

H10576

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey **HYDROGRAPHIC**
Field No. **WH-10-9-94**
Registry No. **H-10576**

LOCALITY

State **GEORGIA**
General Locality **ATLANTIC OCEAN**
Sublocality **APPROACH TO WASSAW
SOUND**

19 94

CHIEF OF PARTY
CDR J. D. WILDER, NOAA

LIBRARY & ARCHIVES

DATE **AUG. 16. 1995**

Diagram 1241-3

A/G
PRODUCTS

CP4
11512
11511
11509
11480
11009NC

HYDROGRAPHIC TITLE SHEET

H-10576

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

FIELD NO.

WH-10-9-94

State Georgia

General locality Atlantic Ocean

Locality Approach to Wassaw Sound

Scale 1:10,000 Date of Survey Sept 29 - Nov 13, 1994

Instructions dated August 25, 1994 Project No. OPR-G115-WH

Vessel Launch 1014 (2932), Launch 1015 (2931)

Chief of Party Commander John D. Wilder

Surveyed by J. D. Wilder, S. R. Barnum, W. G. Kitt, E. W. Berkowitz, K. A. Pavell, J. T. Michalski, C. E. Parrish, M. M. Cisternelli, J. B. Gaskin, F. R. Cruz, B. C. Detrich

Soundings taken by echo sounder DSF-6000

Graphic record scaled by WHITING Survey Personnel

Graphic record checked by WHITING Survey Personnel

Protracted by N/A Automated plot by HP 7959B, Bruning

Verification by ATLANTIC HYDROGRAPHIC BRANCH PERSONNEL

Soundings in MLLW Meters Feet

REMARKS: Time Zone Used, 0 (UTC)

NOTES IN THE DESCRIPTIVE REPORT WERE MADE IN RED

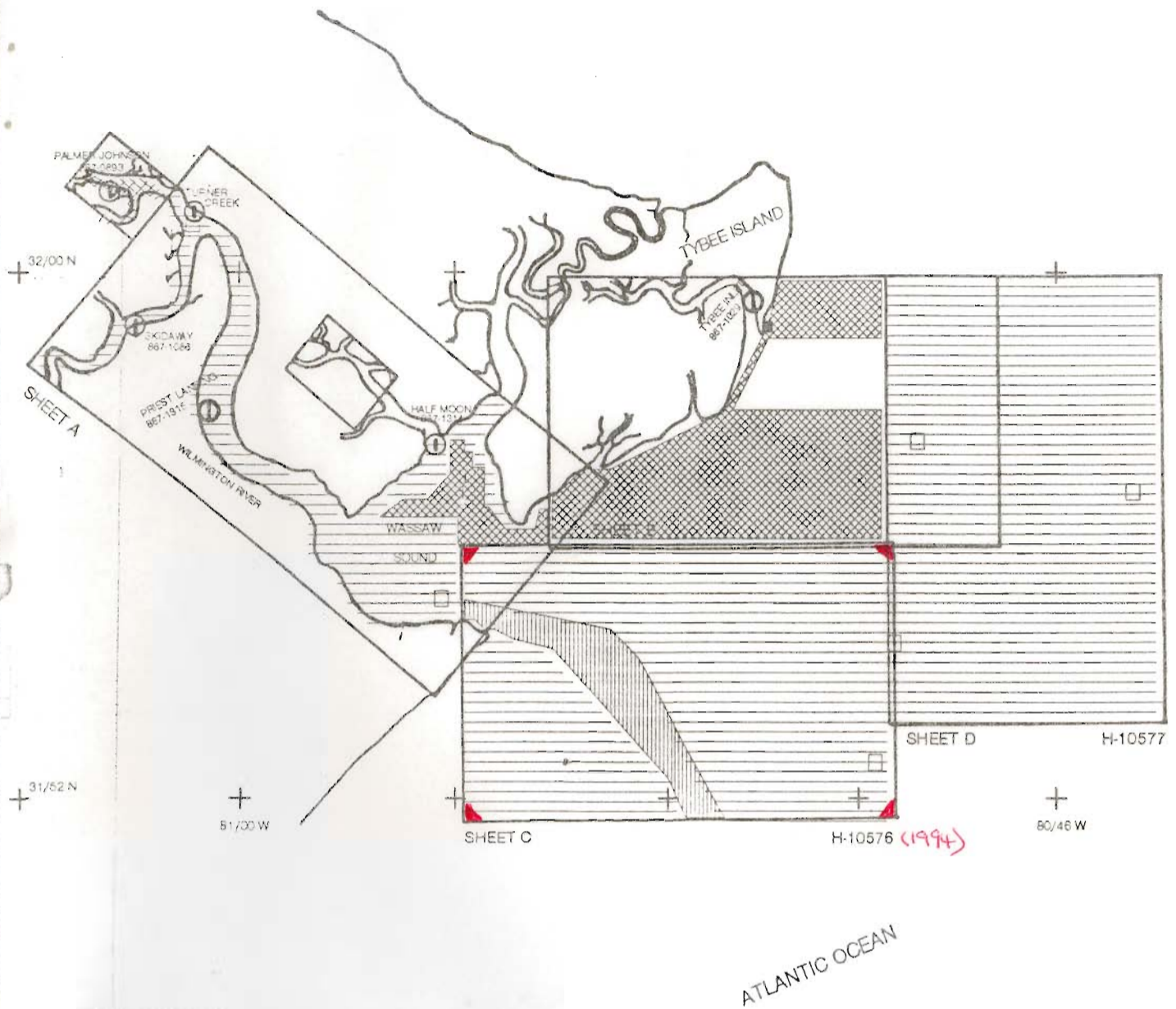
DURING OFFICE PROCESSING

AWOIS + SURF ✓ RWD 8/95

12-16-96

8/16/95 SA

PROGRESS SKETCH
 OPR - G115 - WH
 HYDROGRAPHIC SURVEY
 WASSAW SOUND AND
 WILMINGTON RIVER, GEORGIA
 SEPTEMBER - NOVEMBER 1994



SEPT	OCT	NOV
2	63	9
51	1746	478
0	7	13
37	67	181
1	10	7
2	4	0
1	0	0
5	25	13

SQ NM SOUNDINGS
 LNM SOUNDINGS
 ITEM INVESTIGATIONS
 BOTTOM SAMPLES
 VELOCITY CASTS □
 TIDE GAUGES INSTALLED ⊙
 CONTROL STATION INSTALLATIONS ■
 DAYS AT SEA
 HYDROGRAPHY

NOAA SHIP WHITING
 JOHN D. WILDER, CDR
 COMMANDING

SCALE OF CHART 1:1512

**DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY
OPR-G115-WH
WH-10-9-94
H-10576**

**NOAA SHIP WHITING
CDR John D. Wilder, NOAA
Commanding Officer**

A. PROJECT

The purpose of project OPR-G115-WH is to provide contemporary hydrographic survey data for existing nautical charts, and a special commemorative chart which is being proposed for the area covering the yachting events during the 1996 Summer Olympic Games. A high volume of traffic, of both participating and non-participating yachts and racing boats, is expected in Wilmington River and Wassaw Sound, Georgia. Large barges will be used to tow competing boats or for transporting international athletes, while others will be positioned in Wassaw Sound for logistical support. This project responds to a request from the Atlanta Committee for the Olympic Games (ACOG), U.S. Army Corps of Engineers, and the U.S. Coast Guard.

Survey operations were conducted in accordance with Hydrographic Project Instructions OPR-G115-WH dated August 25, 1994. There are no changes to these project instructions.

