

H10630

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey . Hydrographic/Side Scan Sonar .
Field No. . WH-10-12-95 .
Registry No. . H10630 .

LOCALITY

State . Georgia .
General Locality North Atlantic Ocean .
Sublocality . 12 NM East Southeast of .
Gaskins Bank .
1995 .
CHIEF OF PARTY
CDR J.D. Wilder .

LIBRARY & ARCHIVES

DATE . September 12, 1996 .

HYDROGRAPHIC TITLE SHEET

H-10630

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-10-12-95

State GEORGIA

General locality NORTH Atlantic Ocean

Locality 12 NM east southeast of Gaskin Banks, SC

Scale 1 : 10,000 Date of Survey 06 Aug 95 - 13 Oct 95

Instructions dated 08 Mar 95 Project No. OPR-G398-WH

Vessel NOAA Ship WHITING, (2930), S-329

Chief of Party COMMANDER JOHN D. WILDER
J.D. WILDER, M.R. KENNY, A.L. BEAVER, G.D. GARTE, P.A. GRUCCIO, E.J. SIPOS, C.E. PARRISH, J.T. MICHALSKI, U.I. GARDNER,

Surveyed by M.M. CISTERNELLI, K.B. SHAVER, F.R. CRUZ,

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 ENCAD NOVAJET III PLOTTER (AMC) HP 7959B, Bruning (FIELD)

Verification by ATLANTIC HYDROGRAPHIC BRANCH PERSONNEL

Soundings in MLLW Meters FEET

REMARKS: Time Zone Used 0 (UTC)

200% Side Scan Coverage

NOTES IN THE DESCRIPTIVE REPORT WERE MADE

IN RED DURING OFFICE PROCESSING.

