H10700

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic/ Side Scan Sonar

Field No. AHP 10-7-96

Registry No. H-10700

LOCALITY

State North Carolina

General Locality North Atlantic Ocean

Sublocality 5.5 NM SSW of Lockwoods Folly Inlet

19 96

CHIEF OF PARTY
CDR M.R. Kenny, NOAA

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DATE MAR 27 1998

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NOAA FORM 77-28
(11-72)

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

REGISTRY NUMBER:

H-10700

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-10-7-96

State: North Carolina

General locality: Atlantic Ocean

Locality: 5.5 NM South-southwest of Lockwoods Folly Inlet, NC

Scale: 1: 10,000 Date of survey: June 25 to October 18, 1996

Instructions dated: May 3, 1996 Project Number: OPR-G309-WH

Vessel: NOAA Ship WHITING (S-329)

Chief of Party: CDR Maureen R. Kenny, NOAA

Surveyed by: M.R. Kenny, A.L. Beaver, P.A. Gruccio, J. Pikulsky, C.E. Parrish, E.J. Sipos, R.C. Jones, G. Garte, U.L. Gardner, M.M. Cisternelli, P. Lewit, K. Shaver, F.R. Cruz,

Soundings taken by echo sounder, hand lead-line, or pole: DSF 6000N fathometer

Gaphic record scaled by: WHITING personnel

Graphic record checked by: WHITING personnel

:acted by: N/A Automated plot by: ENCAD NOVA JET II Plotter (AHS) HP 7959, Brunine (Field)

verification by: ATLANTIC Hydrographic Section Personnel

Soundings in: Feet: ___ Fathoms: ___ Meters: (*) at MLW: ___ MLLW: (*);

Remarks: NOTES in The Descriptive Report were made in Red during Office Processing.

Time zones used: 0 (UTC)

Horizontal Datum used: NAD 83

AWOIS and SURF ✓ 3/98 RWD

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NO.6

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY
OPR-G309-WH
WH-10-7-96
H-10700

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, the United States Army Corps of Engineers, the North Carolina State Ports Authority, and the Wilmington-Cape Fear Pilots Association. Project OPR-G309-WH consists of twelve survey sheets. The survey described in this report was designated "C" sheet, field sheet number WH-10-7-96, and registry number H-10700. Survey operations were conducted in compliance with the Hydrographic Project Instructions OPR-G309-WH dated May 3, 1996.

B. AREA SURVEYED

Hydrographic survey H-10700 is located 5.5 nautical miles south southwest of Lockwoods Folly Inlet, North Carolina. The limits of hydrography are bounded by the following positions:

Position	Latitude	Longitude
1	33° 51' 11.60" N	078° 19' 32.20" W
2	33° 51' 11.60" N	078° 11' 38.00" W
3	33° 47' 40.60" N	078° 11' 38.00" W
4	33° 47' 40.60" N	078° 19' 32.20" W

Survey operations commenced on June 25, 1996 (DN 177) and concluded on October 18, 1996 (DN 292).

C. SURVEY VESSELS

NOAA Ship WHITING (vessel number 2930), launch 1015 (vessel number 2931) and launch 1014 (vessel number 2932) were used to conduct mainscheme sounding data acquisition, side

scan sonar, crosslines, sound velocity casts, mainscheme echosounder splits, bottom samples, 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 2.11. The DGPS station was 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-TH dual-channel, dual-frequency 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	178-234
	Recorder	16942	177-234
2931	Towfish	11904	211-228
	Towfish	11630	234-237
	Towfish	11902	242
	Recorder	16669	211-242
2932	Towfish	11591	234-269
	Recorder	16673	234-237
	Recorder	16669	268-269

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 launches 1014 and 1015, 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 80-meter line spacing at the 100-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 and by passing aids to navigation.

Contacts were measured off the sonargram and entered into an HDAPS contact table.* Using the contact utility program, WHITING hydrographers determined contact heights, positions, and correlations to other contacts. Contacts appearing significant were further investigated by SSS development 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 for significant features and any significant features that were not selected as primary soundings were manually inserted.