Project OPR-G115-WH was designed to consist of four survey sheets. The survey described in this report addresses sheet "C". The survey was assigned field sheet number WH-10-9-94 and registry number H-10576.

B. AREA SURVEYED

Hydrographic survey H-10576 is a 6.6nm by 4.1nm survey positioned at the entrance to Wilmington River and Wassaw Sound. Sheet limits are bounded by 31° 55' 52" N and 31° 51' 45" N to the north and south respectively, and by 080° 48' 48" W and 080° 56' 32" W to the east and west respectively.

Survey operations commenced on September 29, 1994 (DN 272), and were completed on November 13, 1994 (DN 317).

C. SURVEY VESSELS

Launches 1014 and 1015 (VESNO 2931 and 2932) were used for main-scheme sounding data acquisition, crosslines, bottom samples, velocity casts and an AWOIS investigation using side scan sonar.

No unusual vessel configurations were used nor were any problems encountered.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

Survey data acquisition and processing were accomplished using the HDAPS system with the following software:

<u>PROGRAM NAME</u>	<u>VERSION</u>	<u>DATE INSTALLED</u>
BACKUP	2.00	March 07, 1994
BASELINE	1.14	March 07, 1994
BIGABST	2.07	March 07, 1994
BIGAUTOST	3.01	March 07, 1994
BLKEDIT	2.02	March 07, 1994
CARTO	2.13	August 30, 1994
CLASSIFY	1.01	March 07, 1994
CONTACT	2.34	August 30, 1994
CONVERT	3.62	March 07, 1994
DAS_SURV	6.70	August 30, 1994
DIAGNOSE	3.04	August 30, 1994
DISC_UTIL	1.00	March 07, 1994
DP	2.15	August 30, 1994
DPCONVERT	1.01	June 17, 1994
DSNEDITS	1.02	August 30, 1994
EXCESS	4.31	August 30, 1994
FILESYS	3.24	August 30, 1994
GRAFEDIT	1.06	March 07, 1994
HIPSTICK	1.01	March 07, 1994
HPRAZ	1.26	March 07, 1994
INVERSE	2.01	March 07, 1994
LISTDATA	1.02	March 07, 1994
LOADNEW	2.10	March 07, 1994
LSTAWOIS	3.07	August 30, 1994
MAINMENU	1.20	March 07, 1994
MAN_DATA	2.01	March 07, 1994
NEWPOST	6.12	August 30, 1994
PLOTALL	2.30	August 30, 1994

POINT	2.10	March 07, 1994
PREDICT	2.01	March 07, 1994
PRESURV	7.09	August 30, 1994
PRINTOUT	4.04	August 30, 1994
QUICK	2.05	August 30, 1994
RAMSAVER	1.02	March 07, 1994
REAPPLY	2.11	August 30, 1994
RECOMP	1.02	March 07, 1994
SCANNER	1.00	March 07, 1994
SELPRINT	2.05	August 30, 1994
SYMBOLS	2.00	March 07, 1994
VERSIONS	1.00	March 07, 1994
ZOOMEDIT	2.30	August 30, 1994

Sound velocity corrections were determined using *CAT* version 2.00 and *VELOCITY* versions 2.10 and 2.11. The DGPS station was checked using *MONITOR* version 1.2. Program *DAILYDQA* ensured the proper functioning of the MOD-3 diver gauge.

There were no nonstandard automated acquisition or processing methods used.

E. SIDE SCAN SONAR EQUIPMENT

For AWOIS item 8901, side scan sonar (SSS) operations were conducted using an EG&G model 260 slant-range corrected SSS recorder and an EG&G 272-TH dual-channel, single frequency towfish. The towfish was operated on the 100 kHz frequency and configured with a 20° beam depression. Data were collected using the 25 and 50 meter range scales. The following sonar equipment was used throughout the survey:

<u>VESNO</u>	<u>Type</u>	<u>S/N</u>	<u>DN</u>
2931	Towfish	16699	314
2931	Recorder	160492	314

On launch 1015, the SSS towfish was deployed using a Superwinch Model W115 in conjunction with an adjustable davit arm on the stern of each launch. The SSS towfish was towed with vinyl-coated Kevlar cable and was connected to the recorder via a slip ring assembly.

The SSS towfish was maintained at a height off the bottom of 8 to 20 percent of the range scale in use. SSS operations were limited to a speed-over-ground of 6.0 knots.

F. SOUNDING EQUIPMENT

A Raytheon Digital Survey Fathometer (DSF 6000N) echo sounder was used to measure water depths during the survey. The DSF-6000N produced a graphic record of the high frequency (100 kHz) and low frequency (24 kHz) depth. The high and low frequency digital depths were recorded by the HDAPS acquisition system. The high frequency depths were selected as the primary depths as shown on the sounding plots. In addition, echograms were carefully reviewed for significant features along the track line. Any features on the graphic record that were not selected as primary soundings were manually selected.

The following fathometers were used during this survey:

<u>Vessel</u>	<u>S/N</u>	<u>Dates Used (DN)</u>
2931	A105N	287-317
2932	C076	272-306

G. CORRECTIONS TO SOUNDINGS

Sound velocity profiles of the water column were determined using a Seacat Conductivity, Temperature and Depth (CTD) profiler (model SBE-19, S/N 286). The profiler was calibrated on December 17, 1993, during WHITING's winter inport period.

After the CTD cast, programs *CAT 2.00* and *VELOCITY 2.10/2.11* were used to process the data, select significant data points, and create a corrector table. The velocity correctors were manually entered into an HDAPS velocity table. The correctors were reapplied to both high (100 kHz) and low (24 kHz) frequency beams following acquisition. Velocity profile data are in Separate IV submitted with this survey. *DATA FILED WITH ORIGINAL FIELD RECORDS.*

Data Quality Assurance (DQA) for the Seacat CTD profiler was performed by using a hydrometer and a thermometer to measure the density and temperature of a surface water sample taken during the CTD cast; program *CAT* compared these values to the CTD surface values, and determined if the velocity probe was working properly.

Five velocity casts were taken to generate corrector tables. The five casts are summarized in the following table:

<u>DN</u>	<u>Vel.Table#</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Depth</u>
272	1, 2	31° 52' 51"N	080° 50' 24"W	11.1 m
287	9	31° 53' 04"N	080° 48' 41"W	12.5 m
293	13, 14	31° 54' 48"N	080° 48' 42"W	12.5 m
303	17, 18	31° 54' 30"N	080° 47' 30"W	14.1 m
314	24,	31° 54' 32"N	080° 54' 57"W	9.6 m

There were no variations in instrument initials.

Bar checks were performed on launches 1014 and 1015 in accordance with the requirements stated in the Field Procedures Manual (FPM). No corrections to soundings were applied based on bar check data.

The correction for the static draft for launches 1014 and 1015 is 0.55 meters, as measured on July 28, 1993.

Settlement and squat measurements for launch 1014 (Offset Table 2) and launch 1015 (Offset Table 1) were conducted and correctors determined on April 4, 1994. The settlement and squat correctors were applied to the sounding data in real time on each survey platform. Settlement and squat corrector tables are in Separate IV. DATA FILED WITH ORIGINAL FIELD RECORDS

Heave correctors were applied during processing for launches 1014 and 1015 by manually scanning the echograms.