sa
 SEP 12 1996 AWOIS and SURF ✓ PWD 9/96

PROGRESS SKETCH

HYDROGRAPHIC SURVEY

OPR-G115-WH

WASSAW SOUND and WILMINGTON RIVER

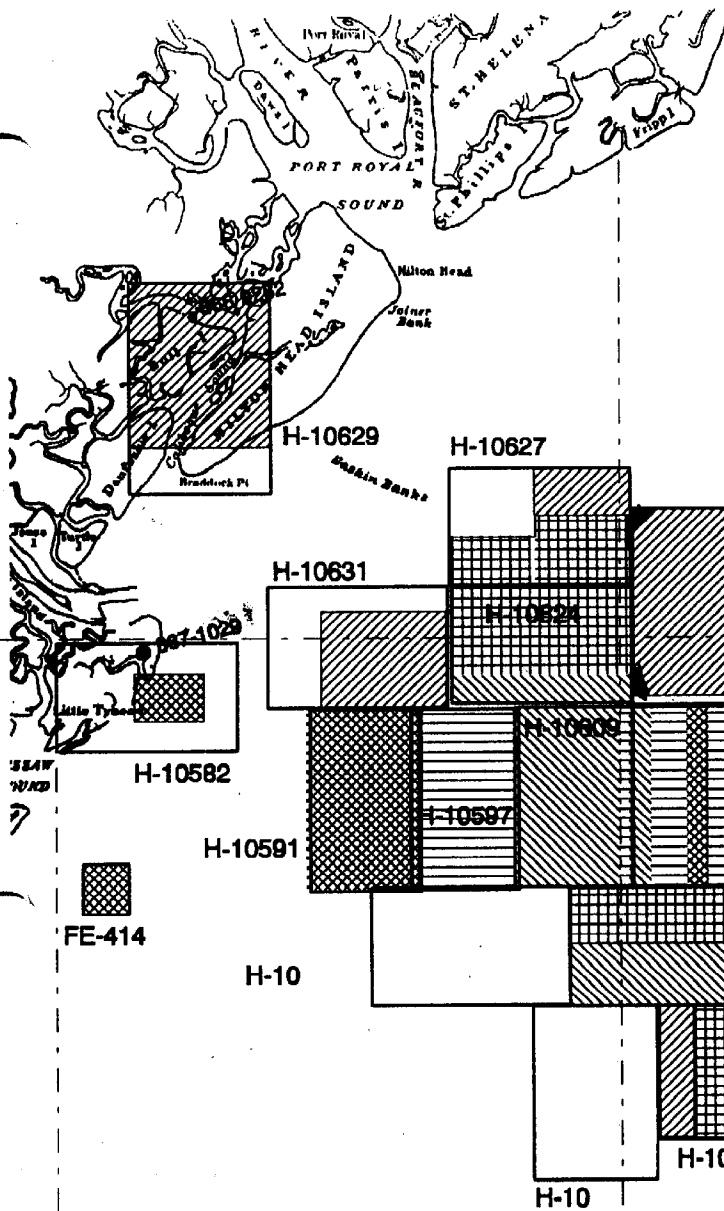
OPR-G398-WH

APPROACHES TO SAVANNAH RIVER

OPR-G352-WH

CALIBOUGUE AND PORT ROYAL SOUNDS

APRIL - NOVEMBER 1995



NOAA SHIP WHITING S329

CDR JOHN D. WILDER, COMMANDING

APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV
24	25	27	23	29			
156	83	218	0				
173	10	24	156				
904	1208	1550	1732				
7	14	52	182				
38	49	64	74				
6	10	22	24				
7	8	4	9				
45	19	15	15				
20	0	0	0				

DAYS AT SEA

LNM SOUNDINGS (SHIP)

LNM SOUNDINGS (LAUNCHES)

LNM SIDE SCAN (SHIP)

LNM SIDE SCAN (LAUNCHES)

SQ NM SURVEYED

ITEMS INV/DIVES

VELOCITY CASTS

BOTTOM SAMPLES

WATER CLARITY OBS

HYDROGRAPHY

**DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY
OPR-G398-WH-95
H-10630**

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

A. PROJECT

The purpose of project OPR-G398-WH is to provide contemporary hydrographic survey data for existing nautical charts. This project is in response to requests from the Georgia Ports Authority and the Savannah Pilots Association to determine the deepest and safest approach to the Savannah River shipping channel which was deepened from 38 to 42 feet in 1994.

Survey Operations were conducted in compliance with Hydrographic Project Instructions OPR-G398-WH dated March 8, 1995 and Change Number One dated May 17, 1995.

Project OPR-G398-WH consists of twelve survey sheets. This survey was assigned sheet letter "F", field sheet number WH-10-12-95, and registry number H-10630.

B. AREA SURVEYED

Hydrographic survey H-10630 is located 12 nautical miles east southeast of Gaskin Banks, S.C. and is bounded by the following coordinates:

<u>Position</u>	<u>Latitude</u>	<u>Longitude</u>
1-SE Corner	31° 58' 24.794 " N 18.00"	080° 24' 35.662 " W 32.00"
2-SW Corner	31° 58' 25.841 " N 18.00"	080° 29' 44.165 " W 21.00"
3-NW Corner	32° 05' 25.422 " N 30.00"	080° 29' 42.396 " W 21.00"
4-NE Corner	32° 05' 24.371 " N 30.00"	080° 24' 33.502 " W 32.00"

Survey operations, including diving operations and bottom sampling, commenced on August 6, 1995 (DN 218) and concluded on October 13, 1995 (DN 286).

C. SURVEY VESSELS

NOAA Ship WHITING (VESNO 2930), was used to conduct mainscheme echosounder/side scan sonar lines, holidays, and crosslines. Diver investigations, holidays, and side scan sonar developments were performed by launch 1014 (VESNO 2931). Bottom Samples were performed by launch 1015 (VESNO 2932). No unusual problems or equipment configurations were encountered.

D. AUTOMATED DATA ACQUISITION AND PROCESSING *SEE ALSO EVALUATION REPORT*

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	February 27, 1995
BASELINE	1.14	February 27, 1995
BIGABST	2.07	February 27, 1995
BIGAUTOST	3.01	February 27, 1995
BLKEDIT	2.02	February 27, 1995
CARTO	2.17	February 27, 1995
CLASSIFY	2.12	April 17, 1995
CONTACT	2.48	April 17, 1995
CONVERT	3.65	February 27, 1995
DAS_SURV	6.80	April 17, 1995
DIAGNOSE	3.05	February 27, 1995
DISC_UTIL	1.00	February 27, 1995
DP	2.18	February 27, 1995
DPCONVERT	1.03	March 7, 1995
DSNEDITS	1.04	March 7, 1995
EXCESS	4.32	February 27, 1995
FILESYS	3.31	March 7, 1995
GRAFEDIT	1.06	February 27, 1995
HIPSTICK	1.01	February 27, 1995
HPRAZ	1.26	February 27, 1995
INVERSE	2.02	February 27, 1995
LISTDATA	1.02	February 27, 1995
LOADNEW	2.13	March 7, 1995
LSTAWOIS	3.07	March 7, 1995
MAINMENU	1.20	February 27, 1995
MAN_DATA	3.02	March 7, 1995
NEWPOST	6.13	February 27, 1995
PLOTALL	2.32	February 27, 1995

