H10582

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-10-12-94

Registry No. H-10582

LOCALITY

State GEORGIA

General Locality ATLANTIC OCEAN

Sublocality TYBEE INLET TO WASSAW SOUND

19 94-95

CHIEF OF PARTY
CDR J. D. WILDER, NOAA

☆U.S. GOV. PRINTING OFFICE: 1987—756-980

Diagram 1241-3

A/G
PRODUCTS

CP4
11512
11509
11513
11480
11009 NC

NOAA FORM 77-28
(11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NOS.
H-10582

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-10-12-94

State: Georgia

General locality: Atlantic Ocean

Locality: Tybee Inlet to Wassaw Sound

Scale: 1:10,000 Date of Survey: Nov 3, '94-June 7, '95

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

Vessel: NOAA ship WHITING, S-329

Chief of Party: CDR John D. Wilder

Surveyed by: CDR J.D. WILDER, CDR M. KENNY, LCDR S.R. BARNUM, LT W.G. KITT, LT A. BEAVER, LTJG E.W. BERKOWITZ, ENS K. PAVELLE, ENS C. PARRISH, ENS J. MICHALSKI, ENS K. BOWDITCH, ENS J. GARTE, F.R. CRUZ, J. GASKIN, M. CISTERNELLI, B.C. DETRICH

Soundings taken by echo sounder: DSF-6000N

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: DATUM AND DEPTHS IN UNITS OF ~~METERS~~ FEET

REMARKS: TIME ZONE USED, 0 (UTC)

SIDE SCAN SONAR FOR ITEM INVESTIGATIONS ONLY

NOTES IN THE DESCRIPTIVE REPORT WERE MADE IN RED DURING OFFICE PROCESSING.

