H10872

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. AHB-10-1-01

Registry No. H10872

LOCALITY

State North Carolina

General Locality North Atlantic Ocean

Locality Hatteras Inlet And Approaches

2001

CHIEF OF PARTY
James S. Verlaque

LIBRARY & ARCHIVES

DATE

NOAA FORM 77-28
(11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTRY NUMBER:

H10872

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:
AHB-10-1-01

State: North Carolina

General Locality: Cape Hatteras

Locality: Hatteras Inlet and Approaches

Scale: 1:10,000 Date of survey: April 3-5, 2001

Instructions dated: April 2, 2001 Project Number: S-F903-AHB

Vessel: NOAA Launch 1017

Chief of Party: LCDR James Verlaque, NOAA

Surveyed by: Castle Parker, Richard Whitfield, Frank Saunders
Soundings by: Innerspace 448 Echosounder

Graphic record scaled by: Atlantic Hydrographic Branch Personnel

Graphic record checked by: Atlantic Hydrographic Branch personnel

Protracted by: N/A Automated plot by: HP-2500CP

Verification by: Atlantic Hydrographic Branch

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

Remarks: 1) This is a Basic Hydrographic survey
2) All times are UTC.
3) Projection is UTM Zone 18

HANDWRITTEN NOTES IN THE DESCRIPTIVE REPORT WERE MADE DURING OFFICE PROCESSING

AWOIS & SURF ✓ 8/31/01 by MBH

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* FILED WITH THE ORIGINAL FIELD RECORDS

A. PROJECT

This basic hydrographic survey was conducted in accordance with Hydrographic Survey Letter Instructions S-F903-AHB, Hatteras Inlet and Approaches, North Carolina. The original project instructions are dated April 2, 2001.

There have been no changes to the original letter instructions.

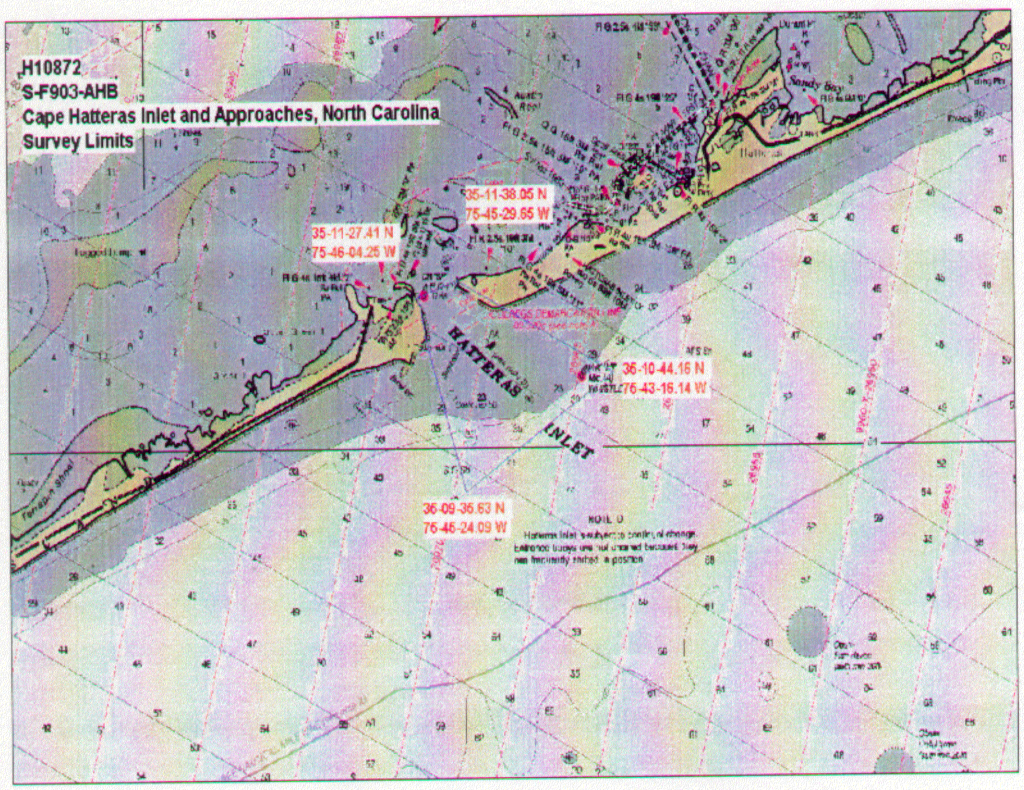
This Descriptive Report applies to survey H10872 of project S-F903-AHB as prescribed in the letter instructions.

