8291

Diag. Cht. No. 1231-2.

Form 504

U. S. DEPARTMENT OF COMMERCE COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey Hydrographic Field No. ECFP-1356 Office No. H-8291 **LOCALITY** North Carolina General locality Juracoke Inlet Locality Wallace Channel 19.56... CHIEF OF PARTY Marvin T. Paulson LIBRARY & ARCHIVES APR 1 7 1958

DATE .

COMM-DC 61300

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

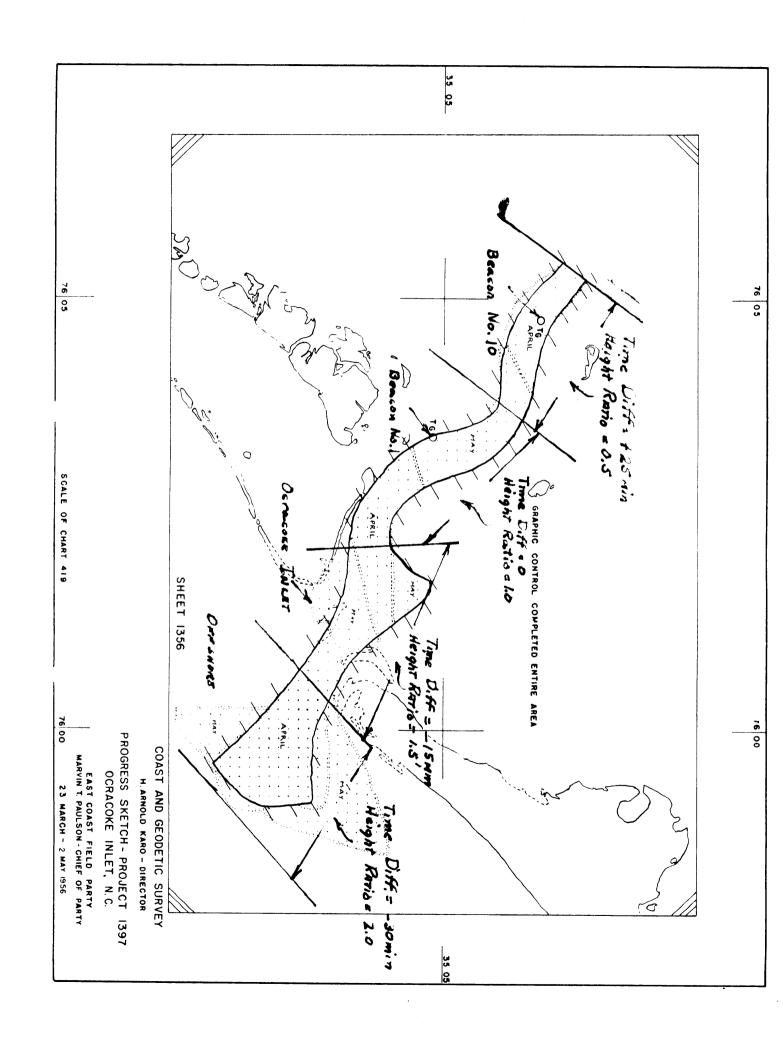
HYDROGRAPHIC TITLE SHEET

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

REGISTER No. H-8291

Field No. ECFP-1356

State	North Carolina
General locality	Ocracoke Inlet
Locality	Wallace Channel
Scale 1:10,000	Date of survey 17 April - 2 May 1956
Instructions dated	29 February 1956
Vessel Leunch	CS-175
Chief of party	Marvin T. Paulson
Surveyed by	Donald L. Campbell
Soundings taken by factor	mater, graphic recorder, hand lead, wire sounding pole
Fathograms scaled by	W.H.P., R.A.L.
Fathograms checked by	A.G.D., I.G.P.
Protracted byA	llen K. Schugeld
Soundings penciled by	Allen K. Schugeld.
Soundings in feetheres	feet at MLW Million



DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SURVEY H-8291 FIELD NO. ECFP 1356

SCALE 1:10,000

Project 13970

OCRACOKE, NORTH CAROLINA

EAST COAST FIELD PARTY

Marvin T. Paulson, Chief of Party

Surveyed By:

D. L. Campbell

A. PROJECT

Work on project #13970 was executed in accordance with project instructions 22/MEK, FP East Coast, dated 29 February 1956.