DKP 8/28/95 AWOIS AND SURF ✓ 8/95 RWD

NOAA FORM 77-28 SUPERSEDES FORM C & GS-537

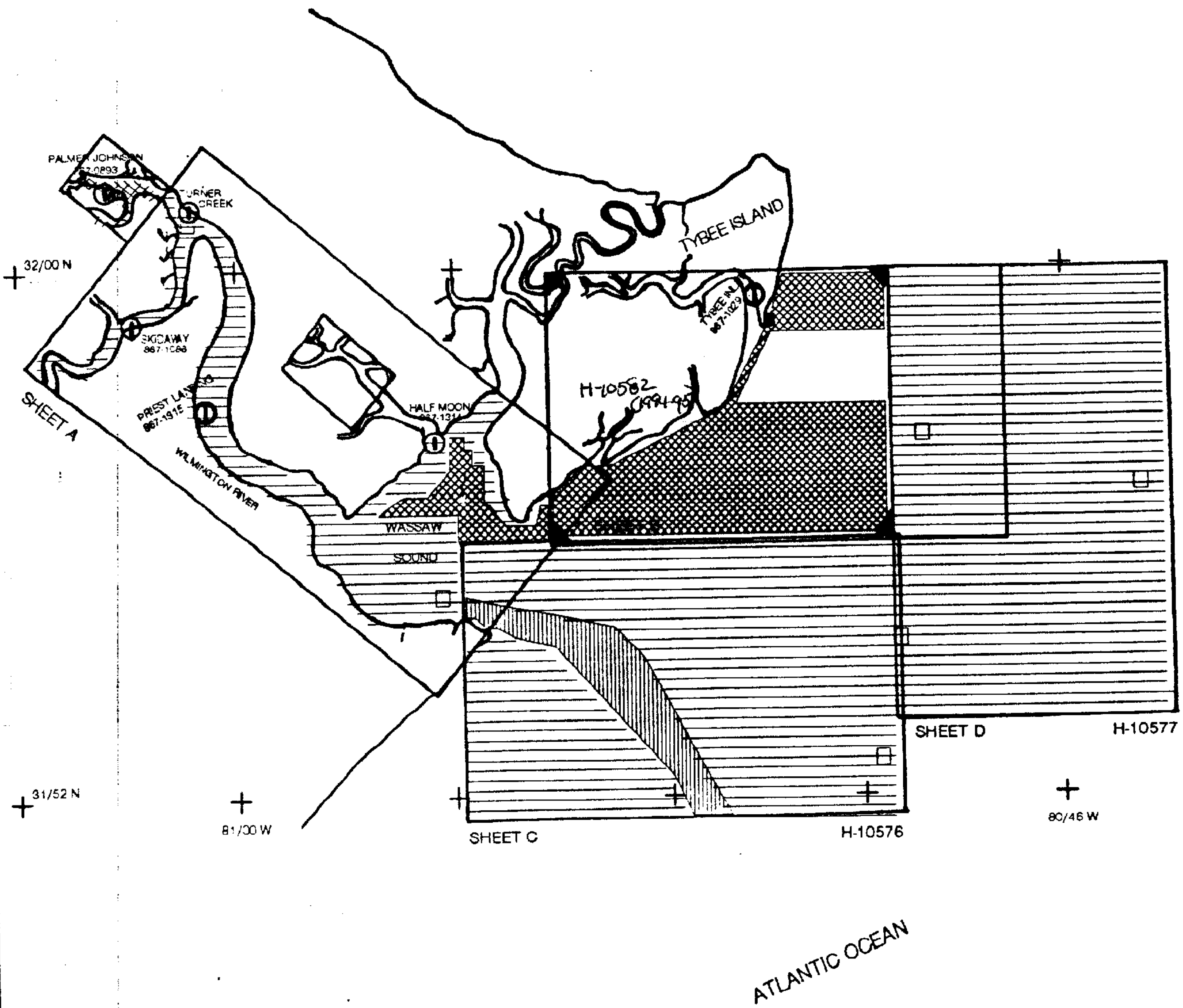
PROGRESS SKETCH

OPR - G115 - WH

HYDROGRAPHIC SURVEY

WASSAW SOUND AND
WILMINGTON RIVER, GEORGIA

SEPTEMBER - NOVEMBER 1994



SEPT	OCT	NOV	
2	63	9	SQ NM SOUNDINGS
51	1746	478	LNM SOUNDINGS
0	7	13	ITEM INVESTIGATIONS
37	67	181	BOTTOM SAMPLES
1	10	7	VELOCITY CASTS
2	4	0	TIDE GAUGES INSTALLED
1	0	0	CONTROL STATION INSTALLATIONS
5	25	13	DAYS AT SEA
			HYDROGRAPHY

