

**9678**

Diag. Cht. No. 1242-2

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. .... **WH-20-2-77**  
Office No..... **H-9678**

**LOCALITY**

State ..... **Georgia**  
General Locality .. **Southeast Coast**  
Locality **Vicinity of Little Cumberland Island**

**19 77**

**CHIEF OF PARTY**  
**John W. Carpenter**

**LIBRARY & ARCHIVES**

**DATE** ..... **January 17, 1979**

**8496**  
**9678**

HYDROGRAPHIC TITLE SHEET

H-9678

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.

WH-20-2-77

State Georgia

General locality Southeast Coast

Locality Cumberland and Little Cumberland Island  
Vicinity of JD 075 1b 137

Scale 1:20000 Date of survey March-May 1977

Instructions dated November 22, 1976 Project No. OPR-436-WH-77

Vessel NOAA Ship Whiting's launches 1203 (2931) and 1202 (2932)

Chief of party John W. Carpenter, CDR. NOAA

Surveyed by M.F. Kolesar, D.R. Taylor, J.G. Gofus, D.M. Goodrich,  
G.M. Barone, J.P. Rubino, R.M. Mandzi

Soundings taken by echo sounder, hand lead, pole

Graphic record scaled by Whiting Personnel

Graphic record checked by Whiting Personnel

Protracted by N/A Automated plot by Hydroplot System  
*Smooth Plot by CALCOMP-618 Plotter (AMC)*

Soundings penciled by \_\_\_\_\_

Soundings in fathoms feet at MLW MLLW \_\_\_\_\_

REMARKS: All times are Greenwich Mean Time

The following data are filed with the field records:

Hydrographic Sheet Projection Form

Electronic Control Parameter Forms

Field Parameter Tape Listing

TRA Correction Abstract

TCTI Tape Listings

Abstract of Corrections to Electronic Position Control

Abstract of Positions

Bottom Sediment Data

## DESCRIPTIVE REPORT

### TO ACCOMPANY HYDROGRAPHIC SURVEY

H-9678

#### A. Project Instructions

This survey was conducted in accordance with Project Instructions OPR- 436-WH-77, Coast of Georgia, dated November 22, 1976, as amended with changes 1, 2, and 3, dated January 21, 1977, February 2, 1977, and March 11, 1977, respectively. Special investigations outside the survey limits of the above instructions were conducted at the request of Chief, Processing Division, Atlantic Marine Center. ✓

#### B. Area Surveyed

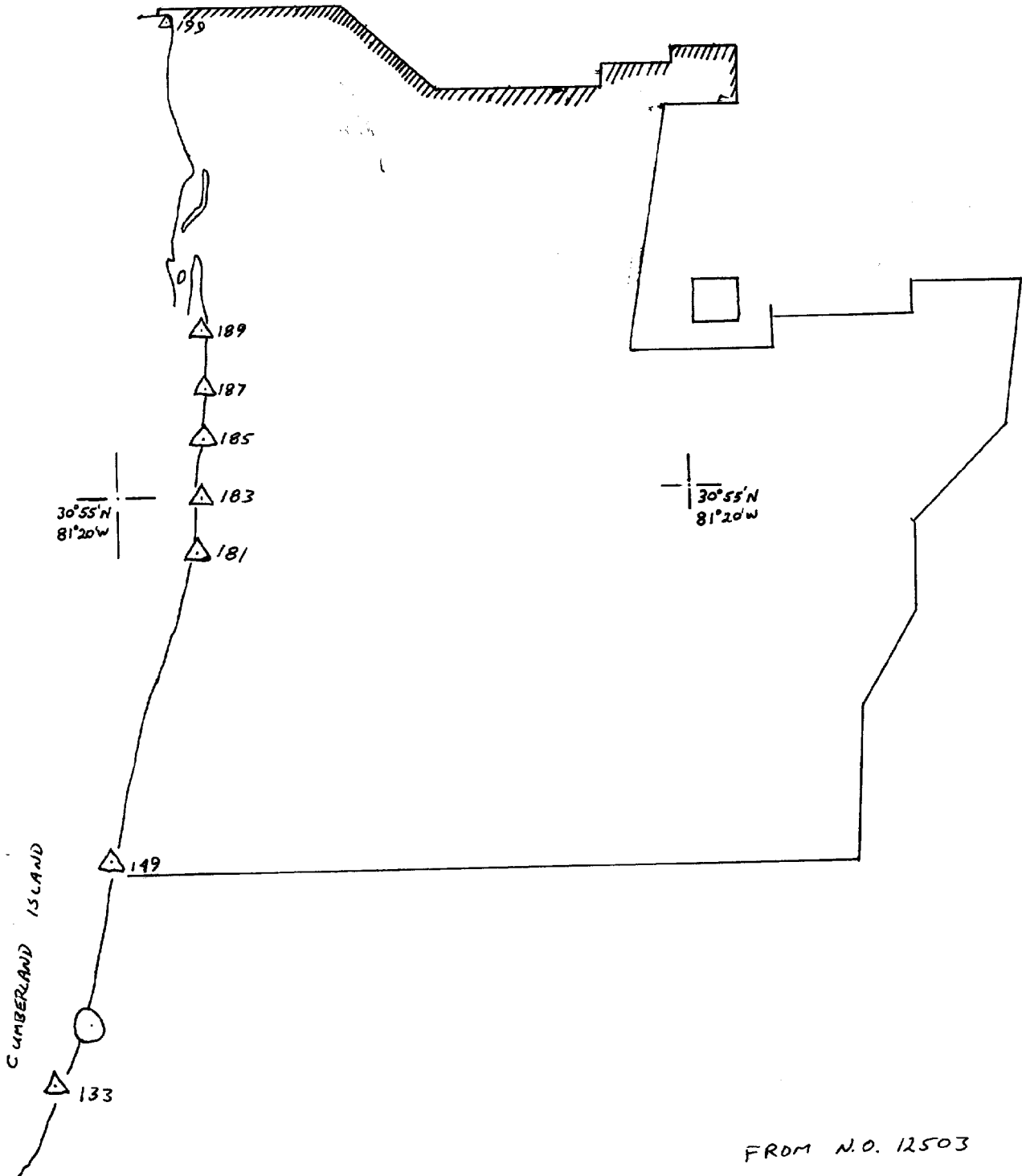
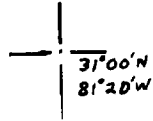
The area covered by this survey extends from the shoreline of Cumberland Island and Little Cumberland Island eastward approximately 3 to 5 miles to junction with survey H-9458, 1974. The northern limit of the survey is the northern tip of Little Cumberland Island and the southern limit is the junction with survey H-9675, 1977 at approximate latitude  $30^{\circ} 52' 06''$  N. The sea bottom in this survey is characterized by sand waves throughout the area (see fig. 1). ✓  
The coast of Cumberland Island adjacent to the survey has wide sandy beaches, sand dunes with heights of 15 feet or less and forests inshore of the sand dunes.

