

# 9465

Diag. Cht. No. 1233-2.

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. ... PE-20-3-74  
Office No. ... H-9465

### LOCALITY

State ... NORTH CAROLINA  
General Locality ... CAPE LOOKOUT  
Locality ... CAPE LOOKOUT SHOALS

1974

CHIEF OF PARTY  
J. W. Dropp

### LIBRARY & ARCHIVES

DATE ... 8/4/76

# 9465

Area 2 & 3

Charts:

- 1233
- 1234
- 1110
- 1001

HYDROGRAPHIC TITLE SHEET

H-9465

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.  
PE-20-3-74

State North Carolina

General locality Cape Lookout

Locality Cape Lookout Shoals

Scale 1:20,000 Date of survey Sept.-Oct. 1974

Instructions dated 13 November 1973 Project No. OPR-437-PE-74

Vessel NOAA Ship Peirce and Launches PE-1 & PE-2

Chief of party Commander Joseph W. Dropp, NOAA J.M.

CDR. J.W.Dropp, LCDR. J.K. Callahan, LT. D.L. Suloff, LTJG ~~D.E.~~ Barnhill  
Surveyed by LTJG T.W. Jackson, LTJG K.M. Holden, ENS. C.D. Mason, ENS. B.B. Johnson, ENS. D.A. Dreyes

Soundings taken by echo sounder, hand lead, pole Echo Sounder

Graphic record scaled by Hydroplot System and Ship's Personnel

Graphic record checked by Ships Officers and Ship's Survey Personnel by B.J. Stephenson

Protracted by EDP-AMC Calcomp plotter 618 Automated plot by EDP-AMC Hydroplot System  
AMC  
CALCOMP 618

Inked  
Soundings ~~recorded~~ by Hydroplot System verified by B.J. Stephenson, AMC

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

REMARKS: All times are G.M.T. (000°W.)

Corrections and notes in red by BJS (AMC)

① Applied to Standards 12/27/74  
BJS

DESCRIPTIVE REPORT

To Accompany

Hydrographic Survey PE-20-3-74

Registry Number H-9465

OPR-437-PE-74

Coast of North Carolina

1974 Field Season

Noaa Ship Peirce (CSS-28)

Joseph W. Dropp

Commander, NOAA

Chief of Party

PROGRESS SKETCH

OPR-437

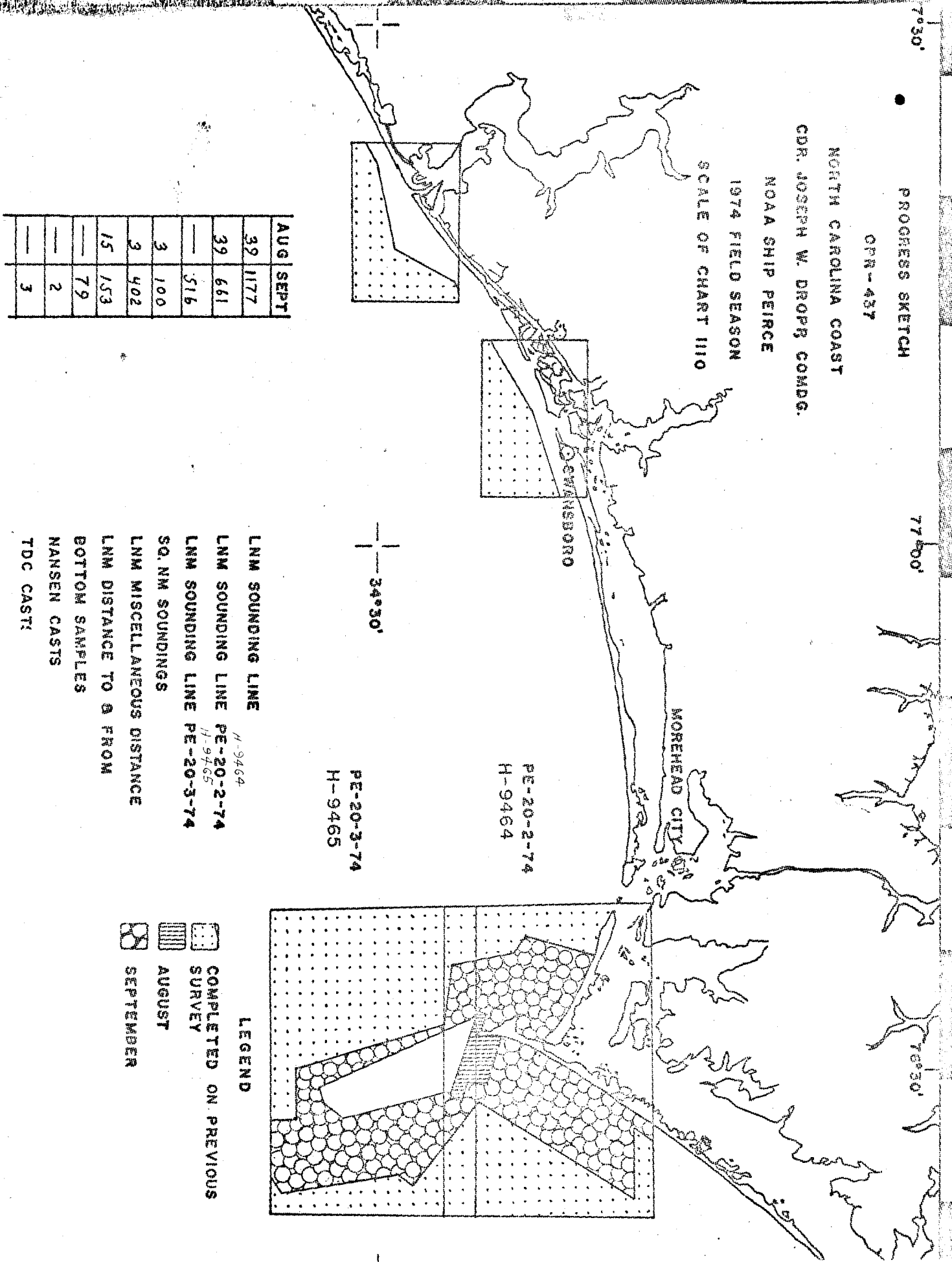
NORTH CAROLINA COAST

CDR. JOSEPH W. DROPP, COMDG.