POINT	2.12	March 7, 1995
PREDICT	2.01	February 27, 1995
PRESURV	7.11	February 27, 1995
PRINTOUT	4.04	February 27, 1995
QUICK	2.07	February 27, 1995
RAMSAVER	1.02	February 27, 1995
REAPPLY	2.12	February 27, 1995
RECOMP	1.04	March 7, 1995
SCANNER	1.00	February 27, 1995
SELPRINT	2.05	February 27, 1995
SYMBOLS	2.00	February 27, 1995
VERSIONS	1.00	February 27, 1995
ZOOMEDIT	2.33	February 27, 1995

Sound velocity corrections were determined using *CAT v2.00* and *VELOCITY v2.11*. The DGPS station was checked using *MONITOR v3.0*. The *DAILYDQA* program ensured the proper functioning of the MOD3 diver least depth gauge.

There were no nonstandard automated acquisition or processing methods used.

E. SIDE SCAN SONAR EQUIPMENT

Side scan sonar (SSS) operations were conducted using an EG&G model 260 slant-range corrected recorder and an EG&G 272-TH dual-channel, dual-frequency towfish. The towfish was operated on the 100 kHz frequency and configured with a 20° beam depression. The following SSS equipment was used throughout the survey:

<u>Equipment</u>	<u>Serial Number</u>	<u>Dates Used</u>
SSS Towfish	016823	218-252
	011902	252-286
SSS Recorder	16942	218-252
	16673	252-286

On WHITING, the SSS towfish was deployed using a Reuland winch (Model 8377-XF5461A, S/N 814861A-1) using one of two armored cables in conjunction with an A-frame mounted on the stern of ship. The armored cable was attached to the side scan recorder via a slip ring assembly. On both launches, the side scan towfish was deployed using a Superwinch Model W115 in conjunction with an adjustable davit arm on the side of the launch. The launches towfish was towed with vinyl-coated Kevlar cable and was connected to the recorder via a slip ring assembly.

In order to obtain the required 200% side scan sonar coverage for this survey, north-south mainscheme lines were run at a 75-meter line spacing. The side scan sonar system was operated on the 100 meter range scale with the height off the bottom maintained at eight to twenty percent of the range scale (8-20 meters). SSS operations were limited to a speed-over-ground between four and six knots. Adequate coverage was determined by generating two 100% coverage swath plots (A and B) and determining whether any holidays existed.

Confidence checks were obtained by observing changes in bottom texture on the outer limits of the sonargram.

All potentially significant targets were measured off the sonargram and entered into the a HDAPS contact table. Significant contacts, deemed so by contact height and/or resolution, were further developed by side scan sonar or diver investigation. Least depths on significant items were determined by divers utilizing the MOD3 diver least depth gauge. All detached positions on significant contacts were taken during diving operations by launch 1014 (VESNO 2932).

F. SOUNDING EQUIPMENT

Raytheon Digital Survey Fathometer (DSF-6000N) echo sounders 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 below the keel. Digital depths from both frequencies were recorded on line by the HDAPS system. High-frequency soundings were selected as the primary depths and are displayed on all sounding plots. Echograms were carefully reviewed for significant features along the track line and any depths on the graphic record that were not selected as primary soundings were manually inserted.

The following fathometers were used during this survey:

<u>Serial Numbers</u>	<u>Dates Used</u>
A105N	218-286
B050N	252-286

Least depths on diver investigations were obtained with a MOD3 Diver Least Depth Gauge (S/N 68332).

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 February 15, 1995, during WHITING's winter inport period. A copy of the

calibration report is included in Separate IV.*

After the CTD cast, programs *CAT v2.00* and *VELOCITY v2.11* 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 where the correctors were applied to both high and low frequency beams during data acquisition. Velocity profile data are in the Separates IV* 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 the CTD cast. The program *CAT v2.00* compared these values to the CTD surface values and confirmed that the velocity probe was working properly.