This survey was conducted by personnel of the NOAA Ship WHITING with NOAA launches 1202 and 1203 between March 16, 1977 and ~~April 27~~, 1977.  
*May 17*

#### C. Sounding Vessels

This survey was accomplished by NOAA launches 1202 (2932) and 1203 (2931) assigned to the NOAA Ship WHITING.

ST. ANDREW SOUND



FROM N.O. 12503

D. Sounding Equipment and Corrections to Echo Soundings

All survey work on this survey was done by launches 1202 and 1203. Both launches were equipped with Raytheon DE-723D fathometers, serial numbers 37018 (1202) and 37010 (1203). Direct comparisons via bar checks were conducted daily as weather conditions permitted. Fathometer operators made frequent A-F scale and fine arc checks, and monitored the initial continuously.

A problem was encountered with the sounding equipment in both launches, in that it was difficult or impossible to obtain soundings in shallow water. Launch 1202 was unable to obtain soundings when there was less than four feet of water under the hull. Launch 1203 had similar problems occasionally. A possible explanation of this problem is that the transducers on both launches are installed inside the hulls and must sound through the hull.

Corrections for velocity of sound through water and instrument corrections were obtained from bar checks. TDC casts were also made, however, the results of these casts were not applied because of the apparent failure of the conductivity sensor.

Settlement and squat corrections for both launches were obtained on May 7, 1977 by ships personnel. Listings of velocity corrections, TC/TI tapes, and an abstract of corrections to echo soundings are included in the appendix.

E. Hydrographic Sheets

Field sheets were prepared by ships personnel using a Houston Instruments DP-3 Roll Plotter, serial number 4858-13. Soundings on field sheets were corrected for velocity of sound through water and predicted tides. The field records will be forwarded to the Atlantic Marine Center for verification and smooth plotting.

F. Control Stations

All control stations used on this survey were recovered or established by Photo Party 62. The following stations were used to control this hydrographic survey:

(4)

<u>Signal No.</u>	<u>Station Name</u>
129	SF-14, 1974
131	SF-15, 1974
133	SF-16, 1974
149	SF-23A, 1974
181	LS-01, 1974
183	LS-02, 1974
185	LS-03, 1974
187	LS-04, 1974
189	LS-05, 1974
199	LS-10, 1974
219	Little Cumberland Lighthouse, 1860-1966

#### G. Hydrographic Position Control

Sounding line positions on this survey were controlled by range/range and range/azimuth methods. The Del Norte Trisponder system was used for all range determinations. Main-scheme sounding lines were run in an east-west direction with crosslines run north-south. All offshore work was controlled by the range/range method; inshore work which could not be effectively controlled by a range/range method was surveyed with range/azimuth control. In all of these cases ranges and azimuths were obtained from the same station with azimuth angles measured using a Wild T-2 theodolite.

The Del Norte systems were calibrated over a baseline approximately every two weeks. In addition, daily (when conditions permitted) comparisons were made by the three point fix method using sextants and Hydroplot program RK 561. These comparisons were used to derive the electronics correctors applied while engaged in survey operations and for smooth plotting. These comparisons are included in the survey records and a copy of the abstract of corrections to electronic position control is included in the appendix.

H. Shoreline

The shoreline on the survey is from <sup>final reviewed</sup> shoreline manuscript TP-00497 of 1973-1974 St. Andrews Sound. Field edit of this shoreline was completed in <sup>August</sup> February, 1974, and no discrepancies were noted during the course of the survey. Also final reviewed photogrammetric manuscript TP-00496 of 1973-1974.

I. Crosslines

Crosslines on this survey were run perpendicular to the main scheme sounding lines in a north-south direction. Approximately 27 nautical miles of crosslines were run. The percentage of crosslines was about 7.5%. In general, agreement between crosslines and main scheme lines was very good with discrepancies of 2 feet or less. There were several instances of slightly larger discrepancies, but these all occurred in the vicinity of large sand waves with steep sides.

J. Junctions See Verifier's Report

This survey junctions with one contemporary survey and two surveys done previously by the NOAA Ship MT MITCHELL during the SCOPE project.

On the north, this survey junctions with H-9458, done by the MT MITCHELL in 1974. Agreement between the two surveys is good with depth contours in very close agreement. At the eastern boundary, this survey junctions with H-9449 also conducted by the MT MITCHELL in 1974. Agreement between the two surveys was excellent with differences between individual soundings of one foot or less. On the south, the junction is with H-9675. Agreement is excellent.

K. Comparisons With Prior Surveys See Verifier's Report

The only prior survey available for comparison was H-4436, of 1924, which covered only the southernmost line of this survey. Agreement between the two surveys was good with differences of no more than three feet.

There were <sup>two</sup> ~~no~~ numbered Presurvey Review items on this survey; all dashed circle items within the surveyed area were investigated. The results of these investigations were as follows:

<u>Item</u>	<u>Depth</u>	<u>Location</u>	<u>Survey Results</u>
✓ 12		30° 51.7' N 81° 23.6' W	Found This depth was found and should be retained. A <sup>2</sup> 14 ft. sounding was found 200 meters east of this position. <i>Chart Survey depths.</i>
✓ 12		30° 55.9' N 81° 19.5' W	Shoalest depth <sup>6</sup> 15 ft. This depth was not found and it is recommended that it be deleted. <i>Recommend charting present survey depths.</i>
✓ 12		30° 56.5' N 81° 19.6' W	Shoalest depth <sup>4</sup> 15 ft. This depth was not found and it is recommended that this sounding be replaced by a <del>15</del> <sup>14</sup> for charting. <i>present survey depths</i>
✓ 18		30° 56.6' N    30° 56.9' N    30° 57.2' N 81° 20.9' W    81° 21.0' W    81° 21.2' W	These soundings were all found to be located very near the 18 ft. contour of the present survey and <i>present survey depths</i> should be retained. <i>charted.</i>
✓ 14	<i>Reported</i>	<i>Presurvey Review Item No. 16</i> 30° 57.4' N    30° 57.4' N    30° 57.4' N 81° 21.4' W    81° 21.5' W    81° 21.4' W	<del>Two 14 ft. soundings were found, one 130 meters west, A 12 ft. sounding one 130 meters SE. It is recommended that the two recent soundings supersede the previous soundings for charting purposes.</del> <i>is located at Lat. 30° 57.38' Long. 81° 21.54' and should be charted.</i>
✓ 12		30° 57.4' N 81° 22.0' W	Found <i>14 ft depth found 200 m. to East</i> This location lies along the 12 ft. contour of the present survey and the soundings should be retained. <i>survey charted</i>
✓ 6		30° 58.3' N 81° 20.1' W	Not Found No Evidence of this depth was found in the area and it is recommended that this sounding be deleted for charting. <i>concur</i>
			<i>Presurvey Review Item #42</i> This area is covered on the development overlay, sheet #4. The area was checked at or very near to the low tide time. Several 0 foot soundings were found. This area probably does or has been uncovering at mean low water. But due to the sea conditions and currents in the area it is constantly changing. <i>Recommend charting present survey data.</i>



L. Comparison with Chart *See Verifier's Report*

This survey covers essentially the same area as chart No. 11504 (formerly C&GS 448) 9th Edition, May 22, 1976 at a scale of 1:40,000. This chart was used to compare with the survey. In general the agreement between survey and chart is good with variances of two feet or less; greater discrepancies are as follows:

<u>Charted Depth</u>	<u>Location</u>	<u>Survey Results</u>
27	30° 52.9' N 81° 19.0' W	30 ft. found
	Although this location was surveyed as 30 ft. deep, 29 ft. ✓ depths were found about 100 meters east; it is recommended that the charted soundings be revised.	
3	30° 53.8' N 81° 23.6' W	6 ft. Found
	Shoals with least depths of 4 and 5 ft. were found ✓ north, east, south, and southwest of the position <i>chart survey depths</i> within 350 meters. <i>3 ft. in lat. 30°53.60</i> <i>long 81°23.61'</i>	
5	30° 54.2' N 81° 22.8' W	
	<del>This feature appears to have shifted 210 meters to</del> <i>chart survey depths</i> <del>the northeast and should be so charted.</del> <i>Statement not valid - numerous shoals</i> <i>in the adjacent areas.</i>	
9	30° 54.2' N 81° 23.0' W	6 ft. Found
	Depths in this area have apparently shoaled and this ✓ sounding should be revised. <i>Depths to 3 ft. in vicinity</i>	
29	30° 54.6' N 81° 18.2' W	32 ft. Found
	No evidence of this depth was found and it should ✓ be deleted. <i>28 ft. in lat. 30°54.45', long. 81°18.2'</i>	
29	30° 55.0' N 81° 18.2' W	34 ft. Found
	This shoal was found approximately 210 meters east of ✓ its charted position. Its position on the chart should be changed. <i>Shoal with depth of 26 ft. in lat. 30°55.05' long 81°17.75'</i>	

L. Comparisons with Chart continued.

<u>Charted Depth</u>	<u>Location</u>	<u>Survey Results</u>
8	30° 55.6' N 81° 20.8' W	13 ft. Found No evidence of this shoal depth was found; the shoalest sounding in the vicinity is 11 ft. and <del>100</del> <sup>250</sup> meters to the west. It is recommended that this sounding be deleted from the chart. <i>4 ft. in lat 30° 55' 35", long. 81° 20.97'</i>
5	30° 55.1' N 81° 21.2' W	14 ft. Found No evidence of this shoal depth was found. A sand wave was found about 200 meters east of the charted position and a <del>6</del> <sup>7</sup> ft. sounding was found about <del>190</del> <sup>300-350</sup> meters south of this position. It is recommended that this sounding be changed on the chart.
6	30° 55.0' N 81° 22.8' W	<del>12</del> <sup>1</sup> ft. Found No evidence of this depth was found. The shoalest depth in the immediate vicinity was <del>2</del> <sup>20</sup> ft. sounding found <del>130</del> <sup>280</sup> meters SW of this position; a <del>6</del> <sup>7</sup> ft. sounding was found <del>240</del> <sup>250</sup> meters NW of this position. It is recommended that this sounding be deleted. <i>A 5 ft. sounding was located 410 meters South of this position</i>
3	30° 55.0' N 81° 23.3' W	<del>10</del> <sup>6</sup> ft. Found A shoal with a least depth of <del>5</del> <sup>6</sup> ft. was found <del>110</del> <sup>250</sup> meters SE of this position, it is possible that this shoal was previously at the charted position. A <del>4</del> <sup>6</sup> ft. sounding was found <del>250</del> <sup>250</sup> meters SW of this position. It is recommended that this sounding be changed on the chart.
1	30° 55. <del>3</del> <sup>2</sup> N 81° 23. <del>2</del> <sup>8</sup> W	<del>6</del> <sup>to 8</sup> ft. Found <i>Chart present depths</i> A <del>4</del> ft. sounding was found about <del>40</del> meters NW of this position. It is recommended that the <del>4</del> ft. sounding replace the charted sounding.

L. Comparison with Chart continued.

<u>Charted Depth</u>	<u>Location</u>	<u>Survey Results</u>
5	30° 56.1' N 81° 23.2' W	<sup>9</sup> 10 ft. Found <i>7 ft. found in {lat. 30° 56.13' long. 81° 22.95' Chart survey Depths.</i>
No evidence of this depth was found in the area and this sounding should be deleted from the chart.		
2	30° 55.2' N 81° 23.6' W	<sup>4</sup> 5 ft. Found in <i>{lat. 30° 55.26' long. 81° 23.55'</i>
Apparently this shoal has deepened since the previous survey. It is recommended that this sounding be changed on the chart. <i>Chart present survey depths.</i>		
8	30° 56.2' N 81° 22.8' W	<sup>12</sup> 12 ft. Found
Depths in this area have apparently deepened since the last survey. A <sup>6</sup> 6 ft. spot was found about <sup>150</sup> 150 meters WSW of this position. This sounding should be changed on the chart.		
15	30° 56.9' N 81° 20.8' W	7 ft. Found <i><del>500</del> m. NE 100</i>
13	30° 57.2' N 81° 22.8' W	9 ft. Found ✓
12	30° 57.4' N 81° 22.9' W	9 ft. Found ✓
21	30° 58.0' N 81° 22.4' W	<sup>2</sup> 3 ft. Found ✓

These areas have all shoaled considerably since the last survey and these soundings should be changed to reflect this. ✓

M. Adequacy of Survey

This survey is sufficiently complete and adequate to supersede all previous surveys for charting purposes.

N. Aids to Navigation *See Vintner's Report*

All floating aids to navigation in the area surveyed are located on the development overlay field sheet. Information concerning these buoys contained in the Light List, 1977 edition was correct. Location and characteristics were compared with chart No. 11504 (formerly C&GS 448) 9th Edition. As noted on the chart, 3,5,7, and 9 are not charted due to frequent location changes.

The black and white can buoy charted at 30° 55' 33" N, 81° 19' 00" W was found to be <sup>W20</sup>470 meters southeast of that position. Black can buoy "11" charted at 30° 58' 40" N, 81° 22' 23" W was found to be approximately 560-250 meters WSW of that location. Black can buoy "13" charted at 30° 58' 54" N, 81° 23' 06" W was found 180 meters <sup>W23</sup>east of that position. All buoys seem to adequately demarcate the St. Andrews Sound Channel.

O. Statistics

	<u>2931</u>	<u>2932</u>	<u>Total</u>
Naut. Miles Sounding Line	241	230	471
Total Positions	1093	1103	2196
Bottom Samples	6	9	15
Tide Gages	3		3

P. Miscellaneous

The sea bottom in the area surveyed is typified by large sand waves. By comparing this survey with previous surveys it is obvious that the bottom in this area is subject to considerable shifting, especially in the northern area, in the vicinity of St. Andrews Sound Channel. *concur*

Q. Recommendations

None

R. Automated Data Processing

The following programs were used for automated data acquisition and processing:

<u>Number</u>	<u>Title</u>	<u>Version</u>
RK 111	Range-Range Real Time Hydroplot	1/30/76
RK 201	Grid, Signal and Lattice Plot	4/12/75
RK 211	Range-Range Off Line Hydroplot	1/15/76
RK 212	Visual Station Table Load	4/01/76
RK 216	Range-Azimuth Off Line Hydroplot	2/05/76
RK 330	Data Reformat and Check	5/04/76
PM 360	Electronic Corrector Abstract	2/02/76
AM 400	Lambert State Plane Coordinates	4/01/73
AM 500	Predicted Tide Generator	11/10/72
RK 561	H/R Geodetic Calibration	2/19/75
AM 602	ELINORE-Line Oriented Editor	5/20/75
AM 300	Utility Computations	5/04/76

---

## SPECIAL INVESTIGATIONS

from  
H-9458

At the request of AMC Processing Division additional work was done on a junction survey to this survey. Several areas on H-9458 were covered on a non-interference basis with the present survey. Coverage is somewhat sparse due to the time available and the conditions encountered in the area. A additional plotter sheet was prepared to show the areas north of the sheet limit. Some of the items were done on the north sheets of H-9678.

- |                            |  |
|----------------------------|--|
| 30° 58.2' N<br>81° 19.6' W | This development better delineates a shoal area. It is shown on sheet #4.  |
| 30° 58.7' N<br>81° 22.7' W | This fills in a holiday on survey H-9458. It is shown on sheet #4.   |
| 30° 59.1' N<br>81° 22.2' W | One line was run through this area. The area is shallow and breakers prevented further work in the area.   |
| 30° 59.5' N<br>81° 23.8' W | One detached position was taken in this area. There are breakers throughout the area which prevented further investigation.  |
| 31° 00.5' N<br>81° 24.5' W | This area was partially covered by range, azimuth controlled hydrography. As in the above items complete coverage was not considered possible due to the hazardous breakers in the area. |

The entire area of St Andrews Sound should be noted on our charts as being in constant change. With no protection from the Atlantic Ocean on the east and the strong currents in the area considerable sand transport is occurring in the area which is constantly effected the depth. *Concur*

---

FIELD TIDE NOTE

Tide corrections were supplied with the project instructions. The station at Savannah River Entrance was the reference. Correctors were interpolated by the PDP8/E computer using the Predicted Tide Generator program, AM500.

Two gas purging tide gages were installed in the area of this boat sheet. Located as follows:

<u>Site</u>	<u>Latitude</u>	<u>Longitude</u>
Cumberland Island #867-8821	30° 51.0'N	81° 25.3'W
Jekyll Island #867-8082	31° 01.4'N	81° 25.1'W

The Cumberland Island gage was installed February 19, 1977. The vitrified scale was secured to a 16 foot pipe which was jettied into the hard sandy bottom. Considerable effort was put forth in an attempt to keep this gage operational. It was located on an open beach exposed to the Atlantic Ocean. Several times the hose broke due to the strain from a current which ran along the beach. The breakdowns would not always be fixed immediately due to the hazardous conditions present when trying to put personnel ashore.

The Jekyll Island gage was installed on February 14, 1977. The vitrified scale was also secured to a 16 foot pipe which in turn was jettied into the hard sandy bottom. Problems were also experienced in keeping this gage operational. The staff location was not sheltered from the Atlantic Ocean. The strong currents in the area of the staff and orifice also resulted in data lost due to leaks at the unions. In one case a section of hose had to be replaced because the current had stretched it from the normal 3/8 inch O.D. to approximately 1/8 inch O.D.

The Cumberland Island gage was removed May 12, 1977. The gage on Jekyll Island was removed May 13, 1977.

February 21, 1978

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

Tide Station Used (NOAA Form 77-12): 872-0030 Fernandina Beach, Fl.

Period: March 16 - May 17, 1977.

HYDROGRAPHIC SHEET: H-9678

OPR: 436

Locality: Off Cumberland Island, Georgia ✓

Plane of reference (mean ~~lower~~ low water): 1.54 ft.

Height of Mean High Water above Plane of Reference is  
6.0 ft. - Zone 1; 6.2ft. - Zone 2

Remarks: Recommended zoning:

- (1) South of 30°55.5' apply -35 minute time correction to high waters only.
- (2) North of 30°55.5' apply -35 minute time correction to high waters and range ratio  $\times 1.03$   
1.00

*Note: Zoning by computer*

Don Spallin  
Chief, Tides Branch



(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)

CORRECTIONS IN FEET, FATHOMS

NOAA FORM 75-21  
(10-72)

U.S. DEPARTMENT OF COMMERCE  
NOAA  
NATIONAL OCEAN SURVEY

VELOCITY CORRECTIONS

Ship WHITING LAUNCH 1203 (2931)

CDR J. W. CARPENTER Comdg

These corrections are to be used

between FEBRUARY 19 77 and APRIL 19 77

in the locality ST. ANDREW'S SOUND & CUMBERLAND ISLAND

for hydrographic surveys Nos. H-9678, WH 20-2-77

(For deep water add a 0 to these figures)

DEPTHS IN FATHOMS  
FEET

corr	depth
0.2	1.5
2.4	3.6
2.6	15.5
0.9	19.6
1.0	23.8
1.1	29.9
1.4	32.0
1.5	+

corr	depth
2.3	3.3
0.4	7.0
2.5	10.6
2.6	14.0
2.7	16.5
2.3	18.6

10  
20  
30  
40  
50  
60  
70  
80  
90  
100  
110  
120  
130  
140  
150  
160  
170  
180  
190

0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)

CORRECTIONS IN FEET, FATHOMS

NOAA FORM 75-21 (10-72)	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEAN SURVEY
<b>VELOCITY CORRECTIONS</b>	
Ship <u>WHITING, LAUNCH 1207 (2932)</u>	
CDR <u>T. W. CARPENTER</u> Comdg.	
These corrections are to be used	
between <u>FEBRUARY</u> 19 <u>77</u> and <u>APRIL</u> 19 <u>77</u>	
in the locality <u>ST. ANDREWS SOUND</u>	
<u>CUMBERLAND ISLAND</u>	
for hydrographic surveys Nos. <u>H-9678, WH20-2-77</u>	

(For deep water add a 0 to these figures)

DEPTHS IN FATHOMS  
FEET

DEPTH	CORRECTION
70.5	0.0
80.10	0.2
90.15	0.4
100.20	0.6
110.25	0.8
120.30	1.0
130.35	1.2
140.40	1.4
150.45	1.6
160	1.8
170	2.0

KEUFFEL & ESSLER CO. MADE IN U.S.A.

VELOCITY CORRECTION TABLE

WH-20-2-77

VESSEL 2931

000032 0 0003 0001 000 293100 020277

~~000168~~<sup>070</sup> 0 0004 *should be 000070* *1205*

000105 0 0005

000147 0 0006

000167 0 0007

000187 0 0008

000208 0 0009

000228 0 0010

000248 0 0011

000269 0 0012

000290 0 0013

000310 0 0014

000331 0 0015

000352 0 0016

000373 0 0017

000393 0 0018

000413 0 0020

999999 0 0021

VELOCITY CORRECTION TABLE 2

WH-20-2-77

VESSEL 2932

000046 1 0001 0002 000 293200 020277

000065 0 0000

000083 0 0001

000102 0 0002

000120 0 0003

000139 0 0004

000158 0 0005

000177 0 0006

000195 0 0007

000214 0 0008

000232 0 0009

000251 0 0010

000270 0 0011

000288 0 0012

000307 0 0013

000326 0 0014

000345 0 0015

000363 0 0016

000382 0 0017

000400 0 0018

999999 0 0019

---

## Settlement and Squat Trials

7 May 1977

Trials were run at State Dock, Brunswick, Georgia using Level No. C&GS-90. The level rod was held over the transducer location. Results are the average of one run toward the observer and one run away at the designated speeds.

	<u>Speed (RPM)</u>		
	<u>1000</u>	<u>1500</u>	<u>1800 (Full)</u>
Launch 1202	-0.13'	-0.25'	-0.25'
Launch 1203	-0.14'	-0.26'	-0.27'

Corrections for settlement and squat are made on the TC/TI tape. Periods of reduced speed during actual hydrography are noted on the printouts. The annotation "reduced speed" means 1500 RPM, except when otherwise noted. All range/azimuth work was run at reduced speed, except as noted.

SIGNAL TAPE LISTING

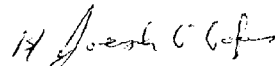
WH-20-2-77

129	3	30	53	02098	081	24	51437	139	0000	000000	SF-14, 1974
131	3	30	52	38818	081	24	59381	250	0000	000000	SF-15, 1974
133	3	30	52	13806	081	25	07431	250	0000	000000	SF-16, 1974
145	3	30	49	43745	081	26	01724	139	0000	000000	SF-22, 1974
147	3	30	49	22009	081	26	21440	139	0000	000000	SF-23, 1974
149	3	30	49	00195	081	26	34912	<del>250</del>	0000	000000	SF-23A, 1974
151	3	30	48	34383	081	26	50850	139	0000	000000	SF-24, 1974
153	3	30	48	11488	081	27	01232	139	0000	000000	SF-24A, 1974
181	3	30	54	34919	081	24	18503	139	0000	000000	LS-01, 1974
183	3	30	54	59262	081	24	15412	139	0000	000000	LS-02, 1974
185	3	30	55	26110	081	24	13679	139	0000	000000	LS-03, 1974
187	3	30	55	49304	081	24	12905	139	0000	000000	LS-04, 1974
189	3	30	56	15693	081	24	13398	250	0000	000000	LS-05, 1974
199	3	30	58	37763	081	24	26689	250	0000	000000	LS-10, 1974
219	3	30	58	33518	081	24	47747	139	0000	000000	Light House Little Cumberland Island, 1860-1966

There are no additional landmarks in the area of  
this survey which are not on the chart.

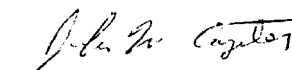
APPROVAL SHEET

Submitted by:

  
Joseph G. Gofus  
LTJG, NOAA

Supervision of field and office work on this hydrographic survey was continuous on a day to day basis to ensure completeness of the survey and that all work was done in accordance with the project instructions.

Approved/Forwarded:

  
John W. Carpenter  
CDR. NOAA  
Commanding, NOAA Ship Whiting

---



GEOGRAPHIC NAMES

H-9678

Name on Survey	Source of Name										
	A	B	C	D	E	F	G	H	K		
	ON CHART NO.	ON PREVIOUS SURVEY NO.	ON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP	GRAND MCNALLY ATLAS	U.S. LIGHT LIST			
<del>Atlantic Ocean</del>											1
Christmas Creek											2
Cumberland Island											3
Island Little Cumberland											4
Long Point											5
Pelican Spit											6
St. Andrew Sound											7
NORTH BREAKERS											8
											9
											10
											11
											12
											13
											14
											15
											16
											17
											18
											19
											20
											21
											22
											23
											24
											25

APPROVED

*Chas. E. Harrington*

CHIEF GEOGRAPHER - C3K5

13 MARCH 1979

HYDROGRAPHIC SURVEY STATISTICS

H-9678

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET		1	BOAT SHEETS & PRELIMINARY OVERLAYS		351	
DESCRIPTIVE REPORT		1	SMOOTH OVERLAYS: POS. ARC, EXCESS		2	
DESCRIP-TION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES	1					84-misc. data
CAHIERS	2		1			
VOLUMES	3					
BOXES			1-Smooth			

T-SHEET PRINTS (List)

SPECIAL REPORTS (List)

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS		
	PRE-VERIFICATION	VERIFICATION	TOTALS
POSITIONS ON SHEET			2196
POSITIONS CHECKED	0	452	452
POSITIONS REVISED	0	69	69
SOUNDINGS REVISED	27	364	391
SOUNDINGS ERRONEOUSLY SPACED	0	0	0
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED	0	0	0
	TIME - HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	2	0	2
VERIFICATION OF CONTROL	0	3	3
VERIFICATION OF POSITIONS	0	21	21
VERIFICATION OF SOUNDINGS	5	65	70
COMPILATION OF SMOOTH SHEET	0	64	64
APPLICATION OF TOPOGRAPHY	0	6	6
APPLICATION OF PHOTOBATHYMETRY	0	0	0
JUNCTIONS	0	6	6
COMPARISON WITH PRIOR SURVEYS & CHARTS	0	25	25
VERIFIER'S REPORT	0	6	6
OTHER	0	24	24
<b>TOTALS</b>	<b>7</b>	<b>220</b>	<b>227</b>

Pro-Verification by <b>M. B. Hickson</b>	Beginning Date 10/03/77	Ending Date 10/03/77
Verification by <b>J. Wilson, K. Ainsley, S. Kelley,</b>	Beginning Date 12/15/77	Ending Date 12/13/78
Verification Check by <b>H. R. Smith</b>	Time (Hours) 12/14/78 2	Date 12/14/78
Marine Center Inspection by <b>Hydrographic Inspection Team (AMC)</b>	Time (Hours) 12	Date 12/18/78
Quality Control Inspection by <b>R. W. Willman</b>	Time (Hours) 62	Date 3-12-79
Requirements Evaluation by <b>J. Hamner</b>	Time (Hours) 4	Date 4-13-79

REGISTRY NO. \_\_\_\_\_

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-9678

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 8/16/83 TIME REQUIRED \_\_\_\_\_ INITIALS Lg

REMARKS:

ATLANTIC MARINE CENTER  
VERIFIER'S REPORT

REGISTRY NO. H-9678

FIELD NO. WH-20-2-77

Georgia, Southeast Coast, Cumberland and Little Cumberland Island

SURVEYED: March 16 through May 17, 1977

SCALE: 1:20,000

PROJECT NO.: OPR-436

SOUNDINGS: Raytheon DE-723D Fathometer

CONTROL: Del-Norte  
(Range-Range &  
Range-Azimuth)

Chief of Party .....	J. W. Carpenter
Surveyed by .....	M. F. Kolesar
.....	D. R. Taylor
.....	J. G. Gofus
.....	D. M. Goodrich
.....	G. M. Barone
.....	J. P. Rubino
.....	R. M. Mandzi
Automated Plot by .....	CALCOMP-618 Plotter (AMC)
Verified and Inked by .....	M. B. Hickson
	December 13, 1978

1. Introduction

No unusual problems were encountered. Necessary changes made by the verifier to the Descriptive Report are denoted in red ink. One correction was made to Velocity Table Number 1 and is shown in the Descriptive Report.

2. Control and Shoreline

a. The source of control is adequately described in Sections F and G of the Descriptive Report. (See Q.C. Report - item 1)

b. The source of shoreline for this survey is the final reviewed photogrammetric manuscript TP-00497 of 1973-74 and the final reviewed photogrammetric manuscript TP-00496 of 1973-74. No conflicts exist between the present survey and the photogrammetric manuscripts. Note should be taken however of the shoreline differences between prior survey H-4444 and the contemporary manuscripts, particularly in regard to the northward migration of Christmas Creek and associated shoals. (See Q.C. Report - item 2)

3. Hydrography

a. Depths at crossings are in good agreement.

b. Depth contours were drawn at the standard intervals. Several dashed curves and brown curves were added to portray and add continuity to features not apparent from standard depth curves.

c. Bottom configuration and least depths were adequately developed on the present survey.

#### 4. Condition of Survey

The sounding records, smooth sheet and accompanying overlays, hydrographic records, and the Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual with the following exceptions.

Numerous large strays were noted on the fathograms. These were "scanned in" by the hydrographer. Several were developed without any further indications of these spikes noted. Also adjacent sounding lines showed no evidence to validate the existence of these strays. These strays were judged to be legitimate strays and not valid sounding data and were therefore removed from the sounding records. The quality of the majority of the fathograms is degraded by excessive sea action. (See Q.C. Report - item 3.)

Least depths should have been transferred from accompanying field overlays to the final field boatsheet.

Numerous references in the Descriptive Report to investigated chart and prior survey depths in Section K and L are in error regarding distances in meters. Possibly the field made their measurements on a 1:10,000 scale. Revisions were made to the Descriptive Report. Statements regarding disposition of charted items or prior survey items reflect the final results shown on the smooth sheet.

#### 5. Junctions

Adequate junctions have been effected with the following surveys:

H-9449	(1974)	1:40,000	to the east
H-9458	(1974)	1:20,000	to the north (See Q.C. Report - item 4)
H-9675	(1977)	1:20,000	to the south (Adequacy of junction considered during the Q.C. inspection of H-9675)

The junction with H-9458 is more extensive than normally required due to the special request to supplement the survey data on H-9458. Refer to the Special Investigations Section in the Descriptive Report.

## 6. Comparison With Prior Surveys

H-4444	(1924)	1:20,000
H-4436	(1924)	1:20,000
H-3770	(1915)	1:80,000

These prior surveys cover a majority of the surveyed area with an area of non coverage between H-4444 and H-3770.

Prior survey H-4444 covers the most significant and largest area of the present survey. The common area is of an irregular bottom configuration. The general features and the "flow or lay" of the bottom are similar. The channel placement is in general agreement; however, the present survey indicates an overall shoaling of the channel. The area of Pelican Spit shown on the present survey, as defined by the 6 foot contour is slightly deeper and has migrated somewhat seaward into the channel as shown on the prior survey. The shoreline and placement of Christmas Creek and associated shoals have migrated to the north as some of the bottom features (inshore from the channel) have migrated to the north and northwest. One major exception is the 6 foot shoal extending from shore (latitude 30°56'-30°54.5', longitude 81°24'-81°22.5') has apparently migrated to the south. In the very southern common area there is a slight deepening of the general area and shows a northwest migration of the contours. Depth differences generally range to as much as ± 13 ft.

Prior survey H-4436 covers only the extreme southern boundary of the present survey and supports the comparison made in this area with H-4444.

Prior survey H-3770 covers the eastern portion of the present survey. This prior survey agrees very well with the present survey, particularly in view of the age, line spacing, and scale of this prior survey. Differences vary an average of one to two feet with no trend toward deeper or shallower bottom topography. Depths are more consistent from the 18 foot curve to seaward indicating a reasonably stable bottom in the common area as evidenced by this comparison.

The differences between the present survey and the prior surveys are attributed to a changing/migrating sandy bottom, typical of the southeast coast of the U.S. inlet areas.

The present survey is considered adequate to supersede all prior surveys within the common areas.

## 7. Comparison With Chart 11504 (9th Edition, May 22, 1976)

### a. Hydrography

The charted hydrography originates with the previously discussed prior surveys, contemporary survey H-9458 (1974), Notice to Mariners, and soundings from sources not readily ascertainable. These previously discussed prior surveys require no further consideration.

There are varying differences between the present survey and the charted hydrography. The bottom is comprised completely of sand and is not hard as charted. Due to this sand composition and the nature of inlet areas, the bottom is subject to frequent change. The channel is shoaling in the area of latitude  $30^{\circ}57.5'$ , longitude  $81^{\circ}21.5'$  and is deepening in the area of  $30^{\circ}55.5'$  longitude  $81^{\circ}20'$ . The charted 6 foot shoal extending seaward from shore latitude  $30^{\circ}54.5'$ - $30^{\circ}56'$ , longitude  $81^{\circ}22.5'$ - $81^{\circ}24'$  apparently has migrated to the south. Areas east of longitude  $81^{\circ}20'$  are slightly deeper than charted. Areas to the south of latitude  $30^{\circ}54'$  are slightly deeper than charted.

All Presurvey Review Items are adequately discussed in the Descriptive Report.

The present survey is considered adequate to supersede the charted hydrography, both of known and unknown sources, within the common area.

### b. Aids to Navigation

There are seven non-lighted floating aids to navigation common to the surveyed area. These buoys appear to adequately demarcate the St. Andrews Sound Channel. Buoys C"3", C"5", C"7", and C "9" are not charted as explained in Note A on the chart. Of the three floating aids charted, positional differences vary from 360 meters to 1020 meters. Fixed aids to navigation which are plotted on the smooth sheet but not located by the present survey are from TP-00497; these fixed aids are St. Andrews Sound Light 32, Cumberland River Light 34, and Cumberland River Light 35. All of the above aids to navigation, floating or fixed, are identified in the U.S. Coast Guard Light List, Volume II, 1977 with the exception of St. Andrews Sound Light 32\*. Buoy BWC is not identified properly in the Light List in respect to position and depth of water. \*Identified as a lighted buoy in the referenced light list.

8. Compliance With Instructions

This survey adequately complies with the **Project Instructions**.

9. Additional Field Work

This is a good basic hydrographic survey. Additional field work is not recommended.

---



APPROVAL SHEET  
FOR  
SURVEY H-9678

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

Date:

1/5/79

Signed:




Title: Chief, Verification Branch

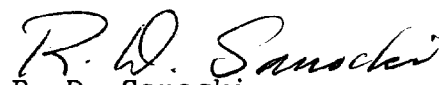
Inspection Report  
H-9678


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

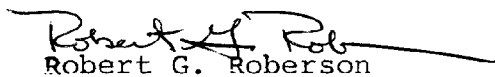
Examined and Approved:  
Hydrographic Inspection Team  
Date: Dec. 18, 1978

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

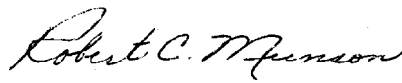
*ABSENT*  
Charles H. Nixon, CAPT, NOAA  
Chief, Operations Division

  
R. D. Sanocki  
Technical Assistant  
Processing Division

*Maurice R. Kenny*  
 C. Douglas Mason, LT, NOAA  
Chief, Electronic Data  
Processing Branch

  
Robert G. Roberson  
Team Leader  
Verification Branch

Approved/Forwarded

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



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

OA/C352:KWW

March 12, 1979

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

THRU: Chief, Quality Control Branch

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

SUBJECT: Quality Control Report for H-9678 (1977), Georgia, Southeast Coast, Vicinity of Little Cumberland Island

A quality control inspection of H-9678 was accomplished to monitor the survey for obvious deficiencies with respect to data acquisition, delineation of the bottom, determination of least depths and navigation hazards, junctions, shoreline transfer, decisions and actions by the verifier, and cartographic presentation of data.

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

1. Section 2-a of the Verifier's Report is supplemented by the following:

. . . of the Descriptive Report. Numerous control stations identified on the present survey with an LS- or SF- prefix followed by a numerical designation; e.g., LS-05, 1974; are symbolized as triangulation stations. Formal documentation of acceptance of these stations as official triangulation stations by the National Geodetic Survey is not presently available. It is assumed, however, that specifications for triangulation stations have been complied with and that the necessary records and computations will eventually be submitted to the National Geodetic Survey. Ultimately, therefore, it is expected that the triangulation station status of the control stations will be validated.

2. Reference section 2-b of the Verifier's Report:

The topographic coverage of TP-00496 falls beyond the limits of the present survey. The inclusion of TP-00496 as a source of shoreline information is considered inappropriate and should be disregarded.



### 3. Reference section 4 of the Verifier's Report:

There were a few additional suspicious soundings which were rescanned and revised during quality control inspection. These erroneous soundings were the result of the spurious traces which are attributed to an inherent malfunction in fathometer serial number 37018. Similar problems were encountered in survey H-9679 (1977) and noted in its Verifier's Report and Quality Control Report.

### 4. Reference section 5 of the Verifier's Report:

An adequate junction between the present survey and H-9458 (1974) on the north was not effected during verification as stated in the referenced section of the Verifier's Report. Due to the changeable nature of the area, some present survey soundings were at variance with overlapping hydrography on H-9458. Extensive revision of overlapping depth curves was necessary to effect an adequate junction. In addition, an irreconcilable 18-foot depth curve in the vicinity of latitude  $30^{\circ}58.00'$ , longitude  $81^{\circ}19.70'$  necessitated a partial butt junction in the area. The referenced area on H-9458 is superseded by the present survey. Comments pertaining to additional work necessary to complete the junctions should have been included in the referenced section of the Verifier's Report. (See the memorandum dated March 21, 1977, from the Office of Marine Surveys and Maps entitled "Verifier's Report Format.")

Section 5 of the Verifier's Report is supplemented by the following:

A partial butt junction was necessary, superseding a portion of H-9458 (1974) in the vicinity of latitude  $30^{\circ}58.00'$ , longitude  $81^{\circ}19.70'$ . In this area, changes in the bottom configuration precluded a reconciliation of the overlapping 18-foot depth curve. In other areas, depth differences, generally within 1 to 2 feet, indicate slight changes in the bottom configuration. Such differences, however, are considered to be within acceptable limits. Accordingly, with the addition of the partial butt junction mentioned above, an adequate junction has been effected with H-9458 (1974) on the north.

cc:

OA/C35

OA/C351

---

DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration

National Ocean Survey

Rockville, Maryland

Hydrographic Index No. 75 J

