CTD) profiler (model SBE-19, S/N 286 and S/N 1060). The CTD profilers were calibrated on January 10, 1996. The Seacat calibration records are included in the Separates, section IV.*

A corrector table was generated for the ship (vessel number 2930) for each velocity cast taken. Additionally, a corrector table was generated for the launch (vessel number 2932). The following table shows the dates, locations and the table depths of each velocity cast that was applied to the data collected in this survey area:

DN	Velocity Table #	Latitude	Longitude	Depth
200	16 (ship)	33° 34' 26" N	078° 11' 01" W	26.7 m
214	19 (ship)	33° 34' 48" N	078° 10' 28" W	25.2 m
221	23 (ship)	33° 35' 00" N	078° 10' 40" W	22.7 m
234	25 (ship)	33° 34' 52" N	078° 10' 32" W	26.7 m
256	29 (ship)	33° 33' 00" N	078° 00' 54" W	30.6 m
270	35 (ship)	33° 32' 42" N	078° 02' 36" W	26.8 m
270	36 (launch)	33° 32' 42" N	078° 02' 36" W	26.8 m
294	39 (ship)	33° 32' 40" N	077° 57' 10" W	31.3 m
309	41 (ship)	33° 30' 54" N	078° 00' 48" W	31.0 m
324	50 (ship)	33° 33' 00" N	077° 59' 18" W	26.1m

Additional sound velocity casts were taken to ensure a uniform water column over the project area. When the shallow water casts were similar to the deeper casts, only the deeper casts were used. Each cast was processed and corrector tables generated using *CAT* version 2.00 and *VELOCITY* version 2.10. The velocity correctors were manually entered into an HDAPS velocity table where correctors were applied to both the high and low frequency beams during data acquisition. Velocity profile data are included in the Separates, section IV.*

Data Quality Assurance (DQA) for the Seacat CTD profilers was performed by using a hydrometer and a thermometer to measure the density and temperature of a surface water sample taken during the CTD cast. The *CAT* program compared these values to the Seacat's surface values and confirmed that the Seacat was working properly. WHITING hydrometers were calibrated on March 25, 1996. Correctors were applied to the readings taken from the hydrometer.

There were no variations in instrument initials.

The *DAILYDQA* program used in conjunction with the ship's barometer was used to assure that the MOD III Diver Least Depth Gauge was working properly. Daily results fell within specified operating ranges. CTD casts were used in the *SMLGAUGE* program to calculate least depth measurements.

* Data filed with field records.

Bar checks were performed on launch 1014 on April 22, 1996 (DN 113) and on August 8, 1996 (DN 221). Leadlines and bar checks were performed on launch 1014 on November 17, 1996 (DN322). No corrections to soundings were needed. Copies of the bar and lead-line check data are included in the Separates, section IV. *

A leadline comparison was performed on WHITING on April 22, 1996 (DN 113) and on November 18,1996 (DN 323). Weather and sea conditions were calm and proved ideal for performing the leadline comparison. In both cases, the results showed excellent agreement with DSF-6000N high frequency depths averaging 0.04 meters deeper than leadline depths. No corrections to soundings were needed. Copies of the leadline comparison data are included in the Separates, section IV* Leadlines used were calibrated on December 14, 1995, and the calibration confirmed that the leadline error was negligible.

The static draft correction for launch 1014 is 0.55 meters and was measured on July 28, 1993. The corrector was entered into HDAPS Offset Table 2.* The correction for static draft for WHITING is 3.2 meters, a historical value which WHITING divers confirmed with a MOD III Diver Least Depth Gauge on May 11, 1995. The corrector was entered into Offset Table 9* Static draft correctors were applied to the sounding data in real time for each survey platform.

Settlement and squat values for launch 1014 were determined on March 25, 1996, and were entered into Offset Table 2.* Settlement and squat values for WHITING were determined on March 26, 1996, and were entered into Offset Table 9.* The settlement and squat correctors were applied to the sounding data in real time for each survey platform. Offset tables are included in the Separates, section II.*

Heave correctors for launch 1014 were applied during post processing by manually scanning the echograms and making the appropriate corrections. For data acquired by WHITING, the HDAPS data acquisition computer logged and applied, in real time, heave data from a heave, roll and pitch sensor (HIPPY, S/N 19109-C).

The tidal datum for this project was Mean Lower Low Water (MLLW). The operating tide station at Springmaid Pier, North Carolina (866-1070) served as the reference station for predicted tides. The water level sensor was located at Yaupon Beach, North Carolina (865-9182) and was maintained by WHITING. Tidal data used during data acquisition were based on Table 2 of the East Coast of North and South America Tide Tables. Digital tidal data were received on floppy disk from N/CS33, Hydrographic Surveys Branch, and were applied to the digital data during acquisition by HDAPS. A request for smooth tide data was submitted to Product Services Branch, Datum Section, on November 27, 1996 (DN 332). APPROVED TIDES & ZONING were applied during office processing.

Time and height correctors used for this survey are as follows:

Time Correction	00 hrs 00 mins
Height Ratio	x 0.97

* Data filed with field records

H. CONTROL STATIONS SEE ALSO EVALUATION Report

The horizontal datum for this project is the North American Datum of 1983 (NAD 83). The source of differential correctors used was a USCG maintained Differential Global Positioning System (DGPS) station at Fort Macon, North Carolina, and at Charleston, South Carolina. Positions obtained from USCG reference listings are:

Station	Latitude	Longitude
Charleston USCG DGPS Beacon	32° 45.45357' N	079° 50.57225' W
Fort Macon USCG DGPS Beacon	34° 41.84333' N	076° 40.98706' W

WHITING used *MONITOR* 1.2 to verify station positions and to check for multipath in the area. The digital data obtained from the *MONITOR* 1.2 program were forwarded to N/CS31 in September 1996. Printouts from the *MONITOR* program are included in the Separates, section III. * Data filed with field records

I. HYDROGRAPHIC POSITION CONTROL

DGPS was used as the navigation system for this survey. The launch and the ship used an Ashtech Sensor GPS receiver with a CSI MBX1 beacon receiver supplying correctors for DGPS navigation. Ashtech receivers were initialized by HDAPS and the CSI MBX1's were preset to the appropriate station and frequency.

DGPS positioning was accomplished in accordance with the Field Procedures Manual, section 3.4. The HDOP limit for a 1:10,000 scale survey using the Charleston and Fort Macon stations is 3.2. No position flyers were encountered. All suspect positions (high HDOP, DR'ed positions, high EPE) were examined for reliability. Questionable positions were either smoothed or rejected and annotated on the on-line printout.

The serial numbers of the Ashtech Sensor and CSI MBX1 receivers on the data acquisition platforms are as follows:

Vessel	Device	Serial Number
2930	Ashtech Sensors	700417B1203
	CSI MBX1	A003789
2932	Ashtech Sensor	700417B1055
	CSI MBX1	X-1079

DGPS performance checks on NOAA Ship WHITING were determined by using *SHIPDIM* version 2.1. The position determined using correctors from the Charleston DGPS tower was compared to the position determined using correctors from the Fort Macon DGPS beacon using

two independent DGPS systems. *SHIPDIM* routinely showed the positions given by the two systems to be within 2-3 meters of each other.

DGPS performance checks for launch 1014 were conducted while secured in the WHITING davits using correctors from the Charleston DGPS tower. Simultaneous HDAPS positions were compared with WHITING. An offset in distance and azimuth was then calculated between the ship and launch system. A summary of the DGPS performance checks is included in the Separates, section III. All DGPS performance checks confirmed that the equipment was working properly.

DGPS antenna offsets were measured on March 19, 1993, for WHITING. Offsets and laybacks were measured using the high frequency echosounder transducer as the reference. A DGPS antenna was installed on launch 1014 on April 2, 1996, directly over the echosounder transducer. Antenna height was also measured on the same respective dates shown above, using the water line as the reference. The offsets and laybacks were applied by HDAPS on-line. A minimum of four satellites were used during survey H-10704 (1:10,000) providing altitude unconstrained positioning.

Offset, layback, and height corrections for the launch's SSS aft towing boom were measured on July 28, 1993, and verified on April 5, 1994. All offset, layback, and height data were applied by HDAPS on-line. Correctors from Offset Table 2* were applied to all data acquired from launch 1014. Offset, layback, and height for WHITING's SSS towfish A-frame were measured on July 27, 1992, using the forward high frequency transducer as the reference. Correctors were entered into Offset Table 9.*

J. SHORELINE

There is no shoreline within the limits of survey H-10704.

K. CROSSLINES

A total of 74.4 nautical miles of crosslines, or 7% of the mainscheme mileage, was run on H-10704. Agreement between mainscheme and crossline soundings is adequate. In general, crossline soundings agree with mainscheme soundings to within 0.2 meters and were randomly shoal and deep with no noticeable trends. Discrepancies of up to 0.6m were noted and could possibly be due to inclement weather in the area and/or inaccurate predicted tides.

* Data filed with field records.

L. JUNCTIONS SEE ALSO EVALUATION REPORT

H-10704 junctions with the following three surveys: H-10687 (Sheet "G", 1:20,000) to the west, H-10690 (Sheet "H", 1:10,000) to the north, and H-10710 (Sheet "L", 1:10,000) to the east. No overlapping sounding lines are required with adjacent sheets since they are a part of the same project, same year, same method, and same vessel number as stated in the Hydrographic Manual, Sec. 1.4.4. Agreement between overlapping soundings at the junction of H-10687, H-10690, and H-10710 is adequate with soundings agreeing to within 0.3 meters. Alignment between contour lines at the junction of H-10687, H-10690 and H-10710 is adequate.

M. COMPARISONS WITH PRIOR SURVEYS SEE ALSO EVALUATION REPORT

Comparisons were made between H-10704 and the following prior surveys: H-9116 (1970, 1;20,000), and H-9117 (1970, 1;40,000). All comparisons were made in feet. All prior surveys were referenced to NAD 27. The datum shift between NAD 27 and NAD 83 was calculated using *CORPSCON* (version 2.1) software and determined to be insignificant (1.0 mm at 1:20,000). No datum shift was applied in the comparisons. Results of the comparisons are as follows:

H-9116

In general, the soundings agree to within 2 feet with prior survey H-9116. The mainscheme soundings of H-10704 were generally deeper, except as noted below. The greatest difference noted was 3 feet.

The shoal area centered at approximately 33°38'15"N and 078°00'20"W, with a north-south orientation, was found to be 2 feet shoaler than the prior survey. The shoal area centered at approximately 33°37'20"N and 078°00'30"W, with a north-south orientation, was also found to be 2 feet shoaler than the prior survey.

H-9117

In general, the soundings agree to within 2 feet with prior survey H-9117, with deeper soundings on H-10704. The greatest difference noted was 3 feet. No shoals were present within this area.

N. ITEM INVESTIGATIONS

There were no AWOIS items within the sheet limits. No significant contacts were found with side scan sonar in the survey area.

O. COMPARISON WITH THE CHART SEE ALSO EVALUATION REPORT.

Comparisons were made between survey H-10704 and chart 11536 (12th edition, dated Sept 4/93, 1:80,000). Comparisons were made in meters at 1:10,000 scale. In general, agreement is adequate with charted depths agreeing with survey soundings to within 0.7 meters. The overall trend appears to be a slight deepening throughout the survey area.

P. ADEQUACY OF SURVEY SEE ALSO EVALUATION REPORT.

This survey is complete and adequate to supersede all prior surveys in their common area.

Q. AIDS TO NAVIGATION

There are no aids to navigation in the survey area.

R. STATISTICS

Number of Positions	8450
Main-scheme Sounding Lines (Nautical Miles)	1079
Crosslines (Nautical Miles)	74.4
Square Nautical Miles Surveyed	27.9
Days of Production	39
Detached Positions	0
Bottom Samples	25
Tide Stations Installed	1
Current Stations	None
Number of CTD Casts	9
Magnetic Stations	None

S. MISCELLANEOUS

No anomalies in either tides or current were observed and no unusual magnetic variations were encountered in the survey area. No unusual submarine features were discovered. Bottom samples were submitted to the Smithsonian Institution.

T. RECOMMENDATIONS SEE ALSO SECTION P OF THE EVALUATION REPORT.

No additional field work is required. There are no current plans for construction or dredging in the survey area.

U. REFERRAL TO OTHER REPORTS

A Chart User Evaluation Report was submitted in February 1997 as part of OPR-G309-WH-96. A Coast Pilot Report was submitted on December 1996.

Submitted by:

Kevin B Shaver, Senior Survey Technician
NOAA Ship WHITING

APPROVAL SHEET
HYDROGRAPHIC SURVEY
OPR-G309-WH
1996
WH-10-8-96
H-10704

The data for this survey were acquired and checked under my daily supervision. Position and sounding accuracy meet the requirements specified in the Project Instructions, Hydrographic Manual, Hydrographic Survey Guidelines and the Field Procedures Manual for Hydrographic Surveying. This survey is complete and adequate for the intended purpose of delineating bottom topography, determining depths, and identifying all potential dangers to navigation. No final field sheets were prepared for this survey. The survey data and accompanying records are complete for the preparation of the smooth sheet.

Approved by:

Maureen R. Kenny

Commander Maureen R. Kenny, NOAA
Commanding Officer, NOAA Ship WHITING

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Ocean and Earth Sciences
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: February 5, 1997

HYDROGRAPHIC BRANCH: Atlantic

HYDROGRAPHIC PROJECT: OPR-G309-WH

HYDROGRAPHIC SHEET: H-10704

LOCALITY: Approaches to Wilmington, North Carolina

TIME PERIOD: July 23 - November 24, 1996

TIDE STATION USED: 865-9182 Yaupon Beach, N.C.
Lat. 33° 54.1'N Lon. 78° 04.9'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.512 meters

REMARKS: RECOMMENDED ZONING

Use zone(s) identified as: EC145

Refer to attachment(s) for the zoning information.

Note: Provided time series data are tabulated in metric units (meters) and on Greenwich Mean Time.

CHIEF, TIDAL ANALYSIS BRANCH

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10690

Name on Survey	A ON CHART NO. 11536, 11537, 11520	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	
CAPE FEAR RIVER (title)	X		X							1
NORTH ATLANTIC OCEAN	X		X							2
NORTH CAROLINA (title)	X		X							3
										4
										5
										6
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										25

Approved

Chief Geographer

MAR 10 1997

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 61-29
(12-71)

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

REFERENCE NO.

N/CS33-24-98

LETTER TRANSMITTING DATA

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

[ ] ORDINARY MAIL [ ] AIR MAIL

[ ] REGISTERED MAIL [X] EXPRESS

[ ] GBL *(Give number)*

TO:

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

DATE FORWARDED

3-23-98

NUMBER OF PACKAGES

1 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.

H10704

North Carolina, North Atlantic Ocean, 14 NM South of Bald Head Island

1 (one) Tube containing the following:

1 H-drawing for chart #11536
3 Composite drawings for chart #11536
1 Smooth Sheet for Survey H10704
1 Original Descriptive Report for H10704 containing 1 HISTORY OF CARTOGRAPHIC WORK (NOAA FORM 76-71) for chart #11536

FROM: *(Signature)* Richard W. Blevins

Richard W. Blevins

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.

03/23/98

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H-10704

NUMBER OF CONTROL STATIONS	2
NUMBER OF POSITIONS	8450
NUMBER OF SOUNDINGS	43768

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	64	02/20/97
VERIFICATION OF FIELD DATA	34	03/12/97
EVALUATION AND ANALYSIS	7	
FINAL INSPECTION	12	03/12/97
COMPILATION	135	03/20/98
TOTAL TIME	252	

ATLANTIC HYDROGRAPHIC BRANCH APPROVAL 03/14/97

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H-10704 (1996)

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
AutoCAD, Release 12
QUICKSURF, version 5.1
MicroStation 95, version 5.05
I/RAS B, version 5.01

The smooth sheet was plotted using an ENCAD NovaJet III 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 0.639 seconds (19.701 meters or 1.97 mm at the scale of the survey) north in latitude, and 1.038 seconds (26.770 meters or 2.68 mm at the scale of the survey) east in longitude.

L. JUNCTIONS

H-10687 (1996) to the west
H-10690 (1996) to the north

Standard junctions were effected between the present survey and H-10687 (1996) and H-10690 (1996).

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

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 CHARTS 11536 (12th Edition, Sept 4/93)

Hydrography

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

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.

WHITING Processing Team

Franklin L. Saunders
Cartographic Technician
Verification of Field Data
Evaluation and Analysis

Norris A. Wike
Cartographer

APPROVAL SHEET
H-10704

Initial Approvals:

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

Robert G. Roberson Date: MARCH 14, 1997
Robert G. Roberson
Chief, Cartographic Section

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.

Nicholas E. Perugini Date: March 14, 1997
Nicholas E. Perugini
Commander, NOAA
Chief, Atlantic Hydrographic Branch

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Final Approval:

Approved: Andrew A. Armstrong, III Date: March 25, 1998
Andrew A. Armstrong, III
Captain, NOAA
Chief, Hydrographic Surveys Division

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10704

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
11536	2/17/98	Richard Blevins	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
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SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.