Project S-F903-AHB has been implemented in response to a request from the United States Coast Guard for a hydrographic survey to aid in the placement of buoys at Hatteras Inlet and Approaches, North Carolina. The dynamic nature of the sea floor in the vicinity of Hatteras Inlet dictates the need for contemporary hydrography for accurate buoy placement.

B. AREA SURVEYED

This survey covers Hatteras Inlet and Approaches, in the vicinity of Cape Hatteras, North Carolina. Survey limits for H10872 are illustrated in the following chartlet (Figure 1). Data acquisition for this survey began on April 3, 2001 (DN 093) and ended on April 5, 2001 (DN 095).

Figure 1:



C. SURVEY VESSELS

The following vessel was used for data acquisition during this survey:

VESSEL	OPERATIONS
NOAA Launch 1017	Vertical Beam Echosounder, Side Scan Sonar Operations, and Detached Positions

D. AUTOMATED DATA ACQUISITION AND PROCESSING SEE ALSO THE EVALUATION REPORT.

Vertical beam echosounder (VBES) data acquisition was accomplished using Coastal Oceanographics **HYPACK** (version 10.03) software. VBES data processing was accomplished using **HYDROGRAPHIC PROCESSING SYSTEM (HPS)** software and assorted utility programs contained on the **HYDROSOFT** (version 10.6.1) compact disk provided by the Hydrographic Systems and Technology Programs (N/CS32).

The Sea-Bird Electronics SBE-19 Seacat Profilers were initialized and configured using **SEASOFT** (version 3.3M) and **SEACAT** (version 2.0) software. The program **VELOCIWIN** (version 5.0) was used to process CTD data and calculate sound velocity corrections.

E. SONAR EQUIPMENT

Due to the urgency of this survey and the time constraints on data collection, side scan sonar data was collected for AWOIS item investigations only. Launch 1017 conducted all SSS operations using an EG&G Model 260 image-corrected side scan sonar recorder (S/N 16673) and a 100 Khz Model 272-T towfish (S/N 10823). The towfish was deployed exclusively from the stern using a Superwinch in conjunction with an adjustable davit arm. The SSS towfish was towed with a vinyl-coated Kevlar cable and was connected to the recorder by a slip-ring assembly. The Kevlar cable is marked in five meter increments and cable length was manually entered into the acquisition system for accurate fish position in post-processing. Side scan operations were limited to a speed-over ground of 5.5 knots.

The towfish was configured with a 20° beam depression, which is the normal setting and yields the optimum beam correction. The100 kHz frequency was used throughout the survey

The 50 meter range scale with 40 meter line spacing was used for all item investigations. This range scale was used to obtain complete (200%) area coverage and provide optimal contact resolution. The line spacing is in accordance with the value specified in section 7.3.2.1 of the Field Procedures Manual (FPM).

Confidence checks were obtained during passes by bottom features such as sand waves or anchor scours and naturally-occurring contrast of sea floor characteristics in the side scan imagery. These features were annotated on the sonargram.

No data were adversely affected by factors such as system interference, thermoclines, clutter, etc. Biological interference was observed in the SSS data due to large schools of fish. No significant gaps in SSS data were noted due to the observed biological interference.

All overlap was checked and holidays identified during post processing using **HPS_MI**, a MapBasic program provided by Hydrographic Surveys Division (N/CS32) to accompany **MapInfo** software **version 5.0**.

Contact processing included measuring apparent height of each item. Contact significance is primarily determined by the contact height to water depth ratio (i.e. contact height greater than 1 meter in water depths of 20 meters or less *or* contact height greater than 10% of the water depth in deeper waters). All selected contacts were added to the **HPS** contact database.

F. SOUNDING EQUIPMENT

Launch 1017 used an INNERSPACE 448 (S/N 283) echosounder to acquire bathymetric data. The INNERSPACE 448 echosounder utilizes a single frequency (100 kHz) transducer.