B. SURVEY LIMITS AND DATES

The area covered by this survey is in the vicinity of Ocracoke Inlet and Wallace Channel. The limits ate the development of the channel from the 30 foot curve off-shore from Ocracoke Inlet to the East end of the dredged channel. into Pamlico Sound. Long. 75 58.3'W to Long. 76 05.4'W in the vicinity of Lat. 35 04.5'N.

Work on the sheet began on 17 April 1956 and ended on 2 May 1956.

This survey makes a junction on all sides with H-4734, 1927 scale 1:10,000.

Although progress on signal building and tide gage installation was interupted at various times by storms, and bad weather, the actual hydrography progressed with few interuptions. Wind was a major fartor to consider in working the off-shore area. The entire area off-shore from the mouth of the inlet was very treacherous and unsafe to work except on the two days in which work in that area was completed. On the last of these days, breakers in as much as six feet of water made it unsafe to carry hydrographic lines across shoal areas that might have otherwise been developed.

C. VESSEIS AND EQUIPMENT

Launch CS-175, based at Ocracoke, was used for the entire survey. The turning radius for Launch CS-175 is 50 meters at standard speed and half rudder.

The following ECHo sounding equipment was used:

Туре	Serial No.
EDO	201
£0 8	77

Both the EDO and the 808 were used on the "A-range" only. The maximum depths measured were in the vicinity of 65 feet.

D. TIDE AND CURRENT STATIONS

Tide stations were established on lighted beacons, numbers "1" (Lat.35°04.89N Long. 76°03.38'W) and "10" (Lat. 35°05.94'N Long. 76°04.85'W). The standard tide station at Naval Operating Base, Norfolk, Va. served as the basic control station for this project.

The following time and range corrections were used to refer the tides at Beacon #1 to the areas described, in accordance with letter 36-276-15d, dated 22 June 1956:

<u>Zone</u>	<u>Area</u>	Time Diff.	<u>Range Ratio</u>
1	Beacon No. 1	0	1.0
2	Beacon No. 10	+ 25 Min.	0.5
3	Ocracoke Inlet	- 15 Min.	1.5
4	Off- Shore	-30 Min.	(2.0)

SEE TIDE NOTE

No current observations were made on this project.

E. SMOOTH SHEET

The smooth sheet projection, signal transfer and hydrographic plot will be made by the Norfolk Processing Office. This section will be covered by a report from their office.

F. CONTROL STATIONS

The following triangulation control was used on this survey:

	G.P. page	Vol.	Chief of Party
Portsmouth Spire, 1933	359	G4838	RJS
Portsmouth Coast Guard			
Cupola, 1909	579	G5456	JVIM
Beacon Island 2, 1909	356	G4838	JVIM
Ocracoke Lighthouse, 1951	356	G4838	GCM

All topographic control was located on graphic control sheet ECFP-A-56.

G. SHORELINE AND TOPOGRAPHY

The shoreline and topographic detail are very changeable in this area. In accordance with the instructions, no shoreline or topographic detail was required on the boat or smooth sheets.

The low waterline was not completely defined due to a small range of tide

over most of the areas surveyed.

H. SOUNDINGS

All soundings were made by fathometers as listed insection C, except for pole soundings taken in shallow water (5 feet or less) and those lead lines soundings taken in connection with the bottom sampling.

No difficulties requirging unusual methods, equipment, or corrections were experienced during this survey.

A tabulation of bar checks and abstract of correction will be found in Appendix B.

I CONTROL OF HYDROGRAPHY

All hydrographic control was visual by sextant angles on shore objects or signals. Positions were usually taken at one and one half mimute intervals.

J. ADEQUACY OF SURVEY

This survey is complete within the defined limits except m for an area off-shore from the Inlet shown as breakers on the boat sheet. This area varied in depth from about two to six feet, and was marked by breakers during the entire period that hydrography was in progress. Due to the changeable character of this area, it is not felt further development is necessary.

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

Junctions with adjoining prior surveys are in fair agreement considering the changeable nature of the area. Bepth curves can be adequately drawn at the junctions except in the areas where considerable change was found.