The following fathometers were used:

Vessel	S/N	DN
2930	C076	177-234
	B046N	272-274
2931	A116N	211-228
	A118N	234-237
	C076N	242
2932	A108N	234-292

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 using the MOD III Diver Least Depth Gauge (S/N 68332).

* DATA filed with Field Records.

G. CORRECTIONS TO SOUNDINGS

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 launches (vessel numbers 2931 and 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
177	8 (ship)	33° 47' 17" N	078° 14' 51" W	18.7 m
199	14 (ship)	33° 47' 20" N	078° 12' 26" W	18.4 m
220	21 (ship)	33° 46' 54" N	078° 12' 24" W	20.8 m
220	22 (launches)	33° 46' 54" N	078° 12' 24" W	20.8 m
234	27 (ship)	33° 47' 31" N	078° 13' 12" W	21.1 m
234	28 (launches)	33° 47' 31" N	078° 13' 12" W	21.1 m
257	31 (ship)	33° 46' 42" N	078° 14' 00" W	19.8 m
257	32 (launches)	33° 46' 42" N	078° 14' 00" W	19.8 m
269	34 (dive launch)	33° 49' 45" N	078° 13' 09" W	16.7 m

Additional sound velocity casts were taken to ensure a uniform water column over the project area. When the shallow water casts were similar to deeper casts, only the deeper casts were used. Each cast was processed and corrector tables generated using *CAT* version 2.00 and *VELOCITY* version 2.11. 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 *DAILDQA* 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). A bar check was performed on launch 1015 on April 22, 1996 (DN 113). No corrections to soundings were needed. Copies of the bar check data are included in the Separates, section IV. *

A leadline comparison was performed on WHITING on April 22, 1996 (DN 113). Leadlines used were calibrated on December 14, 1995, and the calibration confirmed that the leadline error was negligible. Weather and sea conditions were calm and proved ideal for performing the leadline comparison. The results showed excellent agreement with DSF-6000N high frequency depths averaging 0.04 meters deeper than leadline depths. Copies of the leadline comparison data are included in the Separates, section IV. *

The correction for the static draft for launches 1014 and 1015 is 0.55 meters and was measured on July 28, 1993. The corrector was entered into Offset Tables 2* and 1*, respectively. 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 launch 1015 were determined on March 18, 1996, and were entered into Offset Table 1.* 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 and 1015 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. Approved Tides and 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. In addition, WHITING used a USCG maintained Differential GPS station at Charleston, South Carolina, for performance checks. 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. Both launches 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.

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
2931	Ashtech Sensor	700417B1194
	CSI MBX1	X-1088
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 launches 1014 and 1015 were conducted with each launch secured in the WHITING davits and with all platforms using correctors from the Charleston DGPS tower. Simultaneous HDAPS positions were compared between WHITING and each launch. An offset in distance and azimuth was then calculated between the ship and each 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. DGPS antennae were reinstalled on launches 1014 and 1015 on April 2, 1996, directly over the echosounder transducers. Antenna heights were 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 was used during survey H-10700 (1:10,000) providing altitude unconstrained positioning.

Offset, layback, and height corrections for each 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 1* were applied to all data acquired from launch 1015. 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-10700.

K. CROSSLINES

A total of 85.3 nautical miles of crosslines, or 14% of the mainscheme mileage, was run on H-10700. Agreement between mainscheme and crossline soundings is adequate. In general, crossline soundings agree with mainscheme soundings to within 0.2 meters. A few soundings differ by 0.6 meters. Differences were randomly shoal and deep with no noticeable trends.

* DATA Filed with Field Records.