G. CORRECTIONS TO SOUNDINGS

Velocity of sound through water was determined using a Sea-Bird Electronics SBE-19 Seacat Profiler (s/n 1251). Seacat Data Quality Assurance Tests (DQA) were conducted in accordance with the Field Procedures Manual (FPM) after each cast. Seacat Profiler unit 1251 was calibrated August 12, 2000

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

A list of sound velocity casts which apply to this survey is provided in Appendix D.* Complete data sets for each cast have been submitted on CD-ROM with the digital data package. * FILED WITH THE ORIGINAL FIELD RECORDS

A standard leadline calibrated in meters, was used during this survey for comparison readings with the echo sounder.

A static draft value of 0.55 meters is a historical value supplied by the Navigation Response Team (formerly Atlantic Hydrographic Party). Static draft correctors were entered into **HPS** (offset table 1) and applied during data post-processing.

See Appendix D for data records.*

Settlement and squat values for1017 are historical values supplied by the Navigation Response Team. The settlement and squat correctors were entered into **HPS** (offset table 1) and applied during post-processing. See Appendix D for data records.*

Tide Correctors

The tidal datum for this project is Mean Lower Low Water (MLLW). The operating tide station at Cape Hatteras Fishing Pier, North Carolina (865-4400) served as control for datum determination. Due to time constraints involved with the preparation for this emergency survey, subordinate water level stations were not installed inside Hatteras Inlet.

Upon completion of H10872, preliminary water level data from station 865-4400 were applied to all sounding data.

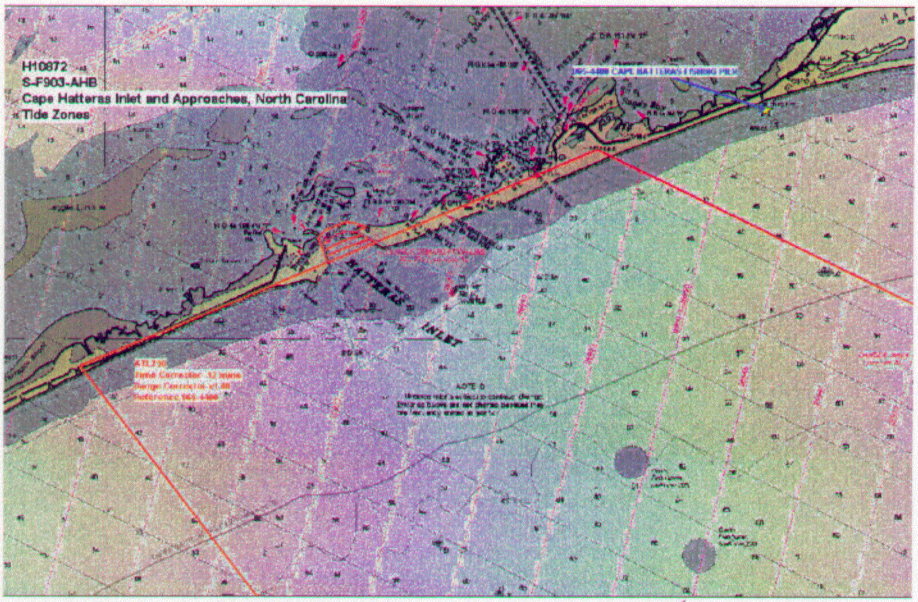
Zoning for this survey is consistent with the project instructions. **Due to the absence of subordinate gauges inside Hatteras Inlet and because of the highly dynamic nature of the seafloor, sounding data collected inshore of tide zone ALT730 are not included on the final smoothsheet.** The tide zones applied for this survey have been summarized in the following table. Tidal zones are shown on the following chartlet (figure 2):

Tide Zone	Time Corrector	Range Ratio	Reference
ALT730	-12	1.00	865-4400

HPTools was used for tide table creation and was used for the application of Preliminary Water Level Data and Verified Water Level Data during data processing.

Approved tides for H10872 were requested by letter to N/OPS1 dated April 20, 2001. See Appendix C. APPROVED TIDES AND ZONES HAVE BEEN APPLIED DURING OFFICE PROCESSING

* FILED WITH THE ORIGINAL FIELD RECORDS.