NOAA SHIP WHITING

JOHN D. WILDER, CDR
COMMANDING

SCALE OF CHART 11512

PROGRESS SKETCH

HYDROGRAPHIC SURVEY

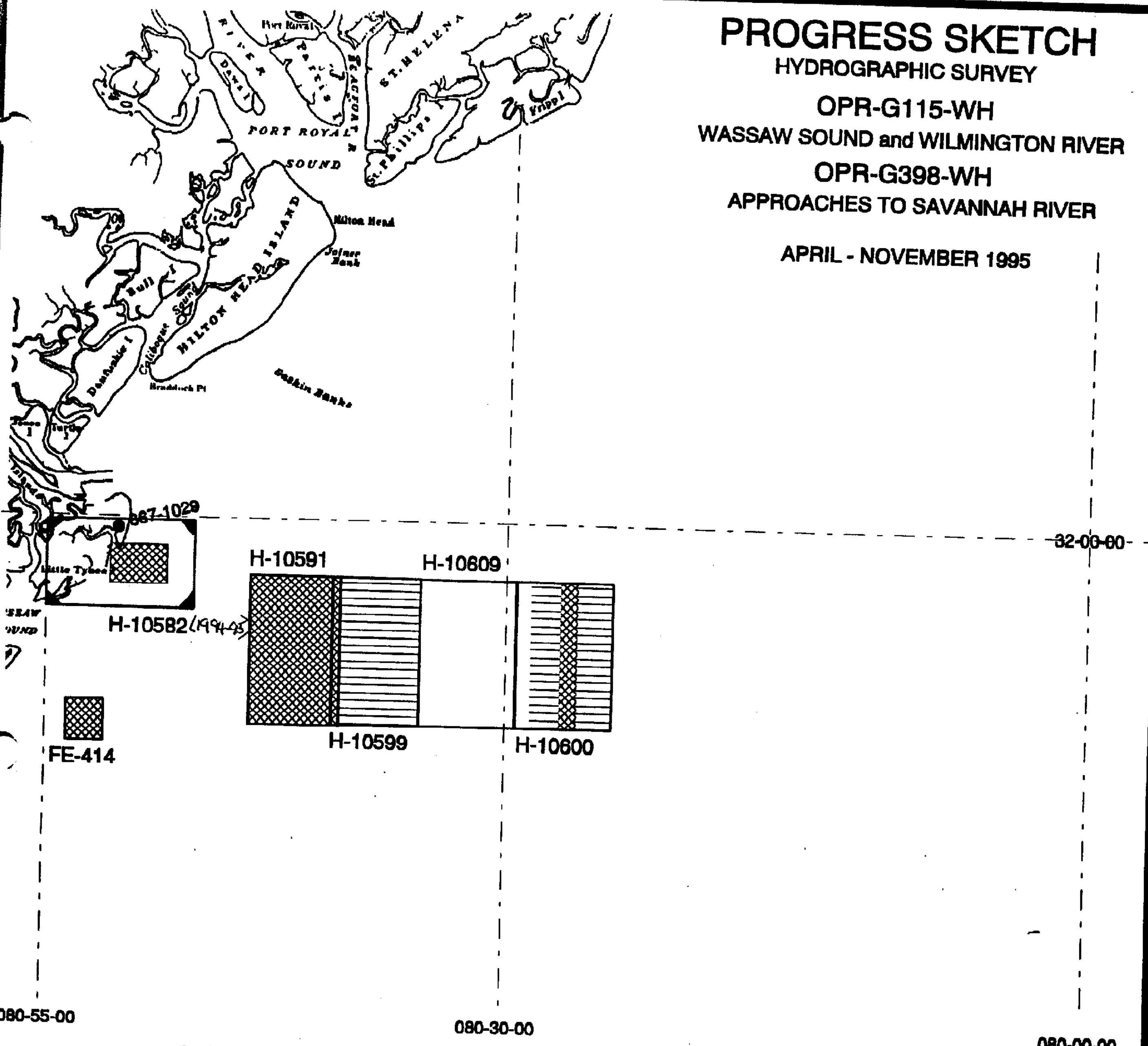
OPR-G115-WH

WASSAW SOUND and WILMINGTON RIVER

OPR-G398-WH

APPROACHES TO SAVANNAH RIVER

APRIL - NOVEMBER 1995



NOAA SHIP WHITING S329

CDR JOHN D. WILDER, COMMANDING

	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV
DAYS AT SEA	24							
LNM SOUNDINGS (SHIP)	156							
LNM SOUNDINGS (LAUNCHES)	173							
LNM SIDE SCAN (SHIP)	904							
LNM SIDE SCAN (LAUNCHES)	7							
SQ NM SURVEYED	38							
ITEMS INV/DIVES	6							
VELOCITY CASTS	7							
BOTTOM SAMPLES	45							
WATER CLARITY OBS	20							
HYDROGRAPHY								

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY
OPR-G115-WH
WH-10-12-94
H-10582

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

A. PROJECT

Project OPR-G115-WH is a basic hydrographic survey covering Wassaw Sound, the approach to Wassaw Sound, and the Wilmington and Skidaway Rivers. The purpose of this project 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.

Survey operations were conducted in compliance with Hydrographic Project Instructions OPR-G115-WH dated August 25, 1994. Changes to the original project instructions are as follows:

Change No. 1	December 9, 1994
Change No. 2	December 12, 1994

Project OPR-G115-WH consists of four survey sheets and a field examination. This survey was assigned sheet letter "B", field sheet number WH-10-12-94, and registry number H-10582.

B. AREA SURVEYED

Hydrographic survey H-10582 is just east of Tybee Island and Little Tybee Island, Georgia. The sheet is bounded by the following four positions:

Position Number	Latitude	Longitude
1	31° 55' 52" N	080° 55' 00" W
2	31° 59' 58" N	080° 55' 00" W
3	31° 59' 58" N	080° 46' 44" W
4	31° 55' 52" N	080° 46' 44" W

Survey operations began on November 3, 1994 (DN 307) and ended on November 10, 1994 (DN 314). Survey operations were continued in 1995, beginning on April 18, 1995 (DN 108) and ending on June 7, 1995 (DN 158).

C. SURVEY VESSELS

Launch 1014 (VESNO 2932) and launch 1015 (VESNO 2931) were used to conduct echosounder operations.

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

D. AUTOMATED DATA ACQUISITION AND PROCESSING

In 1994, survey data acquisition and processing were accomplished using the HDAPS system with the following software:

Program	Version	Date Installed
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	*1.05*	*March 07, 1994*
CONTACT	*2.34*	*August 30, 1994*
CONVERT	*3.63*	*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*
HIPSTIC	*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*

In 1995, survey data acquisition and processing were accomplished using the HDAPS system with the following software:

Program	Version	Date Installed
BACKUP	*2.00*	*February 24, 1995*
BASELINE	*1.14*	*February 24, 1995*
BIGABST	*2.07*	*February 24, 1995*
BIGAUTOST	*3.01*	*February 24, 1995*
BLKEDIT	*2.02*	*February 24, 1995*
CARTO	*2.17*	*February 24, 1995*
CLASSIFY	*2.12*	*April 17, 1995*
CONTACT	*2.48*	*April 17, 1995*
CONVERT	*3.65*	*February 24, 1995*
DAS_SURV	*6.80*	*April 17, 1995*
DIAGNOSE	*3.05*	*February 24, 1995*
DISC_UTIL	*1.00*	*February 24, 1995*
DP	*2.18*	*February 24, 1995*
DPCONVERT	*1.03*	*March 07, 1995*
DSNEDITS	*1.04*	*March 07, 1995*
EXCESS	*4.32*	*February 24, 1995*
FILESYS	*3.31*	*March 07, 1995*
GRAFEDIT	*1.06*	*February 24, 1995*
HIPSTIC	*1.01*	*February 24, 1995*
HPRAZ	*1.26*	*February 24, 1995*
INVERSE	*2.02*	*February 24, 1995*
LISTDATA	*1.02*	*February 24, 1995*
LOADNEW	*2.13*	*March 07, 1995*

LSTAWOIS	*3.07*	*March 27, 1995*
MAINMENU	*1.20*	*February 24, 1995*
MAN_DATA	*3.02*	*March 07, 1995*
NEWPOST	*6.13*	*February 24, 1995*
PLOTALL	*2.32*	*February 24, 1995*
POINT	*2.12*	*March 07, 1995*
PREDICT	*2.01*	*February 24, 1995*
PRESURV	*7.11*	*February 24, 1995*
PRINTOUT	*4.04*	*February 24, 1995*
QUICK	*2.07*	*February 24, 1995*
RAMSAVER	*1.02*	*February 24, 1995*
REAPPLY	*2.12*	*February 24, 1995*
RECOMP	*1.04*	*March 07, 1995*
SCANNER	*1.00*	*February 24, 1995*
SELPRINT	*2.05*	*February 24, 1995*
SYMBOLS	*2.00*	*February 24, 1995*
VERSIONS	*1.00*	*February 24, 1995*
ZOOMEDIT	*2.33*	*February 24, 1995*

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.

There were no nonstandard automated acquisition or processing methods used.

E. SIDE SCAN SONAR EQUIPMENT

For AWOIS items 7452 and 7458, 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 50 meter range scale. Confidence checks were obtained by noting objects on the sea floor at the outer edges of the 50 meter range scale. The following sonar equipment was used throughout the survey:

VESNO	Type	S/N	DN (1995)
2931	Towfish	016835	110, 116, 152
2931	Recorder	016671	110, 116, 152
2932	Towfish	0011902	113
2932	Recorder	016673	113

On both launches, the SSS towfish was deployed using a Superwinch Model W115 in conjunction with an adjustable davit arm on the side of the 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.

All possible contacts seen on the side scan sonar record were examined by divers.

F. SOUNDING EQUIPMENT

Raytheon Digital Survey Fathometer (DSF) 6000N echosounders were used to measure bottom depths during the survey. The DSF 6000N produced a graphic record of the high frequency (100 kHz) and low frequency (24 kHz) bottom depths. Digital depths from the high frequency and low frequency beams were recorded by the HDAPS acquisition system. High frequency depths were selected as the primary depths and are shown on the sounding plots. 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 inserted.

The following fathometers were used during this survey:

Vessel	S/N	Dates Used (DN)1994	Dates Used (DN)1995
2931	A105N	307, 313, 314	
2932	C076	307, 314	
2931	B050N		108, 109, 110, 116, 117, 136, 152
2932	A105N		108, 113, 117, 125, 127, 158

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, and again on February 16, 1995, during WHITING's winter inport period. Copies of the calibration report are included in Separate IV. *

After the CTD casts, programs *CAT 2.00* and *VELOCITY 2.10* 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 applied to both high and low frequency beams during acquisition. Velocity profile data are in the Separates submitted with this survey. *

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 each CTD cast. The program *CAT* compared these values to the CTD surface values, and confirmed that the velocity probe was working properly.

* DATA FILED WITH FIELD RECORDS.

The velocity casts were performed as described below:

DN	Vel.Table#	Latitude	Longitude	Depth
313 (1994)	22	31° 59' 39" N	080° 47' 03" W	15.9 m
107 (1995)	5	31° 56' 00" N	080° 46' 54" W	15.7 m
117 (1995)	10	31° 56' 31" N	080° 48' 26" W	6.0 m
152 (1995)	28	31° 55' 49" N	080° 53' 18" W	5.9 m

There were no variations in instrument initials.

All sounding corrections were applied on-line to both the narrow (100 kHz) and wide (24 kHz) DSF-6000N beams.

Bar checks were performed on launches 1014 and 1015 to detect the need for corrections to digitized readings from the DSF-6000N. No corrections were needed.