The velocity casts were performed as described below for mainscheme data acquisition (first table number is the ships velocity table, the second is the launches velocity table):

<u>DN(1995)</u>	<u>Vel.Table#</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Depth</u>
218	42, 43	32° 03' 00" N	80° 24' 18" W	23.1 m
226	44, 45	32° 03' 00" N	80° 24' 24" W	25.1 m
252	2, 3	32° 03' 01" N	80° 24' 16" W	20.4 m

The *DAILYDQA* program, in conjunction with the ships barometer, was performed daily to assure that the MOD3 least depth gauge was working properly. Velocity casts were also performed during diving operations for use in the *SMLGAUGE* program when calculating least depths on significant contacts.

The correction for the static draft of 0.55 meters for launches 1014 and 1015 was measured on July 28, 1993 and entered into Offset Tables 2* and 1* respectively. The correction for the static draft of 3.2 meters (Offset Table 9*) for WHITING was checked by divers on May 11, 1995 with the MOD3 Diver Least Depth Gauge. The measured draft of the transducer was determined to be within 0.04 meters of the historical value used during this survey.

Settlement and squat measurements for launches 1014 and 1015 were determined on March 29, 1995 and entered in Offset Tables 2* and 1* respectively. Settlement and squat measurements for WHITING were determined on November 10, 1993 and entered in Offset Table 9. The settlement and squat correctors were applied during data acquisition on each survey platform. Offset tables are included in Separates II.*

For data collected on WHITING, heave correctors were applied during data collection using a Heave, Roll and Pitch Sensor (S/N 19109-C). Heave correctors for launches 1014 and 1015 were applied during post processing by manually scanning the echograms and making the appropriate corrections.* *DATA FILED WITH ORIGINAL SURVEY RECORDS*

New leadlines were made and calibrated on February 23, 1995. Calibration confirmed the leadline error was negligible. A leadline comparison was conducted on May 11, 1995 in the Wilmington River. Due to current and uneven bottom characteristics, the accuracy of this leadline comparison is questionable with readings falling within 0.3 meters of the high frequency depth. Another leadline comparison was performed in Port Royal Sound on August 3, 1995 which indicated a difference of 0.08 meters between the high frequency depth and the leadline depth. Leadline comparisons are included in Separates IV.*

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. 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/CS3, Hydrographic Surveys Division and entered into the appropriate tide tables. No tidal zoning was done for this survey. Time and height correctors used for this survey are as follows:

<u>Time Correction</u>	<u>Height Ratio</u>
- 0 hr 20 min	x0.90

On March 29, 1995, WHITING installed a tide station at Tybee Marina (867-1029) for datum control of H-10630. Opening levels were run on March 30, 1995. On June 6, 1995, the structure supporting the ADR gauge was damaged in a storm. The gauge was repaired and levels rerun on that same day, verifying that the tide staff had not moved. A request for smooth tides was submitted to Product and Services Branch, Datum Section, N/OES231 on October 18, 1995. APPROVED TIDES AND ZONING WERE APPLIED DURING OFFICE PROCESSING

H. CONTROL STATIONS *SEE ALSO EVALUATION REPORT*

The horizontal datum for this project is the North American Datum of 1983 (NAD-83). The source of differential correctors in 1995 was a High Frequency Differential GPS receiver/transmitter station set on a tower over a control mark on Skidaway Island, GA. Additionally, WHITING used the forward range marker on Jones Island Range for performance checks. The adjusted NAD-83 positions for SKID (2nd Order Class I) and Jones Island Forward Range (4th Order) were provided by the Field Photogrammetry Section. The positions are as follows:

<u>Station</u>	<u>Latitude</u>	<u>Longitude</u>
SKID	31° 59' 19.22599" N	081° 01' 12.26294" W
Jones Island Range, Front	32° 02' 31.71243" N	080° 51' 10.09256" W

WHITING used *MONITOR v3.0* to verify the station position and to check for multipath in the area.*

* 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 and the ship used an Ashtech Sensor GPS receiver with a LRD-1 HF receiver supplying correctors for DGPS navigation. Ashtech receivers were initialized by HDAPS and LRD-1 receivers were set to the appropriate frequency. The control station on Skidaway Island consisted of a Ashtech Mk12 receiver (S/N 700354A03069), LRD-2 modulator (S/N 605), and Ray 152 high frequency transceiver (S/N B529239).

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 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 and questionable positions were either smoothed or rejected.