K. CROSSLINES

The per cent of cross lines run is 7.8%. Discrepancies at crossing were not in excess of the limits prescribed in the <u>Hydrographic Mamual</u>.

L. COMPARISON WITH PRIOR SURVEYS

A comparison of the present survey with prior surveys H-6834 & H-6836, 1943, scale 1:10,000 shows numerous changes have occured over the entire area. The greatest changes appear to be in the approach to Ocracoke Inlet. Following are a list of changes by area:

Comparison No.	Area	Summary of Changes	Recomenda- tions
1.	Limits of channel from Long. 76°05'15"W to 76°04'00"W.	Channel has become we narrower; mid channel depths are slightly shoaler.	Chart survey depths.
2.	Limits of channel from Long. 76°03'W to 76°04'W.	In the vicinity of Lat. 35 05'45"N Channel has become	Chart survey depths.

Comparison No.	Area	Summary of Changes	Recommenda- tions.
2.		narrower, shifting to NE from 50 to 100 meters.	
		The shoal previously found in Lat. 35 ⁰ 05 ¹ 00 ⁿ N has shifted NW about 500 meters, leaving a depth of 12 to 15 feet.	Chart new depths.
	·	The channel along the NE side, to Lat. 35°05'00"N has shift-ed northeasterly from 20 to 100 meters.	Chart new depths.
		In the vicinity of Lat. 35 04'30"N the SW side of the channel has shifted SW about 150 meters.	Chart new depths.
		Mid channel depths are in fair agreement.	Chart new depths.
3.	limits of sound- ed area from Long. 76°03'W to 76°02'W.	This entire area shows extensive shoaling with the channel shifted N from 200 to 400 meters.	Chart navigational aids only East of Long. 76°02'30"
		The controlling depth of 12 feet for the channel is not in agreement. A controlling depth of 8 feet was found in this area.	Chart note me- garding con- trol depth found during survey.
4.	Limits of sound- ed area from Long. 76°02' W to 76°01'W.	Shoaling along the southern edge of the channel has shifted the channel northly from 100 to 300 meters.	Chart navigational aids only.
		Mid channel depths in Wallace Channel are from 5 to 10 feet shoaler, while those in the en- trance to Blair Channel are in fair agreement.	Chart navigational aids only.
	-	Blair Channel has not shift- ed appreciably, but the width of the channel has decreased from 100 to 300 meters at the entrance.	Chart navigational aids only.

Comparison NO.	Area	Summary of Changes	Recommendations
4.		The controlling depth to Teaches Hole Channel previously found to be 8 feet, is now 17 feet. The channel entrance has shifted South- easterly about 350 meters.	Chart note regarding controlling depth at entrance found during survey.
5.	ed area from	Shoaling along the northern edge, in the vicinity of Long. 76 00'45" Whas shifted the channel south westerly 250 to 300 meters.	Chart note regarding change- able character of channel.
		Shoaling along the southern edge, in the vicinity of Long. 76 00'20" W, has shifted the channel northeasterly 200 to 500 meters.	garding change-
6.	Limits of sounded area from 76 00'W to the eastern limit of the survey.	The channel has divided in the vicinity of Long. 76 00'00"W leaving two entrances to the channel. The southern entrance, with a controlling depth of 9 feet is about 600 meters NE of the entrance shown on the prior survey. The northern entrance, with a controlling depth of 10 feet, is about two miles NNE.	Chart 30 foot depth curve.

M. COMPARISON WITH CHART

A comparison with chart 419, print date 1/24/55, indicates various changes as listed in section L. Necessary recommendations for charting purposes are also listed in section L.

N. DANGERS AND SHOALS

Newly found dangers and shoals are included in section L.

Charted shoals with least depths of less than those found on the new survey are included in section L. Due to the changeable character of the area is is recommended that all new survey depths be used for charting purposes.

All charted dangers, shoals, and bare rocks were found as charted, except as listed in section L.

O. COAST PILOT INFORMATION

There are two changes necessary in the Coast Pilot notes in the vicinity of Wallace Channel and Ocracoke Inlet. This is reported in the Coast Pilot Report, of which a copy is attached.

