

9748

Diag. Cht. No. 1232-2

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT
(HYDROGRAPHIC)

Type of Survey Hydrographic
Field No. HSB-20-1-78
Office No..... H-9748

LOCALITY

State North Carolina
General Locality Pamlico Sound
Locality Clam Shoal to Long Shoal

19 78

CHIEF OF PARTY
Thomas W. Richards

LIBRARY & ARCHIVES

DATE May 16, 1979

8726
9748

1180000
1130000

HYDROGRAPHIC TITLE SHEET

H-9748

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

FIELD NO.

HSB-20-1-78

State North Carolina

General locality Pamlico Sound

Locality Clam Shoal To Long Shoal
~~Eastern Part of Pamlico Sound~~

Scale 1:20,000 Date of survey March 15, 1978 to May 3, 1978

Instructions dated September 5, 1977 Project No. OPR-F201-HFP-77

Vessel Hydrographic Surveys Branch-NOAA Launch 1255

Chief of party LCDR Thomas W. Richards

Surveyed by Lt. James Bennett

Soundings taken by echo sounder, hand level

Graphic record scaled by JHB, FLS, JFM, SW

Graphic record checked by JHB, FLS

Protracted by PDP 8/E field sheet PDP 8/E

Automated plot by AMC - GALCOMP 618
XyNetics 1201

Verification by AMC Verification Branch R.R. Hill

April 20, 1979

Soundings in ~~feet~~ feet at MLW ~~DATE~~

REMARKS: JHB James Bennett

FLS Frank Saunders

JFM Jeff Marlow

SW Steve Weisner

"Misc data filed with field records"

Applied to slide 7-26-79

LORAN-A GENERAL EXPLANATION

FREQUENCY CHANNELS (preceding L or H)
 1 1950 kHz.
 BASIC PULSE REPETITION RATES
 L (low) 25 pulses per second
 H (high) 33 1/3 pulses per second
 SPECIFIC REPETITION RATES assigned for station
 identification (following L or H)
 0, 3, 7
 EXAMPLE: 1L3

RATES ON THIS CHART

3H4 3H5 3L1
 Skywave corrections for all L (low)
 Repetition Rates are indicated by **VERTICAL**
 numerals.
 Skywave corrections for all H (high)
 Repetition Rates are indicated by **ITALIC** numerals.
 The numerical exponent with the skywave
 correction indicates the Repetition Rate to which it
 applies.

EXAMPLE: +391

H-9733
 HSB-20-3-77

T.G.
 865-2741

865-3305

H-9748
 HSB20-1-78

LOCAL MAGNETIC DISTURBANCE
 Differences of as much as 6° from the normal
 variation have been observed 3 to 17 nautical miles
 offshore from Cape Henry to Currituck Beach Light.
 Differences of as much as 11° from the normal
 variation have been observed 5 to 7 nautical miles
 offshore from Currituck Beach Light to Wimple
 Shoals. Differences of as much as 3° from the normal
 variation have been observed 6 to 12 nautical
 miles offshore from the Chesapeake Capes. *(see note C)*

NOTE C
 Caution

Hydrography is not charted on Diamond Shoals due to the changeable nature of the area. Navigation in the area is extremely hazardous to all types of craft.

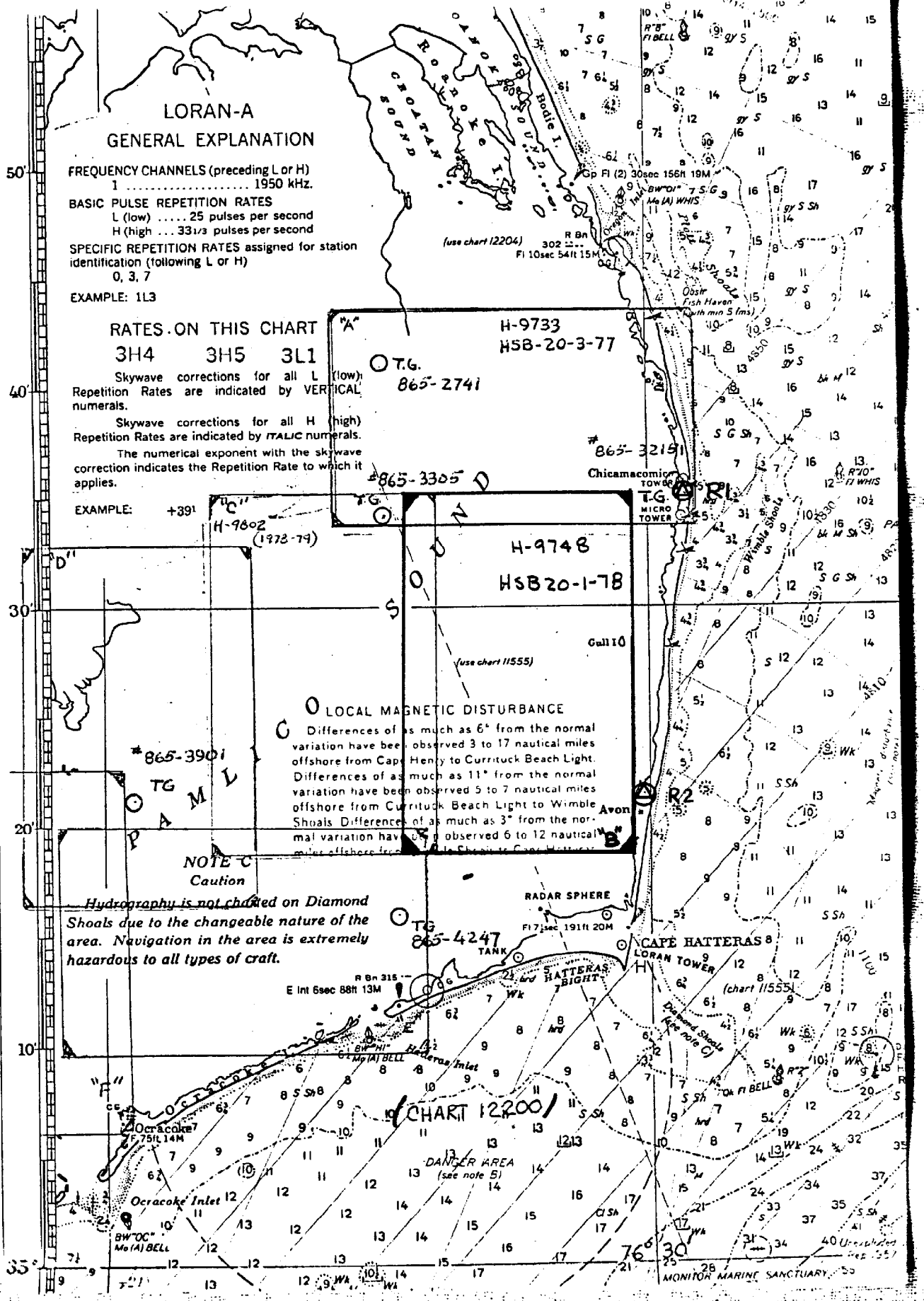
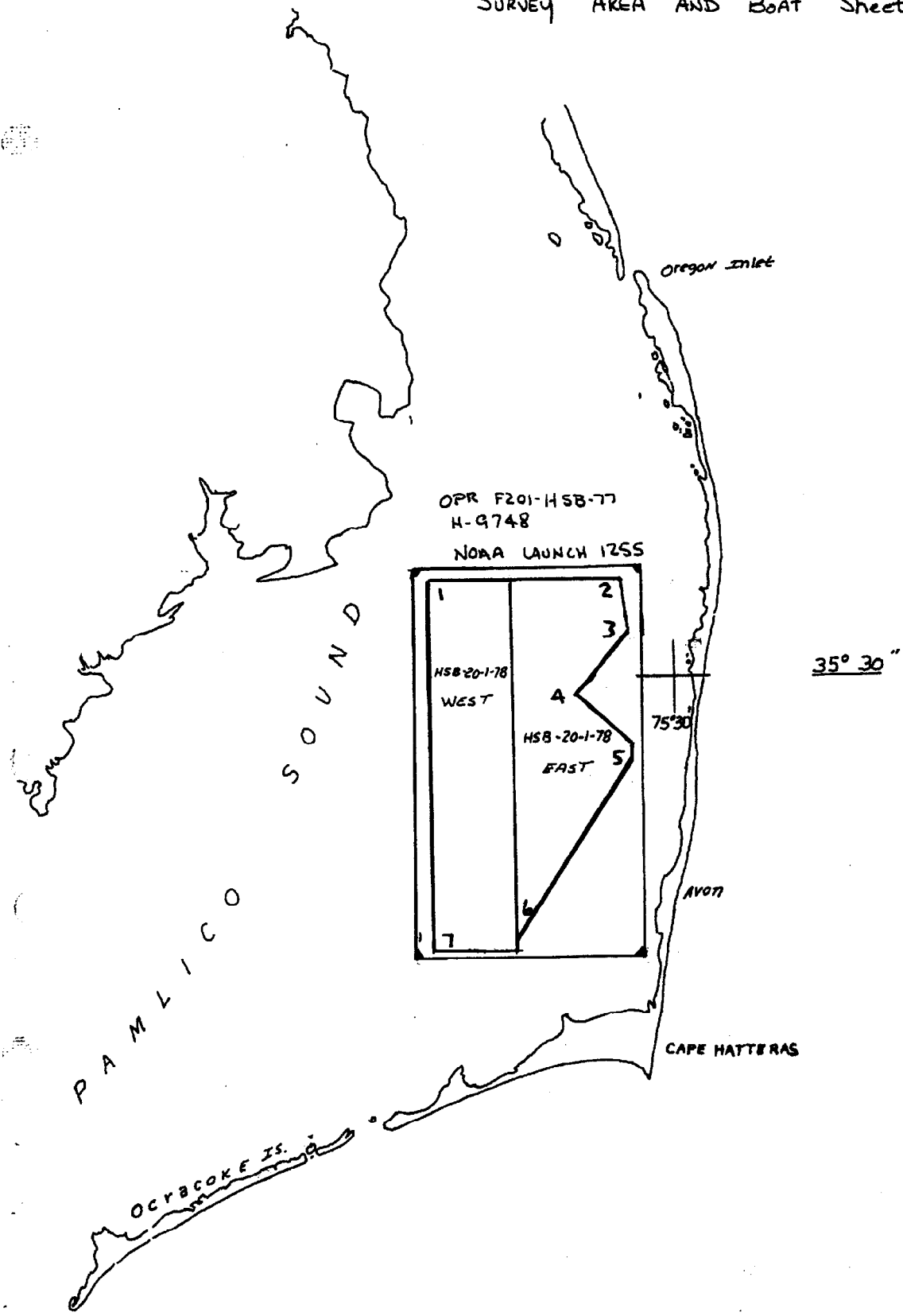