The serial numbers of the Ashtech Sensor and LRD-1 receivers used on the data acquisition platforms are as follows:

<u>VESNO #</u>	<u>Device</u>	<u>Serial Number</u>
2930	Ashtech Sensor	700417B1203
	LRD-1	248
2931	Ashtech Sensor	700417B1191
	LRD-1	233
2932	Ashtech Sensor	700417B1194
	LRD-1	206

DGPS performance checks up until September 25, 1995 were done in two stages. The first stage was to send a launch to the Jones Island Forward Range marker. The launch would take ten detached positions, apply range and bearing corrections, and compare the positions to the known position. Stage two was conducted with each launch securely housed in WHITING's davits. Simultaneous HDAPS positions were printed and compared between WHITING and each launch utilizing the shipboard performance check software. Offset in distance and azimuth were computed and examined for system reliability of all three platforms. All performance checks confirmed that the DGPS beacon was operating properly.

Beginning on September 25, 1995, performance checks were conducted daily utilizing the program *SHIPDIM v1.2* to compare the WHITING's position using the Skidaway HF station and the USCG beacon at Charleston, SC. All daily checks indicated that the system was working correctly. Checks of the launch systems were conducted by way of stage two described above.

DGPS antenna offset and layback were measured on July 28, 1993, for launches 1014 and 1015 and on March 19, 1993 for the WHITING. 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 offset and layback for the both launch SSS towfish davits was measured on March 29, 1995. The offsets, laybacks and heights were applied by HDAPS on-line by way of the vessels individual offset tables. All offset data are on file at N/CS33.

A minimum of four satellites were used during survey H-10630 (1:10,000), providing altitude unconstrained positioning.

J. SHORELINE

There was no shoreline on this sheet.

K. CROSSLINES

A total of 84.64 nautical miles of crosslines were run on H-10630, or 11.8% of the total linear nautical miles of main-scheme lines run. Crossline and main-scheme agreement, with predicted tides applied, was adequate. Most soundings agreed to within 0.5 meters with no errors greater than 1.2 meters.

L. JUNCTIONS *SEE ALSO EVALUATION REPORT*

Comparisons were made between sheet F (H-10630) and sheets H (H-10600), D (H-10624), and E (H-10627). In general, overlap agreement with all three sheets is adequate. Most soundings agree to within 0.2 meters with the largest discrepancy of 0.8 meters occurring with sheet H. Depth contours were continuous at all junctions.

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

There are no listings for prior surveys of this area.

N. ITEM INVESTIGATIONS

This sheet had one AWOIS item investigation. Seven dives were performed to resolve possible navigational hazards with five of the dives resulting in the location of significant bottom obstructions, one dive on a insignificant contact, and one dive with negative results.

AWOIS item 9335 is a fish haven, authorized minimum depth of 50 feet, located at Latitude 31° 03' 18.75" N, Longitude 080° 25' 11.37" W. Of the six significant dives performed, five of the items fell within the boundaries of the fish haven (sections N2 through N6).

The following features were found during hydrographic survey operations on this sheet. All depths are corrected utilizing ~~predicted~~ ^{smooth} tides.

	<u>Contact</u>		<u>Latitude/Longitude</u>
N1.✓	Anchor/ Chain DP Fix #3000	8442.30S	32° 00' 10.640" N 080° 27' 27.129" W

Divers discovered and anchor and anchor chain lying on the sand and shell bottom. Least depth measured by divers was ^{16.7 (55 FT)} ~~17.1~~ meters in approximately 18.5 meters of water. Since the contact only rises 1.4 meters from the surrounding bottom, WHITING recommends the item be considered insignificant and not be charted. ~~CHART SAND ONLY~~ *chart 550bstr.*

N2.	Liberty Ship DP Fix #3001	6681.17S	32° 03' 18.150" N 080° 24' 59.252" W
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*GRW
10-496*

Divers discovered a liberty ship, as described in the AWOIS listing, lying keel down on the sand and shell bottom. Least depth measured by divers was ^{19.6 (62 FT)} ~~19.8~~ meters in approximately 26.0 meters of water. Since the contact does not exceed the authorized minimum depth of the fish haven, WHITING recommends the item not be charted. *DO NOT CONCUR. SHOW SAND ON WK.*

N3.✓	Bridge Section DP Fix #3003	6590.14P	32° 03' ^{19.565} 18.150 " N 080° 24' ^{59.252} 59.252 " W <i>50.202</i>
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Divers discovered a bridge section consisting of I-beams and decking lying on the sand and shell bottom. Least depth measured by divers was ^{19.8 (62 FT)} ~~19.8~~ meters in approximately 27.0 meters of water. Since the contact does not exceed the authorized minimum depth of the fish haven, WHITING recommends that the item not be charted. *CONCUR -*