H. HYDROGRAPHIC POSITION CONTROL

SEE ALSO THE EVALUATION REPORT

The horizontal datum for this survey is North American Datum of 1983 (NAD 83). This survey was conducted using the Global Positioning System (GPS) corrected by U.S. Coast Guard (USCG) Differential GPS reference stations. Vessel 1017 is equipped with a Starlink DNAV-212G, 12-channel DGPS receiver and 2 channel beacon receiver, S/N 850.

USCG DGPS stations used were New Bern, North Carolina and Driver, Virginia. No horizontal control stations were established for this survey.

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

Performance checks for1017 were not conducted due to time constraints with this emergency survey.

The maximum allowed HDOP value of 4.0 was not exceeded for any extended length of time during data acquisition. If the max HDOP of 4.0 was exceeded, position data were reviewed and rejected on a fix-by-fix basis if found to be erroneous. A minimum of four satellites were used throughout this survey providing altitude-unconstrained positioning.

Sensor offsets for1017 were originally measured on March, 1997. For VBES data, offsets and laybacks were measured using the echosounder transducer as the reference point. Antenna height was measured using the water line as a reference. Correctors were entered into Offset Table 1.

I. SHORELINE See Also the Evaluation Report

Shoreline verification was performed in the vicinity of Hatteras. Because of the time constraints on this project, surveyed shoreline in this areas is highly simplified and does not fully reflect the changes in the area. The hydrographer recommends contemporary photogrammetry be provided for this region.

J. CROSSLINES

A total of 5 linear nautical miles of crossline hydrography, representing approximately 6% of mainscheme hydrography, were acquired for this survey.

Mainscheme-to-crossline soundings were compared at their common intersections. Agreement was adequate, with the majority of soundings found to be within 1 to 2 feet of each other.

K. JUNCTIONS

Survey H10872 does not junction with any contemporary surveys.

L. COMPARISON WITH PRIOR SURVEYS See Also the Evaluation Report

Due to the quick response nature of this project, and the vintage of the prior surveys in a highly changeable area, a comparison with prior surveys is not required for this project.

M. ITEM INVESTIGATION REPORTS

Assigned AWOIS items, and significant contacts are summarized in the following pages.

AWOIS No: 10943

Item Description: Obstruction.

Source: LNM22/82

AWOIS Position: 35-10-30.63 N 075-45-37.59 W

Required Investigation: SD, BD, DI Radius: 250m

Charts Affected: 11555

INVESTIGATION

Contact No: 2770.3S, 2865.3P

Date(s): DN 095

HPS Position Numbers: 2748-2935

Investigation Used: 200% SSS

Position Determined By: DGPS

Investigation Summary: 200% SSS with echosounder development was used to investigate this item. Contact #2770.3S was identified within this radius. Echosounder development with 5 meter line spacing was conducted. The contact was deemed insignificant by the hydrographer.

CHARTING RECOMMENDATION

Recommendation: The hydrographer recommends deleting the charted obstruction symbol. CONCUR DELETE THE DANGEROUS OBSTN REPED.

AWOIS No: 10944

Item Description: Unknown (same as AWOIS 660, the "Anne R. Heidritter" wreck awash) X4

Source: LNM 5/96

AWOIS Position: 35° 11' 00.00" N, 075° 45' 00.00" W

Required Investigation: SD, S2, BD, DI Radius: 1000m

Charts Affected: 11551

INVESTIGATION

Contact No: No side scan contacts identified. .

Date(s): DN 093-095

HPS Least Depth Position Number: N/A

Investigation Used: 200% SSS, and visual

Least Depth Position: N/A

Position Determined By: DGPS

Investigation Summary: This item is the same as AWOIS 660. The wreck awash was not visually seen by hydrographers. The hydrographers were informed during survey operations from William Midgett (Chief, USCG Aids to Navigation Group, Cape Hatteras) that this wreck no longer exists.

CHARTING RECOMMENDATION

Recommendation: Hydrographer recommends removing charted wreck awash symbol and charting surveyed sounding. CONCUR. DELETE VISIBLE WK 4A SAME AS AWOIS #660.

AWOIS No: 660

Item Description: Wreck "Anne R. Heidritter" PA

Source: N/M 9/12/50

AWOIS Position: 35° 11' 00.00" N, 075° 45' 00.00" W

Required Investigation: SD, S2, SWMB, DI Radius: 1000m

Charts Affected: 11555

INVESTIGATION

Contact No: Not found

Date(s): 095-097

HPS Position Numbers: N/A

Investigation Used: 200% SSS

Least Depth Position: N/A

Position Determined By: DGPS

Investigation Summary: This item was assigned for investigation purpose only.