NOAA SHIP PEIRCE

1974 FIELD SEASON

SCALE OF CHART 1110



AUG	SEPT
39	1177
39	661
—	516
3	100
3	402
15	153
—	79
—	2
—	3

- LNM SOUNDING LINE *H-9464*
- LNM SOUNDING LINE *PE-20-2-74*
- LNM SOUNDING LINE *H-9465*
- LNM SOUNDING LINE *PE-20-3-74*
- SO. NM SOUNDINGS
- LNM MISCELLANEOUS DISTANCE
- LNM DISTANCE TO G FROM
- BOTTOM SAMPLES
- NANSEN CASTS
- TDC CASTS

LEGEND

- COMPLETED ON PREVIOUS SURVEY
- AUGUST
- SEPTEMBER

77°00'

76°30'

77°00'

76°30'

34°30'

PE-20-3-74  
H-9465

PE-20-2-74  
H-9464

A. PROJECT

This survey was conducted as an integral part of Project SCOPE in accordance with Project Instructions OPR- 437-PE-74, North Carolina Coast dated 13 November 1973. It was also conducted in accordance with Change Numbers 1,2,3,4,and.5 dated 29 November 1973, 10 December 1973, 8 July 1974, 24 July 1974, and 23 August 1974 respectively.

B. AREA SURVEYED

The area surveyed is approximately 54.2 square miles, <sup>and lies</sup> due South of Cape Lookout and bounded by a line drawn through the following points:

a. 34 33.5'N 76 36.1'W b. 34 32.6'N 76 33.2'W c. 34 31.0'N 76 33.0'W  
d. 34 30.9'N 76 32.2'W e. 34 28.2'N 76 31.9'W f. 34 27.4'N 76  
30.7'W g. 34 26.1'N 76 30.0'W h. 34 26.1'N 76 28.2'W i. 34 25.8'N  
j. 34 24.6'N 76 26.7'W k. 34 24.6'N 76 24.5'W l. 34 25.0' 76 24.5'W  
m. 34 25.4'N 76 23.2'W n. 34 27.1'N 76 23.9'W o. 34 27.5'N 76  
22.9'W p. 34 30.6'N 76 24.3'W q. 34 31.6'N 76 23.4'W r. 34 33.5'N  
76 26.3'W s. 34 33.5'N 76 29.2'W t. 34 33.4'N 76 29.1'W u. 34  
33.4'N 76 32.4'W v. 34 33.5'N 76 32.5'W w. 34 33.5'N 76 36.2'W

C. SOUNDING VESSELS

This survey was accomplished by the NOAA Ship Peirce and Peirce Survey launches PE-1 and PE-2. Position Numbers for each vessel were as follows: Ship Peirce (7000-8565) PE-1 (4000-4608) PE-2 (0001-0143)

D. SOUNDING EQUIPMENT

Peirce launch PE-1 was equipped with a Raytheon Survey Fathometer, Type DE-723, Serial No. 246. Launch PE-2 was equipped with a Raytheon Survey Fathometer, Type DE-723, Serial No. 928 thru 9 Sept. 74 then had Raytheon Survey Fathometer, Type DE-723, Serial No. 242 installed 11 Sept. 1974 to present. Depths ranged from 0-70 feet in working areas. A detailed description of echo sounder corrections is contained in the fathometer report which accompanies this report.

E. SMOOTH SHEET

The Smooth Sheet for this Survey will be plotted by computer at the Atlantic Marine Center from the data provided by the Peirce.

F. CONTROL

Horizontal position control is discussed in detail in the electronic control report which accompanies this report.

G. SHORELINE

There is no shoreline to be considered on this survey.

H. CROSSLINES

Crosslines constitute approximately 7.5% of all hydrography exclusive of developments. Crossline depths are in good agreement with those of the regular sounding lines i.e. normally within 1 foot.

I. JUNCTION SURVEYS

This survey junctions with the following surveys:

H-9042 (1969) 1:20,000

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I. JUNCTION SURVEYS con't.

H-9043 (1969) 1:20,000

H-9060 ~~ME~~ (1969) 1:80,000~~H-9060 PE 1:80,000~~

When the appropriate correctors to echo soundings are applied, comparison with soundings at junctions is good.

J. COMPARISON WITH PRIOR SURVEY

There are no prior surveys available for comparison aboard ship.