N4.✓	Bridge Section DP Fix #3014	6590.09P	32° 03' 19.918" N 080° 24' 50.075" W
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Divers discovered a bridge section consisting of I-beams and decking lying on the sand and shell bottom. Least depth measured by divers was ^{16.7 (53 FT)} ~~16.7~~ meters in approximately 26.0 meters of water. Since the contact does not exceed the authorized minimum depth of the fish haven, WHITING recommends that the item not be charted. *CONCUR.*

N5.	Bridge Section DP Fix #3016	6589.54P	32° 03' 22.551" N 080° 24' 50.869" W
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Divers discovered a bridge section consisting of I-beams and decking lying on the sand and shell bottom. Least depth measured by divers was ^{9.8} ~~9.8~~ meters (^{32.1} ~~32.1~~ feet) in approximately 20.0 meters of water. Since the contact exceeds the authorized minimum depth of the fish haven, WHITING recommends that the fish haven authorized minimum depth be changed to 25 feet (see item N6).
SHOW SOUND

N6.	Bridge Section	6590.00S	32° 03' 21.398" N
	DP Fix #3033		080° 24' 51.573" W

Divers discovered a bridge section consisting of I-beams and decking lying on the sand and shell bottom. Least depth measured by divers was ^{7.8} ~~7.8~~ meters (^{25.6} ~~25.6~~ feet) in approximately 26.0 meters of water. Since the contact exceeds the authorized minimum depth of the fish haven, WHITING recommends that the fish haven authorized minimum depth be changed to ~~25~~ feet. *CONCERN*

All least depths were determined by diver held MOD III least depth gauge (S/N 68332).

O. COMPARISON WITH THE CHART *SEE ALSO EVALUATION REPORT*

Soundings from charts 11480 and 11513 were compared with soundings from sheet F (H-10630). F-Sheet comparisons revealed that the surveyed depths were generally deeper than the charted soundings.

Chart comparisons with chart 11480 (32nd ed., 14 May 94, 1:449,659) showed four charted soundings within the sheet limits of H-10630. Charteed soundings were shoaler by 0.8 to 2.8 meters.

Chart 11513 (21st ed., 4 June 94, 1:80,000) contained 71 charted soundings within sheet F parameters. Charteed soundings were shoaler by 0.0 to 2.1 meters with most soundings differing by 0.4 meters.

P. ADEQUACY OF SURVEY *SEE ALSO 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.

Q. AIDS TO NAVIGATION

One floating aid to navigation was positioned for this survey. The buoy marking the fish haven described as AWOIS 9335 was positioned by DGPS at:

Yellow Nun Buoy, State of South Carolina
DP Fix #3012

32° 03' 24.867" N
080° 24' 50.339" W

R. STATISTICS

Number of Positions	5008
Main-scheme Sounding Lines (Nautical Miles)	714.19
Crosslines (Nautical Miles)	84.64
Square Nautical Miles Surveyed	28.9
Days of Production	17
Detached Positions	7
Bottom Samples	15
Tide Stations Installed	None
Current Stations	None
Number of CTD Casts	3
Magnetic Stations	None

S. MISCELLANEOUS *SEE ALSO EVALUATION REPORT*

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.

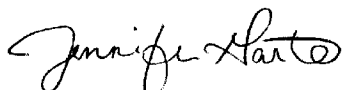
T. RECOMMENDATIONS *SEE ALSO SECTION P OF EVALUATION REPORT*

H-10630 is complete and without inadequacies. No additional fieldwork is required. There are no current plans for construction or dredging in the survey area.

U. REFERRAL TO OTHER REPORTS *SEE ALSO EVALUATION REPORT*

There are no other relevant reports submitted as a part of OPR-G398-WH.

Submitted by:



Ensign Jennifer D. Garte, NOAA
Junior Officer, NOAA Ship WHITING



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

October 5, 1995

**ADVANCE
INFORMATION**

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, while undergoing hydrographic survey operations near the entrance to Savannah River, Georgia, discovered two significant obstructions. Enclosed are reports concerning the obstructions which should be placed in the next Notice to Mariners and included in the next chart update.

Differential GPS was used to determine survey positions. Positions are referenced to NAD 83. All depths are referenced to MLLW using predicted tides. Chart 11480 is the largest scale chart affected.

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

Chief, Office of Coast Survey, NOAA
Chief, Mapping and Charting Division, NOAA
Chief, AMC Operations Division, NOAA
Chief, Atlantic Hydrographic Branch, NOAA
Director, Defense Mapping Agency
Hydrographic/Topographic Center

Sincerely,


John D. Wilder
Commander, NOAA
Commanding Officer

Enclosures

cc: AMC1
N/CS
N/CS2
N/CS33
DMAHTC



REPORT OF UNCHARTED SUBMERGED FEATURE
(PRELIMINARY)

Hydrographic Survey Registry Number: H-10630

**ADVANCE
INFORMATION**

State: Georgia

General Locality: Atlantic Ocean

Sub-Locality: 12 NM ESE of Gaskin Banks, SC

Project Number: OPR-G398-WH

The following features have been found during hydrographic survey operations by NOAA Ship WHITING:

	<u>Latitude</u>	<u>Longitude</u>
Metal Bridge Structure	32° 03' 21.398" N	080° 24' 51.573" W

Divers discovered a steel bridge structure consisting of decking and I-beams lying on the sand and shell bottom. Least depth measured by divers on a vertical I-beam was 7.8 meters (25 feet) in 26 meters (85 feet) of water.

Metal Bridge Structure	32° 03' 22.551" N	080° 24' 50.869" W
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Divers discovered a steel bridge structure consisting of decking and I-beams lying on the sand and shell bottom. Least depth measured by divers on a cross beam was 9.8 meters (32 feet) in 20 meters (65 feet) of water.

Both structures are located within the boundaries of a fish haven with an authorized minimum depth of 8 fathoms on chart 11480 and 50 feet on chart 11513. The fish haven is currently marked by a single yellow nun buoy owned by the State of South Carolina.

HORIZONTAL CONTROL STATIONS

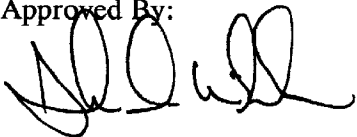
WHITING personnel erected a HF Differential GPS receiver/transmitter on the grounds of Skidaway Institute of Oceanography (station SKID). The position of the Skidaway mark was faxed from Field Photogrammetry Section to the WHITING on March 6, 1995. WHITING launches conducted DGPS performance checks using the Jones Island Range, Front Light as a known position. The positions are as follows:

Station:	SKID
Latitude:	31° 59' 19.22599" N
Longitude:	081° 01' 12.26294" W
Ellipsoid Ht:	-29.858 meters
Station:	Jones Island Range, Front Light
Latitude:	32° 02' 31.71243" N
Longitude:	080° 51' 10.09256" W

APPROVAL SHEET
HYDROGRAPHIC SURVEY
OPR-G398-WH
1995
WH-10-12-95
H-10630

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
Rockville, Maryland 20852

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: May 8, 1996

HYDROGRAPHIC BRANCH: Atlantic

HYDROGRAPHIC PROJECT: OPR-G398-WH

HYDROGRAPHIC SHEET: H-10630

LOCALITY: 12 Nautical Miles ESE of Gaskin Banks, South Carolina

TIME PERIOD: August 6 - October 13, 1995

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): -0.08 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 6.9 ft.

REMARKS: RECOMMENDED ZONING

Apply a -18 minute time correction and a x0.93 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.


CHIEF, DATUMS SECTION



GEOGRAPHIC NAMES

H-10630

Name on Survey	CHART NO. 11515, 11480 ON PREVIOUS SURVEY CON 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		
GASKIN BANKS (title)	X		X								1
GEORGIA (title)	X		X								2
NORTH ATLANTIC OCEAN	X		X								3
SOUTH CAROLINA (title)	X		X								4
											5
											6
											7
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											25

Approved

Charles C. Cox
Chief Geographer

FEB 23 1996

09/11/96

HYDROGRAPHIC SURVEY STATISTICS

REGISTRY NUMBER: H-10630

NUMBER OF CONTROL STATIONS 2

NUMBER OF POSITIONS 5008

NUMBER OF SOUNDINGS 28736

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	28	04/19/96
VERIFICATION OF FIELD DATA	46	06/25/96
QUALITY CONTROL CHECKS	0	
EVALUATION AND ANALYSIS	5	
FINAL INSPECTION	9	06/13/96
COMPILATION	28	09/05/96
TOTAL TIME	116	
ATLANTIC HYDROGRAPHIC BRANCH APPROVAL		06/24/96

**ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H-10630(1995)**

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.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

The following software was used to process data at the Atlantic Hydrographic Branch:

Hydrographic Processing System
NADCON, version 2.10
AUTOCAD, Release 12
QUICKSURF, version 5.1
MicroStation, version 5.0
I/RAS B, version 5.01

The smooth sheet was plotted using an ENCAD NovaJet III plotter.