P. AIDS TO NAVIGATION

All fixed aids to navigation were reported on form 567.

Following is a list of all floating aids to Navigation within the project area:

Name or Number (Ocracoke Inlet)	Latitude & Longitude	Depth of water	Vol. & Date located page No.
Ocracoke Entrance Lighted Bell Bouy2 - No. 3063	35 04.33'N 75° 58.53'W	261	See Topo April 1956 sheet Field Position folls off No. ECFP* /mits of FP-R-56 A-56
Bar Bouy	35°04.15'N 75°59.17'W	10	See Topo April 1956 Sheet ERCFP-A-56
Lighted Bouy 2 A - No. 3064	35 ^a 04.22'N 75°59.48'W	71	n n
Channel Lighted Bouy No.3065	35°03.51' N 76°00.38' W	251	at W
Junction Lighted Bouy No. 3066	35 ⁰ 04.30'N 76 01.42'W	12'	(H_8291) 27 April 156 Vol. 6 pg. Position from FP H-56 46
(Teaches Hole Channel)			•
Lighted Bout 5	35°04.33'N 76°00.98'W	151	(H-8291) 27 April 156 Vol. 6 Position from FRH-56 pg. 46
(Wallace Channel)			
Bouy 1	35°04.35' N 76°02.02'W	91	(H-8291) 1 May 156 Vol. 8 Position from FRA-51 pg. 8
Bouy 1 A	35°04.33¹N 76°02.36¹W	71	(H-8291) 1 May 156 Vol. 8 Pg. 9
Bouy 2	35°04.38'N 76°02.56'W	101	(H-8291) 1 May '56 Vol.8 pg. 14
Lighted Bouy 3	35°04.31'N 76°02.83'W	171	(H-8291) 17 April 156 Vol. 1 Pos. from FPA-56 pg 15

Name or Number	Latitude & Longitude	Depth of Water	Vol. & Page No.	Date located
(Wallace Channel)				•
Bouy 6	35°05.55' N 76°03.37'W	191	(1-8291) Vol. 8 pg. 30	2 May 156
Bouy 11	35°06.17'N 76°05.34'W	12'	(H-8291) Vol. 1 pg. 67	18 April '56

The southern terminus of a submarine cable crossing was located on Topo Sheet Field No. ECFP-A=56. (Lat. 35°04.00'N Long. 76°02.46'W)

Q. LANDMARKS FOR CHARTS

There are no new landmarks for charts to report.

R. GEOGRAPHICAL NAMES

There are no new geographical mames to report.

S. SILTED AREAS

Not applicable.

T. BY-PRODUCT INFORMATION

Not applicable.

U-Y. MISCELANEOUS

Not applicable.

Z. TABULATION OF APPLICABLE DATA

Topographic Sheet (Field No. ECFP-A-56) transmitted 10 May 1956.

Respectfully submitted

Donald L. Campbell,

Lt., C&GS

ATTACHMENTS

Appendix

- A. List of Control Stations
- B. Bar Check Tabulation & Abstract of Corrections
- C. Statistics
- D. Tidal Note
- E. Coast Pilot Report
- F. Approval Sheet

APPENDIX B

Bar Check Tabulation and Abstract of Velocity Corrections

A. Bar Checks

808, No. - 77 EDO - 201

Date	Correction		Date		Correction		
	@ 61	@ 121	@18'		@ 6 '	@ 12'	@ 18'
4/18/56	‡0.15	0.0	,	4/17/56	+ 0.2	+0.2	
4/19/56	-0.1	-0.1		4/24/56	0.0	0.0	
4/20/56	+0.2	+ 0.1		4/25/56	0.0	0.0	
				4/26/56	+0.1	+0.2	
			•	4/27/56	0.0	0.0	
				5/ 1/56	0.0	-0.25	
				5/ 2/56	+0.1	0.0	0.0

B. Abstract of Corrections:

808, No. - 77

EDO - 201

Range Velocity Correction A Solution Range Velocity Correction A O.O

APPENDIX C

Statistics For Hydrographic Survey
H-8192 (1956), Launch CS-175 Project 13970

Date	Vol. NO.	Day Letter	No. I LL.	Positions Fath.	Stat. Mi. Hydro.	Area Sq. Stat. Mi
17 April 18 " 19 " 20 " 24 " 25 " 26 " 27 " 1 May 2 May	1 1 & 2 2 & 3 4 & 5 5 & 6 6 & 7 8	a b c d e f g h j k	3 3 9	122 144 317 122 149 25 220 262 25	17.8 19.7 43.9 15.2 20.3 3.7 23.5 31.9 2.5 11.0	
	T	otals	15	1458	189.5	46 Stat.