There are four Pre-Survey Review items within the limits of hydrography. Included are items 3, 4, 5, and 6. The findings are as follows:

PSR Item No. 3, located at Lat. 34 31.5'N Long. 76 30.8'W was checked by running lines spaced 50 meters apart in both directions over the area covered by the item. There was no indication of a wreck or obstruction found in this area. Recommend <sup>retention on the</sup> ~~removal from~~ charts. ✓

PSR Item No. 4, located at Lat. 34 27.3'N Long. 76 28.9'W was checked by running lines spaced 50 meters apart in both directions over the area covered by the item. There was no indication of a wreck found in this area. Recommend <sup>retention on the</sup> ~~removal from~~ charts. ✓

PSR Item No. 5, located at 34 26.3'N Long. 76 29.6'W was checked by running lines spaced 50 meters apart in both directions over the area and divers were sent over the side to investigate. A wreck was found at Lat. <sup>34° 26' 14.28" N</sup> ~~34 26.2' N~~ Long. <sup>76° 29' 27.3" W</sup> ~~76 29.6' W~~ and a least depth of <sup>0</sup> 42 ft. *Position No. 8565 L.L. sdg 44 feet Actual tide -5.8 Plotted depth 40 ft* was found by using a lead line. The vessel was approximately 100 feet long, resting upside down, encrusted with marine growth and it

J. COMPARISON WITH PRIOR SURVEY (con't.)

was impossible to determine the name of the vessel. *Chart present  
survey information.*

PSR Item No. 6, located at 34 26.5'N and 76 26.7'W, was checked by running lines spaced at 50 meters in both directions over the area bounded by the item. A least depth of  $3\frac{1}{4}$  ft. was recorded in the area. (*Position: Lat: 34°-26'-24.2" N, Long: 76°-26'-44.54" W.*)

In the investigation of all the above items, predicted tides were used to determine the least depths. There is mention of PSR Item No. 5 also in the Miscellaneous Section of this report.

K. COMPARISON WITH CHART

A comparison was made with the largest scale chart covering the survey area; C&GS 1233, Portsmouth Is. to Beaufort, 20th ED., 3/9/74 NO. ~~11252~~<sup>11544</sup>. Comparison soundings were in good agreement when velocity corrections were applied; within 1-2 feet. ✓

L. ADEQUACY OF SURVEY

This survey is adequate to supersede prior surveys for charting purposes.

M. AIDS TO NAVIGATION

There are two aids to navigation located within the limits of this survey. They are described as follows; ✓

One Red Ra Ref Buoy marked "2", equipped with Qk. Fl. Light and BELL



M. AIDS TO NAVIGATION ( CON'T.)

located at Lat. 34 29.4'N Long. 76 25.5'W. ( This buoy marks the location of a wreck which is described under miscellaneous section 0.)

One Red Ra Ref Buoy marked "4", equipped with Qk. Fl R Light and Whistle located at Lat. 34 <sup>27.0</sup>~~26.5~~'N Long. 76 <sup>2</sup>~~28.1~~'W. ( This buoy

marks the southern extremity of Cape Lookout Shoal.)  
*One Red buoy Marked "8" equipped with QK-FL R Light and Bell.  
 Location Lat: 34°-33'-04.7" N Long: 76°-35'-56.9" W Abs. No. 8339 BJS*

N. STATISTICS

	Ship	PE-1	PE-2	Total
No. of Positions	1,565	608	143	2,316
No. of Hydro. Mi.	387.7	182.0	33.1	602.8
No. X-Line Mi.	32.6	12.4	0	45.0
No. of Sq. Mi.				54.2
No. of Bottem Samples	36	6	6	48

O. Miscellaneous

All times are GMT.

The logger printout is to be considered the original data.

The logger format punch tape was edited for position, date, time, and rejected fixes. The corrected logger tape was then checked against position data abstracts kept by launch personnel and fed into computer program AM 331 which punched out the data in hydroplot format. The tape does not contain those fixes which were rejected.

A hydroplot corrector tape was punched out for corrections to soundings.

O. MISCELLANEOUS (con't.)

A reference letter is included in this report to describe two wrecks investigated in the area of this sheet. (PE-20-3 74)

P. RECOMMENDATIONS

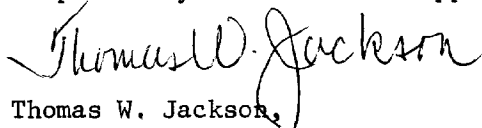
It is recommended that this survey be considered adequate to supersede prior surveys in this area.

Q. REFERENCE TO REPORTS

Reference can be made to the following reports:

- 1.) Corrections to Echo Soundings, PE-20-3-74, H-9465  
Coast of North Carolina
- 2.) Electronic Control Report, PE-20-3-74, H-9465.

Respectfully Submitted for approval by:



Thomas W. Jackson,

LTJG, NOAA



U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SURVEY

Page 7

Date : 1 October 1974

Reply to Attn. of:

To : Commanding Officer, NOAA Ship PEIRCE ✓

From : Lt. (jg) Ken Holden

Subject: Wreck Investigation

On 30 September 1974 a visual inspection of two wrecked ships located in the vicinity of Cape Lookout Shoals was performed by divers from the NOAA Ship PEIRCE. The purpose of the inspection was to determine the condition of the wreck, the point of least depth, obtain a lead line depth over this point. The results are as follows:

Wreck No. 1	
Location	34 29 33.2 76 25 48.619
Time	174838 GMT
Lead Line	34.5 feet Actual tide -2.8 Plotted depth 31ft.
Boat Sheet	PE 20-3-74, H-9465
Detached Position	8563. PSR item

*v 13*  
*prior charting*  
*WR*

This wreck is located on the east side of Cape Lookout Shoals near buoy R "2". The wreck is broken into at least four pieces; the largest piece being a portion of the steel hull on which the lead line sounding was taken. This wreck had been previously wire dragged to 18 feet.

Wreck No. 2	
Location	34 26 14.728 76 29 25.831
Time	200708 GMT
Lead Line	44.0 feet Actual tide -3.8 Plotted depth 40ft.
Boat Sheet	PE 20-3-74, H-9465
Detached Position	8565

*PSR item NB 5, this survey H-9465*

This wreck is located near the southern extremity of of the shoals; approximately 1.3 miles west-southwest of buoy R "4". This wreck is a steel hull vessel approximately 100 feet long. It is currently resting upside-down. The hull is intact but encrusted with marine growth making it impossible to recover the name of the vessel. The lead line depth was taken on the top of the port bilge keel.

3/27/75

10

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center:

Hourly heights are approved for Form 362

Tide Station Used (NOAA Form 77-12): Cape Hatteras Fishing Pier  
Atlantic Beach

Period: Aug. 28 - Oct. 18, 1974

HYDROGRAPHIC SHEET: H-9465

OPR: 437

Locality: Off coast of North Carolina 5.2 ft.-Aug. ) Atlantic  
3.5 ft.-Sept., Oct.) Beach  
Plane of reference (mean ~~lower~~ low water) 4.0 ft. Cape Hatteras

Height of Mean High Water above Plane of Reference is  
3.4 ft.-East of Cape Lookout  
Shoals

Remarks: 2.8 ft.-West of Cape Lookout  
Shoals

Recommended zoning:

- ZONE 3 East of Cape Lookout Shoals zone direct on Cape Hatteras.
- ZONE 2 On Cape Lookout Shoals apply range ratio x0.947 to Atlantic Beach hourly heights.
- ZONE 1 West of Cape Lookout Shoals zone direct on Atlantic Beach.

*James R. Hubbard*  
for Chief, Tides Branch

CORRECTIONS  
TO  
ECHO SOUNDINGS

General

This report covers corrections to echo soundings taken by the NOAA Ship PEIRCE and its launches PE-1 and PE-2 on the following days: 16 September 1974 to 18 October 1974. The corrections apply only to survey PE-20-3-74.

Final corrections are a combination of velocity and TRA corrections which are discussed separately.

The ship operated with a Ross Model 5000 S/N C-537-1039-5 fathometer and the launches utilized Raytheon Model 723D S/N 246 and 242 respectively fathometers. No problems were encountered that would seriously affect the results of the soundings obtained by the fathometers.

Velocity Corrections

There are three velocity tables for this survey. Velocity table 1 is for the ship work and tables 2 and 3 are for the launches PE-2 and PE-1 respectively. The velocity corrections were derived from TDC data for the ship and bar check data for the launches .

TRA Corrections

TRA corrections are a combination of the following:

- 1) Draft
- 2) Initial Variation
- 3) Settlement and Squat

Draft

Draft corrections for the NOAA Ship PEIRCE were obtained by

measuring the draft upon entering and leaving port. The difference was then apportioned in 0.1 ft. increments over the entire trip. An abstract of draft is attached to this report.

Draft for the launches is accounted for by bar checks and therefore no draft corrections are needed.

#### Initial Variation

The Ross fathometer was maintained at zero initial by utilizing its built in calibration circuitry.

The Raytheon fathometers were maintained at zero initial by the operator. All initial variations 0.2 ft. or greater are tabulated on form CAM 3-12 and applied on the TC/TI tape.

#### Settlement and Squat

Determination of settlement and squat took place on the 1 April 1974 and 1 August 1974 for the NOAA Ship PEIRCE and Launches PE-1 and PE-2 respectively. All surveying was performed at standard speed and only the appropriate corrector is applied. Form CAM 3-12 tabulates the reduced speed correctors for the survey and the only one needed for this survey is listed.

TRA correctors may be inserted in any of the following places;

- 1) Hydroplot Controller (ship only)
- 2) Corrector Tape
- 3) TC/TI Tape

The total corrector is the algebraic sum of the correctors in the above locations. For this survey the Hydroplot Controller was maintained at +11.0 ft. No correctors appear on the corrector tape. Deviations from +11.0 ft. are on the TC/TI tape.

For the launches settlement and squat and initial variations are on the TC/TI tape and draft and instrument error are accounted for on the velocity corrections.

VELOCITY TABLE 1

OPR-437, PE-20-3-74, H-9465

000054	0	0002	0001	000	283000	009465
000090	0	0004				
000123	0	0006				
000160	0	0008				
000195	0	0010				
000230	0	0012				
000264	0	0014				
000300	0	0016				
000335	0	0018				
000370	0	0020				
000405	0	0022				
000440	0	0024				
000476	0	0026				
000524	0	0028				
000550	0	0030				
000585	0	0032				
000620	0	0034				
000655	0	0036				
000690	0	0038				
000725	0	0040				
000762	0	0042				
000795	0	0044				
999999	0	0046				



VELOCITY TABLE 2

OPR-437, PE-20-3-74, H-9465, PE-2

000035	0	0008	0002	000	283200	009465
000065	0	0010				
000095	0	0012				
000125	0	0014				
000155	0	0016				
000185	0	0018				
000215	0	0020				
000246	0	0022				
000275	0	0024				
000306	0	0026				
000337	0	0028				
000366	0	0030				
000398	0	0032				
000427	0	0034				
000460	0	0036				
000490	0	0038				
000520	0	0040				
000550	0	0042				
999999	0	0044				

VELOCITY TABLE 3

OPR-437, PE-20-3-74, H-9465, PE-1

000022	0	0008	0003	000	283100	009465
000048	0	0010				
000075	0	0012				
000102	0	0014				
000130	0	0016				
000156	0	0018				
000184	0	0020				
000210	0	0022				
000236	0	0024				
000265	0	0026				
000294	0	0028				
000320	0	0030				
000347	0	0032				
000374	0	0034				
000402	0	0036				
000428	0	0038				
000455	0	0040				
000485	0	0042				
000512	0	0044				
000540	0	0046				
000565	0	0048				
000592	0	0050				
000620	0	0052				
000648	0	0054				
000675	0	0056				
000704	0	0058				
000730	0	0060				
999999	0	0062				

## ELECTRONIC CONTROL REPORT

PE-20-3-74 H-9465

## A. Horizontal Control

Horizontal control for the entire survey was established through the use of electronic Raydist operating in the range-range mode at a frequency of 3296.400 KHz.