CHARTING RECOMMENDATION

Recommendation: See charting recommendation for AWOIS 10944. Concur
DELETE VISIBLE WK PA. SAME AS AWOIS 10944

Contact 2359

Item Description: Obstruction

Source: Detached Position with range and bearing. 016° T / 75 METERS

Position: 35° 11' 00.00" N, 075° 45' 00.00" W

Required Investigation: N/A

Charts Affected: 11555

INVESTIGATION

Fix No: 2359

Date(s): DN 094

Investigation Used: Visual search, Detached Position with range and bearing.

Least Depth Position: N/A

Position Determined By: DGPS

Investigation Summary: During survey operations, hydrographers noticed a green aid to navigation that had drifted from it's original position and had grounded on a shoal. The buoy was visible at mean low water and high water. The Coast Guard is aware of this buoy but has stated that because of its location inside the break zone, they are unable to remove it.

CHARTING RECOMMENDATION

Recommendation: The hydrographer recommends charting an obstruction with PA at position: CORRECTED

Latitude: 35° 11' 03.17 N
Longitude: 75° 44' 46.32 W

N. COMPARISON WITH THE CHART See Also the Evaluation Report

- One chart is affected by this survey:

  Chart No. 11555
  Cape Hatteras
  36th Ed., Jan.11, 1997
  1:80,000

Survey depths were converted from meters to feet and overlaid on the largest scale raster chart covering the entire survey area using **MapInfo** (chart 11555, 36th Ed., January 11, 1997).

Due to the rapid change in tidal characteristics progressing from the Atlantic Ocean into Pamlico Sound and the highly dynamic nature of the seafloor, soundings and aids to navigation should not be charted inside Hatteras Inlet. Due to the absence of subordinate gauges inside Hatteras Inlet, sounding data collected inshore of tidezone ALT730 is for channel determination only. The hydrographer recommends charting the note "Highly Changeable Area" in this area.

Charted soundings in the Approaches to Hatteras Inlet differ significantly from surveyed sounding, with surveyed soundings being up to 6 ft deeper than charted soundings. The hydrographer believes these soundings accurately reflect the state of the seafloor and should supersede previously charted soundings.

O. ADEQUACY OF SURVEY See Also the Evaluation Report.

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

P. AIDS TO NAVIGATION

Ten floating ATONs are located within the limits of H10872. Aids to Navigation inside Hatteras Inlet are not charted because they frequently shift in position. A detached position (DP) acquired in **HYPACK** was taken for each aid to navigation. All aids to navigation serve their intended purpose.

ATON	SURVEYED POSITION
C "7"	35°11'32.83 N 75° 45'34.66 W
R"6A"	35°11'24.32 N 75° 45'44.07 W
G"1"	35°11'28.94 N 75° 45'56.90 W
R"6"	35°11'14.15 N 75° 45'36.02 W
G"5"	35°11'02.27 N 75° 45'22.02 W
N R"4"	35° 10'54.35 N 75° 44'46.05 W

R"2"	35° 10'41.36 N 75° 44'31.73 W
G"1"	35° 10'37.99 N 75 °44'41.17 W
RW HI Mo (A)	35° 10'18.43 N 75° 44'24.56 W
G C "3"	35° 10'50.03 N 75° 44'51.57 W

Q. STATISTICS

Q.1(a). Number of Position.....46915
Q.1(b) Linear Nautical Miles of Sounding Lines:.....93.52
Nautical Miles of Survey with the Use of Side Scan Sonar.....3.87
Q.2(a) Square Nautical Miles of Hydrography per 100% of Coverage.....2.2
Q.2(b) Days of Data Acquisition.....3
Q.2(e) Number of Detached Positions.....11
Q.2(f) Number of Bottom Samples.....N/A
Q.2(g) Number of Velocity Casts.....2
Q.2(h) Number of Tide Stations Installed.....0

R. MISCELLANEOUS

No bottom samples were taken on this survey due to time constraints.

S. RECOMMENDATIONS

Hatteras Inlet is a highly changeable area, and the hydrographer recommends further survey work.

T. REFERRAL TO REPORTS

There are no additional reports submitted with this survey.

This report and the accompanying field sheets are respectfully submitted.

Monica Cisternelli
Physical Scientist, NOAA
Monica Cisternelli

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: May 9, 2001

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: S-F903-AHB-2001
HYDROGRAPHIC SHEET: H10872

LOCALITY: Hatteras Inlet and Approaches, NC
TIME PERIOD: April 3-5, 2001

TIDE STATION USED: 865-4400 Cape Hatteras, NC
Lat. 35° 13.4'N Lon. 75° 38.1'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.964 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: ATL730, PAM201, PAM202, PAM203 & PAM204

Refer to attachments for zoning information.

Note 1: Provided time series data are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time.

Thomas N. Neu 5/10/01

CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION

NOAA FORM 76-155
(11-72)

U.S DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10872

Name on Survey	A ON CHART NO	B ON PREVIOUS SURVEY NO	C ON U S QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P O GUIDE OR MAP	G RAND MCNALLY ATLAS	H U S LIGHT LIST	K	
HATTERAS INLET	X		X							1
NORTH ATLANTIC										2
OCEAN	X		X							3
NORTH CAROLINA (title)	X		X							4
PAMLICO SOUND	X		X							5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
			Approved:							20
			Chief Geographer			MAY 1 2001				21
										22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

08/15/2001

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H10872

NUMBER OF CONTROL STATIONS	2
NUMBER OF POSITIONS	2877
NUMBER OF SOUNDINGS	2877

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	62.0	04/12/2001
VERIFICATION OF FIELD DATA	88.0	05/14/2001
QUALITY CONTROL CHECKS	1.0	
EVALUATION AND ANALYSIS	51.0	
FINAL INSPECTION	2.0	06/29/2001
COMPILATION	96.0	08/04/2001
TOTAL TIME	300.0	

ATLANTIC HYDROGRAPHIC BRANCH APPROVAL 06/29/2001

NOAA FORM 61-29
(12-71)

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

REFERENCE NO.
N/CS 33-40-01

LETTER TRANSMITTING DATA

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

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

DATE FORWARDED 08/17/2001

NUMBER OF PACKAGES 2

TO:

NOAA/National Ocean Service
Chief, Data Control Group, N/CS 3x1
SSMC3, Station 6826
1315 East-West Highway
Silver Spring, MD 20910-3832

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.

H10872
North Carolina, Hatteras Inlet and Approaches

1 Box Containing:
1 Original Descriptive Report

1 Tube Containing:
1 Original smooth sheet for H10872
1 paper composit plot for H10872 for chart 11555
1 mylar H-Drawing for H10872 for chart 11555

FROM: (Signature) R. H. Whitfield

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

Richard H. Whitfield
NOAA, NOS, Atlantic Hydrographic Branch, N/CS33
439 West York St.
Norfolk, VA 23510

NOAA FORM 61-29 SUPERCEDES FORM C AND GS 413 WHICH MAY BE USED.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1988 - 554-006- 61309

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H10872 (2001)

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 0.636 seconds (19.605 meters or 1.96 mm at the scale of the survey) north in latitude, and 1.444 seconds (36.539 meters or 3.65 mm at the scale of the survey) east in longitude.

I. SHORELINE

Brown shoreline shown on the smooth sheet originates with NOS Chart 11555 (36th Ed., JAN 11/97) and is for orientation purposes only.

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 Instructions dated April 2, 2001.

N. COMPARISON WITH CHART 11555 (36th Edition, JAN 11/97)

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.

O. ADEQUACY OF SURVEY

This is an adequate hydrographic/side scan sonar survey. Additional work is recommended, as discussed in section S. of the Descriptive Report.

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:

11555 (36th Edition, JAN 11/97)

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

APPROVAL SHEET
H10872 (2001)

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.

R. H. Whitfield Date: 29 June 2001

Richard H. Whitfield
Cartographer
Atlantic Hydrographic Branch

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

Robert A. Rose 15/9/11/01 Date: 29 JUNE 2001

for James S. Verlaque, LCDR, NOAA
Chief, Atlantic Hydrographic Branch

****

Final Approval:

Approved: Samuel P. De Bow Jr. Date: September 20, 2001

Samuel P. De Bow, Jr.
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/10872

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
11555		[signature]	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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			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM [illegible] WHICH MAY BE USED