The tidal datum for this project is Mean Lower Low Water. The operating tide station at Fort Pulaski, Georgia (867-0870) served as the reference station for predicted tides. No tidal zoning was done for this survey. Predicted tides were applied to data using no time correction, and a 0.99 tidal height ratio. Tidal data used during data acquisition were taken from Table 2 of the East Coast of North and South America Tide Tables and were applied to the digital data during acquisition by HDAPS. Digital tidal data were received on floppy disk from N/CG24, Hydrographic Surveys Branch.

WHITING installed a tide station at Tybee Marina (867-1029) for datum control of H-10576. Opening and closing levels were run on September 27, 1994 and on November 12, 1994, respectively. A request for smooth tides was submitted to the Product and Services Branch, N/OES231, Datums Section, on November 18, 1994. APPROVED TIDES WERE APPLIED DURING OFFICE PROCESSING.

H. CONTROL STATIONS SEE ALSO THE EVALUATION REPORT.

The horizontal datum for this project is the North American Datum of 1983 (NAD-83). The source of differential correctors was a Differential GPS station set on a tower over the "SOUTH END" control mark on Tybee Island, Georgia. Additionally, WHITING used the forward range marker on Jones Island Range for performance checks. The adjusted NAD-83 positions for SOUTH END (2nd Order Class I) and Jones Island Forward Range (4th Order) were provided by the Field Photogrammetry Section on August 16, 1994. The positions are as follows:

	<u>Latitude</u>	<u>Longitude</u>
South End	31° 59' 14.30661" N	080° 51' 04.85098" W
Jones Island Range, Front	32° 02' 31.71243" N	080° 51' 10.09256" W

WHITING used *MONITOR* version 1.2 to verify the station position, and to check for

multipath in the area. The *OUTLIER.SUM* file and associated scatter-plot are in Separate III.
DATA FILED WITH ORIGINAL FIELD RECORDS.

I. HYDROGRAPHIC POSITION CONTROL

A Differential Global Positioning System (DGPS) was used as the navigation system for this survey. Both launches used an Ashtech Sensor GPS receiver with a Maxon VHF receiver supplying correctors for DGPS navigation. Ashtech receivers were initialized by HDAPS; MAXON radios were set to the appropriate frequency.

DGPS positioning was accomplished in accordance with the FPM, section 3.4. Horizontal Dilution of Precision (HDOP) limits were computed as required in section 3.4.2 of the FPM. The HDOP limit for a 1:10,000 scale survey using the South End station is 5.5. No position flyers were encountered. All suspect positions (high HDOP, DR'ed positions, high EPE) were examined for reliability. Questionable positions were either smoothed or rejected.

The serial numbers of the Ashtech Sensor and MAXON radio-receivers used are as follows:

	<u>Device</u>	<u>Serial Number</u>
Launch 1014	Ashtech Sensor MAXON	700417B1203 57354
Launch 1015	Ashtech Sensor MAXON	700417B1191 20813457

DGPS performance checks were done in two stages. The first stage was to send Launch 1015 to the Jones Island Front Range marker. The launch would take ten detached positions and compare them to the known position. All DGPS performance checks confirmed that the DGPS beacon was operating properly. Stage two was conducted with each launch securely housed in WHITING's davits. Simultaneous HDAPS positions were compared between WHITING and each launch; an offset in distance and azimuth was then applied between the ship and each launch system. A summary of the DGPS performance checks were submitted under separate cover for the entire project to N/CG244 on November 18, 1994.

DGPS antenna offsets and laybacks were measured on July 28, 1993, for launches 1014 and 1015. Offsets and laybacks were measured using the 100 kHz (high frequency) echosounder transducer as the reference. Antenna heights were also measured on the same respective dates shown above, using the water line as the reference. The offsets and laybacks were applied by HDAPS on-line. A minimum of four satellites were used during survey H-10576 (1:10,000), providing altitude unconstrained positioning.

Offset, layback, and height corrections for each launch's SSS aft towing boom were measured on July 28, 1993, and verified on April 5, 1994.

All offset, layback, and height data were applied by HDAPS on-line. These data are on file at N/CG244.* Correctors from offset table 1 and 2 were applied to all data acquired from launches 1015 and 1014 respectively. * DATA FILED WITH ORIGINAL FIELD RECORDS.

J. SHORELINE *SEE ALSO THE EVALUATION REPORT.*

Shoreline on H-10576 includes the eastern tip of Wassaw Island located on the west side of the survey sheet. The shoreline was surveyed up to the 0.7m depth curve as per project instructions. Comparing H-10576 with chart 11512 shows the low water shore of Wassaw Island spreading east and south.

In addition, chart 11512 shows a separate, elongated, low water shoreline extending east from the low water shore of Wassaw Island. This no longer exists and should be replaced with 4-6 foot soundings.

Due to the differences between H-10576 and chart 11512 the WHITING recommends new shoreline photography for the next chart edition.

K. CROSSLINES

A total of 47.06 nautical miles of crosslines were run for H-10576. This amounts to 9% of the mainscheme miles run. Using predicted tides there was adequate agreement between crossline and main-scheme lines. Over 95% of the soundings were within 0.3 meters or better with the largest difference being 0.7m.

L. JUNCTIONS *SEE ALSO THE EVALUATION REPORT.*

Survey H-10576 junctions with H-10581 (WH-10-7-94) on the northwest corner. Soundings agree within 0.2 meters.

Survey H-10576 junctions with H-10577 (WH-10-10-94) along the east edge. Bottom topography agreed well but H-10576's soundings are consistently 0.3 to 0.7 meters deeper.

Survey H-10576 junctions with H-10582 along the north edge. In general the comparison is good but as the lines extend east into deeper water the agreement deteriorates with H-10576 as much as 0.8 meters deeper on average. Although, there is no specific sounding overlap since the lines from H-10576 split the lines from H-10582.

M. COMPARISONS WITH PRIOR SURVEYS *SEE ALSO THE EVALUATION REPORT.*

Four prior surveys, H-9144, H-9197, H-9460 and H-9865, have soundings which fall within

the survey limits of H-10576. Note that all of these surveys are referenced to NAD-27 horizontal datum and Mean Lower Water vertical datum. All comparisons were done in feet.

Survey H-9144 (1974, 1:40,000) covers the southeast corner of the survey area. General bottom topography agreement is excellent. Current soundings are up to 0.6 meters shoaler (0-2 feet).

Survey H-9197 (1973, 1:20,000) covers the extreme northeast corner of the survey area. Agreement is within 0.3 to 0.6 meters (1-2 feet) although the overlap between surveys only amounts to 20 soundings. *DOES NOT FALL WITHIN THE LIMITS OF THE SURVEY.*

Survey H-9460 (1974, 1:20,000) and survey H-9865 (1980, 1:20,000) cover the entrance channel to Wassaw Sound and Wilmington River. The contours defining the deep channel agree well between past and present surveys but significant differences can be found in comparing the shoal depths on either side of the channel. H-10576 soundings shows water over the shoals to be a meter or more shallower. In addition, the sandy shoal off Wassaw Island appears much more exposed at low water versus the 1974 survey. Areas away from the deep channel and shoals agree within 0.3 to 0.6 meters.