Leadlines used in 1994 were made on April 10, 1993. Calibrations performed on March 17, 1994, confirmed the leadline error was negligible. Leadlines used in 1995 were made and calibrated in February, 1995. Leadline comparisons were not made during this survey.

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

Settlement and squat measurements for launches 1014 and 1015 for the data collected in 1994 were conducted and correctors determined on April 4, 1994. The correctors were entered in Offset Tables 2 and 1, respectively, and applied in real time throughout the survey. The settlement and squat correctors were applied to the sounding data in real time on each survey platform. Settlement and squat measurements for launches 1014 and 1015 for the data collected in 1995 were conducted and correctors determined on March 29, 1995. As in 1994, the correctors were entered in Offset Tables 2 and 1. Settlement and squat corrector tables are in Separate IV. DATA FILED WITH FIELD RECORDS.

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

The tidal datum for this project was 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. Time and height correctors used for this survey are as follows:

Time Correction	Height Ratio
+ 0 hr 00 min	x0.99

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 on-line to the digital data using HDAPS software. The tidal data, in digital form, were received on floppy disk from N/CG24, Hydrographic Surveys Branch.

On September 27, 1994, WHITING installed a tide station at Tybee Marina (867-1029) for datum control of H-10582. Opening and closing levels were run on September 27, 1994 and November 12, 1994, respectively. A request for smooth tides was submitted to Product and Services Branch, Datum Section, N/OES231 on November 18, 1994. APPROVED TIDES WERE APPLIED DURING OFFICE PROCESSING.

On March 29, 1995, WHITING reestablished the tide station at Tybee Marina. Opening levels were run on March 30, 1995.

H. CONTROL STATIONS SEE ALSO SECTION H. OF THE EVALUATION REPORT.

The horizontal datum for this project is the North American Datum of 1983 (NAD-83). The source of differential correctors in 1994 was a Differential GPS station set on a tower over the "SOUTH END" control mark on Tybee Island, Georgia. The source of differential correctors used in 1995 was an HF Differential GPS station set on a tower over control mark "SKID" on Skidaway Island, GA. 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:

	Latitude	Longitude
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
SKID	31° 59' 19.22599" N	081° 01' 12.26294" W

WHITING used *MONITOR* version 1.2 to verify the station position and to check for multipath in the area. The *OUTLIER.SUM* files and associated scatterplots are in Separate III.*

*DATA FILED WITH FIELD RECORDS.

I. HYDROGRAPHIC POSITION CONTROL

A Differential Global Positioning System (DGPS) was used as the navigation system for this survey. In 1994, launches 1014 and 1015 each used one Ashtech Sensor GPS receiver with a Maxon VHF transmitter supplying correctors for DGPS navigation. In 1995, LRD-1 HF transmitters were used instead of the MAXON VHF transmitters. Ashtech receivers were initialized by HDAPS; MAXON, and LRD-1 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. The HDOP limit for a 1:10,000 scale survey using the Skidaway Island station is 3.75. 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, MAXON radio-receivers and LRD-1 receivers used are as follows:

	Device	Serial Number
Launch 1014	Ashtech Sensor	700417B1203
	MAXON	57354
	LRD-1	204
Launch 1015	Ashtech Sensor	700417B1191
	MAXON	20813457
	LRD-1	233

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

DGPS 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 date 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-10582 (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 FIELD RECORDS.

J. SHORELINE SEE ALSO SECTION 5. OF THE EVALUATION REPORT.

No photogrammetric data were available for this project. In accordance with Project Instructions, shoreline features were compared to the charted shoreline. Discrepancies in the current charted shoreline were noted in Tybee Inlet, Tybee Island and Little Tybee Island. In particular, new breakwaters and construction were noted on Tybee Island. WHITING's launches were unable to get close enough in to shore to position the new breakwaters.

WHITING recommends aerial shoreline photography be acquired and applied for the survey area prior to the publication of a new chart.

K. CROSSLINES

A total of 26.10 nautical miles of crosslines were run on H-10582, or 9.0% of the total linear nautical miles of main-scheme lines run. Crossline and main-scheme agreement, with predicted tides applied, was adequate. In two areas where the bottom appears irregular, crosslines and mainscheme lines differed by as much as 0.9 meters. However, crosslines and mainscheme lines generally agreed to within 0.3 meters.

L. JUNCTIONS SEE ALSO SECTION L. OF THE EVALUATION REPORT.

Comparisons were made with D sheet (H-10577), C sheet (H-10576), and A sheet (H-10581). In general, agreement with D sheet is adequate. Most soundings agree to within 0.3 meters. Slightly larger discrepancies (up to 0.6 meter) were found in an area known to have sand waves.