CHART 12200

DANGER AREA
 (see note B)

MONITOR MARINE SANCTUARY

SURVEY AREA AND Boat Sheet Layout



OPR F201-HSB-77
H-9748
NOAA LAUNCH 1255

35° 30''

75° 30'

AVON

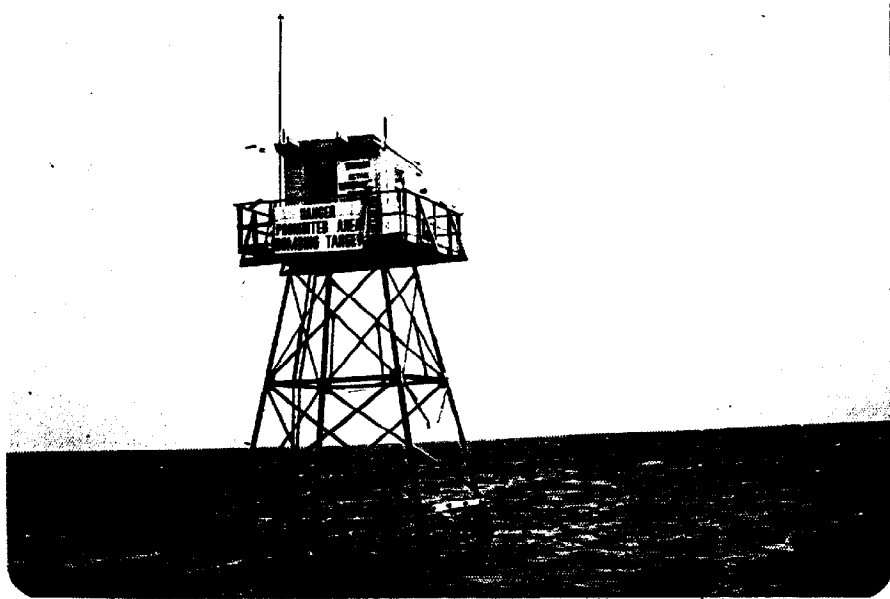
CAPE HATTERAS

PAMLICO
SOUND

OCRACOKE IS.

35° 00'
75° 30'

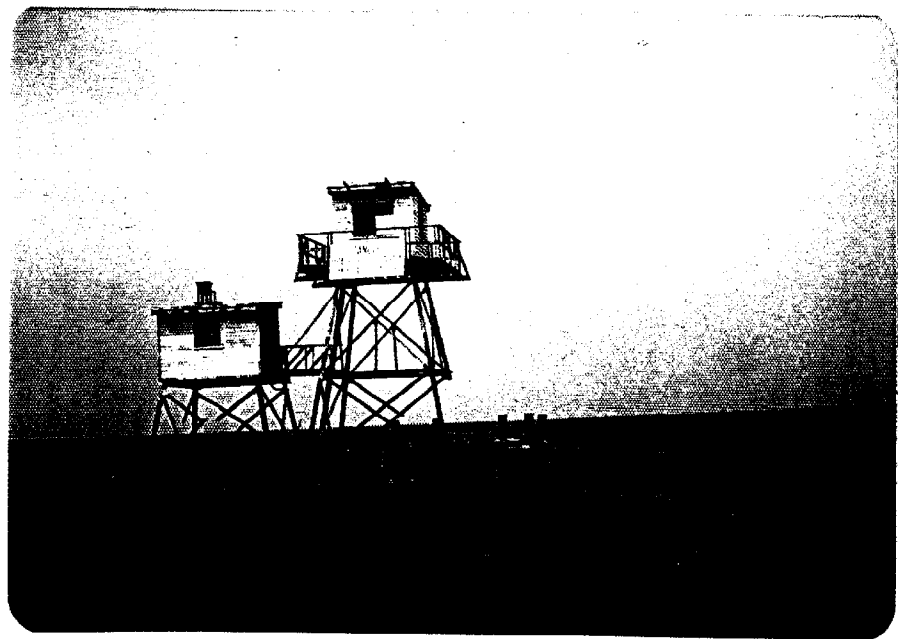
CHART 12200
(formerly CGS 1109)



15

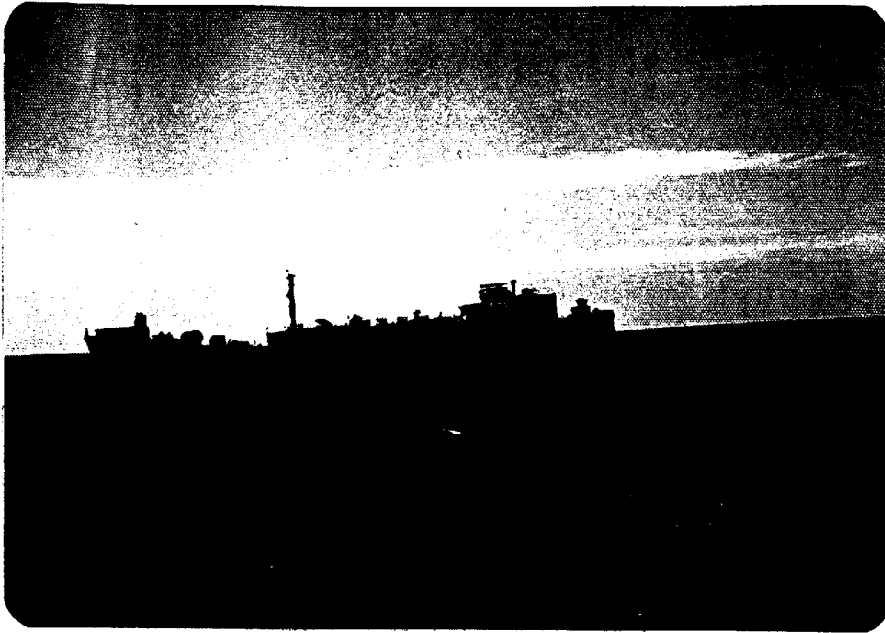
1D076 PN 588 NE FIRING RANGE TOWER
 BARE 40' ABOVE MHW
 1D 076 PN 608 S FIRING RANGE TOWER
 BARE 40' ABOVE MHW

THESE
 OBSERVATION
 TOWERS MARK
 THE OUTER
 PERIMETER OF
 THE FIRING
 RANGE.



↗
 E

1D076 PN 611 NW FIRING RANGE TOWER
 SMALL HOUSE TO LEFT BARE 25' ABOVE MHW
 LARGE HOUSE TO RIGHT BARE 40' ABOVE MHW

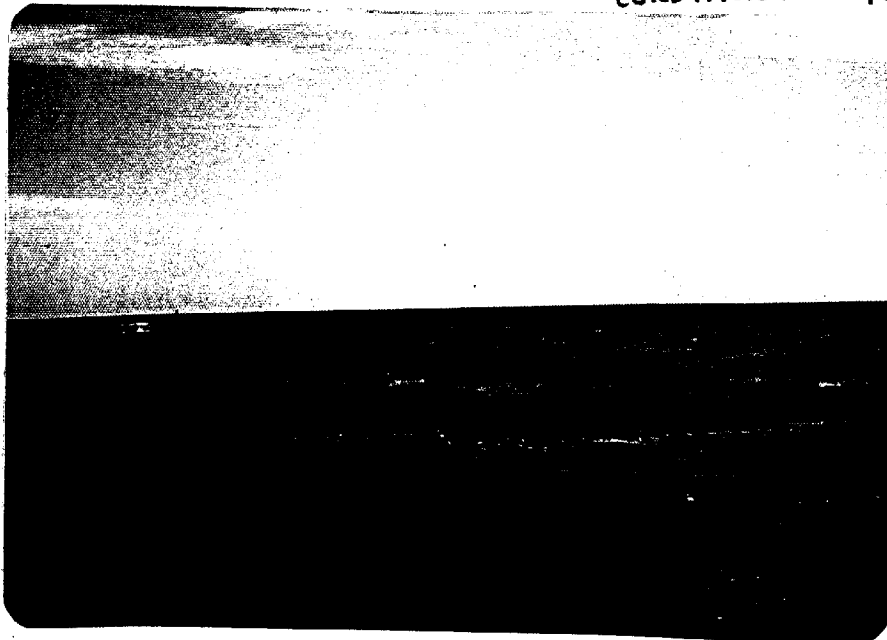


↖ W

JD 090 PN 1606 - 1607
bow stem

TARGET SHIP IN
CENTER OF TARGET
AREA. BARS 40'
ABOVE MHW AND
260' LONG. GOOD
CONDITION.

NO DEBRIS
EXTEND
AROUND WRECK.



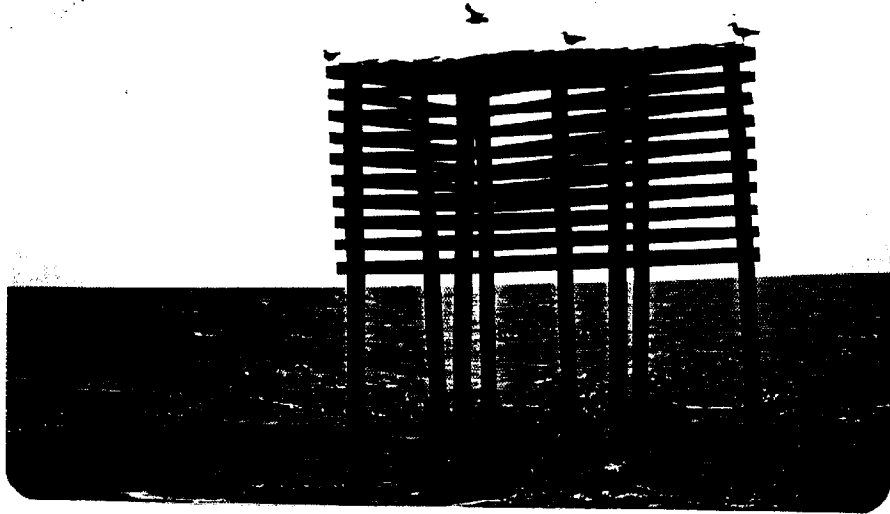
→ bow

↖ S
← stem

JD 090 PN 1608 - 1609

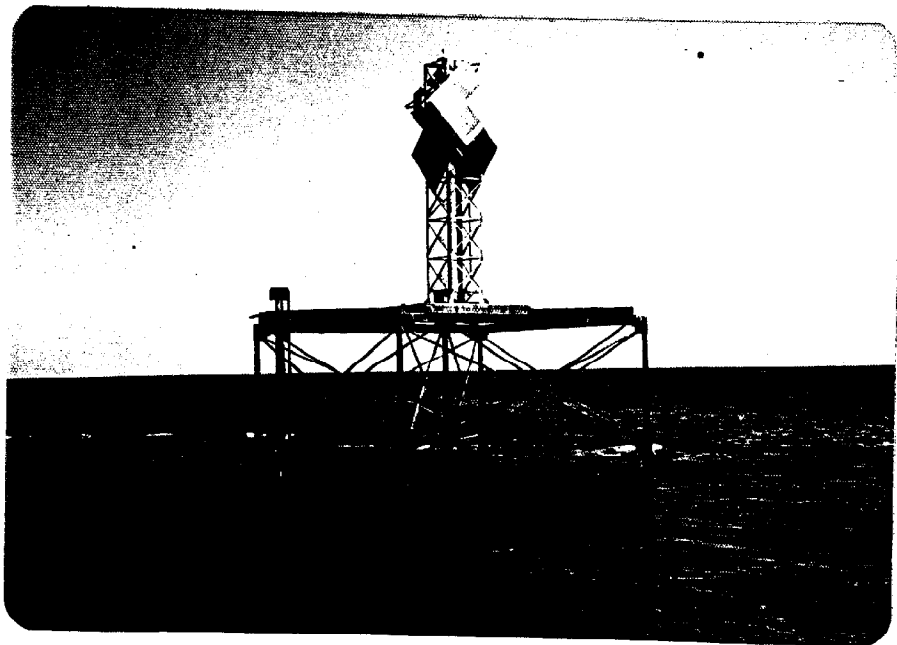
OLD TARGET SHIP
AWASH AT THIS TIME
BOW BARS 15' AT MHW
STEM BARS 4' AT MHW

|| NO DEBRIS EXTEND AROUND WRECK.



15

4D076 PN 612 RANGE MARKER FOR
FIRING RANGE. BARE
20' above MHW



1
N

"OLIVER REEF LT" SIG#06
USED FOR RADIST CALIBRATION

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	LT JAMES BENNETT OIC 1255
POSITIONS DETERMINED AND/OR VERIFIED	LT JAMES BENNETT OIC 1255
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	OPERATIONS DIVISION, AMC (WHITEFIELD)

ORIGINATOR

PHOTO FIELD PARTY

HYDROGRAPHIC PARTY

GEODETIC PARTY

OTHER (Specify)

FIELD ACTIVITY REPRESENTATIVE

OFFICE ACTIVITY REPRESENTATIVE

REVIEWER

QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'

(Consult Photogrammetric Instructions No. 64.)

OFFICE	FIELD (Cont'd)
<p>OFFICE IDENTIFIED AND LOCATED OBJECTS</p> <p>Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.</p> <p>EXAMPLE: 75E(C)6042 8-12-75</p>	<p>B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.</p> <p>EXAMPLE: P-8-V 8-12-75 74L(C)2982</p>
<p>FIELD</p> <p>I. NEW POSITION DETERMINED OR VERIFIED</p> <p>Enter the applicable data by symbols as follows:</p> <p>F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection</p> <p>A. Field positions* require entry of method of location and date of field work.</p> <p>EXAMPLE: F-2-6-L 8-12-75</p> <p>*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.</p>	<p>II. TRIANGULATION STATION RECOVERED</p> <p>When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.</p> <p>EXAMPLE: Triang. Rec. 8-12-75</p> <p>III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH</p> <p>Enter 'V-Vis.' and date.</p> <p>EXAMPLE: V-Vis. 8-12-75</p> <p>**PHOTOGAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.</p>

DESCRIPTIVE REPORT
To Accompany
HYDROGRAPHIC SURVEY H-9748 (HSB-20-1-78)

Scale: 1:20,000
Vessel: HFP #4, NOAA Launch 1255

1978
OIC: James Bennett
Chief: Thomas W. Richards

A. PROJECT

This project was accomplished under the following Project Instructions: OPR-F201-HFP-77, Pamlico Sound, North Carolina, September 5, 1977, with the following changes: Change No. 1, October 18, 1977, and Change No. 2, dated November 3, 1977.

B. AREA SURVEYED

The area encompassed by the survey was east of Avon, North Carolina. The following points form the boundary of the area surveyed:

- | | |
|-------------------------|---------------------------|
| 1) 35°34.0'
75°42.6' | 5) 35°26.75'
75°31.75' |
| 2) 35°34.0'
75°32.5' | 6) 35°19.0'
75°38.0' |
| 3) 35°31.2'
75°32.2' | 7) 35°18.75'
75°42.6' |
| 4) 35°29.2'
75°33.3' | |

See the "Survey Area and Boatsheet Layout" sketch. The survey was conducted from March 15, 1978, to May 3, 1978.

C. SOUNDING VESSEL

All hydrography on this survey was obtained by NOAA Launch 1255.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

The following Raytheon sounding equipment was used to obtain soundings during the survey:

JD 074-123
ECU: s/n 37011
Digital Depth Monitor: s/n 1907
Recorder: s/n 37010

Velocity corrections were determined solely by means of bar checks which were taken as frequently as possible, weather

permitting. Chain was used for the bar check line which resulted in a zero (0) foot line correction for the entire survey. The chain was measured at the beginning and end of the survey.

The velocity corrections were determined by averaging the digital depths (both up and down) for the various depths. These means were added to the transducer draft to obtain the applicable depth. This value was then compared to the true depth, which is the bar depth plus the line correction (in this survey 0').

Settlement and squat was determined on May 26, 1977, in Buffalo Harbor, New York. It was conducted using the "level method" as explained in the Hydrographic Manual, Section 4.9.4.2. Data from the settlement and squat determinations are included in the Appendix of this report.

The draft (water line to the bottom of the transducer) of Launch 1255 was measured in April, 1977, when the vessel was out of the water for repairs. It was determined to be 2.6 feet and was used for the entire survey.

The fathometer was calibrated and operated according to the manufacturer's specifications. Technicians monitored the fathometer continually during survey operations. When scanning the fathograms and using any digital-analog correction, it was well annotated on the survey records. There were no problems encountered which would have affected the accuracy of the survey.

E. HYDROGRAPHIC SHEETS

The field sheets were prepared aboard Launch 1255 using the hydroplot system. The survey area was divided into two plotter sheets at Longitude 75°38.0'W. The mainscheme was plotted on one sheet. Bottom samples, D.P.'s, crosslines, and developments were plotted on an overlay to the final field sheet. The data on the final field sheets has been corrected for approximate water level, draft, and electronic correctors, at the time the survey was conducted. Verification and smooth plotting will be performed at the Atlantic Marine Center, Norfolk, Virginia. Projection and control parameter listings are included in this report.

F. CONTROL STATIONS

The following stations were used for electronic control during the course of the survey:

- 001 Left (Red) Station: H-2-NC-77 (Rodanthe) *Field position pending Final adjustment by NGS.*
Latitude 35°35'12.4644"
Longitude 75°28'07.6825"
- 002 Right (Green) Station: H-3-NC-77 (Avon) " "
Latitude 35°21'17.5681"
Longitude 75°30'22.8427"

These stations were located by Operations Division, Atlantic Marine Center in November, 1977. A list of signals and calibration points is included in the Appendix of this report.

G. HYDROGRAPHIC POSITION CONTROL

Control for this survey was the Hastings-Raydist system, operating in the range-range mode. No known difficulties were encountered which could have degraded the position accuracy. Launch 1255 used the following equipment:

JD 074-123

Antenna Loading Coil QB-52B, s/n 143
Transmitter TA-96B, s/n 85
Navigator ZA-67A, s/n 59
Frequency used: 3300.400 khz

The shore station equipment used was:

Left (RED) Station: (H-2-NC-77) (Field pos.)
Transmitted AA-60, s/n 55
Power supply: SA-192, s/n 34
Frequency used: 1650.015 khz

Right (GREEN) Station: (H-3-NC-77) (Field pos.)
Transmitter AA-60, s/n 68
Power Supply SA-192, s/n 33
Frequency used: 1650.425 khz

Calibration of the raydist system was accomplished by comparing the observed raydist values with the actual values while making passes at the "Oliver Reef Light", (signal list #006). Position information for this light was provided by Operations Division, Atlantic Marine Center. The offset distance from the raydist antenna to the center of the fixed aid was accounted for by averaging pairs of observed readings taken on opposite sides of the aid. Four values (two pairs) were observed for each calibration. Calibrations were taken before and after hydrography was run each day, except when both stations stopped tracking due to thunderstorm activity. The morning and afternoon calibrations agreed well indicating this data is adequate to be applied to raw positions throughout the survey. On JD 322, 1977, at the beginning of the project, calibrations were taken throughout the project area and the resultant correctors show that the raydist system is stable throughout the area.

On April 6, 1978 (JD 096) a 30 DB attenuator was installed between the transmitter and the navigator on Launch 1255. This was done on recommendation from Electronics Engineering Division to alleviate anticipated problems caused by the launch operating close by one of the two Raydist stations. Calibrations were taken before and after the attenuator installation and no changes were observed in the correctors.

H. SHORELINE

There was no shoreline delineated on this survey.
See QC Report

I. CROSSLINES

Crosslines amounted to 11.5% of the main scheme system of sounding lines. Agreement is excellent with differences averaging one foot or less.

J. JUNCTIONS *See Verifier Report*

The Contemporary Survey, H-9733 (HSB-20-3-77), junctions with this survey to the north. The Contemporary survey was conducted the same season with the same sounding vessel. H-9733 field sheets were not reduced for water level. H-9748 field sheets were reduced for an assumed water level of 0.5 feet on the Oliver Reef Staff. This creates an apparent discrepancy in the junction area of these two sheets. This discrepancy does not exist when the junction soundings are reduced to a common datum. When reduced to a common datum, the junction soundings are in excellent agreement. There are no other contemporary surveys with which junctioning is a requirement.

K. COMPARISON WITH PRIOR SURVEYS *See Verifier's Report*

This survey, H-9748, was compared with the following prior surveys:

H-1363, 1875-1876
1876-1877
Scale: 1:40,000
Soundings in brown

H-4012, 1917 ✓
Scale: 1:40,000
Soundings in red

There is excellent agreement between this survey and prior surveys, with differences averaging one foot or less.

L. COMPARISON WITH THE CHART *See Verifier's Report*

Comparison with all charted features was made from enlargements of Chart 11555, (formally C & GS 1232), scale 1:80,000, 23rd Edition, January 1, 1977. The soundings on the field sheets are in green. Agreement is excellent with differences averaging one foot or less. There were no presurvey review items in the area of this survey.

M. ADEQUACY OF SURVEY

This survey, H-9748, (HSB-20-1-78) is complete and adequate to supersede prior surveys for charting in the common areas.

N. AIDS TO NAVIGATION

The aids to navigation that were in the vicinity of the survey area are:

LONG SHOAL LT. (Located on JD 076, see Sdg. Vol., Page 18)	Lat. 35/33/46.824 Long. 75/43/57.884	<i>outside sheet limits</i>
Chicamacomico Light # "1" (Located by Operations Div. of AMC, 11/77)	Lat. 35/35/57.746 Long. 75/31/15.587	<i>outside sheet limits</i>
AVON CHANNEL LT. # '1' (Located by Operations Div. of AMC, 11/77)	Lat. 35/22/44.814 Long. 75/33/36.445	
ROLLINSON CHANNEL LT. # '1' (Located on JD 072, See Sdg. Vol., Page 10)	Lat. 35/16/50.730 Long. 75/44/19.241	<i>outside sheet limits</i>
OLIVER REEF LIGHT (QUAD. 350753, Station 1025, dated September, 1976)	Lat. 35/15/47.693 Long. 75/45/38.561	<i>outside sheet limits</i>
GULL SHOAL LIGHT (Located on JD 072, see Sdg., Volume, Page 10)	Lat. 35/21/57.913 Long. 75/57/28.174	<i>outside sheet limits</i>

O. STATISTICS

Launch 1255

Total number of positions	4231
Total N.M. of hydrography	1304.3
Square N.M. of hydrography	100.6
Bottom Samples	75
N.M. Sounding Line	1073.4
N.M. Crossline	123.2
N.M. Development	107.7

P. MISCELLANEOUS

Suspicious traces were found by Launch 1255 and were investigated as follows: *See Q.C. Report*

<u>Suspicious Trace</u>	<u>Investigations</u>	<u>Note</u>
JD 075, pn 493-494	JD 122, pn 4073-4074	No evid. found
JD 075, pn 462-464	JD 122, pn 4075-4078	No evid. found
JD 080, pn 1018-1019	JD 122, pn 4079-4080	No evid. found
JD 075, pn 540-541	JD 122, pn 4081-4082	No evid. found
JD 095, pn 1831-1832	JD 122, pn 4083-4084	No evid. found
JD 109, pn 3023-3024	JD 123, pn 3794-3795	No evid. found
JD 109, pn 3038-3039	JD 123, pn 3796-3797	No evid. found

From these investigations, it is assumed that the suspicious traces were caused by fish on or near the bottom. Also, a momentary malfunction of the stylus caused a few of the questionable traces. These investigations were not plotted since they added no new information to the survey. *concur*

Since the periodic tide in Pamlico Sound is less than one-half foot, no predicted tides were used. Non-periodic water level changes dominate the Sound's water level due to wind setup and rainfall. In order to correct for this effect, the tide staff at "Oliver Reef Lt." was used to give daily corrections to reduce the data to the approximate mean low water. (Soundings were reduced to .5 foot on the tide staff.)

See Verifier's Report, Introduction

On JD 123, the Position Numbers 3655-3801, were used. These position numbers duplicate those originally used on JD 121. The Position Numbers for JD 123 should be 4085-4231.

A water tower has recently been constructed in the village of Ocracoke, North Carolina. This is a very prominent landmark along an otherwise featureless coastline. This item will be located for charting by Hydrographic Surveys Branch during the summer of 1978. Due to limited personnel and time, this item was not located by the field party.

A "Naval Aviation Ordnance" test range encompassing a circular area with a radius of one and one-half miles has its center at Lat. $35^{\circ}32'18''$, Long. $75^{\circ}40'39''$ and is located in the northwestern part of the survey area. Local permission to enter the survey area was obtained from Mr. Harry Mann, Pamlico Weapons Range--Stumpy Point. The phone number is 919-473-2720, and information regarding activities in the target area can be obtained from him. Local fishermen do enter the target area. These fishermen generally agree that the bottom is free of ordnance outside a radius of one-half mile from the target ship. The following pictures show the lookout towers that rim the target area, the target ship that is in the center of the area, and the range marker that is on the perimeter of the area. These objects offer excellent navigational landmarks when transiting the area.

Q. RECOMMENDATIONS

Around the perimeter of the south and southeastern part of the survey, numerous pound nets were in place. These consist of a string of three to six-inch diameter poles and nets strung between them which bare four to six feet above MHW. At the time this survey was being completed, new nets were being constructed and it was not feasible to conduct any developments at Lat. $35^{\circ}20.5'$, Long. $75^{\circ}37.5'$ due to nets in the area. This entire area should be considered hazardous for all types of craft, and the possibility of submerged stakes in the area should be noted on the chart. The pound net in position, Lat. $35^{\circ}21.5'$, Long. $75^{\circ}39.8'$ (JD 076, pn 596-597), should be charted separately since it is separated from the main body of nets.

Presently charted Note F is adequate to define area. ~~the~~ Nets and stakes shown in the survey area should be considered temporary for charting purposes

(near village of Hatteras)

At the junction of "Rollinson Channel" and "Hatteras Inlet" the buoy scheme of "red-right-returning" changes. Launch 1255 found herself outside the channel as a result of this confusing change. Due to the confusing nature of the navigational aids at this point, it is recommended that a 1:20,000 inset of this area be printed on Chart 11555.

Can/Cur

R. AUTOMATED DATA PROCESSING

<u>PROGRAM #</u>	<u>PROGRAM NAME</u>	<u>VERSION DATE</u>
RK111	Range, Range Real Time Plot	1/30/76
RK201	Grid, Signal, & Lattice Plot	4/18/75
RK211	Range, Range Non-real Time Plot	1/15/76
RK300	Utility Computations	2/5/76
RK330	Data Reformat and Check	5/4/76
RK360	Electronic Corrector Abstract	2/2/76
RK407	Geodetic Direct/Inverse	10/23/75
AM602	Elinore	5/20/75

S. REFERENCE TO REPORTS

Horizontal Control Report, Project OPR-F201-HFP-77, submitted by Operations Division, Atlantic Marine Center (11/77).

Horizontal Control Report, Project OPR-F201-HFP-77, submitted by Hydrographic Surveys Branch, Atlantic Marine Center (3/78).

Respectfully submitted,

For Robert Lewis
James H. Bennett, Lt., NOAA
OIC - NOAA Launch 1255

APPROVAL SHEET

SURVEY H-9748 (HSB 20-1-78)

The hydrographic records transmitted with this report are complete and adequate with the following exception.

The geodetic position provided to LT. Bennett for Oliver Reef Lt (also known as Hatteras Inlet Lighthouse) in late 1977 was based on a position determined in 1933 and published in NGS Quad 350753 (dated September 1976 as station #1025 Diagram NI 18-2 Manteo).

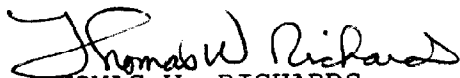
Coast Guard Light List (Volume I, 1977, page 458, #4289.50) indicates that Oliver Reef Lt was rebuilt in 1967. HSB telephone conversations with the 5th District Coast Guard (393-9611) also indicate that the Light structure was rebuilt in 1967 on a new base.

Azimuth checks were made on this Light in March 1978 by Hydrographic Surveys Branch (HSB) that yielded agreements with computed azimuths of 21 and 24 seconds. In addition, a very weak intersection position was determined from one Second Order and one Third Order Station. These stations were separated from each other by only 140 meters and were 8000 meters from the Light. This weak position check was within 2.858 meters of the original 1933 published position.

Since Oliver Reef Light forms the basis for all daily Raydist Calibrations on this survey and since the position of the Light is still in question, HSB plans to return to the area when weather conditions improve during the summer of 1978 and determine a 1978 Third Order intersection position of the Light.
See "Addendum" dtd. 10/23/78

Direct daily supervision was not given by me during the field work. Except as noted above this survey is complete and adequate with no additional field work recommended.

Approved and forwarded,



THOMAS W. RICHARDS
LCDR, NOAA

Chief, Hydrographic Surveys Branch



RTT

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Atlantic Marine Center
Hydrographic Surveys Branch
439 W. York Street
Norfolk, Virginia 23510

October 23, 1978

"Addendum"

TO: Commander R. A. Trauschke
Chief, Processing Division
Thomas W. Richards

FROM: LCDR Thomas W. Richards
Chief, Hydrographic Surveys Branch

SUBJECT: H-9748 Oliver Reef Light

As mentioned in the approval sheet for H-9748, there was a question as to the accuracy of the geodetic position of Oliver Reef Light which formed the basis of all calibration on that survey.

Horizontal Observations in 1978 indicate that the 1978 position of the Light is 0.979 meters from the 1933 position or 0.05 mm at the 1:20,000 scale of H-9748.

Attachments (2)(1)

cc: HFP-4

~~PLEASE~~ INCLUDE WITH D.R. FOR H-9748



The following is a result of a discrepancy found in the G.P. of the Oliver Reef Light located near Hatteras, North Carolina. The light had been rebuilt between the time of the original survey and the time of a 1978 survey in the area by the Hydrographic Surveys Branch of A.M.C. The inverse shown here is a comparison between the original 1933 G.P. and the 1978 G.P..

R.DeCroix
10-5-78

GEODETIC INVERSE COMPUTATION
Calculated on WANG 720

INITIAL STATION: Oliver Reef Light (1933)

Latitude: 35°15'47"69300
Longitude: 75°45'38"56100

FINAL STATION: Oliver Reef Light (1978)

Latitude: 35°15'47"66364
Longitude: 75°45'38"57580

Distance: .979 meters
 = 3.212 feet
 = .001 miles

Forward azimuth: 022°28'03"57
Back azimuth: 202°28'03"57

SIGNAL LIST

OPR-F201-HFP-77

H-9748

HSB-20-3-77

001	2	35	35	12464	075	28	07683	250	0000	330040-H-2NC-77-RODANTHE*
002	2	35	21	17568	075	30	22843	250	0000	330040-H-3NC-77-AVON*
003	2	35	42	59589	075	37	42791	243	0000	000000-OLD HSE.CHAN.LT."21"
004	2	35	35	57746	075	31	15587	243	0000	000000-CHICAMACOMICO CHAN.LT."1"
005	2	35	22	44814	075	33	36445	243	0000	000000-AVON CHAN.LT."1"
006	2	35	15	47693	075	45	38561	243	0000	000000-OLIVER REEF LT.TOWER

All the above signals were located by Operations of the Atlantic
Marine Center.

Frequency 3300.400 khz

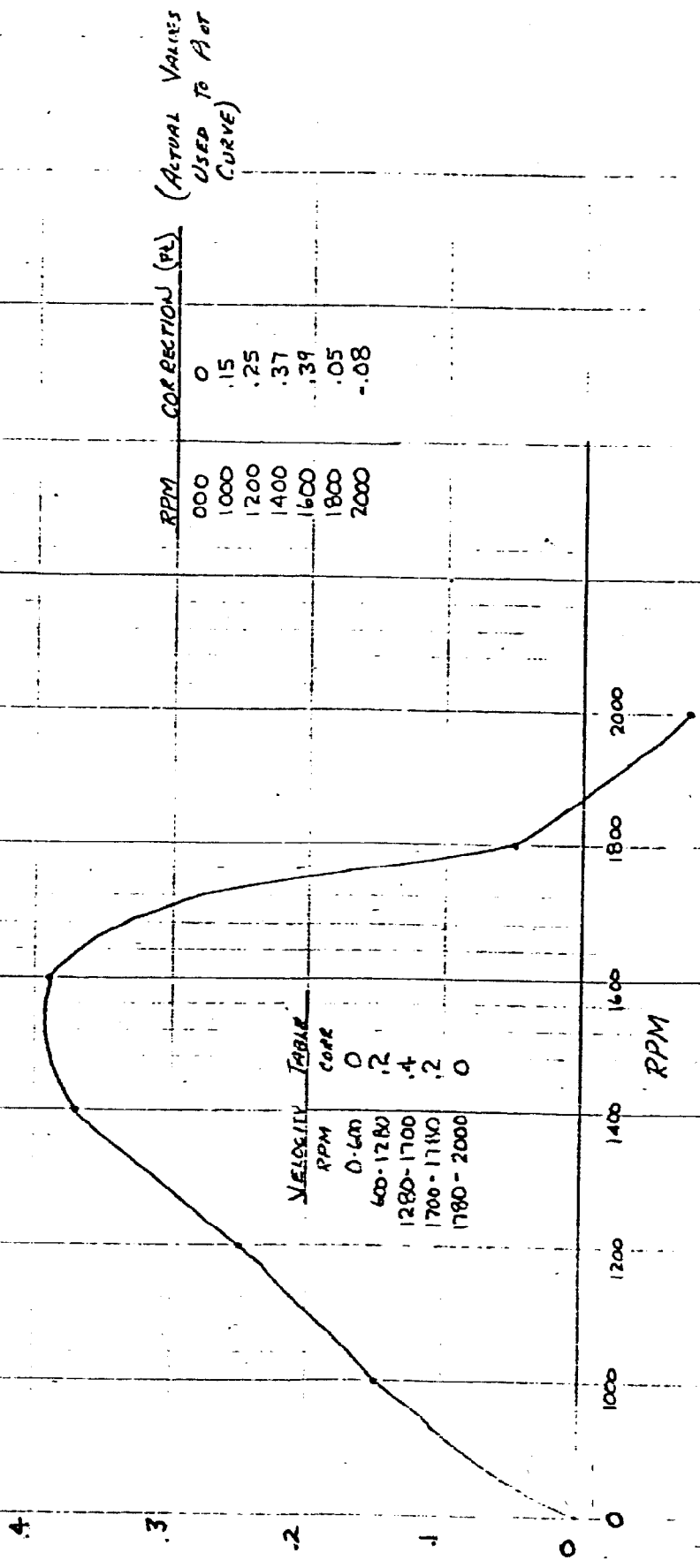
* Field positions pending final adjustment by the NGS.

VELOCITY TABLE
Launch 1255

H-9748 (HSB-20-1-78)

000000 0 0000 0001 000 125500 009748
999999 0 0000

SETTLEMENT 4 SQ. FT.
 NORA LAUNCH 1255
 MAY 26, 1917 LD 146
 BUFFALO HARBOUR - BUFFALO, N.Y.



RPM	CORRECTION (PL)	(ACTUAL VALUES USED TO PLOT CURVE)
000	0	
1000	.15	
1200	.25	
1400	.37	
1600	.39	
1800	.05	
2000	-.08	

VELOCITY RANGE	CONC.
0-600 RPM	0
600-1200 RPM	.2
1200-1700 RPM	.4
1700-1750 RPM	.2
1750-2000 RPM	0

FIELD TIDE OR WATER LEVEL NOTE

Predicted tide corrections were not applied to the sounding data on the final field sheets since Pamlico Sound has a periodic tide of less than one-half foot. Non-periodic water level changes dominate the Sound's water level due to wind set-up and rainfall. Water level corrections were applied to the data by reducing the daily soundings to the .5' mark on the "Oliver Reef Lt." tide gage. (#865-4247)

ADR water level gages were installed at the following locations:

<u>SITE & NUMBER</u>	<u>LOCATION</u>	<u>PERIOD</u>
Cedar Island Ferry #865-5151	Lat. 35°01.2' Long. 76°18.6'	11/10/77 End of Survey
Long Shoal Lt. #865-3305	Lat. 35°33.8' Long. 75°44.1'	11/15/77 End of Survey
Oliver Reef Lt. #865-4247	Lat. 35°15.8' Long. 75°45.6'	3/8/78 End of Survey
Gull Shoal Lt. #865-3901	Lat. 35°22.0' Long. 75°57.5'	3/13/78 End of Survey

A contract observer monitored the Cedar Island Ferry gage and Launch personnel were the observers of the other gages. All records were sent to the Tides and Water Levels Branch, Rockville, Maryland. All gages operated satisfactorily except as noted on the weekly records. "Gull Shoal Lt." gage's (865-3901) well was damaged by a storm on April 27, 1978. A staff reading was recorded on days that hydrography was conducted after the gage was not operational.

All gage staffs were leveled at the time of installation, and releveled at the time of removal. Cedar Island Ferry (#865-5151) was installed at the beginning of the project and will remain in operation until the project is completed.

TIDE NOTE ADDENDUM 6/9/78

In order to assure that all soundings on this survey were on a common datum, the OIC chose to reduce all the survey soundings on the final field sheets to a survey datum of 0.5 feet on the Oliver Reef Lt. Staff. This 0.5 foot elevation on the staff corresponded to a line of marine growth that the OIC believed represented mean low water.

In retrospect, it appears that a survey datum closer to 2 feet on the Oliver Reef Staff would have been closer to mean low water. A mean of 19 daily averages of water level staff readings made during the survey is equal to 2.45 feet on this staff. Rockville, Tides Division personnel indicate that the low water datum can reasonably be expected to be approximately 1/2 foot below this mean of daily averages or 2 feet on the staff.

In view of the fact that the field sheets were reduced to a datum 1½ feet below expected mean low water, prior survey comparisons and chart comparisons would now show that the present survey data displays depths that are generally one to two feet deeper than the prior and charted depths. It is recommended that the present survey's soundings supersede the prior and charted depths and that only the present survey's soundings be charted in the common areas.



THOMAS W. RICHARDS

Chief

Hydrographic Surveys Branch

The present smooth sheet soundings are reduced to low water datum.

U.S. DEPARTMENT OF COMMERCE
December 14, 1978 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center:

Hourly heights are approved for

Tide Station Used (NOAA Form 77-12): 865-3305 Long Shoal Light, N.C.
865-4247 Oliver Reef, N.C.

Period: March 15 - May 3, 1978

HYDROGRAPHIC SHEET: H-9748

ORK: F201

Locality: Pamlico Sound, North Carolina

(low water datum): 1.54 ft. - Long Shoal Light

Plane of reference (~~mean-lower-low-water~~): 1.61 ft. - Oliver River

Height of Mean High Water above Plane of Reference is

Remarks: Apply multi-gage (automatic) zoning methods.

NOTE: Low water datum is 0.5 ft. below mean water level.

Don M. Spellman 12/14/78

Chief, Tides Branch

H-9748

GEOGRAPHIC NAMES

Name on Survey	Source of Name										K	
	A	B	C	D	E	F	G	H	I	J		
	ON CHART NO.	ON PREVIOUS SURVEY NO.	ON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP	GRAND McNALLY ATLAS	U.S. LIGHT LIST				
CLAM SHOAL												1
GULL ISLAND												2
LONG SHOAL												3
PAMLICO SOUND												4
												5
												6
												7
												8
												9
												10
												11
												12
												13
												14
												15
												16
												17
												18
												19
												20
												21
												22
												23
												24
												25

Approved:

Chas. E. Hammett
Chief Geographer - C345

25 MAY 1979

APPROVAL SHEET
FOR
SURVEY H-9748

- A. All revisions and additions made on the smooth sheet during verification have been entered in the magnetic tape records for this survey. A new final position printout has/~~has not~~ been made. A new final sounding printout has/~~has not~~ been made.
- B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic Manual. Exceptions are listed in the Verifier's Report.

Date: 4/27/79

Signed: 
Title: Chief, Verification Branch

HYDROGRAPHIC SURVEY STATISTICS

H-9748

RECORDS ACCOMPANYING SURVEY: To be completed when survey is registered.

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	BOAT SHEETS & PRELIMINARY OVERLAYS	6
DESCRIPTIVE REPORT	1	SMOOTH OVERLAYS: POS. ARC, EXCESS	3

DESCRIP- TION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES						
CAHIERS	2-with printouts					
VOLUMES	1					
BOXES			1-Smooth			1-Sawtooth records

T-SHEET PRINTS (List) None

SPECIAL REPORTS (List) Horizontal Control Report (OPR-F201-HFP-77)

OFFICE PROCESSING ACTIVITIES

The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS		
	PRE- VERIFICATION	VERIFICATION	TOTALS
POSITIONS ON SHEET			4231
POSITIONS CHECKED		200	
POSITIONS REVISED		75	
SOUNDINGS REVISED		150	
SOUNDINGS ERRONEOUSLY SPACED		0	
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED		0	

TIME - HOURS

CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)			
VERIFICATION OF CONTROL		2	
VERIFICATION OF POSITIONS		65	
VERIFICATION OF SOUNDINGS		67	
COMPILATION OF SMOOTH SHEET		18	
APPLICATION OF TOPOGRAPHY		0	
APPLICATION OF PHOTOBATHYMETRY		0	
JUNCTIONS		2	
COMPARISON WITH PRIOR SURVEYS & CHARTS		8	
VERIFIER'S REPORT		7	
OTHER		105	
TOTALS		274	274

Pre-Verification by K. Ainsley, J. Wilson, P. Niland	Beginning Date 06/26/78	Ending Date 03/15/79
Verification by R. Hill	Beginning Date 04/09/79	Ending Date 04/17/79
Verification Check by B.J. Stephenson	Time (Hours) 3	Date 04/23/79
Marine Center Inspection by Hydrographic Inspection Team (AMC)	Time (Hours) 7	Date 04/25/79
Quality Control Inspection by R.W. DeFazarian	Time (Hours) 28hrs	Date 5/23/79
Requirements Evaluation by J. Baumgardner	Time (Hours) 2	Date 6/5/79

J. Meyer 5/25/79 4 hrs

Reg. No. 9748

The Computer and Excess Sounding Cards for this survey have not been corrected to reflect the changes made to the Computer Card and Excess Card Printouts at this time of the review.

When the cards have been updated to reflect the final results of the survey the following shall be completed:

CARDS CORRECTED

DATE _____ TIME REQ'D _____ INITIALS _____

REMARKS:

Carto code for record numbers 1 and 2 should be changed to 250.

Reg. No. _____

The magnetic tape containing the data for this survey has not been corrected to reflect the changes made during evaluation and review.

When the magnetic tape has been updated to reflect the final results of the survey, the following shall be completed:

MAGNETIC TAPE CORRECTED

DATE _____ TIME REQ'D _____ INITIALS _____

REMARKS:

ATLANTIC MARINE CENTER
VERIFIER'S REPORT

REGISTRY NO. H-9748

FIELD NO. HSB-20-1-78

North Carolina, Pamlico Sound, Clam Shoal to Long Shoal

SURVEYED: March 15, 1978 through May 3, 1978

SCALE: 1:20,000

PROJECT NO.: OPR-F-201

SOUNDINGS: Raytheon DE-723D
Echo Sounder

CONTROL: Raydist
(Range-Range)

Chief of Party T.W. Richards
Surveyed by J.H. Bennett
..... F.L. Saunders
..... J.F. Marlow
..... S. Weisner
Automated Plot by XYNETICS 1201 Plotter (AMC)
Verified and Inked by R.R. Hill
April 20, 1979

1. Introduction

The sounding datum in this area is called ~~Pamlico Sound~~ Low Water. ^{Due to} tidal conditions are such that Mean Low Water is not ^{practically} definable. Elevations of features such as stakes, etc., are referenced to Low Water. Features a foot or more above Low Water are exposed during high water conditions.

2. Control and Shoreline

a. The control was adequately described in Sections F. and G. of the Descriptive Report and in Control Report, OPR-F201-HFP-77, Pamlico Sound North Carolina, dated March 1978.
See also the Field "Approval Sheet" and the letter dated Oct 23, 1978, attached.

b. ~~There is no shoreline within the limits of this survey.~~
See Q.C. Report

3. Hydrography

a. Depths at crossings are in good agreement.

b. The standard depth curves were adequately delineated. A dashed red curve and a brown curve were included to further delineate the bottom configuration.

c. The development of the bottom configuration and the investigation of least depths are adequate.

4. Condition of Survey *See Q.C. Report*

The smooth sheet and accompanying overlays, hydrographic records and reports are adequate and conform to the requirements of the Hydrographic Manual.

5. Junctions

An adequate junction has been effected with H-9733⁷⁷⁻ (1978) on the north, however; no contemporary surveys at this time join on the east, south and western limits of the present survey.

6. Comparison with Prior Surveys See Q.C. Report

H-1363 a	(1875-77)	1:40,000
H-4012	(1917)	1:40,000
H-4013	(1917)	1:20,000

The above prior surveys, taken together, provide complete coverage of the present survey area. Depths in general were found to be from zero to two feet shoaler on the prior surveys, ^{superseded} however, depth differences in the vicinity of two shoals located at latitude 35°32.5', longitude 75°41.5' and latitude 32°29.5', longitude 75°36.6', were noted as being one to three feet shoaler on the prior surveys. These differences can be attributed to natural changes in the bottom configuration and improved present survey methods.

H-4013 was not available to make a comparison during verification. It only covers about 1 1/2 minutes of latitude in the Southern Area of the survey. Considering H-4012 of the same time it would appear that the comparison would be similar considering the area involved. It is requested that a comparison be made by Quality Control. *Survey was compared, no additional comments necessary.*

The present survey is adequate to supersede the prior surveys within the common area.

7. Comparison With Chart #11555 (23rd Edition, January 1, 1977)

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys, which require no further consideration. The present survey is considered adequate to supersede these charted depths within the common area.

b. Aids to Navigation

The aids to navigation located on the present survey are in substantial agreement with their charted positions and adequately serve the purpose intended.

8. Compliance With Instructions

This survey adequately complies with the Project Instructions.

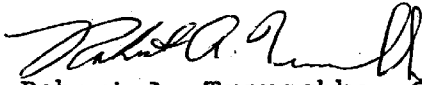
9. Additional Field Work

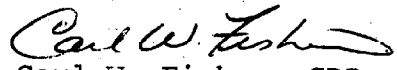
This is considered a excellent basic hydrographic survey and no additional field work is recommended.

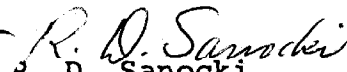
Inspection Report
H-9748


Any verification errors regarding procedures and presentation of survey data detected during inspection by the Hydrographic Inspection Team have been corrected before submission for administrative approval. HIT comments regarding quality of field work, compliance with instructions, and adequacy of the survey have been incorporated within the Verifier's Report.

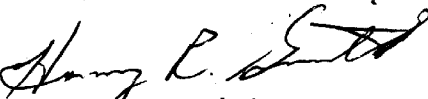
Examined and Approved:
Hydrographic Inspection Team
Date: April 25, 1979


Robert A. Trauschke, CDR, NOAA
Chief, Processing Division

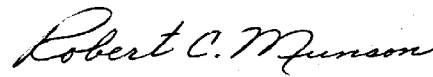

Carl W. Fisher, CDR, NOAA
Chief, Operations Division


R. D. Sanocki
Technical Assistant
Processing Division


Maureen R. Kenny, LT, NOAA
Chief, Electronic Data
Processing Branch


Harry R. Smith
Team Leader
Verification Branch

Approved/Forwarded


Robert C. Munson
RADM, NOAA
Director, Atlantic Marine Center



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Rockville, Md. 20852

OA/C352:RWD

May 23, 1979

TO: *for* *RHCadams*
A. J. Patrick
Chief, Hydrographic Surveys Division

THRU: Chief, Quality Control Branch

FROM: R. W. DerKazarian *RWDerkazarian*
Quality Evaluator

SUBJECT: Quality Control Report for H-9748 (1978), North Carolina,
Pamlico Sound, Clam Shoal to Long Shoal

A quality control inspection of H-9748 was accomplished to monitor the survey for obvious deficiencies with respect to data acquisition, delineation of the bottom, determination of least depths, navigational hazards, junctions, sounding line crossings, shoreline transfer, smooth plotting, decisions and actions taken by the verifier, and the cartographic presentation of data.

The status of the control stations (triangulation stations) could not be substantiated by the National Geodetic Survey (NGS). It is assumed, however, that the necessary records and computations will eventually be submitted to the NGS. Ultimately, therefore, it is expected that the triangulation station status of the control stations will be validated. Accordingly, the control stations are listed as triangulation stations pending formal processing and acceptance as such by the NGS, and described as "(Field position)" in the Descriptive Report.

In general, the survey was found to conform to the National Ocean Survey's standards and requirements except as stated in the Verifier's Report, the HIT Report, and as follows:

1. Section 2.b. of the Verifier's Report is superseded by the following:

The shoreline has been transferred from reviewed topographic manuscript T-8713 N (1946-48).

Due to the lapsed time difference of this survey and the present survey, the shoreline should be used for orientation purposes only; it has been shown in brown on the present smooth sheet.



2. Section 4 of the Verifier's Report is supplemented by the following:

The suspicious traces addressed in the Descriptive Report, paragraph P, are on graphics obtained from a Raytheon depth recorder, Model 723D, serial number 37010, which has been previously addressed in Quality Control Reports of a previous field season, H-9675 and H-9679 of 1977. It is considered that these suspicious traces are from a possible chronic malfunction and that the appropriate steps should be taken to determine the cause and correct it.

3. It was necessary to re-ink several lightly inked projection lines during quality evaluation. Such a lightly inked line hampers the ready orientation of other overlaid smooth sheets and/or overlays and may be marginally suitable for reproduction purposes.

4. Section 6 of the Verifier's Report is superseded in part by the following:

The differences noted between prior and present depths in latitude $35^{\circ}32.5'$, longitude $75^{\circ}41.5'$ (Long Shoal) and latitude $32^{\circ}29.5'$, longitude $75^{\circ}36.6'$ are 1 to 2 feet and 1 foot deeper, respectively, on the present survey.

cc:
OA/C35
OA/C351

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Rockville, Maryland

Hydrographic Index No. 71 G