N. ITEM INVESTIGATIONS

The following table summarizes the investigations of all assigned AWOIS items:

N.1	AWOIS 8899	Disproved
N.2	AWOIS 8900	Disproved
N.3	AWOIS 8901	Disproved
N.4	AWOIS 8902	No investigation was done
N.5	Sunken Tugboat	Verified

N.1 AWOIS 8899

Reported Latitude:	31° 53' 36" N
Reported Longitude:	080° 54' 54" W
Source:	LNM 8/93, 7th CGD
Name:	Holly's Dollar
Datum:	NAD 83
Reported Depth:	7-8 feet
Survey Requirements:	DI, ES, SD, BD (500m search radius)

This AWOIS item has been salvaged. Correspondence letters from The Army Corps of Engineers and Turner Marine Surveying are included in appendix VI as salvage documentation. *APPENDED TO THIS REPORT.*

WHITING recommends the removal of this item from the chart. *CONCR*

N.2 AWOIS 8900

Reported Latitude: 31° 54' 01" N
Reported Longitude: 080° 55' 12" W
Source: LNM 4/90, 7th CGD
Name: Damon
Datum: NAD 27
Reported Depth: "Sand bank exists in vicinity"
Survey Requirements: DI, ES, SD, BD (300m search radius)

Echo sounder investigation was performed within the AWOIS search radius with 12.5 meter line spacing over the northeast half and 25 meter line spacing over the southwest half. In addition, a visual inspection of the AWOIS area was performed during a spring low tide when most of the southwest half of the search radius lay exposed. No indication of a wreck was found with the echo sounder or visual inspection.

WHITING recommends the removal of this item from the chart. *CONCUR*

N.3 AWOIS 8901

Reported Latitude: 31° 54' 27" N
Reported Longitude: 080° 55' 27" W
Source: LNM 41/93, 7th CGD
Name: Hai Ha
Datum: NAD 83
Reported Depth: 16-17 feet
Survey Requirements: S2, DI, ES, SD, BD (300m search radius)

Side scan sonar investigation using the 50m range scale was performed over the majority of the search radius. The 25m range scale was used in extremely shallow areas on the southwest side of the circle. No contacts were found. Visual inspection at spring low tide also revealed no wreck on the southwest edge of the radius.

WHITING recommends the removal of this item from the chart. *CONCUR*

N.4 AWOIS 8902

Reported Latitude: 31° 55' 31.2" N
Reported Longitude: 080° 54' 25.8" W
Source: LNM 41/93 *51/89*
Name: Great White
Datum: NAD *2783*
Reported Depth: 4-5 feet
Survey Requirements: ES, BD, DI, SD

Due to poor weather no investigation was completed at this site. WHITING will investigate

the site during the 1995 field season. NO CHANGE IN CHARTING RECOMMENDED.

N.5 Sunken Tugboat

Reported Latitude: 31° 53' 00.50"
Reported Longitude: 080° 52' 57.36"
Source: WHITING Launch 1014, DGPS
Datum: NAD 83
Reported Depths: 8-9 feet

Awois # 9538

This exposed tugboat sank during survey operations. It is a yellow boat stranded in 8-9 foot depths. At low water the pilot house and stack stand 4-6 feet out of water. It was positioned using DGPS with fix number 4539. WHITING recommends that this be charted as an exposed wreck. CONCUR CHART AS EXPOSED WRECK, ^{uncovers} ~~BARRE~~ 6 FT (18m) IN LATITUDE

31°53'00.50 LONGITUDE 80°52'57.36"W

per telcon with Mr. Wike 8/21/95 RWD

25 meters to the west of the tug is a small (3 foot high), lighted, red buoy "WR".

O. COMPARISON WITH THE CHART

Soundings from chart 11512 (52nd ed., January 07/92, 1:40,000) were compared to H-10576 soundings. In general, soundings near or within the deep channel are significantly different from the charted soundings, being deeper by 0.5 to 1.5 meters. Areas farther from the channel, agree well with the chart.

Deep channel contours agree well when comparing H-10576 with the chart, although H-10576 soundings are deeper.

Outside the channel on either side is shoal water. The shoal on the east side of the channel extending from Wassaw Island is larger than portrayed on the chart, having spread east and west. The Shoal on the northwest side of the channel in the general area of 31° 55' 30"N 080° 54' 30"W has become shallower in the center and deeper on the east and west sides. CONCUR

In consideration of these differences in charted versus actual soundings, WHITING recommends a complete revision for the next chart edition in the areas encompassing the deep channel and nearby shoals near the entrance to Wassaw Sound. Areas in deeper water away from the channel agree well with the chart. CONCUR

P. ADEQUACY OF SURVEY SEE SECTION P. OF THE EVALUATION REPORT.

This survey is complete and of adequate quality to supersede all prior surveys of the area.

Q. AIDS TO NAVIGATION

Nine buoys were examined by Launch 1014. Characteristics to all floating aids to navigation within the survey limits were verified as depicted. The items examined were as follows:

Name	Latitude	Longitude	ΔD (meters)
R "14"	31° 55' 07.580"N	080° 55' 21.024"W	55.6
G "13"*	31° 54' --- 32.468"N	080° 55' --- 16.971"W	---
G "11"	31° 54' 11.778"N	080° 54' 38.801"W	48.1
G "9"	31° 53' 49.028"N	080° 53' 59.330"W	8.7
R "8"	31° 53' 24.612"N	080° 53' 38.963"W	*
R G "6"	31° 52' 40.933"N	080° 53' 23.735"W	*
R "4"	31° 52' 13.813"N	080° 53' 23.584"W	*
R "10"	31° 34' 03.289"N	080° 53' 51.211"W	31.9
R "WR"*	---	---	---
Yellow nun, SC Dept. of Restoration	31° 53' 14.445"N	080° 52' 52.268"W	---

ΔD is the distance from the survey position to the charted position of the buoy.

*NOTES:

Buoy G "13" was forced from its mooring by a storm the day after it was positioned. The Coast Guard replaced the buoy near the end of survey operations in Savannah. A new position was not taken but it is presumed the buoy was placed at the original charted position. *SHOWN ON THE PRESENT SURVEY IN THE ORIGINALLY LOCATED POSITION.*

The Light List No. 4965 names the buoy R "4" but the actual buoy is a modified red nun with no number or letter to describe it.

Note B on chart 11512 is a "Caution" stating:

"The entrance to Wassaw Sound is subject to frequent change. Buoys 4, 6 and 8 are not charted as they are frequently shifted in position."

Buoy "WR" was placed approximately 25 meters to the west of the sunken tugboat described in part N (Item Investigations). No position was recorded for this buoy.

There were no bridges, overhead cables, pipelines, or submarine cables, ferry routes or ferry terminals in the survey area.

R. STATISTICS

Number of Positions	6135
Main-scheme Sounding Lines (Nautical Miles)	534.44

Crosslines (Nautical Miles)	47.06
Square Nautical Miles Surveyed	27.04
Days of Production	17
Detached Positions	13
Bottom Samples.....	93
Tide Stations Installed	1
Current Stations.....	None
Number of CTD Casts	5
Magnetic Stations.....	None

S. MISCELLANEOUS

Bottom samples for the survey area were acquired in accordance with the Project Instructions. As specified in the Project Instructions, the samples were taken on an approximate grid spacing of 1000 meters square. Oceanographic log sheets for H-10576 are submitted with the separates for this survey. *Bottom samples were submitted to the Smithsonian Institution.

There was heavy rain in the survey area on several occasions during the survey period. There were also periods of sustained northeast winds. During these periods unusually high tide levels were observed. Graphs comparing real tide data with predicted tides are included in appendix 5. *

No current studies were done in the area. No unusual magnetic variations were encountered in the survey area. No unusual submarine features were discovered.

T. RECOMMENDATIONS *SEE ALSO SECTION P. OF THE EVALUATION REPORT.*

H-10576 is complete and without inadequacies. The only field work required is an investigation of AWOIS item Number 8902. No additional fieldwork is required.

