

8794

Diag. Cht. No. 1238-2.

FORM C&GS-504

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. PE-10-1-64 Office No. H-8794

LOCALITY

State South Carolina

General locality Coast of South Carolina

Locality Vicinity of Winyah Bay
Entrance

1964

CHIEF OF PARTY

R. F. Lanier & R. M. Buffington

LIBRARY & ARCHIVES

DATE 6/27/67

USCOMM-DC 37022-P66

8794

HYDROGRAPHIC TITLE SHEET

H - 8794

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-10-1-64

State South Carolina

General locality Coast of South Carolina

Locality Vicinity of Winyah Bay Entrance

Scale 1:10,000 Date of survey June 1964, Sept. 1964

Instructions dated December 27, 1963 Project No. OPR-436

Vessel USC&GSS PEIRCE

Chief of party LCDR Roger F. Lanier and LCDR Ronald M. Buffington

Surveyed by LTJG Pickens, LTJG DeRycke, LTJG Brewer, Ens Dropp

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

Graphic record scaled by Ship Personnel

Graphic record checked by Ship Personnel

Protracted by Dorothy C. Calland

Soundings penciled by Dorothy C. Calland

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

REMARKS: Project Instructions were transferred from USC&GSS

WHITING to USC&GSS PEIRCE in May, 1964

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY H-8794 (PE-10-1-64)

SURVEY VESSEL: USC&GSS PEIRCE

CHIEFS OF PARTY: LCDR ROGER F. LANIER
LCDR RONALD M. BUFFINGTON

SCALE: 1:10,000

YEAR: 1964

A. PROJECT:

Authority for the survey was contained in Instructions dated December 27, 1964, entitled OPR-436 - Coast of South Carolina and Georgia, reference 211 S-2-WH. ✓

B. AREA SURVEYED:

The area covered by the survey is between the coast of North Island in the north to the coast of South Island in the south and to a seaward limit of about 4.0 miles offshore. The survey also includes the entrance to Winyah Bay up to Georgetown Lighthouse. The limits of the survey are from: Latitude 33° 13.5'N, Longitude 79° 12'W to Latitude 33° 13.5'N, Longitude 79° 06.5'W and Latitude 33° 09'N, Longitude 79° 12.5'W to Latitude 33° 09'N, Longitude 79° 07.5'W. The survey junctions with prior surveys: H-6710(1941, 1:40,000), H-5815(1935) and contemporary surveys: WH-20-1-64, H-8797(1964, 1:40,000), and PE-20-2-64. ✓
H-8818(1964)
H-8838(1964)

C. SOUNDING VESSEL:

All hydrography was performed by launch. Launch PE-1 work is denoted by violet color. Launch PE-2 work is denoted by red color. Skiff PE-6 work is denoted by green color. Launch PE-1 and Skiff PE-6 used visual control and Launch PE-2 used Hi-Fix range-range control and visual control. ✓

D. SOUNDING EQUIPMENT:

Three Raytheon (type 723) fathometers were used in this survey. Launch PE-1 used number 259 until August 1, 1964 and number 242 thereafter. Launch PE-2 used number 260. Echo soundings were taken in depths up to 50 feet. ✓

A 16 foot sounding pole was used in shallow water in Skiff PE-6. ✓

Settlement and squat corrections were determined by using a level and rod. ✓

Bar checks were taken once or twice a day as wind and sea conditions permitted. Bar check results were then tabulated and the mean fathometer error at each depth was determined. Values which differed greatly from the mean were rejected and a new mean was derived. These values were then placed on a graph and the fathometer error at given depths was taken from the graph in 0.2 foot increments. ✓

The initial on the fathogram was held at 2.0 feet for this survey. ✓

E. SMOOTH SHEET:

All field records of this survey will be sent to the Norfolk Regional Office. The smooth sheet will be projected, the positions plotted and the soundings penciled by that office. ✓

F. CONTROL:

Visual control was used on most of the sheet except for the offshore area from the jetties southward. Visual control utilized three point sextant fixes on triangulation and photogrammetric points, and the fixes were plotted by three arm protractor. In some areas better hydrographic lines were facilitated by keeping the launch on a desired line by using Hi-Fix to keep on line and taking three point sextant fixes to determine position. This system was of great advantage in the Winyah Bay channel entrance where very strong currents prevailed. ✓

Photogrammetric signals were located by a photogrammetrist attached to Sub-Unit Photo Party 6420 in 1964. The following photogrammetric compilations were used: ✓

Advance Manuscript T-12273 compiled January 1964 ✓
Advance Manuscript T-12274 compiled January 1964 ✓
Advance Manuscript T-12275 compiled November 1963 ✓

Hi-Fix stations were located at Georgetown, S. C. (known as station "CITY") and at Myrtle Beach, S. C. (known as station "VANDAL"). Station "CITY" was located by third order triangulation and station "VANDAL" was located by third order traverse. ✓

G. SHORELINE:

Shoreline was transferred to the boat sheet from blue line manuscripts as listed in section F. ✓

The high water line was verified and revised by the photogrammetrist. The low water line was determined by taking the launches as close to shore as possible during times of calm sea and high water. The low water line was also determined by walking the shore at times of low water in some areas. Changes in the low water line were particularly evident on South Island, south of the jetty. ✓

H. CROSSLINES:

Crosslines were run at 8.4% of the total mileage of sounding lines. Crossings were generally in good agreement. ✓

H. CROSSLINES:

If crossline discrepancy was large, another line was run to supercede the original crossline. Any other discrepancies were found to be rectified by using smooth tide reducers on the soundings. ✓

I. JUNCTIONS:

Junctions with prior and contemporary surveys was generally very good. Most junctions agreed within one to two feet. ✓

J. COMPARISON WITH PRIOR SURVEYS:

Presurvey review item number 1 was searched for and not found. See 43-44 U day (purple) - appears to be obstruction $\phi 33-10.85'$ with depth of 8' Retain wreck symbol 279-09.85' ✓

Presurvey review item number 3 was not found as indicated. It was previously conjectured that this was a rock but nothing was found in the position indicated. However, a large log was found at Latitude $33^{\circ}12.44'N$, Longitude $79^{\circ}11.13'W$ -SBS which may have been the object previously found. This log was firmly imbedded in the bottom.

Presurvey review item number 4 listed as a 6 foot sounding at Latitude $33^{\circ}09.10'N$, Longitude $79^{\circ}10.15'W$ was thoroughly searched and was not found. General depths of 10 feet were found in this area. ✓

East Bank was found to have become slightly shoaler. ✓

Numerous changes have occurred to the shoreline of South Island as compared to prior survey H-4522(1925, 1:20,000). Farther offshore, generally in depths of greater than 20 feet the agreement with prior surveys becomes good. ✓

The area where the north jetty runs ashore has changed, with the shoreline gradually extending seaward. Few changes north of the jetty are evident. ✓

The Winyah Bay Entrance Channel has changed, but many of these changes can be attributed to dredging by the U. S. Army Corps of Engineers. The present hydrography was done shortly before dredging by the Corps of Engineers. ✓

K. COMPARISON WITH THE CHART:

<u>Object</u>	<u>Present Survey</u>	<u>C&GS Chart 787</u>	<u>Position</u>	
A. East Bank	Least depth 7.0' 6	Least depth 10.0'	ϕ 33°09.05' λ 79°08.80'	✓
B. Shoal	Least depth 2.0' 2	Least depth 0.5'	ϕ 33°11.90' λ 79°08.20'	✓
C. Shoal	Bares 6" at MLW	Not shown	ϕ 33°12.17' λ 79°10.45'	✓

It is found that the depth curves opposite South Island out to the 18 foot depth curve are changed from the charted location. ✓

L. ADEQUACY OF SURVEY:

This survey is complete and adequate to supercede^s prior surveys. ✓

M. AIDS TO NAVIGATION:

All floating aids to navigation were found to be close to the charted position. See the sounding volumes for new positions. No new aids to navigation are deemed necessary. Light List descriptions are correct except for Buoy No. "6" which is in 14² feet of water instead of 27 feet as listed in the Light List (P.563). Eleven floating aids to navigation were located on this survey. ✓

N. STATISTICS:

	<u>No positions</u>	<u>Naut. Mi. Sdg. line</u>	<u>Bottom samples</u>
Launch PE-1	1737	225.6	21
Launch PE-2	2685	350.6	57
Skiff PE-6	1366	127.6	22
Total	5788	703.8	100

Area Surveyed:

Launch PE-1	10.1 sq. mi.
Launch PE-2	21.7 sq. mi.
Skiff PE-6	6.7 sq. mi.
Total	38.5 sq. mi.

O. MISCELLANEOUS:

The strong currents prevalent over much of the area surveyed is thought to have caused the changes in the shoreline of South Island. During ebb currents and on-shore winds the waters in the entrance to the jetties often become very rough and can be dangerous to small craft. The bottom on the north side of the jetties, in depths of 20 to 22 feet, has a widespread condition of mud overlaying a hard bottom. This condition was quite apparent on the fathograms in this area.

Small but steep ridges of 1 to 3 feet in height are found in the channel; the soundings being taken to the tops of the ridges in most cases. Large sand ridges are found off South Island with heights of up to 6 to 8 feet in depths of 10 to 12 feet.

P. REFERENCE TO REPORTS:

1. "Report on use of Hi-Fix electronic phase comparison equipment for controlling hydrographic surveys", 1963; by LCDR Roger F. Lanier, submitted to the Washington Office in January 1964.

2. Hi-Fix Report, OPR-436, OPR-437, USC&GSS PEIRCE, to be written.

Respectfully submitted,

Richard J. DeRycke

Richard J. DeRycke
LTJG USC&GS
July 1964

APPROVAL SHEET
PE 10-1-64 (H-8794)

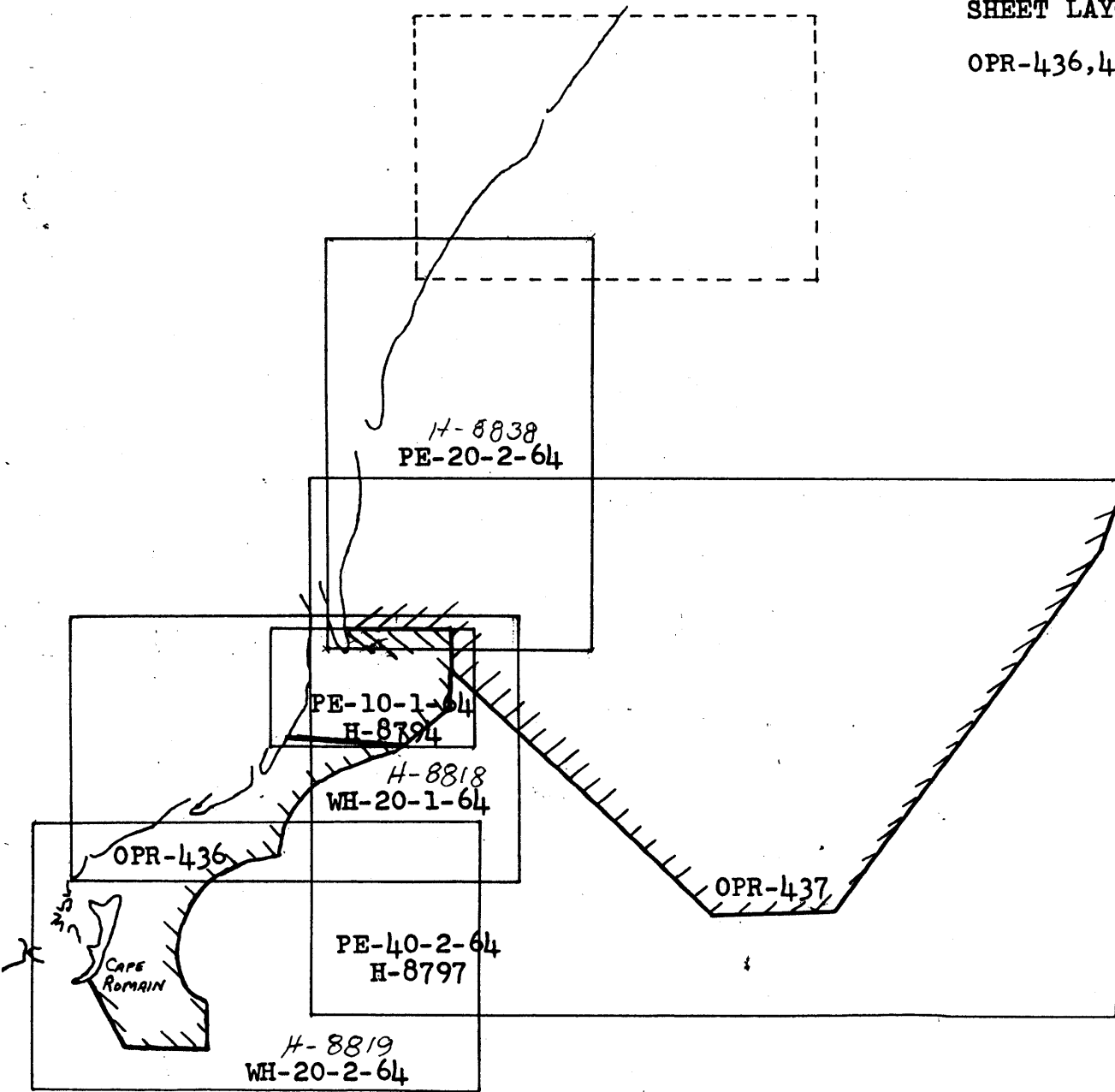
Field Survey PE 10-1-64 and report is forwarded and approved. The survey was supervised by LCDR Roger F. Lanier through the major portion of the survey and by myself the last three weeks of the work. The sheet was inspected daily by me and the survey is considered adequate. No additional work is required. It should be noted that the Army Corps of Engineers periodically dredge the channel, and were dredging the channel between the jetties during the last of October 1964. Therefore the actual depths within the channel should be obtained from the Engineers. ✓

The original instructions called for a current station to be observed between the jetties. The WHITING did not have time in the spring of 1964 and the PEIRCE did not have any current meters. The station should be observed by the WHITING in the spring of 1965.


Ronald M. Buffington

SHEET LAYOUT

OPR-436,437



— Junction with 1964 work of Ship WHITING



SEPARATES FOLLOWING TEXT

APPENDIX

- A. TIDAL NOTE
- B. ABSTRACT OF CORRECTIONS
TO ECHO SOUNDINGS
- C. ABSTRACT OF CORRECTIONS
TO DISTANCE MEASUREMENTS
- D. LIST OF SIGNALS
- E. APPROVAL SHEET

UNITED STATES GOVERNMENT

Memorandum

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

IN REPLY REFER TO: 232-102-982pi

TO: The Commanding Officer
USC&GS ~~PERCE~~
P. O. Box 2508
Savannah, Georgia

DATE: June 23, 1964

FROM: Acting Chief, Marine Data Division

JUN 23 1964

SUBJECT: Tide Zones, Sheet PB-10-1-64, Winyah Bay Entrance

In accordance with your request by memorandum of June 14, 1964, zoning for tidal control of subject Hydrographic Sheet is given below using tide reducers from the gage records for Georgetown Light and Myrtle Beach, S. C.

Zone 1. Open coast area to a cross in the vicinity of Buoy N-10

Use Myrtle Beach Tides
Height ratio 0.9
Time correction 0.

Zone 2. Winyah Bay Entrance, inside the reefs, bounded by Channel Buoys N-10 to C-13

(a) Use Myrtle Beach Tides
Height ratio 0.9
Time correction + 20 minutes

or (b) Use Georgetown Light Tides
Height ratio 1.1
Time correction - 20 minutes

Zone 3. Vicinity of Georgetown Light south to Channel Buoy C-13

Use Georgetown Light Tides
without correction

William Shofnos
William Shofnos

4c
(b)

APPENDIX A

TIDAL NOTE

Hourly heights were furnished by the Washington Office for this survey. The station originally intended for use was the Myrtle Beach, S. C. standard tide gage. However, as the Myrtle Beach tide gage failed to operate correctly all summer, hourly heights for Myrtle Beach were inferred from the standard gage at Charleston, S. C.

Three tide zones were used on this survey. Tide zone three was based on a portable tide gage on the Coast Guard dock at the Georgetown Lighthouse, located at Latitude $33^{\circ}13.4'N$, Longitude $79^{\circ}11.2'W$. Tide zone three extends northward from a straight line between the points: Latitude $33^{\circ}12.83'N$, Longitude $79^{\circ}10.97'W$ and Latitude $33^{\circ}11.88'N$, Longitude $79^{\circ}12.28'W$. No time or height correction is applied to tide zone three.

Tide zone two covers the area from the fore-mentioned line to a straight line between the points: Latitude $33^{\circ}11.42'N$, Longitude $79^{\circ}10.27'W$ and Latitude $33^{\circ}12.34'N$, Longitude $79^{\circ}10.14'W$.

Tide zone one covers all the remaining area of the survey.

To infer the hourly heights for Myrtle Beach, subtract 1/2 hour from the time and subtract 0.1 foot from the high water height of the tides at Charleston.

To infer the hourly heights for tide zone one use no time correction and apply a height ratio of 0.9 feet to the hourly heights at Myrtle Beach.

To infer the hourly heights for tide zone two apply a time correction of -20 minutes and height ratio of 1.1 feet to the hourly heights at Georgetown Lighthouse.

The time meridian was $75^{\circ}W$ for this survey.

(1) Chas. - 1/2 hr. - 9 feet
(2) 3 Ratio 0 time
(3) +20 min 1.1 Ratio

TIDE NOTE FOR HYDROGRAPHIC SHEET

September 30, 1966

~~XXXXXXXXXXXX~~ Atlantic Marine Center ✓

Plane of reference approved in
28 volumes of sounding records for

HYDROGRAPHIC SHEET 8794

Locality: Vicinity of Winyah Bay Entrance
Coast of South Carolina

Chief of Party: R. M. Buffington (1964)

Plane of reference is mean low water

Tide Station Used (Form C&GS-681):

Charleston, South Carolina

Height of Mean High Water above Plane of Reference is as follows:

Zone I 4.7 feet
Zone II 4.2 "
Zone III 4.2 "

Remarks Tide reducers for the following positions have been
revised in red and verified. ✓

<u>Vol.</u>	<u>Pos.</u>
1	b83 - b92
2	b93 - b107
12	d1 - d 67
13	e1 - e13
26	g1 - g37

J. M. Symons

Chief, Tides and Currents Branch

APPENDIX B

ABSTRACT OF CORRECTIONS
TO ECHO SOUNDINGS

Settlement and squat determinations were made on Launch PE-1. As Launch PE-2 is identical to Launch PE-1 the same settlement and squat determination was used on Launch PE-2. The settlement and squat correction was + 0.2 feet for speeds of 1200 RPM or greater.

The phase comparison test appears in this appendix. A and B scales were used on this survey. The phase correction for B scale was 0.0 feet for this survey.

The abstract of the daily bar checks follows. Values for each depth were meaned, and the mean values were plotted graphically and the correction for given depths was abstracted in 0.2 foot increments. An abstract of the bar check corrections also follows.

Phase Comparison Test

	<u>Scale A</u>	<u>Scale B</u>
1	46.4	46.0
2	46.4	46.0
3	46.2	46.2
4	46.2	46.2
5	46.2	46.2
6	46.0	45.8
7	46.0	45.8
8	46.0	46.0
9	46.2	46.0
10	46.0	46.0
Mean	46.16	46.02

B scale correction = 0.0

APPENDIX B. (cont.)
 Abstract Of Bar Checks, OPR-436
 Sheet PE-10-1-64
 Launch PE-1
 Fathometer # 259

Day	Date	Depth 5 Ft.	10 Ft.	15 Ft.	20 Ft.	25 Ft.	30 Ft.	35 Ft.
a	6/11/64		-0.6	-0.4	-0.4	0.0		
b	6/12/64	-0.9	-0.5	-0.1	-0.1	0.0		
c	6/13/64	-0.9	-0.5	-0.1	-0.1	0.0		
d	6/14/64	-0.9	-0.5	-0.3	-0.2	+0.2		
d	6/14/64		-0.5	-0.4	-0.1			
e	6/15/64	-1.3	-0.6-0.5	-0.5	-0.3			
e	6/15/64	(-0.4)*	-0.4	+0.1	(+0.5)*	(+0.8)*		
f	6/16/64	-1.1	-0.7	-0.5		+0.2		
g	6/16/64	-1.0	-0.9	-0.8	-0.5			
g	6/17/64	-1.0	-0.7	-0.6	-0.1	+0.2		
h	6/27/64	-0.8	-0.8	-0.5	-0.2			
j	6/28/64	-1.1	-0.9	-0.9	(-0.9)*			
k	7/2/64	-1.3	-0.9	-0.1	+0.2	+0.5	+0.9	
l	7/3/64	-1.3	-0.6	-0.5	-0.2			
l	7/3/64	-0.8	-0.8	-0.7	-0.1			
m	7/8/64	-0.8	-0.7	-0.4	-0.2	+0.1	+0.4	
n	7/30/64		-0.6	-0.2	0.0	+0.3	+0.5	
p	8/1/64		-0.5	-0.2	0.0	+0.6	+0.9	
Mean		-0.99	-0.65	-0.41	-0.15	+0.21	+0.58	

Fathometer # 242

q	8/2/64	-0.6	0.0	+0.4	+0.8	+1.2		
q	8/2/64	-0.7	-0.2	+0.2	+0.7	+1.0	+1.5	
r	8/5/64	-0.8	-0.2	+0.1	+0.5	+1.0		
s	8/16/64		-0.3	+0.1	+0.5	+1.0		
u	8/18/64	-0.6	-0.2	0.0	+0.3			
v	8/19/64	-0.6	-0.3	0.0	+0.4	+0.8	-1.0	
Mean		-0.66	-0.20	+0.13	+0.53	+1.00	+1.25	

()* = Rejected

LCM 1 FORM NO. 259 (11/19/46)

242 (2 A4 - 19 A4)

BAR CHECK DIFFS

Collected:

252 44-53-10
253
260

42-02-06 54-82-08 - 60-08

-85-04 -138-01 -89-01

-116-02 -172-04 -180-04

-146-00 -208-04 -190-02

-171-10.2 -251-00 -258-00

-195-10.4 -258-02 -316-10.2

-220-10.6 -288-04 -320-04

-240-08.8 -320-06 -300-06

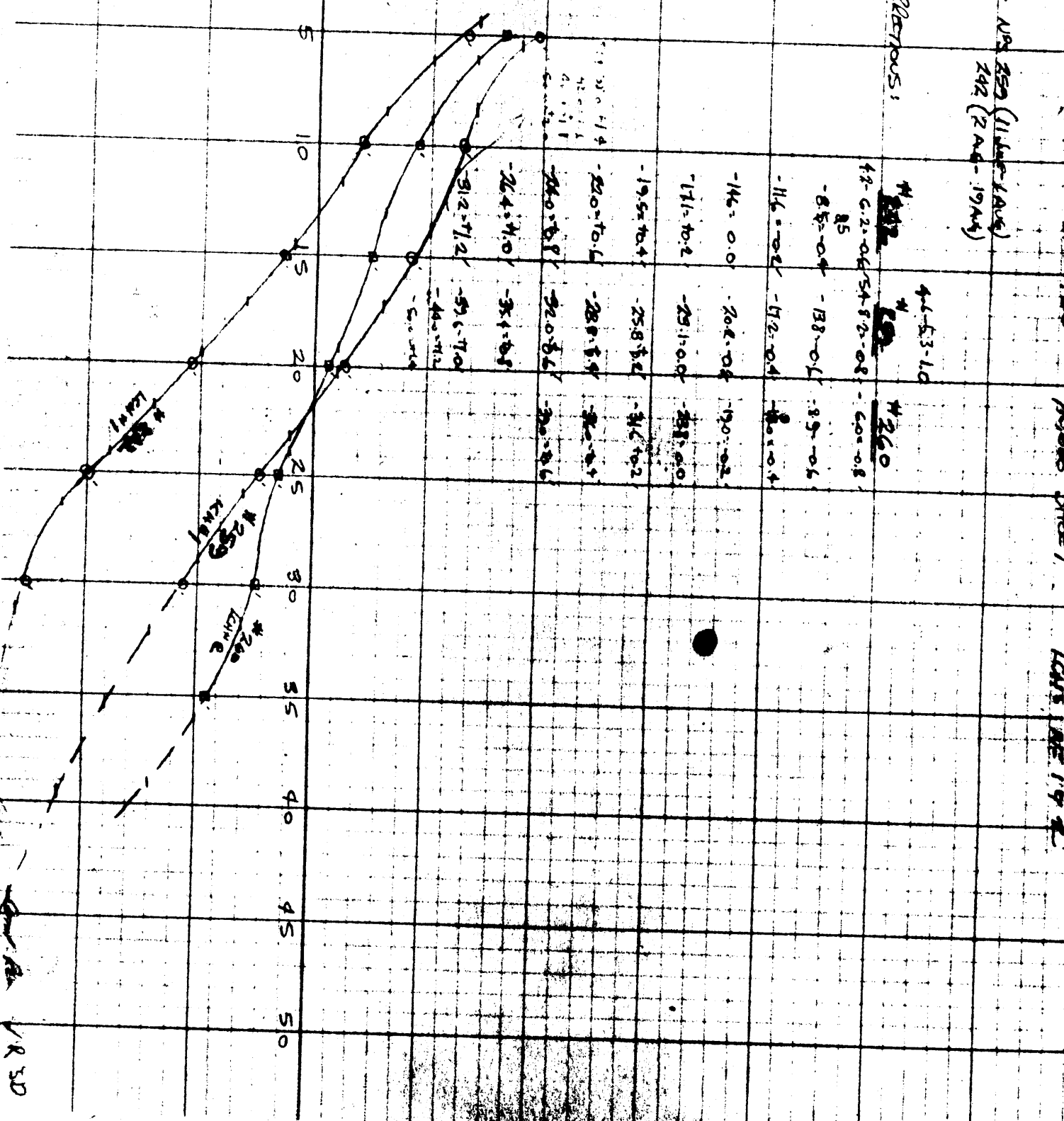
-264-11.0 -340-08

-312-11.2 -400-11.2

-500-04

31.0 41.4
42-01.1
41-01.1

0.0
+0.5
+1.0



VR 50

APPENDIX C

ABSTRACT OF CORRECTIONS
TO DISTANCE MEASUREMENTS

Electronic control used on this survey was Hi-Fix two range control.

The Hi-Fix system was adjusted to zero correction for each day of hydrography. Therefore no corrections need to be applied to position data. See items 1, 2, 3 under section P.

APPENDIX D

LIST OF SIGNALS

<u>Name</u>	<u>Source</u>
ABE	T - 12274
BAY	Δ WINYAH <u>BAY</u> RANGE "B", FRONT LT, 1963
BUM	T - 12274
CUT	T - 12274
DON	T - 12274
DYKE	Δ DYKE, 1934
EAR	Δ WINYAH BAY RANGE "B", <u>REAR</u> LT, 1963
FOX	T - 12274
ICE	T - 12275
JUG	T - 12275
KID	T - 12275
LEG	T - 12275
LIG	Δ GEORGETOWN <u>LIGHTHOUSE</u> , 1925
MAW	T - 12275
NIP	T - 12275
OFF	T - 12275
POI	T - 12275
QUO	T - 12273
RAN	Δ WINYAH BAY <u>RANGE</u> "A", REAR LT, 1963
RAT	T - 12273
SOX	T - 12273
TOM	T - 12273
TOW	T - 12274
USE	T - 12274
VAL	T - 12274
WAG	T - 12274
WIN	Δ <u>WINYAH</u> BAY RANGE "A", FRONT LT, 1963
ZAG	T - 12274
ZOO	T - 12274

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-8794..

Records accompanying survey *2/10/70* Smooth sheets 1....;
1 (2 parts) Destroyed boat sheets; sounding vols. 28....; wire drag vols. None;
 Descriptive Reports 1....; graphic recorder envelopes 2-Cahiers....;
 special reports, etc.

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

Number of positions on sheet	5788	✓
Number of positions checked	240	8
Number of positions revised	8	1
Number of positions revised (refers to depth only)	4
Number of soundings/erroneously spaced	0
Number of signals erroneously plotted or transferred	none	0
Topographic details	Time 4 hours	0
Junctions	Time 16 hours	2
Verification of soundings from graphic record	Time 35 hours	3
Special adjustments	Time	4

Verification by Fred Bean..... Total time 333 hr Date 5/11/67

Reviewed by Serge A. Kozemczak..... Time 246 Date 17 APR-69
342 review corrections

NORFOLK HYDROGRAPHIC PROCESSING BRANCH
ADDENDUM
To Accompany

HYDROGRAPHIC SURVEY H-8794 (Pe 10-1-64)

GENERAL

Except for the discrepancies listed below, this appears to be an excellent basic survey in an area of irregular and rapidly changing bottom. Soundings are in generally good agreement at crossings. ✓

CONTROL

The Northeastern part of this survey was controlled on distant and very weak fixes. This factor is of less than normal significance as the bottom in this area is mostly flat and featureless and few of the depth curves are affected. ✓

The following positions are being submitted on a smooth overlay as none were used on the smooth sheet because of extremely weak fixes. The area concerned is adequately developed, mostly with lines controlled by Hi-Fix. ✓

in DR.
Depth on overlay generally deeper

Positions 19 to 77t, 80 to 85t and 88 to 103t (red)

The following positions were rejected as the fixes were too weak to plot. ✓

Positions 42 to 48 l, 101 to 103 m and 91 to 93 e (purple)

Positions 78 to 79 t, 86 to 87 t, and 103 to 104 g (red)

SHOAL SOUNDINGS

Lat. 33-09.98' Long. 79-09.86' Apparent obstruction of 10' in surrounding depths of 13 and 14 feet. See positions 105 to 106r (red). Retained ✓

Lat. 33-12.95 Long. 79-10.17 Apparent obstruction of 10' in surrounding depths of 14 and 15 feet. See positions 77 to 78d (purple). Retained ✓

Lat. 33-11.71' Long. 79-09.93 Strong shoal indications at position 0n (red) were not scaled. These indications are believed to be strays from the leadline being used for a simultaneous comparison at this time. ✓

Hugh L. Proffitt
Hugh L. Proffitt
Chief, Hydrographic Branch

Norfolk, Va.
May 22, 1967

OFFICE OF HYDROGRAPHY AND OCEANOGRAPHY

MARINE CHART DIVISION

HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-8794

FIELD NO. PE-10-1-64

South Carolina, Coast of South Carolina, vicinity of Winyah Bay Entrance

SURVEYED: June 1964 through September 1964

SCALE: 1:10,000

PROJECT NO.: OPR-436

SOUNDINGS: DE-723 Fathometers,
16' sounding pole

CONTROL: Hi-Fix range-range
and sextant fixes on
shore signals

Chief of Party..... R. F. Lanier
..... R. M. Buffington
Surveyed by..... L. E. Pickens
..... R. J. DeRycke
..... R. K. Brewer
..... J. W. Dropp
..... G. M. Ward
Protracted by..... D. C. Calland (Norfolk)
Soundings Plotted by..... D. C. Calland
Verified and Inked by..... F. Bean
Reviewed by..... G. A. Kozemczak
..... Date: April 17, 1969
Inspected by..... R. H. Carstens

1. Description of the Area

The area covered by this survey is along a portion of the coast of North Island in the north and the coast of South Island in the south and to seaward about 4.0 miles offshore. The survey also includes the entrance to Winyah Bay up to Georgetown Lighthouse.

This is a changeable area containing offlying shoals. The entrance is protected by jetties. A dredged channel is maintained through the entrance.

2.

The bottom is generally irregular. The irregularities are due to lumpy bottom, sand ridges, and shoals. Depth curves drawn at 6-foot intervals adequately delineate the configuration of the bottom.

2. Control and Shoreline

The source of control is given in the Descriptive Report. The shoreline originates with final reviewed manuscripts T-12273, T-12274, and T-12275 of 1962-64.

3. Hydrography

A. Depths at crossings are generally in good agreement.

B. On some crosslines where discrepancies were large, other lines were run to supersede the original crosslines.

C. The usual depth curves and the additional 3-foot curve were adequately delineated. In the area bounded by lat. $33^{\circ}12.0'$ and $33^{\circ}13.5'$; long. $79^{\circ}06.5'$ and $79^{\circ}08.5'$ there are some weak fixes and swingers and random gaps due to rejected lines of hydrography.

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

4. Condition of the Survey

The field plotting, sounding records, and the Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual.

5. Junctions

An adequate junction was effected with H-8838 (1964) on the north. The junction with H-8797 (1964) on the east, and H-8818 (1964) on the south will be considered in the reviews of those surveys.

6. Comparison With Prior Surveys

A.	H-350	(1852)	1:20,000
	H-371	(1853)	1:10,000
	H-533	(1856)	1:20,000
	H-1318	(1876)	1:20,000
	H-1419	(1878-79)	1:40,000

3.

Depths on these prior surveys do not agree generally with depths on the present survey because of natural and man made changes. North Island has extended as much as 1200 meters in a southerly direction since 1876 from its position on H-1318. The channel area has deepened due to dredging. West of Mother Norton Shoal prior depths of 7-11 ft. have shoaled to 2-3 ft.

Noticeable differences occur south of Winyah Bay Entrance South Jetty. The eastern shore of South Island has extended seaward in some places as much as 700 to 1,000 meters. Sand Island on the present survey falls in former depths of 8 and 10 feet. Present depths inside the 18-ft. curve and on East Bank are deeper. East Bank is now about 700 meters southward of its position on H-1318.

B. H-3223 (1911) 1:80,000
H-3545 (1913) 1:80,000

The sparse soundings on these early reconnaissance surveys do not provide a satisfactory basis for comparison with the present survey.

C. H-3761 (1914) 1:80,000
H-4522 (1925) 1:20,000
H-4616 (1926) 1:40,000

A comparison of the prior and present surveys reveal random changes. In general, there is evidence of deepening of 3, 4, and occasionally 5 feet on the present survey, except in the vicinity west of Mother Norton Shoal where present depths are shoaler by 3 and 4 feet. Winyah Bay Channel is deeper due to dredging.

There are extensive changes in the shoreline since 1925 because of natural causes. The long narrow island on H-4522 that extends from lat. $33^{\circ}10.0'$, long. $79^{\circ}12.0'$ in a northeasterly direction to lat. $33^{\circ}11.5'$, long. $79^{\circ}10.0'$ is now nonexistent and falls in present depths of 4 to 9 feet. The southern part of North Island has extended southward approximately 600 meters. In the vicinity of lat. $33^{\circ}12.0'$, long. $79^{\circ}11.5'$ Mother Norton Shoal has extended 700 meters southward. The eastern shore of South Island has extended 700 to 1,000 meters seawards in some places south of the Winyah Bay South Jetty. Sand Island has emerged since 1925.

4.

The 6-foot sounding charted in lat. $33^{\circ}09.1'$, long. $79^{\circ}10.12'$ from H-4522 is no longer considered to exist. The hydrographer thoroughly searched the area and found depths of 10 to 12 feet in this area.

The 12-foot sounding charted in lat. $33^{\circ}12.35'$, long. $79^{\circ}11.1'$ from H-4522 falls in a changeable area in present depths of 17 feet and should be disregarded. The present soundings are considered adequate to disprove the prior 12.

H-4616 covers a small area in the northeast corner on the present survey. A comparison of depths reveals very good agreement.

D. H-5815 (1935) 1:10,000
H-5820 (1935) 1:10,000

These prior surveys cover much of the north half of the present survey. A comparison of depths west of Mother Norton Shoal reveals 1 to 3 feet shoaling throughout the general area. In the area east of North Island the present survey has deepened from 3 to 6 feet in depths less than about 20 feet. In the channel area of Winyah Bay dredging has increased depths as much as 10-12 feet. North of the entrance channel the shoals have shifted extensively and changes in depths are as much as 6-7 feet.

The southwest corner of North Island has extended southward as much as 400 meters. Seaward from the southern part of North Island, the present 3-foot curve has extended approximately 1,000 meters in a southeasterly direction, between the jetties in former depths of 10 feet. The southwestern portion of Mother Norton Shoal has extended about 200 meters in prior depths of 6 feet. In the vicinity of lat. $33^{\circ}11.5'$, long. $79^{\circ}11.0'$ the northern tip of Sand Island has emerged in former depths of 5 and 7 feet. In lat. $33^{\circ}13.0'$, long. $79^{\circ}11.75'$ present depths of 3 to 9 feet exist over oyster reefs charted from H-5815.

Three sets of fishing stakes previously shown along the western edge of the channel at approximately 1,000 meter intervals and two at lat. $33^{\circ}12.4'$, long. $79^{\circ}09.3'$ are no longer in existence.

5.

E. H-6710 (1942) 1:40,000

A comparison of the prior and present surveys reveals only minor differences in depths of 1 to 2 feet. Present depths are generally shoaler. In lat. $33^{\circ}09.05'$, long. $79^{\circ}08.8'$ the shoaler depths of 6 feet on East Bank Shoal on the present survey supersede the sparser prior depths of 10 feet.

F. H-7085 (1945-46) 1:40,000

A portion of this prior survey covers an area approximately 2 miles square between lat. $33^{\circ}09.5'$ and $33^{\circ}11.5'$; and long. $79^{\circ}07.5'$ and $79^{\circ}10.0'$ on the present survey. In general, the agreement is very good. In the north-west quadrant of this area in lat. $33^{\circ}11.05'$, long. $79^{\circ}08.9'$ there are some differences in depths from 1 to 2 feet, indicating a local deepening. The more detailed development of the present survey reveals a more accurate delineation of the bottom than that shown on the prior survey.

All the prior surveys listed in this item are superseded by the present survey in the common areas.

7. Comparison With Charts

Chart 787 1:40,000 (latest print date, 4th., ED., 6/12/67)

A. Hydrography

Most of the charted hydrography originates with the previously discussed surveys which require no further consideration, supplemented by the partial application of depths from the boat sheet and verified smooth sheet of the present survey. Subsequent to the present survey, the entrance channel has been periodically dredged by the Army Corps of Engineers.

Attention is directed to the following:

1. The two unlabeled pile symbols charted in lat. $33^{\circ}11.5'$, long. $79^{\circ}10.5'$ were apparently charted from illegible 6-ft. soundings on the boat sheet of the present survey. It is recommended that the symbols be removed from the chart.

6.

2. The sunken wreck charted in lat. $33^{\circ}10.83'$, long. $79^{\circ}09.84'$ originates with H-1318 (1876) and again was located on H-4522 (1925). The hydrographer searched for the wreck on the present survey with negative results. Approximately 30 meters southwest of the wreck position fathogram traces of 8 feet appear in 9 and 10 feet of water. These could be a remnant of the wreck. It is recommended that the sunken wreck be retained on the chart.

3. The rock awash charted in lat. $33^{\circ}12.2'$, long. $79^{\circ}11.6'$ originates with H-5815 (1935) and was not found on the present survey. Inasmuch as the position of the rock which is awash at MLW is only about 10 meters from a shoal uncovering 2 feet at MLW, it is recommended that the rock awash be disregarded for charting.

With the exception included above, the present survey is adequate to supersede the charted hydrography within the common area.

B. Controlling Depths

The charted controlling depth notes for Winyah Bay Entrance channels are based on data subsequent to the date of the present survey and supersedes the present survey information.

C. Aids to Navigation

The aids to navigation located on the present survey are in agreement with the chart with the following exceptions:

1. Winyah Bay Light, Range B, Front Light, 1963, fixed aid located on the present survey in lat. $33^{\circ}11.93'$, long. $79^{\circ}10.79'$ was destroyed and moved subsequent to the date of the present survey and has been reported in H.O. Notice to Mariners NO. 52 of 1967.

2. All the markers charted in the vicinity of South Island Bend in Winyah Bay Channel were established subsequent to the present survey and have been reported in H.O. Notice to Mariners No. 50 of 1965.

7.

The aids to navigation as presently charted adequately mark the features intended. However, it is noted that the charted position of the entrance channel buoy "N6" falls in present depths of 15 feet whereas the Coast Guard Light List of 1969 shows it as being in 27 feet.

8. Compliance With Instructions

The survey adequately complies with the Project Instructions.

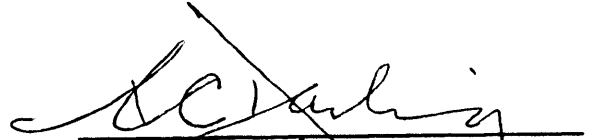
9. Additional Field Work

This survey is considered to be a very good basic survey and no additional hydrography is required.

Examined and Approved:



Chief
Marine Chart Division



Associate Director
Office of Hydrography
and Oceanography

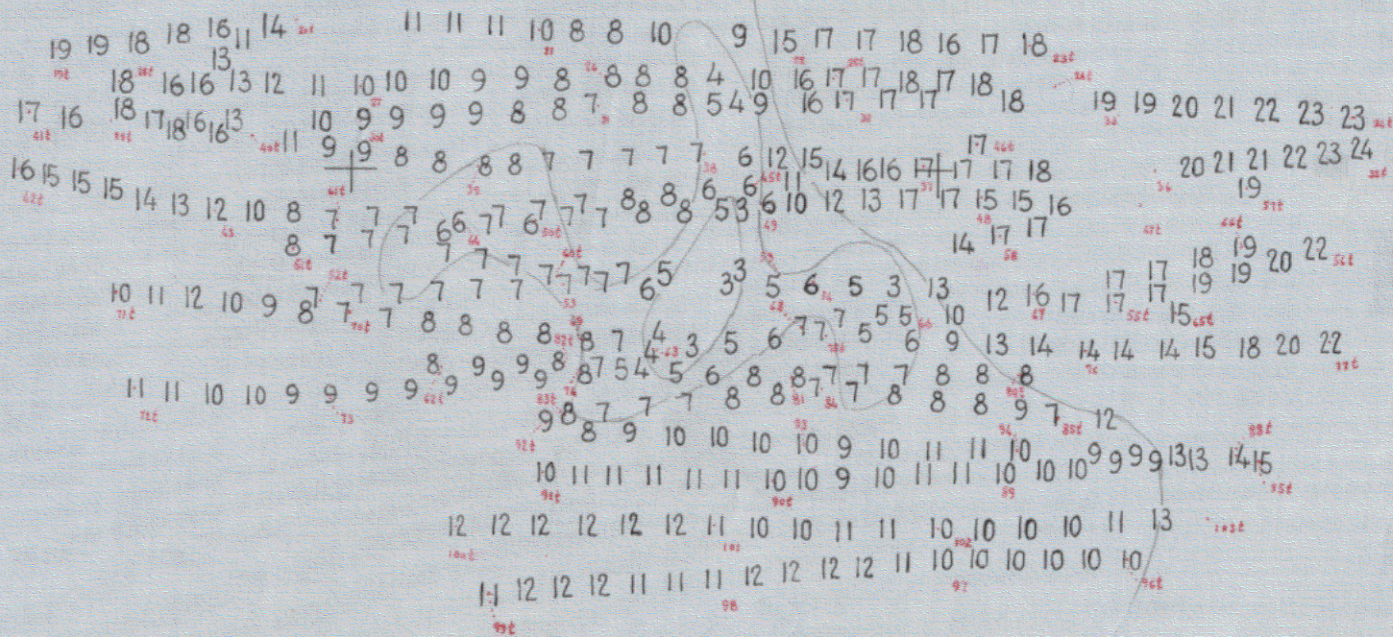
79° 09' 00"

08' 30"

08' 00"

79° 07' 30"

33° 12' 00"



11' 30"

TO ACCOMPANY
 PE-10-1-64 H-8794
 Pos. 1st-77c, 80c-85c, 88c-103c
 launch #2
 July 8, 1964

79° 08'

WYAH BAY CHANNEL
 project depth is 27 feet to
 W. Harbor. For controlling
 chart No. 787.

CAT ISLAND

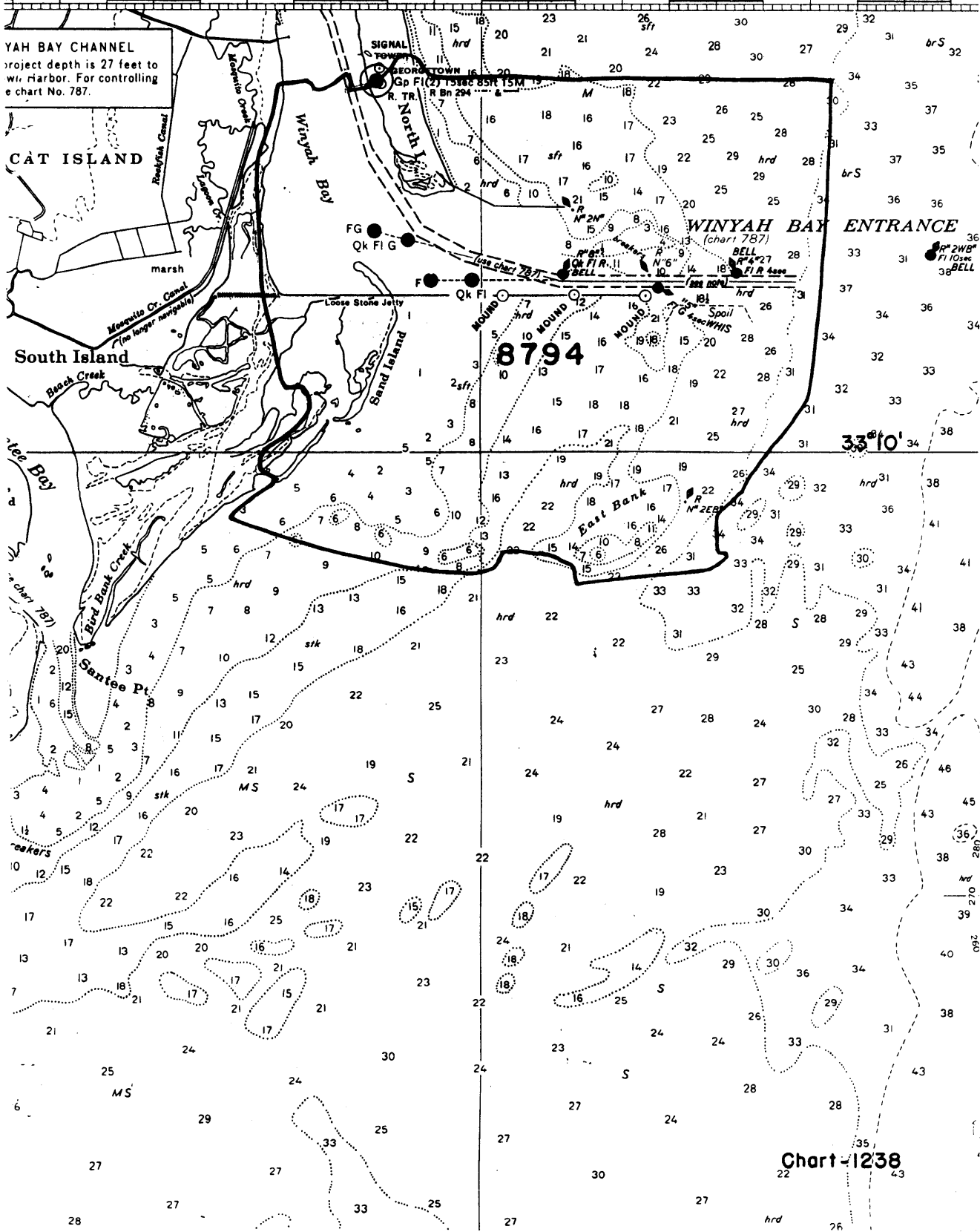
South Island

WINYAH BAY ENTRANCE
(chart 787)

8794

33° 10'

Chart-1238



RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-8794

INSTRUCTIONS

- A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
787	11/13/67	J.M. Muller	Full Part Before After Verification ^{Review} Inspection Signed Via Drawing No. <i>Several shape edgcs chgd & Revised L.W.</i> <i>conversion vicinity of Sand Island before Review</i>
1238	11/13/67	J.M. Muller	Full Part Before After Verification Review Inspection Signed Via Drawing No. <i>1st part of chart than 787 before Review</i>
1110	6/10/68	O. Svendsen	Full-Part Before After-Verification Review Inspection Signed Via Drawing No. 26
1237	7/24/68	John P. Wen	Full Part Before ^{Review, Inspection, Signed Via} Drawing No. <i>1st part of chart</i> <i>production shk per MR</i>
1110	3-26-70	Irene Beeler	Full-Part Before After Verification Review Inspection Signed Via Drawing No. 28 <i>No Crit Corr indicated from review,</i> <i>fld for application to 1/4 scales per MR</i>
1238	3-30-70	Eric Fry	Full-Part Before After Verification Review Inspection Signed Via Drawing No. <i>2 Critical Corrections only,</i> <i>for application from 1/4 scale chart</i>
787	3-31-70	Irene Beeler	Full-Part Before After Verification Review Inspection Signed Via Drawing No. 17 <i>Complete revision of edgcs &</i> <i>curves.</i>
1237	2-25-71	R.A. Lillis	Full Part Before After Verification Review Inspection Signed Via Drawing No. 15
1238	2-25-71	R.A. Lillis	Full-Part Before After Verification Review Inspection Signed Via Drawing No. 16
1110	2-25-71	R.A. Lillis	Full-Part Before After Verification Review Inspection Signed Via Drawing No. 29