## B. Shore Stations

The shore station locations were as follows:

Pattern 1: Swansboro

Lat.  $34^{\circ} 38' 48.976''$

Long.  $77^{\circ} 05' 46.602''$

Pattern 2: Cedar

Lat.  $34^{\circ} 57' 18.861''$

Long.  $76^{\circ} 16' 40.908''$

Station Swansboro was a former Raydist station located at the Swansboro Coast Guard Base, Swansboro, North Carolina. Station Cedar was located on Cedar Island, North Carolina by Photo Party 62 using third order traverse.

## C. Calibrations

All calibrations were computed using three-point sextant fixes with check angles to shore signals established by Photo Party 62. All calibration signals were located by third order traverse. Raydist lane counts were computed using AM 560 and the ship's PDP-8 computer.

A buoy was deployed in the work area and Raydist lane counts were carried to it. This buoy was used only to establish or check whole lane counts; it was not used for calibration. Visual sextant calibrations were accomplished a minimum of once per working day.

# Electronic Control Parameters

1. Project # OPR- 437    2. Reg. # A-9465    3. Field # PE 20-3-74
4. Type of Control Raydist    Ray-Pix, Raydist, ERI, etc
5. Frequency 3296.400    (for conversion of electronic lanes to notes)
6. Mode of Operation (check one):

Range-Range

Range One (R<sub>1</sub>)  
 Station I.D. SWANSBORO

Range Two (R<sub>2</sub>)  
 Station I.D. CEDAR

Lat.	34 °	38	48.976
Long.	77 °	05	46.602
Lat.	34 °	57	18.861
Long.	76 °	16	40.908

Hyperbolic (3-station)

Slave One  
 Station I.D. \_\_\_\_\_

Master  
 Station I.D. \_\_\_\_\_

Slave Two  
 Station I.D. \_\_\_\_\_

Hyper-Visual

Lat.	_____ °	_____	_____
Long.	_____ °	_____	_____
Lat.	_____ °	_____	_____
Long.	_____ °	_____	_____
Lat.	_____ °	_____	_____
Long.	_____ °	_____	_____

7. Location of Survey:

Range-Range

Imagine an observer is standing at R<sub>1</sub> Station and looking directly at R<sub>2</sub> (check one):

Survey area is to observer's Right  A=

Survey area is to observer's Left  A=

Hyperbolic

Looking from survey area toward Master Station.

Slave One must be to observer's Left.

Slave Two must be to observer's Right.

- This form is submitted as an aid in preparing a boat sheet.
- This form applies to all data on this survey.
- This form applies to part of the data on this survey.

Vessel EDP #	From Time Day	To Time Day	Position Number (inclusive)
_____	_____	_____	_____ to _____
_____	_____	_____	_____ to _____
_____	_____	_____	_____ to _____

9. Remarks: \_\_\_\_\_

## CALIBRATION SIGNALS

PE-20-3-74

149	34	37	0119	076	33	0875	16' TRIPOD
150	34	35	3362	076	32	1278	16' TRIPOD
151	34	36	0431	076	31	5553	16' TRIPOD
152	34	36	0052	076	32	1630	U.S.C.G. RADIO TOWER
153	34	36	5389	076	31	3233	16' TRIPOD
154	34	37	2130	076	31	2962	CAPE LOOKOUT LIGHT-HOUSE

SIGNALS NUMBERED 149 - 153 WERE ESTABLISHED BY PHOTO PARTY  
62 USING THIRD ORDER TRAVERSE. SIGNAL NUMBER 154 IS A  
PUBLISHED TRIANGULATION STATION.



APPROVAL SHEET

H-9465

Field work on PE-20-3-74 was done under my immediate supervision. The boatsheet and all records have been reviewed and approved by me.



Joseph W. Dropp

Commander, NOAA

Commanding Officer, NOAA Ship PEIRCE (CSS-28)

ATLANTIC MARINE CENTER  
APPROVAL SHEET  
FOR  
AUTOMATED SURVEY H-9465

- 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.

Date: 28 May 1976

Signed: William Thomas

Title: Chief, Verification Branch

- B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic and AMC Manuals. Exceptions are listed in the verifier's report.

Date: 3 June 1976

Signed: C. W. L. L. L.

Title: Chief, Processing Division



**HYDROGRAPHIC SURVEY STATISTICS**  
HYDROGRAPHIC SURVEY NO. H-9465  
PE-20-3-74

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET & 2-Overlays		1	BOAT SHEETS (2 parts)		1	
DESCRIPTIVE REPORT		1	OVERLAYS		5	
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
Accordion ENVELOPES	1					1
CAHIERS	1		1			
VOLUMES	3					
BOXES			1 & Sawtooth Rec.			
X-SHEET PRINTS (List) <del>NONE</del> 1 Chart (#11544)						
SPECIAL REPORTS (List) NONE						

**OFFICE PROCESSING ACTIVITIES**

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

PROCESSING ACTIVITY	AMOUNTS			
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				2316
POSITIONS CHECKED		213		
POSITIONS REVISED		10		
DEPTH SOUNDINGS REVISED		212		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		---		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		---		
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS		2		
JUNCTIONS		8		
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		16		
SPECIAL ADJUSTMENTS				
ALL OTHER WORK		241		
<b>TOTALS</b>		<b>267</b>	<b>32</b>	
PRE-VERIFICATION BY <u>W.H. Tyndall, W.H. Guy</u>	BEGINNING DATE <u>11/22/74</u>	ENDING DATE <u>05/15/74</u>		
VERIFICATION BY <u>C.M. Meekins, B.J. Stephenson</u>	BEGINNING DATE <u>08/14/75</u>	ENDING DATE <u>04/30/76</u>		
REVIEW BY <u>Hydrographic Inspection Team AMC</u>	BEGINNING DATE <u>05/27/76</u>	ENDING DATE <u>07/21/76</u>		