U. REFERRAL TO OTHER REPORTS

None.

Submitted By:



ENS Joel T. Michalski, NOAA
Junior Officer, NOAA Ship WHITING

* DATA FILED WITH ORIGINAL FIELD RECORDS.

Station Listing for 31-58 N, 32-03 N, 80-50 W, 80-55 W (Tybee Island)

ACRN DESIGNATION	LAST_REC	COND	LATITUDE	LONGITUDE
BR1008 H 56 GA			N315810.17155	W0805150.78218
BR1602 SOUTH END RM 2			N315913.	W0805105.
BR1603 SOUTH END RM 3			N315913.	W0805105.
BR1862 SOUTH END RM 5			N315913.	W0805105.
BR1861 SOUTH END RM 4			19900301G N315913.	W0805106.
<u>BR1007 SOUTH END</u>			<u>19900301G N315914.30661</u>	<u>W0805104.85098</u>
BR1861 SOUTH END RM 4			19900301G N315914.37145	W0805105.29529
BR1862 SOUTH END RM 5			N315914.91797	W0805104.95794
BR1863 SOUTH END RM 6			N315915.	W0805106.
BR1863 SOUTH END RM 6			N315916.96808	W0805105.08474
BR1613 NEAL RM			N315921.	W0805316.
BR1018 NEAL	1965	G	N315922.26339	W0805316.05066
CK5938 BV 025 231			N320004.	W0805045.
CK5939 BV 025 231 RM 1			N320005.	W0805045.
CK5938 BV 025 231			N320005.51551	W0805044.50187
CK5939 BV 025 231 RM 1			N320006.04132	W0805044.28341
CK5941 BV 025 232 RM 1			N320030.	W0805032.
CK5940 BV 025 232			N320031.	W0805032.
CK5941 BV 025 232 RM 1			N320031.95848	W0805032.98730
CK5940 BV 025 232			N320032.42309	W0805032.80627
CK3750 SAVANNAH BEACH MUNICIPAL TANK	1983	G	N320040.49407	W0805031.08670
CK3754 H 50 GA PTA			N320044.86332	W0805028.10652
CK3753 H 50 GA			N320045.16703	W0805027.98606
CK3762 LAZARETTO CR HWY BRI CEN SPAN	1964	O	N320049.63724	W0805301.00376
CK0657 TIDAL 3 STA 2	1975	N	N320052.	W0805215.
CK5943 BV 025 233 AZ MK			N320053.	W0805239.
CK5943 BV 025 233 AZ MK			N320054.75226	W0805239.88424
CK5942 BV 025 233			N320055.	W0805253.
CK5944 BV 025 233 RM 1			N320055.	W0805254.
CK5942 BV 025 233			N320056.58305	W0805252.52449
CK5944 BV 025 233 RM 1			N320056.59062	W0805253.30136
CK0656 E 56	1955	G	N320101.	W0805044.
CK5784 A 393			N320107.	W0805402.
CK3740 WEST BASE	1984	G	N320109.34180	W0805149.43261
CK0655 B 56	1955	G	N320110.	W0805052.
CK0659 N 206	1962	G	N320110.	W0805124.
CK3755 ABE 1963			N320111.72641	W0805033.65096
CK4835 FORT RM 1			N320113.	W0805036.
CK0691 867 0870 TIDAL 2			19910221G N320115.	W0805356.
CK4836 FORT RM 2			N320116.	W0805038.

CK5286 QUARANTINE RM 1

N320216. W0805339.

CK3776 QUARANTINE

1964 N N320222.85261 W0805341.02785

CK3738 JONES ISLAND RANGE FRONT LIGHT 1974

G N320231.71243 W0805110.09256

CK3742 JONES ISLAND RANGE REAR LIGHT 1974 G N320240.43960

W0805140.13808



FIELD PHOTOGRAMMETRY SECTION

COASTAL SURVEYS UNIT

N/CG23323

PH. NO: (804) 441-6595

FAX NO: (804) 441-6718

TO: ANDY BEAVER NOAA SWIP WHITING

ROUTING CODE: N/CG233

PHONE NO: (804) 441-~~6261~~ 6594

FAX NO: (804) 441-~~6795~~ 6718

FROM: ROB BUTLER COASTAL SURVEYS

COMMENTS: STATION SKID IN SAVANNAH

N 31 59 19.22599 ORTHO HT = 1.872M

W 81 01 12.26294 ELLIPSOID HT = -29.858M

TOTAL NUMBER OF PAGES (INCLUDING COVER SHEET): 1

DATE: 3-6-95

TIME: 8:55





U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of NOAA Corps Operations
NOAA Ship WHITING S-329
439 W. York Street
Norfolk, VA 23510-1114

January 13, 1995

Commander, Seventh Coast Guard District
Brickell Plaza Federal Building Room 406
909 SE First Avenue
Miami, Florida 33131-3050

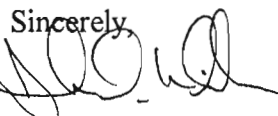
Dear Sir:

The NOAA Ship WHITING recently completed hydrographic survey operations near the entrance to Wassaw Sound and Wilmington River, Georgia. Shoal areas within the survey limits have moved considerably since they were last surveyed. Enclosed are reports concerning the charted depths which should be replaced with current soundings.

Differential GPS was used to determine survey positions. Positions are referenced to NAD 83. All depths are referenced to MLLW using predicted tides. Chart 11512 is the largest scale chart affected.

A copy of this letter and attachments have been forwarded to the following offices:

Chief, Nautical Charting Division, NOAA
Chief, AMC Operations Division, NOAA
Chief, Atlantic Hydrographic Section
Director, Defense Mapping Agency
Hydrographic/Topographic Center

Sincerely,

John D. Wilder
Commander, NOAA
Commanding Officer

Enclosures

cc: AMC1
N/CG2
N/CG244
DMAHTC



REPORT OF UNCHARTED SUBMERGED FEATURE

Hydrographic Survey Registry Number: H-10576

State: Georgia

General Locality: Atlantic Ocean

Sublocality: Approach to Wassaw Sound

Project Number: OPR-G115-WH

The following feature was found during hydrographic survey operations by NOAA Ship WHITING:

Object Discovered:

The shoal east of the deep water entrance channel to Wassaw Sound has shifted southwest. The following charted depths must be replaced by the new soundings at the indicated position:

Replace depth	14 ft with 6 ft at location:	31° 52' 55"N	080° 53' 07"W
"	13 ft with 9 ft "	31° 53' 04"N	080° 53' 04"W
"	16 ft with 10 ft "	31° 53' 10"N	080° 53' 12"W
"	11 ft with 7 ft "	31° 53' 14"N	080° 53' 05"W
Add depth	4 ft at location	31° 52' 47"N	080° 53' 08"W
"	5 ft "	31° 53' 22"N	080° 52' 57"W
Delete depth	13 ft at location	31° 52' 47"N	080° 53' 13"W

Covers:

Raytheon Digital Survey Fathometer (DSF) 6000N echo sounders were used to measure bottom depths during the survey. All soundings have been corrected to MLLW with predicted tide correctors. Fifty-meter line spacing was used to develop the area.

Affected Nautical Charts:

<u>Chart Number</u>	<u>Edition No. Date</u>	<u>Reported Depth</u>	<u>Chart Datum</u>	<u>General Location</u>	
				<u>Latitude</u>	<u>Longitude</u>
11512	40 1/08/94	as noted	NAD 83	31° 53' 00"	080° 53' 00"

Questions Concerning this report should be directed to the Atlantic Hydrographic Section in Norfolk, Virginia, at telephone number (804) 441-6746.