The agreement between H-10576 and H-10582 is good, but deteriorates toward the eastern edge of the sheet where the depths are greater. Soundings in this area differ by as much as 0.8 meters between the two surveys. However, direct comparison is not possible since the survey lines from H-10576 split the lines from H-10582.

The agreement between H-10582 and H-10581 was within 0.2 meters.

M. COMPARISONS WITH PRIOR SURVEYS SEE ALSO SECTION M. OF THE EVALUATION REPORT.

A comparison was made with H-9865 (1980, 1:20,000), which is the most recent prior survey covering the survey limits for H-10582. The comparison was made at the 1:20,000 scale.

Toward the western (near shore) and eastern limits of H-10582, agreement with H-9865 is fair, with most soundings agreeing to within two feet (0.61 meters). In other areas, agreement is poor. Differences of up to five feet (1.52 meters) between soundings from H-10582 and H-9865 are not uncommon, with ten feet (3.05 meters) being the maximum observed difference.

There does not appear to be any systematic shoaling or deepening of the survey area; rather, in some places recent soundings are deeper and in others, shoaler. Since the bottom appears to be sandy throughout the survey area, these discrepancies are most likely due to strong currents (frequently over three knots) and numerous storms in the Savannah area between 1980 and 1994.

N. ITEM INVESTIGATIONS

The following items were investigated by WHITING:

SECTION	NAME	STATUS
N1.	AWOIS 7458	DISPROVED
N2.	AWOIS 7452	VERIFIED

N1. AWOIS 7458

Reported position:

Latitude:	31° 59' 35.77" N
Longitude:	080° 49' 48.39" W
Reported depth:	N/A
Feature:	Twenty-five foot vessel "WIG WAG", reportedly burned and sunk. Charted as a wreck, position approximate.

Three methods of investigation were used in searching for AWOIS 7458. On DN 110, 113, 116, and 152, twenty-five meter echosounder splits were run covering the search radius. On DN 113, 116, and 152, SSS was used to search for the item. On DN 117, 127, and 158, divers dove on three possible contacts seen on the SSS records from DN 113 and 116 and conducted a circle search for the item. The positions of the three dives are as follows:

DIVE	EASTING	NORTHING
1.	24568.4	23755.9
2.	24520.4	23580.8
3.	25383.3	22753.3

The depth of the dives on DN 117 and DN 127 was 12 feet (3.66 meters). The depth of the dive on DN 158 was 10 feet (3.05 maters). Visibility was approximately 3 feet (0.91 meters). WHITING was unable to locate the AWOIS item using any of the above methods.

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

N2. AWOIS 7452

Reported position:

Latitude:	31° 56' 38.78" N
Longitude:	080° 49' 43.38" W
Reported depth:	N/A
Feature:	Dangerous submerged wreck, tentatively identified as British ship "CANTERBURY".

The wreck was located by SSS on DN 110. The item was further investigated by divers on DN 117. The depth of the dive was 25 feet (7.62 meters), and visibility was approximately 4 feet (1.22 meters). Least depths were taken on the item with the MOD III diver least depth gauge (SN 68332). The calculated least depth of the wreck is 6.60 meters based on predicted tides.

WHITING recommends a dangerous wreck be charted at:

31° 56' 38.803" N, 080° 49' 41.900" W, WITH A KNOWN DEPTH OF 15FT (4^5m), (15WK), AND A DANGER CURVE.

O. COMPARISON WITH THE CHART

SEE ALSO SECTION O. OF THE EVALUATION REPORT.

Soundings from chart 11512 (52nd ed., Jan 8/94, 1:40,000) were compared to H-10582 soundings. In the deeper areas of H-10582 (i.e. the southeast region of the sheet), agreement with the chart is excellent, with most soundings agreeing to within 0.3 meters. Agreement deteriorates toward the northern and western ends of the sheet where the depths are shoaler. Specifically, near shore where sandbars were observed and the bottom is very irregular, differences of up to two meters between the survey soundings and charted depths exist.

P. ADEQUACY OF SURVEY

SEE ALSO SECTION P. OF THE EVALUATION REPORT.

All items found during this survey have been resolved. This survey is complete and adequate to supersede all prior surveys of the area.

In order to meet the requirement of surveying to the 0.7 meter depth curve specified in the project instructions, buffer lines were run inshore of the 0.7 meter curve and mainscheme lines were made to cross these buffer lines. In two areas within H-10582 (the southwest corner of the sheet and the entrance to Tybee Inlet), mainscheme lines do not extend far enough to the west to cross the buffer lines. These lines were cut short due to offshore sandbars which would have jeopardized the safety of the launches. In all other areas, the requirement of surveying to the 0.7 meter curve was met.

Q. AIDS TO NAVIGATION

There are no charted aids to navigation within the survey area. On DN 136, 1995, WHITING observed a new buoy near the southeast edge of the sheet. A detached position was taken on this buoy as follows:

NAME	POSITION NUMBER	CHARACTERISTIC
"C"	1459	Yellow structure buoy, 15 ft., yellow light (light characteristic not observed)

There are no submarine cables, pipelines or ferry routes within the survey limits.

R. STATISTICS

Number of Positions	2708
Main-scheme Sounding Lines (Nautical Miles)	289.00
Crosslines (Nautical Miles)	26.10
Square Nautical Miles Surveyed	7
Days of Production	14
Detached Positions	7
Bottom Samples	47
Tide Stations Installed	1
Current Stations	None
Number of CTD Casts	3
Magnetic Stations	None

S. MISCELLANEOUS

No anomalies in either tide or current and/or unusual magnetic variations were encountered in the survey area. No unusual submarine features were discovered.

Bottom samples were submitted to the Smithsonian Institution.

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

H-10582 is complete and without inadequacies. No additional fieldwork is required.

Local contacts claim plans exist to dredge Tybee Inlet, making it more accessable to local pleasure craft. On the final three days of data acquisition for H-10582 (DN 136, 152 and 158, 1995), three dredges were observed in the survey area to the east of Tybee Inlet and the south end of Tybee Island. Based on this observation, WHITING recommends these areas be surveyed again when dredging is completed. CONCUR

U. REFERRAL TO OTHER REPORTS

There are no other relevant reports submitted as a part of OPR-G115-WH.

Submitted By:

Christopher Parrish

ENS Christopher Parrish, NOAA
Junior Officer, NOAA Ship WHITING

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	19900301	G	N315913.	W0805106.
BR1007	SOUTH END	19900301	G	N315914.30661	W0805104.85098
BR1861	SOUTH END RM 4	19900301	G	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	19910221	G	N320115.	W0805356.
CK4836	FORT RM 2			N320116.	W0805038.

CK5286 QUARANTINE RM 1 N320216. W0805339.
CK3776 QUARANTINE 1964 N N320222.85261 W0805341.02785
<u>CK3738 JONES ISLAND RANGE FRONT LIGHT 1974</u>
<u>G N320231.71243 W0805110.09256</u>
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 SHIP WHITING

ROUTING CODE: N/CG233

PHONE NO: (804) 441-~~[illegible]~~ 6594

FAX NO: (804) 441-~~[illegible]~~ 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

HDAPS Pre-Survey Program Version: 7.09 PRE-SURVEY: CONTROL STATION TABLE 16:12:36 29 Nov 1994

Station No ?

No	Type	Lat	Lon	H Cart		Freq	Vel Code	MM/DD/YY	Station Name
001		031:59:14.307	080:51:04.351	0	0	0.0	0	08/16/94	SOUTH END
002		032:02:31.712	080:51:10.093	0	0	0.0	0	08/15/94	JONES ISLAND RANGE, FRONT
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0	03/01/92	

APPROVAL SHEET
HYDROGRAPHIC SURVEY
OPR-G115-WH
1995
WH-10-12-94
H-10582

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

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Ocean and Earth Sciences
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: March 9, 1995

HYDROGRAPHIC SECTION: Atlantic

HYDROGRAPHIC PROJECT: OPR-G115-WH

HYDROGRAPHIC SHEET: H-10582

LOCALITY: Tybee Inlet to Wassaw Sound

TIME PERIOD: November 3 - 10, 1994

TIDE STATION USED: 867-1029 Tybee Marina, Ga.
Lat. 31° 59.8'N Lon. 80° 51.3'W

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

REMARKS: RECOMMENDED ZONING

1. In Tybee Inlet, times and heights are direct on Tybee Marina, Ga. (867-1029).
2. In the Atlantic Ocean west of 80° 49.0'W, apply a -10 minute time correction and a x1.02 range ratio to heights using Tybee Marina, Ga. (867-1029).
3. In the Atlantic Ocean east of 80° 49.0'W, apply a -20 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.

William M. Stoney

CHIEF, DATUMS SECTION

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Ocean and Earth Sciences
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: July 28, 1995

HYDROGRAPHIC Branch: Atlantic

HYDROGRAPHIC PROJECT: OPR-G115-WH

HYDROGRAPHIC SHEET: H-10582

LOCALITY: Tybee Inlet to Wassaw Sound

TIME PERIOD: April 18 - June 1, 1995

TIDE STATION USED: 867-1029 Tybee Marina, Ga.
Lat. 31° 59.8'N Lon. 80° 51.3'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): -0.08 ft.
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 6.9 ft.

REMARKS: RECOMMENDED ZONING

1. In Tybee Inlet, times and heights are direct on Tybee Marina, Ga. (867-1029).
2. In the Atlantic Ocean west of 80° 49.0'W, apply a -10 minute time correction and a x1.03 range ratio to heights using Tybee Marina, Ga. (867-1029).
3. In the Atlantic Ocean east of 80° 49.0'W, apply a -20 minute time correction and a x1.03 range ratio to heights using Tybee Marina, Ga. (867-1029).

Notes: 1. Times are tabulated in Greenwich Mean Time.
2. Data for Tybee Marina, Ga. (867-1029) are temporarily stored in file #667-1029.

Caution: Tybee Marina, Ga. (867-1029) data are considered preliminary until vertical stability is verified with closing levels by the NOAA ship Whiting.

William M. [signature]
CHIEF, DATUMS SECTION

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10582

Name on Survey	A ON CHART NO. 11512	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
GEORGIA (title)	X		X							1
LITTLE TYBEE ISLAND	X		X							2
NORTH ATLANTIC OCEAN	X		X							3
TYBEE INLET	X		X							4
TYBEE ISLAND	X		X							5
WASSAW SOUND (title)	X		X							6
WILLIAMSON ISLAND	X		X							7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25

Approved:

Curtis C. Loy

Chief Geographer

AUG 15 1995

NOAA FORM 76-155 SUPERSEDES C&GS 197

08/25/95

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H-10582

NUMBER OF CONTROL STATIONS		2
NUMBER OF POSITIONS		2708
NUMBER OF SOUNDINGS		13833

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	36	06/15/95
VERIFICATION OF FIELD DATA	113	08/22/95
QUALITY CONTROL CHECKS	9	
EVALUATION AND ANALYSIS	18	
FINAL INSPECTION	11	08/21/95
COMPILATION	0	/ /
TOTAL TIME	187	

ATLANTIC HYDROGRAPHIC BRANCH APPROVAL 08/23/95

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H-10582 (1994-95)

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). Office processing of this survey is based on these values.

To place this survey on the NAD 27, move the projection lines 0.779 seconds (24.00 meters or 2.40 mm at the scale of the survey) north in latitude, and 0.607 seconds (15.94 meters or 1.59 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-10576	(1994)	1:10,000	to the south
H-10577	(1994)	1:10:000	to the east
H-10581	(1994)	1:10,000	to the southwest

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

A standard junction could not be effected with surveys H-10576 (1994) and H-10577 (1994). The junctional survey is archived at National Ocean Service (NOS) Headquarters, Silver Spring, Maryland. Any adjustments to the depth curves in the junctional area will have to be made on the chart during compilation at headquarters.

There is no contemporary survey to the north. Present survey depths are in harmony with the charted hydrography to the north.

M. COMPARISON WITH PRIOR SURVEYS

Hydrography

H-9865 (1980) 1:20,000

Prior survey depths from H-9865 (1980) compare favorably and show a general trend of being 1 ft to 2 ft (0^{3}m to 0^{6}m) shoaler than the present survey depths. There are some scattered depths from the prior survey along the shoreline than are 4 ft to 7 ft (1^{2}m to 2^{1}m) shoaler than the present survey. Numerous shoreline changes attributed to cultural and natural changes between the prior and present surveys are apparent throughout the common area.

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

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

O. COMPARISON WITH CHARTS 11512 (52nd., Ed., 8 Jan 1994)

The charted hydrography originates with the previously discussed prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in sections N. and O. of the Descriptive Report.

The present survey is adequate to supersede the charted hydrography within 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

Robert Snow
Cartographic Technician

Norris A. Wike
Cartographer

APPROVAL SHEET
H-10582

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 disproval 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. Final control, position, and sounding printouts of the survey have been made. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Deborah A. Bland
Date: August 23, 1995

Deborah A. Bland
Cartographer
Atlantic Hydrographic Branch

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
Date: August 23, 1995

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

****

Final Approval:

Approved: Andrew A. Armstrong III
Date: 8/28/95

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

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. 10582

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
11512	9/3/95	John Barber	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 50
11509	11/17/95	John Barber	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 36 APP'd thru cht 11512
11480	3/15/96	Travis [illegible]	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 41 Appd thru chart 11509
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.