APPENDIX D

Tidal Note for Hydrographic Survey H-8192 (1956)

Tidal data for the reduction of soundings was obtained from portable automatic gages maintained at Wallace Channel Lighted Beacon No. 1 and Wallace Channel Lighted Beacon No. 10. The standard tide station at the Naval Operating Base, Norfolk, Va., served as the basic control station.

Reducers were derived in accordance with Director's Letter 36-276-15d, dated 22 June 1956. See enclosed sketch.

Tide Gage	Lat. & Long.	MIW on Staff
Beacon No. 1	35°04.891 N 76°03.381 W	6.9 ft.
Beacon No. 10	35 ⁰ 05.93' N 76 ⁰ 04.85' W	5.6 ft.

Corrections & Time Differences (See enclosed sketch)

Zone	Time Difference	Range Ratio
Beacon Nô. 10	+ 25 min.	0.5
Beacon No. 1	0	1.0
Ocracoke Inlet	1515 min.	1.5
Off Shore	- 30 min.	(2.0)

APPENDIX E

COAST PILOT REPORT Atlantic Coast

Section D - Cape Henry to Key West

Page 145, Line 35 and 36; read:

CHANNEL. In 1955, the depth over the bar at the inlet end of Teaches Hole Channel was about 16 feet, and about 10 feet could be carried through the channel and into...

Page 145, Line 45 and 46; read:

Pamlico Sound. The channel is well marked by bouys and lights. In May 1955, the controlling depth was about 8 feet at Long. 71 02'30"W.

APPENDIX F

APPROVAL SHEET - SHEET H-8291

PROJECT 13970

This survey is approved as complete in compliance with the instructions. Your attention is called to the hydrographers shore line sketched on the boat sheet, this area is subject to considerable change with each hurricane.

The aids to navigation positions determined by the topographer, on seet ECFP-A-56, should be used for smooth sheet plotting.

The records were not inspected by the Chief of Party daily, as the survey was accomplished by a detached unit; but the records have been reviewed and are complete.

Marvin T. Paulson LCdr., C&GS, OinC

NORFOLK PROCESSING OFFICE LIST OF SIGNALS H-8291

TRIANGULATION STATIONS

OCRACOKE NORTHEAST BASE, 1870-1933 BASE

BEACON ISLAND 2, 1909-33 BEA

COKE, 1927 COKE

PORTSMOUTH, COAST GUARD, CUPOLA, 1909-27 OCRACOKE LIGHTHOUSE, 1851-1935 CUP

RAC

PORTSMOUTH, SPIRE, 1933-47 SPIRE

TOPOGRAPHIC	STATIONS	SOUR	CE ECFP	-A-56	
	_	 _	* * *	36	2144

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HYDROGRAPHIC STATIONS

1, pg. Car Vol. , Cas Ħ 11 11 11 Dor 11 #1 11 Tid Ħ Wal

NORFOLK PROCESSING OFFICE

ADDENDUM To Accompany

HYDROGRAPHIC SURVEY H-8291 (Field No. ECFP-1356)

GENERAL

This appears to be an excellent basic survey and no unusual conditions were encountered during the smooth plot.

SOUNDINGS

There is a noticeable variation in speed between positions. This condition is undoubtedly caused by strong and variable currents as there are no indications that the control is questionable.

The Field scanning of the fathograms was accepted and only spot checking was done by the Office. All soundings were reduced in the conventional manner and the agreement at crossings is considered good.

DISCREPANCIES

The soundings between positions 209 to 210g and 211 to 212g, volume 6, were not smooth plotted. They are in disagreement with surrounding hydrography.

SHORELINE

Shoreline was ommited from the smooth sheet in accordance with the original project instructions.