E. CONTROL STATIONS

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. The smooth sheet has been annotated with ticks showing the computed mean shift between the NAD 83 and the North American Datum of 1927 (NAD 27).

To place this survey on the NAD 27, move the projection lines 0.755 seconds (23.255 meters or 2.33 mm at the scale of the survey) north in latitude, and 0.625 seconds (16.411 meters or 1.64 mm at the scale of the survey) east in longitude.

L. JUNCTIONS

H-10600 (1995) to the south
H-10624 (1995) to the west
H-10627 (1995) to the west

Standard junctions were effected between the present survey and surveys H-10600 (1995), H-10624 (1995) and H-10627 (1995).

There are no junctional surveys to the north and east. Present survey depths are in harmony with the charted hydrography to the north and east.

M. COMPARISON WITH PRIOR SURVEYS

A comparison with prior surveys was not done during office processing in accordance with section 4. of the memorandum titled "Changes to Hydrographic Survey Processing", dated May 24, 1995.

- O. COMPARISON WITH CHARTS 11480 (32nd Edition, May 14/94)
11513 (21st Edition, June 4/94)

Hydrography

The charted hydrography originates with prior surveys and requires no further consideration. The hydrographer makes adequate chart comparison with chart 11480 in section O. of the Descriptive Report. On chart 11513 present survey depths are in good agreement. The following should be noted:

AWOIS Item #9335, a charted Fish Haven with an authorized minimum depth of 50 feet (15² m), in Latitude 30°03'18.75"N, Longitude 80°25'11.37"W, originates with Chart Letter 1428 of 1984 (CL1428/84), permit number 79-3H-164; SCWMRD, and was investigated by the field unit. The Liberty ship "BETSY ROSS" is the center piece of the fish haven. The wreck with a diver held depth gauge least depth of 62 feet (19¹ m), in Latitude 30°03'18.15"N, Longitude 80°24'59.25"W, was located by the field unit. Several additional obstructions were located within the limits of the fish haven. The most notable of these is an obstruction, in Latitude 30°03'21.53"N, Longitude 80°24'51.57"W, with a diver held depth gauge least depth of 19 feet (6 m). Another obstruction (metal tower), in Latitude 30°03'22.55"N, Longitude 80°24'50.87"W, with a diver held depth gauge least depth of 31 feet (9⁶ m). was located in the vicinity of the fish haven. These obstructions are 36 meters apart. Both of these obstructions are shoaler than the charted authorized minimum depth. All of the other obstructions located in the fish haven are in compliance with the authorized minimum depth. It is recommended that the obstruction with a least depth of 19 feet (6 m) be charted as shown on the present survey with the notation "Obstns".

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.

S. **MISCELLANEOUS**

Chart compilation was done by Atlantic Hydrographic Branch personnel in Norfolk, Virginia. Compilation data will be forwarded to Marine Chart Division, Silver Spring, Maryland.

WHITING Processing Team

Franklin L. Saunders

Franklin L. Saunders

Cartographic Technician
Verification of Field Data
Evaluation and Analysis

APPROVAL SHEET
H-10630

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 digital data for this survey. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Robert G. Roberson Date: 24 JUNE 1996
Robert G. Roberson
Cartographer
Chief, Cartographic Section

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: 24 JUNE 1996
Nicholas E. Perugini
Commander, NOAA
Chief, Atlantic Hydrographic Branch

Final Approval:

Approved: Andrew A. Armstrong Date: 7 Oct 1996
Andrew A. Armstrong, III
Captain, NOAA
Chief, Hydrographic Surveys Division

MARINE CHART BRANCH
RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10630

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
11513	9/5/96	Ornell	Full Part Before After Marine Center Approval Signed Via FULL APPLICATION Drawing No. OF SOUNDINGS FROM SMOOTH SHEET
11480	3/4/97	Travis Newman	Full Part Before After Marine Center Approval Signed Via Drawing No. 42 Appl from 11513
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
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