REPORT OF UNCHARTED SUBMERGED FEATURE

Hydrographic Survey Registry Number: H-10576

State: Georgia

General Locality: Atlantic Ocean

Sublocality: Approach to Wassaw Sound

Project Number: OPR-G115-WH

The following feature was found during hydrographic survey operations by NOAA Ship WHITING:

Object Discovered:

The shoal to the east of the deep water entrance channel to Wassaw Sound has shifted southwest. The following charted depths must be replaced by the current sounding at the indicated position:

Replace depth 16 ft with 11 ft at location:	31° 51' 48"N	080° 53' 18"W
" 15 ft with 11 ft "	31° 51' 53"N	080° 53' 07"W
" 14 ft with 10 ft "	31° 52' 01"N	080° 53' 20"W
" 15 ft with 10 ft "	31° 52' 08"N	080° 52' 56"W

Covers:

Raytheon Digital Survey Fathometer (DSF) 6000N echo sounders were used to measure bottom depths during the survey. All soundings have been corrected to MLLW with predicted tide correctors. Fifty-meter line spacing was used to develop the area.

Affected Nautical Charts:

<u>Chart Number</u>	<u>Edition No. Date</u>	<u>Reported Depth</u>	<u>Chart Datum</u>	<u>General Location</u>	
				<u>Latitude</u>	<u>Longitude</u>
11512	40 1/08/94	as noted	NAD 83	31° 52' 00"	080° 53' 00"

Questions Concerning this report should be directed to the Atlantic Hydrographic Section in Norfolk, Virginia, at telephone number (804) 441-6746.



Turner Marine Surveying

306A Wilmington Island Rd.
Savannah, Georgia 31410
Office: (912) 897-6063

Capt. Robert L. Turner, Jr.

Beeper
(912) 351-1952

RE: [unclear]
Cellular Phone
MAR 24 9 12 6 AM '93

CGD 7 ATON (00-N)

March 4, 1993

Commander, Seventh Coast Guard District
Aids to Navigation Section
909 Southeast, 1st Avenue
Miami, FL 33131-3050

RE: Shrimp Vessel
"Holley's Dollar"
Owner: Heyward Grooms

Dear Commander:

This letter is to advise you of the wreck removal of the above referenced vessel during salvage operations on March 1st, 2nd, 3rd and 5th, 1993. Vessel's remains were removed and transported to high ground at W.O. Sasser Seafood where they are being cut up and disposed of at recycling businesses and proper environmental landfills. There parts consist of wood structures, keel, steel shafts and rigging, winches, cables, engine and clutches, all four fuel tanks, and propeller that were remaining on wreck site as denoted by Coast Guard and Corps of Engineers maps of location.

If you desire any further information, please feel free to call on the undersigned at any time. Confirmation and acceptance of this information, forwarded to the company and other interested parties, would be appreciated.

*Email
sent 4/7/94
to NOS*

Sincerely,

Capt. Robert L. Turner
Turner Marine Surveying

RLT:cs

cc-3754

WK 397



REPLY TO
ATTENTION OF:

Regulatory Branch
930001750

DEPARTMENT OF THE ARMY

SAVANNAH DISTRICT, CORPS OF ENGINEERS

P.O. BOX 889

SAVANNAH, GEORGIA 31402-0889

MAR 12 1993

RECEIVED

MAR 16 10 33 AM '93

CGDSEVEN (OAH)

Mr. Robert Turner
306 Wilmington Island Road
Savannah, Georgia 31410

Dear Mr. Turner:

This is in reference to the 75 foot trawler, Holly's Dollar, that sank in the vicinity of Wassaw Sound, (approximate position latitude 31°53.6 N, longitude 80°54.9 W), off Wassaw Island, Savannah, Chatham County, Georgia.

On March 11, 1993, Mr. Stan Knight of my Enforcement Section, performed an inspection, verifying that the remnants of the Holly's Dollar had been removed from the waterway and deposited on high ground at Sasser Seafood on Wilmington Island. Since the vessel has been satisfactory removed from the waterway, we are hereby closing our enforcement action on File 930001750.

Thank you for your cooperation in this matter. Should you have any questions, you may call Mr. Knight, at (912) 652-5347 (local).

Sincerely,

A handwritten signature in cursive script that reads "Steven W. Congdon".

Steven W. Congdon
Chief, Enforcement Section



DEPARTMENT OF THE ARMY

SAVANNAH DISTRICT, CORPS OF ENGINEERS

P.O. BOX 889

SAVANNAH, GEORGIA 31402-0889

February 10, 1993

RECEIVED

FEB 10 9 03 AM '93

REPLY TO
ATTENTION OF:

Operations Division
930001750

CGDSEVEN (OAN)

NOTICE TO MARINERS
WASSAW SOUND

This is to advise that the 72 foot trawler, Holly's Dollar, has sunk in the vicinity of Wassaw Sound, (approximate position latitude 31°53.6 N and longitude 80°54.9 W), off Wassaw Island, Savannah, Chatham County, Georgia. The location is shown on the enclosed portion of the National Ocean Service Nautical Chart 11512 (enclosure).

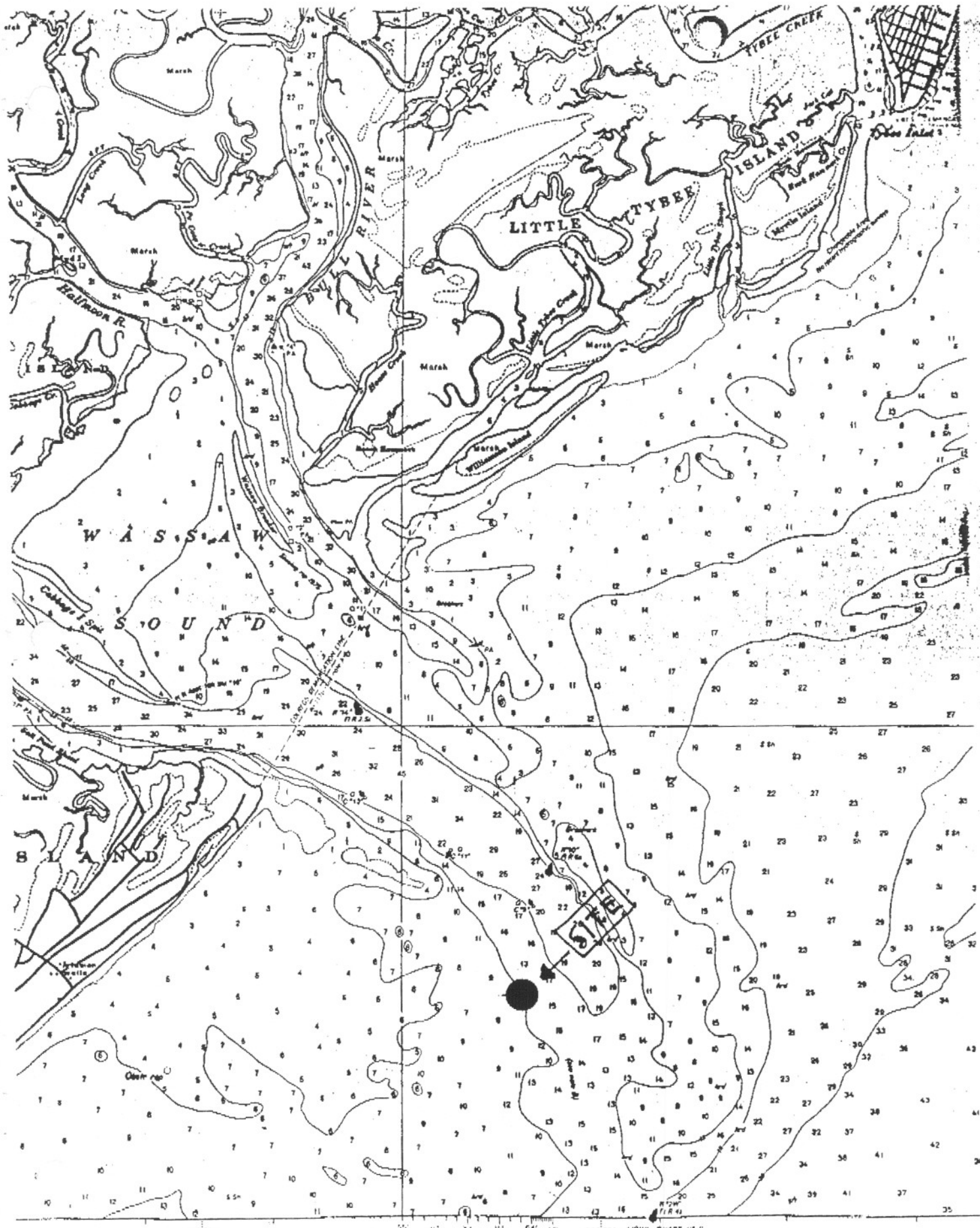
This vessel presents a hazard to navigation to vessels transiting in this area. Vessel owners and operators are advised to proceed with caution when approaching this area. Vessels are to use the appropriate signals as prescribed in the U.S. Coast Guard Navigational Rules - International and Inland, COMDTINST M16672.2B.