R.D. Samocki 5 hrs 8 Dec 76

QC. X.W. Wellman Sawtooth

54 hrs.  
07 hrs

REGISTRY NO. H-9465

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 REQUIRED \_\_\_\_\_ INITIALS \_\_\_\_\_

REMARKS:

REGISTRY NO. H-9465

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 REQUIRED \_\_\_\_\_ INITIALS \_\_\_\_\_

REMARKS:

H-9465

Items for Future Presurvey Reviews

This is an area of shifting sand bottom sediments. During future work in the area the submerged wreck and the 4-foot sounding, brought forward from H-8253 and H-4802 respectively, should be investigated and verified or disproved. (See Quality Control Report - item 4.)

<u>Position Index</u>		<u>Bottom Change Index</u>	<u>Use Index</u>	<u>Resurvey Cycle</u>
<u>Lat.</u>	<u>Long.</u>			
342	0764	5	2	25 years
342	0763	7	2	25 years
343	0764	7	0	50 years
343	0763	7	0	50 years

HYDROGRAPHIC INSPECTION TEAM

ATLANTIC MARINE CENTER

HYDROGRAPHIC SURVEY REVIEW

DATE: 5/28/76

REGISTRY NO.: H-9465

FIELD NO.: PE-20-3-74

GENERAL LOCALITY and SPECIFIC LOCATION:

~~Cape Lookout Shoal~~, North Carolina, Cape Lookout, Cape Lookout Shoals

SURVEYED: August 28, 1974 through October 18, 1974

PROJECT NO.: OPR-437

SCALE: 1:20,000

SOUNDINGS BY: Raytheon DE-723  
Depth Recorder

CONTROL: Raydist  
(Range-Range)

Chief of Party ..... J.W. Dropp  
Surveyed by ..... J.K. Callahan  
..... D.L. Suloff  
..... ~~D.E. Barnhill~~ J.M.  
..... T.W. Jackson  
..... K.M. Holden  
..... C.D. Mason  
..... B.B. Johnson  
..... D.A. Dreves  
Automated Plot by ..... Calcomp Plotter #618 (AMC)  
Verified and Inked by ..... B.J. Stephenson

1. Description of the Area

This survey covers an area<sup>of</sup> approximately 54.2 square miles<sup>and lies</sup> due south of Cape Lookout Shoal.

The bottom on Cape Lookout Shoal is characterized by sand ridges and troughs, with depths ranging from 4 to 36 feet. The Shoal is surrounded by the 30 foot curve, and the bottom is composed of mostly sand with varying amounts of shell.

2. Control and Shoreline  
Type-Source-Origin

The control is adequately described in the Electronic Control Report, on page 25 of the Descriptive Report.

There is no shoreline within the limits of this survey.

### 3. Hydrography

A. Crossings: Depths at crossings are in good agreement; differences can be attributed to sand ridges, and the constant change of the bottom.

B. Depth Curves: The standard depth curves are adequately delineated. A few supplemental curves were added to the southern part of the survey to emphasize certain important bottom features. (South of lat. 34° 27.10')

C. Developments: The developments <sup>of the bottom configuration and</sup> for the investigation of ~~Pre-~~ least depths ~~survey Review Items~~ are considered adequate.

### 4. Condition of the Survey

The sounding records, automated plotting and the Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual, supplemented by the Atlantic Marine Center Manual.

### 5. Junctions

An adequate junction was effected with contemporary survey H-9464 (1974) on the north. A butt junction was effected with H-9060 (1969), H-9042 (1969) and H-9043 (1969) on the east, south and west respectively. Due to the disturbed and changeable bottom in the junctional area depth differences of as much as seven feet were not considered unreasonable; however, the bottom has changed sufficiently to render the junctional soundings invalid and superseded by the present survey. (See Q.C. Report-item 1)

### 6. Comparisons

A. Prior Surveys: H-4802 (1928) 1:10,000

This prior survey only covers a very small area of the present survey. The area covered is about two and one-half to three miles, with the center located at latitude 34° 32.7'N, longitude 76° 30.5'W. A comparison between the prior and present survey reveals variable patterns of depth differences of one to twenty-one feet with present survey deeper. (This paragraph is superseded. See Q.C. Report-item 4)

There were scattered indications of stable depths on the outer-limits of the shoal. The greatest depth differences usually occurred in the crest of the shoal. The bottom in this area is very changeable and depth differences are mainly attributed to the re-distribution of bottom sediments during storms and strong current activity found in the area.

Supplemented  
by Q.C. Report-  
item 4

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

B. Published Charts: #11<sup>544</sup>~~252~~ (formerly C&GS 1233, 20th edition, dated March 9, 1974). and #11<sup>544</sup>~~542~~ (formerly C&GS 1233, 21st edition, dated March 9, 1974).

The charted hydrography on the 20th edition of chart #11<sup>544</sup>~~252~~ reveals the same pattern of differences found on the previously discussed prior surveys- fairly stable on the outer-limit, with the major differences throughout the crest of the Shoal.

The 21st edition of chart #11<sup>544</sup>~~252~~ apparently has been revised from the boat sheets of the present survey and show the prominent changes. The present survey is adequate to supersede the charted hydrography within the common area.

#### Aids to Navigation

The aids to navigation are adequately described in Paragraph M of the Descriptive Report, and adequately mark the features intended.