L. JUNCTIONS See also Evaluation Report.

H-10700 junctions with the following four surveys: H-10687 (Sheet "G", 1:20,000), H-10689 (Sheet "A", 1:10,000), Sheet "B" (1:10,000), and Sheet "F" (1:20,000). Agreement between overlapping soundings at the junction of H-10700 and H-10687 is satisfactory with soundings agreeing to within 0.5 meters. Alignment between contour lines at the junction of H-10700 and H-10689 is satisfactory with soundings agreeing to within 0.3 meters. Overlap between surveys H-10700 and H-10689 was not required because hydrography on the northern portion of H-10700 and the southern portion of H-10689 was collected by the same platform (Vesno 2930). Surveys on Sheet "B" and Sheet "F" will be conducted in the 1997 field season.

M. COMPARISONS WITH PRIOR SURVEYS See also Evaluation Report.

Comparisons were made between H-10700 and the following prior surveys: H-9096 (1970-1971, 1:20,000) and H-9115 (1970, 1:20,000). 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-9096

In general, the soundings agree to within 2 feet with prior survey H-9096, with deeper soundings on H-10700. The greatest difference noted was 3 feet.

H-9115

In general, the soundings agree to within 2 feet with prior survey H-9115, with deeper soundings on H-10700. The greatest difference noted was 3 feet.

N. ITEM INVESTIGATIONS SEE ALSO THE EVALUATION REPORT

The following items were investigated by WHITING during this survey. Depths of features and surrounding depths are corrected to ~~predicted~~ MLLW.
Approved Tides

N1. Wrecks and obstructions in the charted fish haven in the vicinity of latitude 33° 50' N, longitude 078° 13' W

The charted fish haven was surveyed with 200% side scan coverage, with additional side scan development in areas of dense wreckage and debris. All contacts found were within the limits of the fish haven. However, two wrecks (items 52.41 and 3268.20) which were investigated by

divers using the MODIII were found to have least depths of ~~19~~ 20 and 24 feet, respectively. The authorized minimum depth in the fish haven as charted is 30 feet. These items were sent in as dangers to navigation (see Appendix I). See Also Evaluation Report, APPENDED TO THIS REPORT.

Divers also found metal ~~wreckage~~ Debris on several contact investigations. The following is a list of contacts, their positions, least depths, and descriptions.

	Item #	DP#	Latitude	Longitude	Least Depth	Description
	52.41	3276	33° 49' 47.875" N	078° 13' 05.563" W	20 ft 6.0 m ~~19 FT~~	Wreck ~~Chart 19 wk~~
*	375.05	3188	33° 49' 46.796" N	078° 13' 03.485" W	39 ft 11.8 m ~~38 FT~~	Obstruction ~~chart 38 obstr~~
*	3268.20	3270	33° 49' 48.675" N	078° 13' 07.730" W	7.4 m 24 FT	Wreck ~~Chart 24 wk~~
*	7944.18	3191	33° 49' 41.340" N	078° 13' 03.786" W	12.1 m 38 FT.	Obstruction ~~chart 39 obstr~~
*	7944.20	3186	33° 49' 42.800" N	078° 13' 04.172" W	12.1 m 39 FT.	Obstruction chart 39 obstr
*	7944.25	3193	33° 49' 43.406" N	078° 13' 05.005" W	13.3 m 43 FT.	Obstruction ~~Do not chart~~

WHITING recommends changing the authorized minimum depth of the fish haven marked by the "AR" buoy to 19 feet and charting the wreck located at latitude 33° 49' 47.875" N, longitude 078° 13' 05.563" W, with a least depth of 19 feet. Do not concur revision to permit required to change authorized depth of Fish haven.

* Do NOT CHART - DUE TO CHART SCALE

O. COMPARISON WITH THE CHART See Also Evaluation Report.

Comparisons were made between survey H-10700 and chart 11536 (12th edition, dated Sept 4/93, 1:80,000). Comparisons were made in meters at the 1:10,000 scale. In general, agreement is adequate with charted depths agreeing with survey soundings to within 1 meter. 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 See Also Evaluation Report

One uncharted floating aid to navigation that marks a fish haven in the survey area was located and positioned using DGPS. The U.S. Coast Guard was notified of the following:

Floating ATON	Position from Survey		Date Located
Y, Round, "AR", Priv	33° 49' 47.3" N	078° 13' 05.0" W	August 24, 1996

There are no other aids to navigation in the survey area.