If more information is needed, you may contact Mr. [Name] Knight with the Savannah District, Regulatory Branch, at (2) 652-5347 (commercial) or (800) 448-2402 (toll free).

[Handwritten Signature]
RICHARD C. DOWNING
Chief, Operations Division

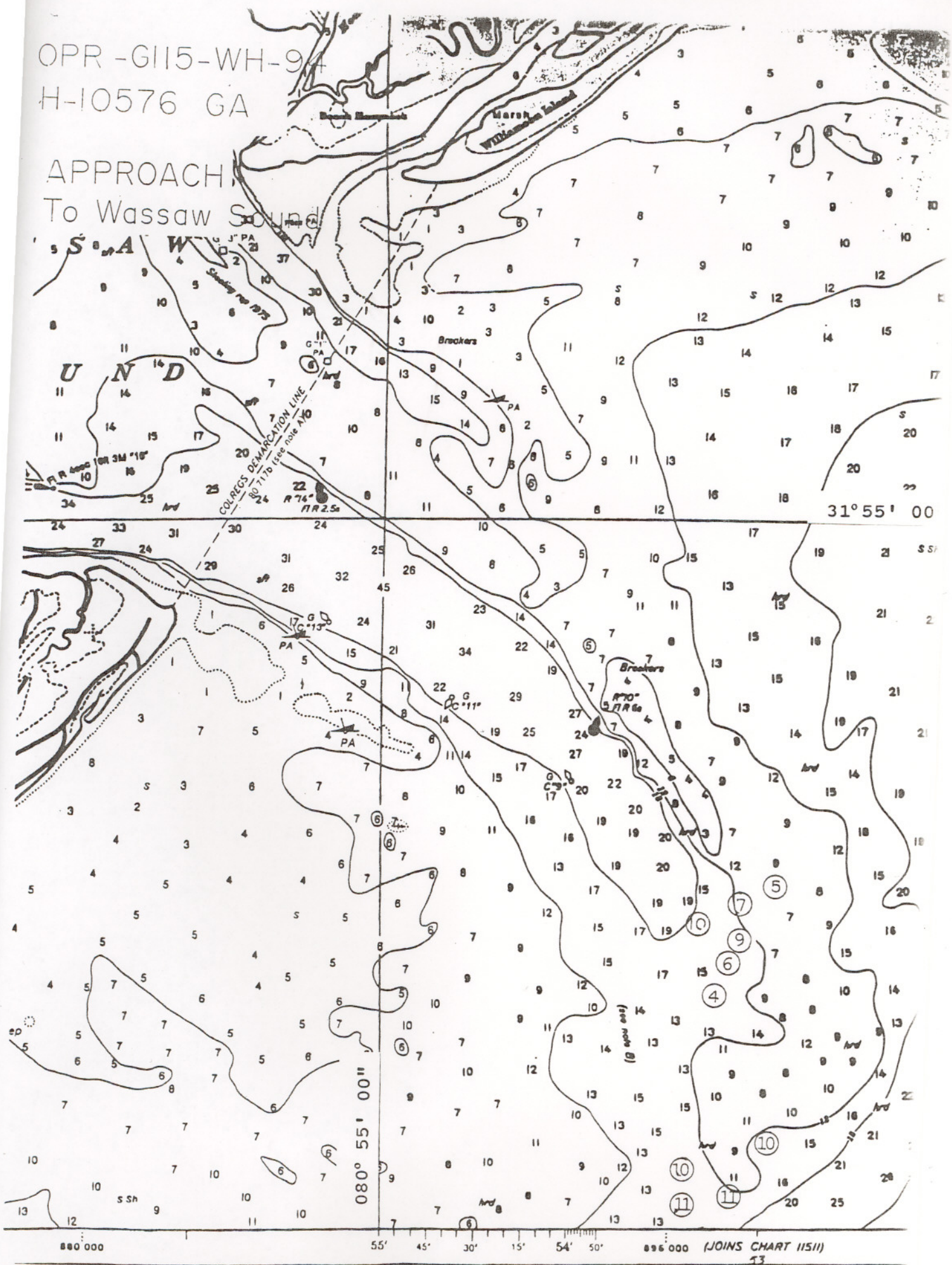
Encl

UOS _____ 93-05-05
DX



OPR -G115-WH-94
H-10576 GA

APPROACH To Wassaw Sound



**APPROVAL SHEET
HYDROGRAPHIC SURVEY
OPR-G115-WH
1994
WH-10-9-94
H-10576**

The data for this survey were acquired and checked under my daily supervision. Position and sounding accuracy meet the requirements specified in the Field Project Instructions, Hydrographic Manual, Hydrographic Survey Guidelines and the Field Procedures Manual for Hydrographic Surveying. This survey is complete and adequate for the intended purpose of delineating bottom topography, determining depths and identifying all potential dangers to navigation. No final field sheets were prepared for this survey. The survey data and accompanying records are complete for the preparation of the smooth sheet.

Approved By:



Commander John D. Wilder, NOAA
Commanding Officer, NOAA Ship WHITING



TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: March 9, 1995

HYDROGRAPHIC SECTION: Atlantic

HYDROGRAPHIC PROJECT: OPR-G115-WH

HYDROGRAPHIC SHEET: H-10576

LOCALITY: Approaches to Wassaw Sound

TIME PERIOD: September 29 - November 13, 1994

TIDE STATION USED: 867-1029 Tybee Marina, Ga.
Lat. $31^{\circ} 59.8'N$ Lon. $80^{\circ} 51.3'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 6.69 ft.
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 6.9 ft.

TIDE STATION USED: 867-1314 Halfmoon Reef, Ga.
Lat. $31^{\circ} 57.8'N$ Lon. $80^{\circ} 56.6'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 6.87 ft.
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 7.2 ft.