#### 7. Compliance with Instructions

This survey adequately complies with the Project Instructions.

#### 8. Additional Field Work

This is an excellent basic survey. Additional field work is not recommended.

#### 9. Hydrographic Inspection Team Comments

Hydrographic Inspection Team comments are included within this report and Verification deficiencies found, if any, have been corrected on the Smooth Sheet.

Additional Notes for H-9465

Pre-survey Review Items:

PSR Item No. 3 - Charted PA obstruction was not found during this survey. It is recommended that this item be retained as charted until disproved by wire drag; latitude  $34^{\circ} 31.5'N$ , longitude  $76^{\circ} 30.8'W$ . (Originates with N.M. 26, 1967)

PSR Item No. 4 - Submerged wreck charted at latitude  $34^{\circ} 27.3'N$ , longitude  $76^{\circ} 28.9'W$  was not found during this survey. It is recommended that this item remain as charted until disproved by wire drag. (Originates with NM 2 (1970))

These items were not carried forward to this survey as the source was unknown and could not be verified.

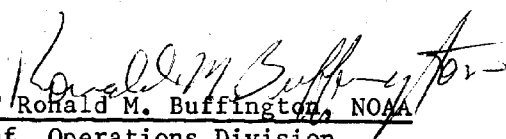
PSR Item No. 5 - This wreck was located at latitude  $30^{\circ} 26' 14.28''N$ , longitude  $76^{\circ} 29' 27.31''W$ . It is recommended that the chart be revised to conform with the location and depth recorded during this survey. *Diver investigation*  
40 Ft

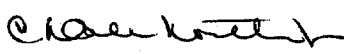
PSR Item No. 6 - Charted shoal area located at latitude  $34^{\circ} 26.5'N$ , longitude  $76^{\circ} 26.7'W$  was developed and a least depth of 31 feet was found in the area. It is recommended that the chart be revised to reflect the depths recorded during this survey.

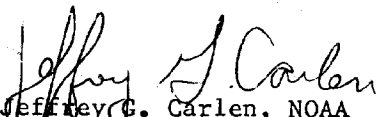
The shoaler centered area at latitude  $34^{\circ} 25' 30''$ , longitude  $76^{\circ} 23' 30''$  was not developed to delineate the entire extent of the area; however, there is general agreement with H-9060 (1969).


Approval Sheet for Survey H-9465

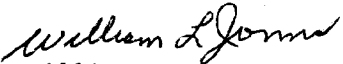
Examined and Approved:  
Hydrographic Inspection Team  
Date: 3 June 1976

  
CAPT Ronald M. Buffington, NOAA  
Chief, Operations Division

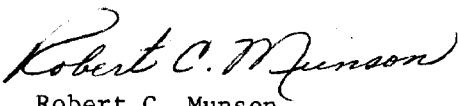
  
C. Dale North, Jr., LCDR, NOAA  
Chief, Processing Division

  
CDR Jeffrey G. Carlen, NOAA  
Chief, Coastal Mapping Division

  
Gregory R. Bass, LT, NOAA  
Chief, EDP Branch

  
William L. Jonns  
Chief, 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

C352

September 13, 1976

TO: *for R.H. Coasters*  
A. J. Patrick  
Chief, Marine Surveys Division

THRU: Chief, Quality Control Branch

FROM: K. W. Wellman *K. W. Wellman*  
Quality Evaluator

SUBJECT: Quality Control Report for H-9465 (1974), North Carolina,  
Cape Lookout, Cape Lookout Shoals.

A quality control inspection of H-9465 has been accomplished to evaluate the accuracy and adequacy of the survey with respect to data acquisition, delineation of the bottom, determination of least depths and navigational hazards, junctions, decisions and actions by the verifier, and cartographic presentation of data. In general, it was found to conform with National Ocean Survey standards and requirements except as follows:

1. To effect an adequate junction it is necessary that the junctional smooth sheets and records be available to the verifier so that the junctional note can be inked on both smooth sheets and the records can be reexamined as necessary to effect the agreement of soundings and reconciliation of depth curves in the junctional area. Further, in the case of a butt junction, a dashed line and supersede note should be inked in color on the appropriate smooth sheet to delimit the superseded area. (See provisional manual sections 6.3.4.7 and 7.3.12.5.) When the verifier is unable to effect a completed junction, it is considered incorrect to include a direct statement in the Verifier's Report that an adequate junction has been effected. However, it can be stated that "depths in the junctional area with H- on the \_\_\_\_\_, are in adequate agreement. Because the original surveys are not presently available, completion of the junction should be accomplished at Headquarters." Additional work necessary to complete the junctions described in section 5 of the Verifier's Report was accomplished during the quality control inspection of the present survey.

With the exception of a small superseded area in the vicinity of latitude 34°26.50', longitude 76°29.50' on H-9060, a normal junction between H-9060 and the present survey was effected during quality control inspection.



2. The verifier misidentified the chart used for comparison with the present survey [see provisional manual--sections 5.3.4(L), 6.3.10, and 8.3(12)], mistaking the Naval Department number for the new NOS number. The Verifier's Report (section 6-B) contains an adequate discussion of the chart comparison.

3. Section 6 of the Verifier's Report, "Comparisons," does not conform with the format contained in the provisional manual [sections 6.6(11) and 6.6(12)]. The discussion of Comparison with Prior Surveys and Comparison with Chart should be contained in separate sections of the Verifier's Report rather than combined in one section.