R. STATISTICS

Number of Positions	4339
Main-scheme Sounding Lines (Nautical Miles)	575
Crosslines (Nautical Miles)	85
Square Nautical Miles Surveyed	23
Days of Production	20
Detached Positions	7
Bottom Samples	16
Tide Stations Installed	1
Current Stations	None
Number of CTD Casts	9
Magnetic Stations	None

S. MISCELLANEOUS See also Evaluation Report

No anomalies in either tide or current and/or 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 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 will be submitted in December 1996 as part of OPR-G309-WH.
A Coast Pilot Report will be submitted in December 1996.

Submitted by:

Juliana Pikulsky

Lieutenant Juliana Pikulsky, NOAA
NOAA Ship WHITING

HORIZONTAL CONTROL STATIONS

Station:	**Charleston Coast Guard Beacon**
Latitude:	32° 45.45357' N
Longitude:	079° 50.57225' W
Frequency:	298 MHZ
Station ID (Antennae A):	016
Transmission Rate:	100 BPS

Station:	**Fort Macon Coast Guard Beacon**
Latitude:	34° 41.84333' N
Longitude:	076° 40.98706' W
Frequency:	294 MHZ
Station ID (Antennae A):	014
Transmission Rate:	100 BPS

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of NOAA Corps Operations
NOAA Ship WHITING S-329
439 W. York Street
Norfolk, VA 23510-1114

September 26, 1996

Commander, Fifth Coast Guard District
Federal Building
431 Crawford Street
Portsmouth, VA 23704-5004

Dear Sir:

The NOAA Ship WHITING, while conducting hydrographic survey operations in the approaches to Wilmington, North Carolina, located two features which constitute dangers to navigation. Enclosed are reports concerning these features which should be placed in the next Notice to Mariners. Our findings are summarized below:

Feature	Latitude	Longitude	Depth
Wreck	33° 49' 48.7" N	078° 13' 07.7" W	24 ft
Wreck	33° 44' 50.3" N	078° 14' 04.2" W	36 ft

In addition, NOAA Ship WHITING located the following uncharted aids to navigation (ATONS):

Floating ATON	Latitude	Longitude	Date Located
Y, Round, "AR" Priv	33° 49' 47.3" N	078° 13' 05.0" W	Aug 24, 1996
Y, Round, "AR 445" Priv	33° 44' 47.5" N	078° 14' 06.1" W	Sept 16, 1996

Differential GPS was used to determine the survey positions of both the ATONS and the dangers to navigation listed above. Positions are referenced to NAD 83. All depths are referenced to MLLW using predicted tides. Chart 11536 is affected by this report.

A copy of this letter and enclosures have been forwarded to the following offices:

Chief, Marine Charting Division, NOAA
Chief, AMC Operations Division, NOAA
Chief, Atlantic Hydrographic Branch, NOAA
Director, Defense Mapping Agency
Hydrographic/Topographic Agency
President, Wilmington Cape Fear Pilots Association

Sincerely,

Maureen R. Kenny

Maureen R. Kenny
Commander, NOAA
Commanding Officer

Enclosures

cc: AMC1
N/CS2
N/CS33
DMAHTC

REPORT OF DANGER TO NAVIGATION

Hydrographic Survey Registry Number:	H-10687
State:	North Carolina
Locality:	Atlantic Ocean
Sub Locality:	14 NM SSW of Cape Fear River
Project Number:	OPR-G309-WH, NOAA Ship WHITING

The following item was discovered during hydrographic survey operations:

A sunken wreck was located using side scan sonar and investigated by divers. The item is covered 36 feet corrected to MLLW using predicted tides and is located within a presently uncharted fish haven marked by a presently uncharted, unlit, yellow mooring buoy labeled "North Carolina Artificial Reef, (919) 726-7021, AR 445, Sport Fish Restoration." Positions are as follows:

Item	Affected Chart	Latitude	Longitude	Depth	Datum
Wreck	11536, 12th ed. Sept 4/93	33°44' 50.3" N	078° 14' 04.2" W	36 ft	NAD 83
Buoy	11536, 12th ed. Sept 4/93	33° 44' 47.5" N	078° 14' 06.1" W	NA	NAD 83

Questions concerning this report should be directed to the NOAA Atlantic Hydrographic Branch in Norfolk, Virginia, at telephone number (757) 441-6746.