Norfolk, Va. 11 April 1958

Respectfully submitted,

Hugh L. Proffite Cartographer.

		Char.	C Steriore Stra	S Mod S	St. local stor	Or loca Made	o Cuide of	Mos McHall	N. S.	/
Name on Survey	A	В	/c	<u></u>	E	F	G		/ K	$\overline{\ }$
North Carolina		(for ti	le)						1
Coracoke Inlet			11							2
Ocracoke Island							ļ			3
Teaches Hole Channel							-			4
Blair Channel										5
Wallace Channel							-			6
PAmlico Sound										7
and the second s						ļ				8
				Name	s appr	oved	1-29-1 ec	3		9
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Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. .8291...

Records accompanying survey:	
Boat sheets; sounding vols, wi	re drag vols;
bomb vols; graphic recorder rolls	Fnyelopes
special reports, etc. 1-Smooth sheet and 1-1	
The following statistics will be submitted wit rapher's report on the sheet:	
Number of positions on sheet	1458
Number of positions checked	3/2
Number of positions revised	
Number of soundings revised (refers to depth only)	65
Number of soundings erroneously spaced	
Number of signals erroneously plotted or transferred	0
Topographic details	Time
Junctions	Time
Verification of soundings from graphic record	Time 100 has
verification byCan/FefeTotal time	20/h/sDate 8/31/73
Reviewed by Time	Date

The verifier should deal with the present hydrographic survey only, as the reviewer considers its relation to previous surveys and published charts. He should be thoroughly familiar with Chapters 3, 7 and 9 of the Hydrographic Manual.

- 1. The descriptive report was consulted and appropriate notes were made in soft pencil regarding action taken.
- 2. Soundings originating with the survey and mentioned in the descriptive report have been verified, including latitude and longitude.
- 3. All reference to survey sheets mentioned in the descriptive report include the registry number and year.
- 4. Geographic names of hydrographic features if on sheet are in slanting lettering and of topographic features in vertical lettering.
- 5. All items affecting the plotting of the survey which are entered in the remarks columns of the sounding records were noted and check marked. In all cases appropriate action was taken.
- 6. All positions verified instrumentally were check marked in the sounding records.
- 7. All critical soundings are clear and legible and are a little larger than the adjacent soundings.
- 8. The metal protractor has been checked within the last three months.
- 9. The protracting and plotting of all bad crossings were verified.
- 10 All detached positions locating critical soundings, rocks or buoys were verified.
- 11. The boat sheet was compared with the smooth sheet.

- The spacing of soundings as recorded in the records was closely followed.
- 13. The bottom characteristics were shown on outstanding shoals.
- 14. The reduction and plotting of doubtful soundings were checked.
- 15. The transfer of contemporary topographic information was carefully examined.
- 16. All junctions were transferred and overlapping curves made identical.
- 17. The notation "JOINS H- (19--)" was added in ink for all contemporary adjoining or overlapping sheets now registered. Those not verified are shown in pencil.
- 18. The depth curves have been inspected before inking.
- 19. All triangulation stations and transfer of topographic and hydrographic signals were checked.

 Hydrographic signals could not be checked because lost, the mapping control skeet for this source has been lost.
- 20. Heights of rocks were checked against range of tide.
- 21. Rocks transferred from topographic surveys have a dotted curve where shown thereon. Rocks located accurately by hydrographer are encircled by dotted red curve;
- 22. Unnecessary pencil notes have been removed.
- 23. Objects on which signals are located and which fall outside of the low water line have been described on the sheet.
- 24. The low water line and delineation of shoal areas have been properly shown.
- 25. Degree and minutes values and symbols have been checked.
- 26. Questionable soundings have been checked on the fathograms.

- Source of shoreline and signals (when not given in report). 27.
- All notes on sheet are in accordance with figure 171 in 28. the Hydrographic Manual.
- 29. All aids located, with those on contemporary topographic sheets, have been shown on survey.
- 30. Depth curves were satisfactory except as follows:
- Sounding line crossings were satisfactory except as follows: 31.
- Junctions with contemporary surveys were satisfactory 32. except as follows: No junctions required

Condition of sounding records was satisfactory except as 33. follows:

- 34. The protracting was satisfactory except as follows:
- The field plotting of soundings was satisfactory except 35. as follows:
- 36. Notes to reviewer:

Verified by Calkete.

Date 8/31/73 US COMM - CUS - DC

TIDE NOTE FOR HYDROGRAPHIC SHEET

Chart Division: R. H. Carstens

5 August 1958

Plane of reference approved in 8 volumes of sounding records for

HYDROGRAPHIC SHEET 8291

Locality Ocracoke Inlet, N.C.

Chief of Party: M. T. Paulson in 1956

Plane of reference is mean low water, reading

6.9 ft. on tide staff at Beacon No. 1

5.6 ft. bekomments on tide staff at Beacon No. 10

Height of mean high water above plane of reference is:

Beacon #1 1.3 feet

Beacon #10 0.7 feet

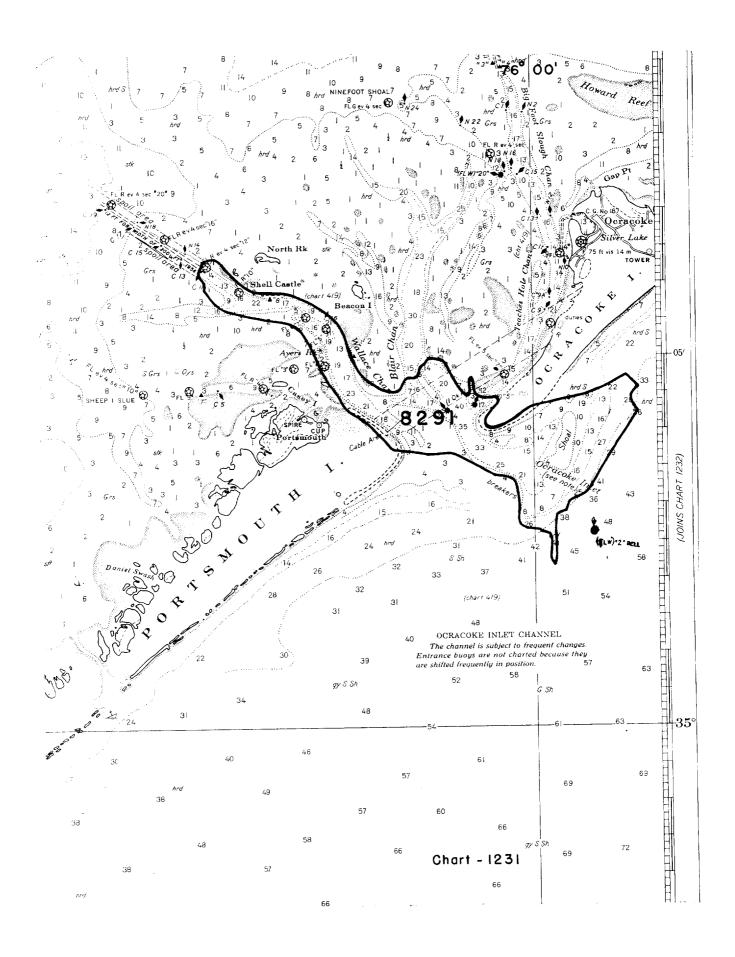
Condition of records satisfactory except as noted below:

NOTE: Tide reducers for the positions listed below have been revised in red and verified:

Vol.	Positions			
2	78b - 130b 1c - 124c			
3	125c - 317c			

J. M. Symons Signature

Acting Chief, Tides Branch



NAUTICAL CHARTS BRANCH

SURVEY NO. ___H-8291

Record of Application to Charts

· · · · · · · · · · · · · · · · · · ·		1000014	CATEGURY T
DATE	CHART	CARTOGRAPHER	REMARKS
4-30-58	419	ag. Hoffman	Before After Verification and Review As conection. Particley applied
10/2/58	1231	Sam	Before After Verification and Review
		HC Anderson	Before Alex Verification and Review Partially Thry chart #1231
3/19/59	1232	effelmer	Before Werification and Review Exam. Hydro revised from Bp. 53789 thru chart 419. No corrections
			Before -After Verification and Review
			Consider Adequately apply Him chart 11555 Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			M-2168-1

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.