REMARKS: RECOMMENDED ZONING

1. Northwest of a line between points $31^{\circ} 54.6'N$, $80^{\circ} 56.0'W$, and $31^{\circ} 56.0'N$, $80^{\circ} 55.0'W$, (Williamson Island to Wassaw Island), times and heights are direct using Halfmoon Reef, Ga. (867-1314). Where data are not available for Halfmoon Reef, Ga. (867-1314), times are direct, and apply a X1.04 range ratio to heights using Tybee Marina, Ga. (867-1029).
2. Southeast of a line between points $31^{\circ} 54.6'N$, $80^{\circ} 56.0'W$, and $31^{\circ} 56.0'N$, $80^{\circ} 55.0'W$, (Williamson Island to Wassaw Island), apply a -10 minute time correction and a X1.02 range ratio to heights using Tybee Marina, Ga. (867-1029).

Note: Times are tabulated in Eastern Standard Time.


CHIEF, DATUMS SECTION



GEOGRAPHIC NAMES

Name on Survey	ON CHART NO. 11512 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										
	A	B	C	D	E	F	G	H	K		
GEORGIA (title)	X		X								1
NORTH ATLANTIC OCEAN	X		X								2
WASSAW ISLAND	X		X								3
WASSAW SOUND	X		X								4
											5
											6
											7
											8
											9
											10
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											24
											25

Approved:

Charles C. [Signature]
Chief Geographer

MAY 26 1995

08/11/95

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H-10576

NUMBER OF CONTROL STATIONS	2
NUMBER OF POSITIONS	6135
NUMBER OF SOUNDINGS	33297

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	56	11/16/94
VERIFICATION OF FIELD DATA	239	08/02/95
QUALITY CONTROL CHECKS	26	
EVALUATION AND ANALYSIS	22	
FINAL INSPECTION	19	08/09/95
COMPILATION	0	/ /
TOTAL TIME	362	
ATLANTIC HYDROGRAPHIC BRANCH APPROVAL		08/10/95

**ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H-10576 (1994)**

This Evaluation Report has been written to supplement and/or clarify the original Descriptive Report. Sections in this report refer to the corresponding sections of the Descriptive Report.

H. CONTROL

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD 83).

To place this survey on the NAD 27, move the projection lines 0.789 seconds (24.32 meters or 2.43 mm at the scale of the survey) north in latitude, and 0.617 seconds (16.21 meters or 1.62 mm at the scale of the survey) east in longitude.

J. SHORELINE

No photogrammetric source data was available for this project. Shoreline for the present survey originates with a 1:10,000 scale enlargement of 1:40,000 scale National Ocean Service (NOS) chart 11512 (52nd Ed., Jan. 8/94). The shoreline is shown in brown and is for orientation purposes only.

L. JUNCTIONS

H-10577	(1994)	to the east
H-10581	(1994)	to the northwest
H-10582	(1994-95)	to the north

A standard junction was effected between the present survey and surveys H-10577 (1994), H-10581 (1994-95).

A standard junction could not be effected with survey H-10582 (1994-95). Junctional survey H-10582 (1994-95) has not reached the sounding stage of office processing. In this case the note "ADJOINS" has been shown on the present survey smooth sheet. Any adjustments to the depth curves in the junctional areas of the present survey will need to be made at headquarters on the chart during compilation.

There are no contemporary surveys to the southeast, south, or southwest. Present survey depths are in harmony with the charted hydrography to the southeast, south, and southwest.

M. COMPARISON WITH PRIOR SURVEYSHydrographic

H-5599 (1934)	1:20,000
H-9144 (1973)	1:40,000
H-9460 (1974)	1:20,000
H-9865 (1980)	1:20,000

1) Prior survey H-5599 (1934) covers the northeast corner of the present survey. Prior survey depths are in fair agreement with soundings being 1 to 4 ft (0^3 to 1^2 m) shoaler than present survey depths.

2) Prior survey depths from H-9144 (1973) are in good agreement with present survey depths with scattered prior soundings varying plus or minus (\pm) 1 ft (0^3 m).

3) Prior survey depths from H-9460 (1974) are in good agreement with present survey in depths deeper than 20 ft (6m). In depths less than 20 ft (6 m), depths are in good agreement with scattered soundings plus or minus (\pm) 1 ft to 3 ft (0^3 m to 0^9 m).

4) Prior survey depths from H-9865 (1980) compare favorably with the present survey and show a general trend of being 1 ft to 2 ft (0^3 m to 0^6 m) shoaler than present survey depths. Shoals shown on the prior survey in the vicinity of Latitude $31^{\circ}55'30''$ N, Longitude $80^{\circ}54'15''$ W, north of the channel and in the vicinity of Latitude $31^{\circ}54'03''$ N, Longitude $80^{\circ}55'10''$ W, south of the channel have shifted approximately 500 meters to the west.

The differences in depths between the above prior surveys and the present survey may be attributed to natural and cultural changes, dredging and improved hydrographic surveying methods and equipment.

The present survey is adequate to supersede the prior surveys in the common areas.

O. COMPARISON WITH CHART 11512 (52nd Ed., Jan 8/94)Hydrography

The charted hydrography originates with the previously discussed prior surveys and requires no further consideration. The hydrographer makes an adequate chart comparison in section N. of the Descriptive Report. The following should be noted:

The field unit located an uncharted dangerous submerged obstruction with a depth of 0⁵ ft (0⁰ m), in Latitude 31°54'30.98"N, Longitude 80°55'42.64"W. It is recommended that a dangerous submerged obstruction with a depth of 0⁵ft (0¹ m) (0⁵ *Obstn*) and danger curve be charted as shown on the present survey.

Aids to Navigation

The hydrographer located ten floating aids to navigation and one fixed aid to navigation in the survey area. These aids appear adequate to serve their intended purposes.

An uncharted privately maintained floating aid, South Carolina Dept. of Restoration Yellow Buoy, was located by the hydrographer in Latitude 31°53'14.445"N, Longitude 80°52'52.268"W. It is recommended that the buoy be charted unless other information indicates otherwise.

Dangers to Navigation


Two Dangers to Navigation notices were submitted by the hydrographer to the Commander (oan), Seventh Coast Guard District, Miami, Florida. Copies of the notices are appended to the Descriptive Report.

The present survey is adequate to supersede the chart in the common area.


P. ADEQUACY OF SURVEY

This is an adequate hydrographic/side scan sonar survey. No additional work is recommended.

WHITING Processing Team



 Robert Snow
 Cartographic Technician




 Norris A. Wike
 Cartographer

APPROVAL SHEET
H-10576

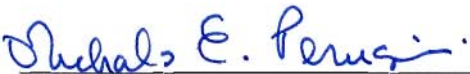
Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disproof of charted data. The digital data have been completed and all revisions and additions made to the smooth sheet during survey processing have been entered in the magnetic tape record for this survey. A final sounding printout of the survey has been made. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.


Richard H. Whitfield
Cartographer
Atlantic Hydrographic Branch

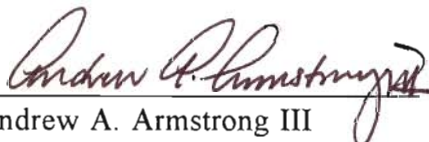
Date: _____

I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.


Nicholas E. Perugini, CDR, NOAA
Chief, Atlantic Hydrographic Branch

Date: August 10, 1995

Final Approval:

Approved: 
Andrew A. Armstrong III
Captain, NOAA
Chief, Hydrographic Surveys Division

Date: Aug 16, 1995