REPORT OF DANGER TO NAVIGATION

Hydrographic Survey Registry Number:	H-10700
State:	North Carolina
Locality:	Atlantic Ocean
Sub Locality:	5.5 NM SSW of Lockwoods Folley Inlet
Project Number:	OPR-G309-WH, NOAA Ship WHITING

The following item was discovered during hydrographic survey operations:

A sunken wreck was located using side scan sonar and investigated by divers. The item is covered 24 feet corrected to MLLW using predicted tides and is located within a charted fish haven marked by a presently uncharted, unlit, yellow mooring buoy labeled "AR". Positions are as follows:

Item	Affected Chart	Latitude	Longitude	Depth	Datum
Wreck	11536, 12th ed. Sept 4/93	33°49' 48.7" N	078° 13' 07.7" W	24 ft	NAD 83
Buoy	11536, 12th ed. Sept 4/93	33° 49' 47.3" N	078° 13' 05.0" W	NA	NAD 83

Questions concerning this report should be directed to the NOAA Atlantic Hydrographic Branch in Norfolk, Virginia, at telephone number (757) 441-6746.

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of NOAA Corps Operations
NOAA Ship WHITING S-329
439 W. York Street
Norfolk, VA 23510-1114
October 22, 1996

Commander, Fifth Coast Guard District
Federal Building
431 Crawford Street
Portsmouth, Virginia 23704-5004

Dear Sir:

The NOAA Ship WHITING, while conducting hydrographic survey operations in the approaches to Wilmington, North Carolina, located a feature which constitutes a danger to navigation. The enclosed report concerning this feature should be placed in the next Notice to Mariners. Our findings are summarized below:

Feature	Latitude	Longitude	Depth
Wreck	33° 49' 47.9" N	078° 13' 05.6" W	19 ft

Differential GPS was used to determine the survey position of the danger to navigation listed above. Positions are referenced to NAD 83. All depths are referenced to MLLW using predicted tides. Chart 11536 is affected by this report.

A copy of this letter and enclosures have been forwarded to the following offices:

Chief, Marine Charting Division, NOAA
Chief, AMC Operations Division, NOAA
Chief, Atlantic Hydrographic Branch, NOAA
Director, Defense Mapping Agency
Hydrographic/Topographic Agency
President, Wilmington Cape Fear Pilots Association

Sincerely,

Maureen R. Kenny

Maureen R. Kenny
Commander, NOAA
Commanding Officer

Enclosure

cc: AMC1
N/CS2
N/CS33
DMAHTC

REPORT OF DANGER TO NAVIGATION

Hydrographic Survey Registry Number:	H-10700
State:	North Carolina
Locality:	Atlantic Ocean
Sub Locality:	5.5 NM SSW of Lockwoods Folly Inlet
Project Number:	OPR-G309-WH, NOAA Ship WHITING

The following item was discovered during hydrographic survey operations:

A sunken wreck was located using side scan sonar and investigated by divers. The item is covered 19.6 feet corrected to MLLW using predicted tides and is located within a charted fish haven marked by a presently uncharted, unlit, yellow mooring buoy labeled "AR". The position of the wreck is as follows:

Item	Affected Chart	Latitude	Longitude	Depth	Datum
Wreck	11536, 12th ed. Sept 4/93	33°49' 47.9" N	078° 13' 05.6" W	19 ft	NAD 83

Questions concerning this report should be directed to the NOAA Atlantic Hydrographic Branch in Norfolk, Virginia, at telephone number (757) 441-6746.