4. The verifier's comparison with prior surveys, being limited to H-4802 only, is not complete. There are six prior surveys of the area common to the present survey, five of which serve as sources for the charted hydrography and, in addition, H-4802 is substantially superseded by the more recent reviewed survey H-8253 (1955). The first paragraph of section 6-A of the Verifier's Report is therefore superseded by the following:

A. Comparison with Prior Surveys

H-849	(1864)	1:40,000	
H-885	(1865-66)	1:40,000	
H-4802	(1928)	1:10,000	
H-8247	(1955)	1:20,000	
H-8248	(1955)	1:20,000	(Unverified)
H-8253	(1955)	1:10,000	

These prior surveys cover the area of the present survey. A comparison between the present and prior surveys reveals a variable pattern of depth differences of as much as  $\pm 20$  feet since 1864. The more recent surveys, however, indicate depth differences of  $\pm 0$  to 9 feet. A submerged wreck at a depth of 4 feet in latitude  $34^{\circ}33.42'$ , longitude  $76^{\circ}31.64'$  and a 4-foot sounding in latitude  $34^{\circ}33.36'$ , longitude  $76^{\circ}30.32'$  are not considered disproved and were carried forward to the present survey from H-8253 and H-4802 respectively to supplement the present survey. There is no conflict between the present survey depths and the cleared depths of the wire-drag development on H-8248 (unverified). However, the wreck charted in latitude  $34^{\circ}29.6'$ , longitude  $76^{\circ}25.85'$  from H-8248 as cleared by 18 feet was investigated by divers on the present survey who found a least depth of 31 feet. This supersedes the prior charting.

There were scattered . . . (See section 6-A of the Verifier's Report which is supplemented by the above.

5. The title of the survey shown on the title sheet of the Verifier's Report did not conform to that shown on the cover and title page of the

H-9465

3

Descriptive Report in that the General Locality and Specific Location were reversed. It was revised during the quality control inspection.

cc:  
C351

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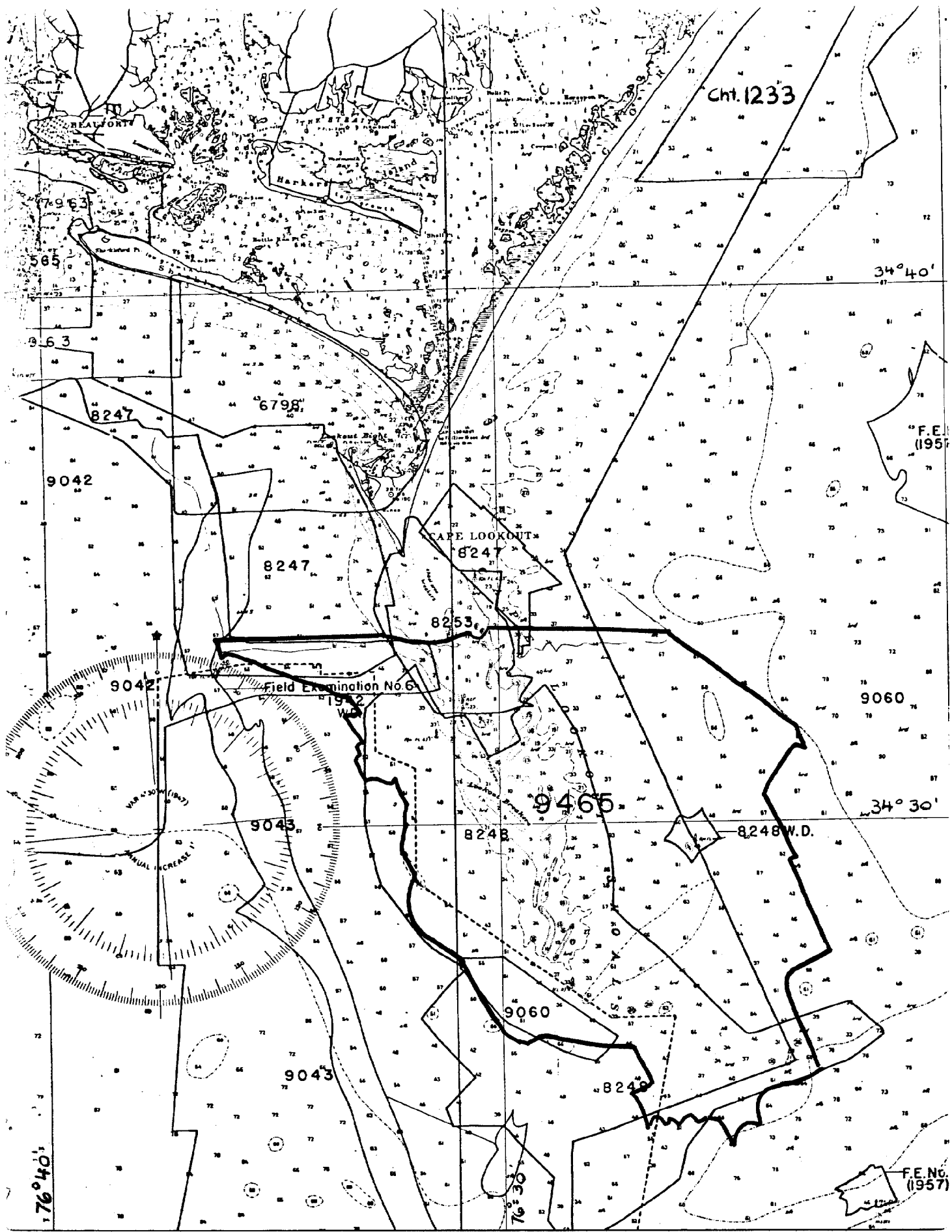


Chart 1233

34° 40'

F.E. No. (1957)

CAPE LOOKOUT

Field Examination No. 6

9042

9060

34° 30'

8248 W.D.

9465

8248

9060

9043

8248

76° 40'

76° 30'

F.E. No. (1957)