APPROVAL SHEET
HYDROGRAPHIC SURVEY
OPR-G309-WH
1996
WH-10-7-96
H-10700

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-10700

LOCALITY: North Atlantic Ocean

TIME PERIOD: June 25 - October 18, 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 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-10700

Name on Survey	A ON CHART NO. 11536, 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	K U.S. LIGHT LIST	
LOCKWOODS FOLLY INLET	X		X							1
(title)										2
NORTH ATLANTIC OCEAN	X		X							3
NORTH CAROLINA (title)	X		X							4
										5
										6
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										8
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Approved

Chief Geographer

NOV 26 1996

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/CS33-21-98

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:

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

DATE FORWARDED

3-11-98

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.

H-10700

North Carolina, North Atlantic Ocean
SSW of Lockwoods Folley Inlet

1 Smooth Sheet
1 H-Drawing for NOS Chart 11536
2 Composite Drawings for NOS Chart 11536

1 Original Descriptive Report
1 Evaluation & Analysis Report

FROM: *(Signature)* Maxine Fetterly

Maxine Fetterly

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

Atlantic Hydrographic Branch
N/CS33
439 W. York St.
Norfolk, VA 23510-1114

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

This form was electronically produced by Elite Federal Forms, Inc

03/11/98

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H-10700

NUMBER OF CONTROL STATIONS	2
NUMBER OF POSITIONS	4339
NUMBER OF SOUNDINGS	23387

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	5	11/05/96
VERIFICATION OF FIELD DATA	53	03/06/97
QUALITY CONTROL CHECKS	0	
EVALUATION AND ANALYSIS	1	
FINAL INSPECTION	3	03/05/97
COMPILATION	80.50	03/11/98
TOTAL TIME	143	

ATLANTIC HYDROGRAPHIC BRANCH APPROVAL 03/06/97

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H-10700 (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 0.627 seconds (19.315 meters or 1.93 mm at the scale of the survey) north in latitude, and 1.006 seconds (25.863 meters or 2.59 mm at the scale of the survey) east in longitude.

L. JUNCTIONS

H-10687 (1996) to the southeast
H-10689 (1996) to the north
H-10707 (1996) to the east
H-10731 (1996) to the southwest

Standard junctions were effected between the present survey and the surveys listed above. There are no junctional surveys to the west. Present survey depths are in harmony with the charted hydrography to the west.

M. COMPARISON WITH PRIOR SURVEYS

A comparison with prior surveys was not done during office processing in accordance with section 4. of the memorandum titled "Changes to Hydrographic Survey Processing", dated May 24, 1995.

N. ITEM INVESTIGATIONS

A charted wreck with a depth of 19 feet (6 m) in Latitude 33°49'47.88"N, Longitude 078°13'05.56"W was located by the field unit. During office processing, the least depth was determined to be 20 feet (6^2 m). Additionally a wreck with a depth of 24 feet in Latitude 33°49'48.68"N, Longitude 078°13'07.73"W, was also located. It is recommended that the charted wreck with a depth of 19 feet be revised to 20 foot Wrecks (20 Wks).

O. COMPARISON WITH CHART 11536 (13th Edition, March 15,1997)

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.

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

Dangers to Navigation

Two Danger to Navigation reports were submitted to Commander (oan), Fifth Coast Guard District, Portsmouth, Virginia for inclusion in the Local Notice to Mariners, and to the Marine Chart Division, N/CS3x1, Silver Spring, Maryland.

Copies of these reports are appended to this the report.

P. ADEQUACY OF SURVEY

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

Q. AIDS TO NAVIGATION

An uncharted buoy, "AR", in Latitude 33°49'47.35"N, Longitude 78°13'04.99"W, was located by the field unit. This buoy appears to mark the charted fish haven in the vicinity of Latitude 33°49'54"N, Longitude 78°12'36"W.

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

Robert Snow

Robert Snow
Cartographic Technician
Verification of Field Data
Evaluation and Analysis

APPROVAL SHEET
H-10700

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 6, 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 6, 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-10700

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	3-9-98	[illegible]	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.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED