H10629

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-10-11-95

Registry No.: H-10629

LOCALITY

State: SOUTH CAROLINA

General Locality: CALIBOGUE SOUND

Sublocality: FERRY POINT TO BRADDOCK POINT

19 96

CHIEF OF PARTY

CDR M. R. KENNY, NOAA

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DATE: JAN 6 1997

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NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NOS.

H-10629

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-10-11-95

State: SOUTH CAROLINA

General locality: ~~North ATLANTIC OCEAN~~ CALIBOGUE SOUND

Locality: ~~CALIBOGUE SOUND~~ FERRY POINT TO BRADDOCK POINT

Scale: 1:10,000 Date of Survey: Aug. 2 - Nov. 8, 1995

Instructions dated: August 18, 1995 Project No.: OPR-G352-WH

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

Chief of Party: COMMANDER MAUREEN R. KENNY

Surveyed by: CDR J.D. Wilder,CDR M.R. Kenny,Lt. A.L. Beaver, Ens. E.J. Sipos, Ens C.E.Parrish, Ens. J.T. Michalski, Ens.J.D. Garte, CST U.L. Gardner, ST F.R. Cruz, ST M.M. Cisternelli, ST K.B. Shaver, AST C.A. Neely

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: ENCAD NovaJet III plotter (AHB) ZETA 936 Plotter (Field)

Verification by: ATLANTIC Hydrographic Branch Personnel

Soundings in MLLW: DEPTHS IN UNITS OF ~~METERS~~ FEET

REMARKS: TIME ZONE USED: 0 (UTC)

HORIZONTAL DATUM USED: NAD 83

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

AWOIS and SURF 12/19/96 RWD

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

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY
OPR-G352-WH
WH-10-11-95
H-10629

NOAA SHIP WHITING
CDR Maureen R. Kenny
Commanding Officer

A. PROJECT

The purpose of this project is to provide contemporary hydrographic survey data for existing nautical charts. The U.S. Coast Guard (USCG) Marine Safety Office Savannah, Georgia, has requested survey data in Calibogue Sound, South Carolina, to support the large volume of spectator boat traffic expected during the 1996 Olympic Summer Games in Wassaw Sound, and the Wilmington River, Georgia.

Project OPR-G352-WH consists of two survey sheets. The survey described in this report was designated "A" sheet, field sheet number WH-10-11-95, and registry number H-10629.

Survey operations were conducted in compliance with the Hydrographic Project Instructions OPR-G352-WH dated August 18, 1995. There were no changes to the original project instructions.

B. AREA SURVEYED

Hydrographic survey H-10629 is at the entrance to Calibogue Sound, north of Barrett Shoals, South Carolina, and is bounded by the following coordinates.

Position	Latitude	Longitude
SE Corner	32° 06' 00" N	80° 46' 30" W
SW Corner	32° 06' 00" N	80° 51' 20" W
NW Corner	32° 13' 00" N	80° 51' 20" W
NE Corner	32° 13' 00" N	80° 46' 30" W

Survey operations commenced on August 02, 1995 (DN 214) and concluded on November 8, 1995 (DN 312).

C. SURVEY VESSELS

Launch 1014 (VESNO 2932) and Launch 1015 (VESNO 2931) were used to conduct mainscheme echosounder, mainscheme side scan sonar, developments, bottom samples, AWOIS investigation, and dive operations. WHITING was used for DGPS performance checks only. 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:

PROGRAM NAME	VERSION	DATE INSTALLED
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* version 2.00 and *VELOCITY* version 2.11. The DGPS station was checked using *MONITOR* version 3.0. The *DAILYDQA* program ensured the proper functioning of the MOD-3 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 SSS 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:

VESNO	Type	S/N	DN
2931	Towfish	016697	263-312
	Recorder	16669	263-312
2932	Towfish	01494	263-274
	Towfish	10823	275-312
	Recorder	016673	263-312

On launch 1014 and 1015, the SSS towfish was deployed using a Superwinch Model W115 in conjunction with an adjustable davit arm on the stern. The SSS towfish was towed with vinyl-coated Kevlar cable and was connected to the recorder via a slip ring assembly.

200% side scan sonar coverage was required in two specified areas in Calibogue Sound. The first was at the southern entrance of Calibogue Sound extending past Braddock Point to Baynard Cove, and the other was located in the center of the May River.

Side scan sonar survey limits for Braddock Point were:

Position	Latitude	Longitude
NW limit	32° 07' 40"N	80° 50' 00"W
SW limit	32° 06' 00"N	80° 50' 00"W

The eastern inshore limits were restricted to the extent of launch and equipment safety (close to the 4-meter curve).

Side scan sonar survey limits for the May River were:

Position	Latitude	Longitude
Western limit	32° 12' 29"N	80° 49' 48"W
Eastern limit	32° 11' 58"N	80° 47' 54"W .

The northern and southern inshore limits were restricted to the extent of launch and equipment safety.

In order to acquire the required 200% SSS coverage for these survey areas, mainsheme lines were run with 40-meter line spacing at the 50-meter range scale. The towfish was maintained at a height off the bottom of 8-20 percent of the range scale (4-10 meters). Side scan operations were limited to 4.5 knots. Adequate coverage was determined by producing 'A' and 'B' swath plots and ensuring 100% coverage on each plot.

Side scan sonar was also used to investigate AWOIS items located within the survey area. Of the fourteen AWOIS items listed, only one item (AWOIS # 9494) was in water deep enough to safely use SSS.

Confidence checks were performed by noting changes in bottom texture on the outer edges of the sonargram, and passing by aids to navigation.

All contacts appearing significant were measured off the sonargram and entered into an HDAPS contact table. Using the contact utility program, WHITING hydrographers determined contact heights, positions, and correlations to other contacts. Contacts were then further developed, as needed, by means of echosounder investigation and/or side scan developments. Final resolution and least depths of significant items were determined with detached positions taken on diver-placed buoys.

F. SOUNDING EQUIPMENT

Raytheon Digital Survey Fathometer (DSF) 6000N echo sounders were 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) depths. The high and low frequency digital depths were recorded by the HDAPS acquisition system. The high frequency depths were selected as the primary depths and were used for plotting. All echograms were scanned, and any significant features that were not selected as primary soundings were manually inserted.

Electronic technicians performed accuracy checks and preventative maintenance on all of the

DSF-6000N echosounders used.

The following fathometers were used during this survey:

VESSEL	S/N	DN
2931	A105N	238-312
2932	B050N	238-255
2932	B015N	263-312

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 CTD was calibrated on February 15, 1995. The Seacat calibration records are on file at AHB. *

For each velocity cast taken, one corrector table was generated for the launches (VESNO 2931, 2932). The following table shows the dates, locations and depths of each velocity cast that was applied to the data collected in this survey area:

DN	Vel. Table #	Latitude	Longitude	Depth
240	48	32° 11' 18"N	80° 47' 12"W	24.2M
249	49	32° 11' 11"N	80° 47' 13"W	26.5M
263	05	32° 11' 25"N	80° 47' 13"W	26.3M
284	11	32° 11' 31"N	80° 47' 15"W	24.5M
301	25	32° 14' 54"N	80° 39' 39"W	20.5M

Each cast was processed and corrector tables generated using *CAT* version 2.00 and *VELOCITY* version 2.11. The velocity correctors were manually entered into an HDAPS velocity table where correctors were applied to both the high frequency (100 kHz) and the low frequency (24 kHz) beams during data acquisition. Velocity profile data is included in the Separates under section IV. *

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 *CAT* program compared these values to the Seacat's surface values and confirmed that the Seacat was working properly. WHITING hydrometers were calibrated on January 15-16, 1995. Correctors were applied to the readings taken from the hydrometer.

There were no variations in instrument initials.

The *DAILDQA* program used in conjunction with the ship's barometer was used to assure that the MOD-3 Diver Least Depth Gauge was working properly. Daily results fell within specified

* DATA filed with Field Records

operating ranges.

Bar checks were performed on launches 1014 and 1015. No corrections to soundings were needed 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 launches 1014 and 1015 were determined on March 29, 1995 and entered into Offset table 2 and 1 respectively. The settlement and squat correctors were applied during data acquisition on each survey platform. Offset tables are included in the Separates, section II. DATA Filed with Field Records.

Heave correctors for launch 1014 and 1015 were applied during post processing by manually scanning the echograms and making the appropriate corrections.

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 to the digital data during acquisition by HDAPS. Digital tidal data were received on floppy disk from N/CS3, Hydrographic Surveys Division.

The survey area is covered by three tide correction zones; tidal corrections were applied in accordance with the Project Instructions sections 5.90.

Time and height correctors used for this survey are as follows:

	Zone 1 Southern Calibogue	Zone 2 Middle Calibogue	Zone 4 May River
Time Correction	Times are direct	+0 hr 12 min	+0 hr 30 min
Height Ratio	x 0.98	x 1.03	x 1.10

WHITING installed and leveled one ADR gauge for datum control on H-10629. The following table lists the station number, name and location:

Station Number	Station Name	Latitude	Longitude
866-9262	North Bull Island, May River South Carolina	32° 12'.0 N	80° 48'.9 W

Opening levels were run on August 27, 1995. The level run closed within tolerance. Closing levels were run on November 9, 1995. The request for smooth tides was submitted to the Product and Services Branch, N/OES231, Datums Section, on November 29, 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 was a high frequency Differential GPS station set on a tower over a control mark on Skidaway Island, GA. WHITING used the Charleston USCG DGPS Beacon for continuous performance checks using *SHIPDIM* version 2.1. The adjusted NAD 83 positions for SKID (2nd Order Class I) and the Jones Island Range were provided by the Field Photogrammetry Section. The position of the Charleston USCG DGPS Beacon was scaled from the largest chart of the area. The positions are as follows:

Station	Latitude	Longitude
SKID	31° 59' 19.22599"N	81° 01' 12.26294"W
Charleston USCG DGPS Beacon	32° 45' 30.000"N	79° 50' 30.000"W
Jones Island Range, Front	32° 02' 31.71243"N	80° 51' 10.09256"W

WHITING used *MONITOR* 3.0 to verify station position and to check for multipath in the area.

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 an 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.

WHITING personnel erected a HF Differential GPS station on the grounds of Skidaway Institute of Oceanography (station SKID). The station contains the following equipment: an Ashtech MR XII receiver, s/n 700354A03069; an LRD-2 modulator, s/n 605; and a Ray 152 high frequency transceiver, s/n BS29239.

DGPS positioning was accomplished in accordance with the Field Procedures Manual, section 3.4. 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 and LRD-1 receivers on the data acquisitions platforms are as follows:

Vesno #	Device	Serial Number
2931	Ashtech Sensor	70041751203
	LRD-1	233
2932	Ashtech Sensor	700417B1194
	LRD-1	206

2930	Ashtech Sensor	700417B1055
	LRD-1	248

DGPS performance checks were done in two stages. Prior to September 25, 1995, the first stage determined the performance of the launch's equipment using station SKID. The check was performed by using a launch to take ten detached positions alongside the forward range light marking Jones Island Range. The average position from these DP's was compared to the known position of the range light to verify the proper functioning of the Skidaway DGPS. After September 25, 1995 the proper functioning of WHITING's DGPS equipment was determined by using *SHIPDIM* version 2.1. The position from the Skidaway DGPS tower was compared to the position provided by the U.S. Coast Guard DGPS beacon in Charleston. *SHIPDIM* routinely showed the positions given by the two systems to be within 3 meters of each other.

Stage two was conducted with each launch secured in the WHITING davits. Simultaneous HDAPS positions were compared between WHITING and each launch. An offset in distance and azimuth was then calculated between the ship and each launch system. A summary of the DGPS performance checks are on file at AHB, N/CS33. All DGPS performance checks confirmed that the DGPS equipment was working properly.

DGPS antenna offsets were measured on July 28, 1993 for launches 1014 and 1015, and March 19, 1993 for 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 offsets and laybacks were applied by HDAPS on-line. Antenna offsets were entered into HDAPS offset tables and applied on-line. A minimum of four satellites were used during survey H-10629 (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 entered into Offset tables and applied by HDAPS on-line. Correctors from offset table 1 were applied to all data acquired from launch 1015. Correctors from offset table 2 were applied to all data acquired from launch 1014.

J. SHORELINE See ALSO EVALUATION Report.

Survey H-10629 shoreline was compared to chart 11516, 27Ed., Oct. 30/93. All new piers were positioned during this survey. Eight new private piers were noted in the May River, two in Calibogue Sound - North of Spanish Wells, eight south of Spanish Wells, and two at Haig Point. There are two unverified piers noted; one is a pier in the Cooper River, positioned at Latitude 32° 08' 52"N and Longitude 80° 50' 20"W on chart 11516. This pier was not visually observed while conducting shoreline. Time constraints did not allow WHITING to search for pier remains in the area. WHITING recommends reviewing the source for this pier.* The other unverified pier was listed as an AWOIS item. A description of this item is given in section N4.

*See Section 0.3 of The EVALUATION Report.

WHITING performed shoreline verification in the vicinity of the pier charted at position Latitude 32° 09' 40" N, and Longitude 80° 48' 04" W on chart 11516. A pier was found approximately fifty meters north of that charted position. WHITING recommends that the pier be charted at Latitude 32° 09' 42" N and Longitude 80° 48' 03" W (fix #5510).

K. CROSSLINES

A total of 20.39 nautical miles of crosslines were done, or 9.2 % of the total mainscheme run. The agreement between the crosslines and mainscheme was adequate.

L. JUNCTIONS *See Also Evaluation Report.*

Survey H-10629 does not junction with any contemporary surveys.

M. COMPARISONS WITH PRIOR SURVEYS *See Also Evaluation Report.*

Survey H-10629 soundings were compared with prior surveys H-5571 (1934, scale 1:10,000, Calibogue Sound and the Cooper River), prior survey H-5568 (1934, scale 1:10,000, Calibogue Sound and the May River), and prior survey H-5117 (1931, scale 1:10,000, Spanish Wells). All three prior surveys were referenced to NAD-27. For comparison purposes, a datum shift was applied to H-10629 in accordance with Section 7.4 of the FPM (*CORPSCON*, version 2.1). Comparisons between current survey depths and prior surveys show the Calibogue Sound, Cooper River and May River to be fairly stable. Except as noted below, shoals have not shifted in position. In general, H-10629 survey soundings were deeper than prior survey soundings.

Discrepancies were noted in the main channel off Braddock Point (Southern entrance to Calibogue Sound). The soundings in the channel were found to be deeper than prior soundings, one by as much as 10 ft (3 meters) The northern bank of the Cooper River (north of Haig Point) was also considerably deeper than prior soundings, as the charted shoal is now approximately 100 meters to the northwest. The shoal at the northern end of Middle Marsh was found by WHITING to be approximately 60 meters to the south of the charted position.

N. ITEM INVESTIGATIONS

The following items were investigated by WHITING. Side scan sonar was used in areas where water depth allowed. Several of the items were visible features near shore and detached positions were taken.

The AWOIS items are listed starting with the northernmost item and progressing south.

Section	AWOIS Item	Status
N1.	9494	Verified
N2.	9493	Disproved
N3.	9515	Disproved
N4.	9492	Disproved
N5.	9490	Disproved
N6.	9491	Verified
N7.	9488	Verified
N8.	9489	Disproved
N9.	N/A	Uncharted Pile
N10.	9486	Verified
N11.	9487	Verified
N12.	9514	Verified
N13.	9485	Not verified
N14.	9484	Not verified
N15.	9483	Disproved

N1. AWOIS 9494 (Item #5677.20P)

Reported Position:

Latitude:	32° 13'05.00"N
Longitude:	80° 47'12.00"W
Reported Depth:	N/A
Feature:	Submerged Pile
Fix #:	~~5721~~ 5688

The item was investigated and located using SSS on a fifty meter range scale. Contact #5677.20P was investigated by divers using a circle search pattern. A pile was found lying on its side. The entire length of the pile was investigated, and there was no significant height to the pile (<1ft). A detached position was taken on a diver-placed buoy on the pile. The WHITING recommends that this item be deleted from the chart. Concur, Recommend Charting Subm Pile in Lat. 32° 13' 04.441" N, Lon. 80° 47' 05.204" W

N2. AWOIS 9493

Reported Position:

Latitude:	32° 12' 00.73"N (NAD 27)
Longitude:	80° 47' 20.39"W (NAD 27)
Reported Depth:	N/A
Feature:	Wreck (ED)
Fix #	5725

Due to shoaling in the area, hydrographic surveying was limited by launch and equipment

safety, and could only be done at high water. The reported AWOIS area was observed visually at high water and at MLLW; no evidence of a wreck was observed. Approximately 200 meters northeast of the item's charted position, an engine block with an attached tank was visible at MLLW. The item was completely covered at high water. Because the item was sitting on a shoal, and could not be reached safely by launch, a detached position was taken 15 m off from the item, bearing 055° magnetic. WHITING recommends that the wreck ED symbol be deleted from the chart and an obstruction visible at low water and covered at high water be charted at position: Concur

Latitude:	32° 12' 03.049"N
Longitude:	80° 47' 38.770"W

N3. AWOIS 9515

Reported Position:

Latitude:	32° 11' 32.00"N
Longitude:	80° 47' 23.00"W
Reported Depth:	N/A
Feature:	Sign PA
Fix #:	5542

Due to the close proximity of the reported area to the shore, hydrographic surveying was limited by launch and equipment safety. A visual search was done at MLLW, and at high water. There was no sign visible at the charted, position approximate, location. However, approximately 100 meters south of the reported position, an unmarked post could clearly be seen above the high water line. Because it was located on a marsh and could not be reached by boat, a detached position was taken 25 meters away from the post bearing 260°. The unmarked post found during this investigation is located above the high water line and is of questionable value as an aid to navigation. WHITING recommends the sign PA be deleted from the chart. Concur

* Do not Chart

N4. AWOIS 9492

Reported Position:

Latitude:	32° 09' 52.00"N
Longitude:	80° 47' 54.00"W
Reported Depth:	N/A
Feature:	Pier
Fix #:	5511

Due to the close proximity of the reported position to the shore, hydrographic surveying was limited by launch and equipment safety. A visual search was done at high water; no structure resembling a pier was visible. A visual search was done in the same area at MLLW, and two

small, broken piles, standing approximately 1.5 ft high, were seen on the beach, exposed at low water. A detached position was taken 45-50 meters away, bearing 120°. This item is represented on Chart 11516 as a shoreline feature (pier). WHITING recommends that the pier be deleted from the chart, and piles visible at low water, and covered at high water be charted at position: DO NOT CONCUR IT IS RECOMMENED THAT THE CHARTED PIER BE DELETED AND A PIER RUINS BE CHARTED AS SHOWN ON PRESENT SURVEY.

Latitude: 32° 09' 51.878" N
Longitude: 80° 47' 52.656"W

N5. AWOIS 9490

Reported Position:

Latitude:	32° 08' 53.00"N
Longitude:	80° 48' 27.00"W
Reported Depth:	N/A
Feature:	No Wake Sign
Fix #:	5368

Due to shoaling in the reported area, hydrographic surveying was limited by launch and equipment safety. A visual search was made for the item at high water and at MLLW. There was no "No Wake" sign located in this reported position. An unmarked pile was found approximately 200 meters west of the reported position. This item is visible at both high water and MLLW. WHITING recommends that sign be deleted from the chart and pile be charted at position. CONCUR

Latitude: 32° 08' 50.60" N
Longitude: 80° 48' 38.06" W.

N.6 AWOIS 9488

Reported Position:

Latitude:	32°08'19.00" N
Longitude:	80°48' 50.00" W
Reported Depth:	3 ft
Feature:	Sounding

The entrance to the ~~Harbortown~~ HARBOUR TOWN marina was investigated by echosounder. A 2.6 ft (0.8 meters) sounding was discovered in the reported area, 6 meters SW of Daymarker "4" which marks the channel entrance to the marina. This item was verified. WHITING recommends charting depths found by H-10629 survey. CONCUR, IT IS ALSO RECOMMENED THAT THE CHARTED NOTATION 3FT REP, 1975 be deleted.

N.7 AWOIS 9489

Reported Position:

Latitude:	32° 08' 18.74" N
Longitude:	80° 48' 44.39" W
Reported Depth:	4.5 ft
Feature:	Sounding

The marina at ~~Harbortown~~ Harbour Town was investigated by echosounder. A 4.6 27 ft (1.4 meters) sounding was located inside the marina, within the reported AWOIS position. This item was verified. WHITING recommends charting depths found by H-10629 survey. Concur, IT is also recommended That The charted notation 4.5 Ft. Rep. 1983 be deleted. A depth of 4.27 Ft was found in lat 32°08' 16.22 N, long 80°48'44.08W.

N.8 AWOIS 9491

Reported Position:

Latitude:	32° 08' 49.00" N
Longitude:	80° 50' 51.00" W
Reported Depth:	N/A
Feature:	Snag
Fix #:	5560

Due to the close proximity of the reported position to the shore, hydrographic surveying was limited by launch and safety equipment. A visual search was done in the reported area at high water and MLLW; no snag was observed. Two piles, standing approximately 6-8 ft high, were seen at high water and MLLW within the reported area. WHITING recommends that snag be deleted from the chart and piles be charted at position: Concur

Latitude:	32° 08' 50.135" N
Longitude:	80° 50' 49.338" W

N.9 Feature: Uncharted Pile
Fix#: ~~5491~~ 5323

An uncharted pile was found during survey operations. At high water, the top of the pile extended approximately 1/2 ft above the water line. Three detached positions were taken on different days to verify that it was a fixed object. WHITING recommends that a pile be charted at position: Concur

Latitude:	32° 08 ~~08~~ 41.~~624~~ 771" N
Longitude:	80° 51' 11.~~587~~ 771" W

N.10 AWOIS 9486

Reported Position:

Latitude:	32° 07' 20.00"N
Longitude:	80° 50' 51.00"W
Reported Depth:	N/A
Feature:	Shoal reported

Extensive shoaling was discovered at the entrance to Baynard Cove Creek, and also inside the creek. Because of the shoal depths, the launches were restricted to following a narrow channel into the creek, and were only able to safely run two echosounder lines during high water. The channel was marked with colored metal stakes, approximately 1" in diameter, 4 ft in height and did not appear to be permanent aids to navigation. WHITING recommends charting depths found by H-10629. CONCUR, IT IS ALSO RECOMMENDED THAT THE CHARTED NOTATION SHL REP BE DELETED.

N.11 AWOIS 9487

Reported Position:

Latitude:	32° 07' 10.75" N
Longitude:	80° 49' 25.39" W
Reported Depth:	4 ft
Feature:	Sounding

Brailsford Cove? Baynard Cove Cr. is North of this position

Extensive shoaling was found inside Baynard Cove Creek. The shoalest sounding being -0.2 m and the deepest sounding being 1.9 m. WHITING recommends charting depths found by H-10629 survey. CONCUR, IT IS ALSO RECOMMENDED THAT THE CHARTED NOTATION 4 FT. REP. 1983 BE DELETED.

N.12 AWOIS 9514

Reported Position:

Latitude:	32° 07' 21.00" N
Longitude:	80° 50' 19.00" W
Reported Depth:	N/A
Feature:	Sign
Fix #:	5471

A sign bearing the words "SC Non-Navigational" was found at the outer edge of the AWOIS circle search radius (100m SW from the reported position). The sign was only accessible during high water. WHITING recommends deleting the sign at charted position and charting the sign at position: CONCUR, CHART RPLY MARKER

Latitude: 32° 07' 18.998"N
Longitude: 80° 50' 22.213"W.

N.13 AWOIS 9485

Reported Position:

Latitude:	32° 06' 38.00"N
Longitude:	80° 49' 42.00"W
Reported Depth:	N/A
Feature:	Submerged Pile

WHITING launches attempted to use the side scan sonar to locate the item. SSS could only be used safely up to the 4-m depth curve. Outward of the 4-m depth curve, two SSS lines were run with 40 meter line spacing on a 50 meter range scale. In addition, a visual search was done in the area at MLLW and there was no visible sign of a submerged piling. Because of shoal depths, and time constraints, the item was not resolved. WHITING recommends that this item remain as charted. Concur

N.14 AWOIS 9484

Reported Position:

Latitude:	32° 06' 32.75"N
Longitude:	80° 49' 39.39"w
Reported Depth:	3 ft
Feature:	Sounding

Due to shoaling in the area, and water breaking over the shoal, hydrographic surveying was limited by launch and equipment safety. WHITING was unable to resolve this item, and recommends that the item remain as charted. Concur

N.15 AWOIS 9483

Reported Position:

Latitude:	32° 06' 08.75"N
Longitude:	80° 50' 21.89"W
Reported Depth:	N/A
Feature:	Gypsy Queen
Fix #:	5672

The 250 meter circle search radius for this item encompassed a shoal that was completely exposed at MLLW. Two lines of SSS were run on the eastern edge of the area with no contacts noted. A visual search was done in the reported area at MLLW, but there was no wreckage, or any remains of a boat visible. A detached position was taken at the eastern edge of the shoal (approximately 100m from the reported position) to verify our location. WHITING recommends that this item be removed from the chart. Concur

O. COMPARISON WITH THE CHART See Also Evaluation Report.

Soundings from H-10629 were compared with soundings from chart 11516 (27th Ed., Oct. 30/93, 1:40,000). As discussed in section M, present survey soundings were generally deeper than charted survey depths. No dangers to navigation were reported to the U.S. Coast Guard.

P. ADEQUACY OF SURVEY See Also Evaluation Report.

This survey is considered complete, and the data acquired are adequate to supersede all prior surveys of the common area.

Q. AIDS TO NAVIGATION

All twenty-four non-floating aids to navigation were positioned within the survey limits of this sheet. Characteristics were compared to the Light List volume III. All positions were compared to charted positions scaled from Chart 11516 (27th Ed., Oct.30/93, 1:40,000). The positioning of fixed aids using DGPS was in accordance with the Project Instructions. A detached position with a check position was taken for each aid to navigation. All check positions fell within the required tolerance (10m at a 1:10,000 scale).

All aids to navigation appear to serve their intended purpose. No new aids were found. All aids that were found to be greater than 40 meters different than charted positions were listed in Appendix II, form 76-40, of this report. The Coast Guard was notified of three aids to navigation whose surveyed positions were significantly different from charted positions. See Appendix VI, Supplemental Correspondence. DATA Appended To This Report.

R. STATISTICS

Number of Positions	3814
Main-scheme sounding Lines (Nautical Miles)	188
Crosslines (Nautical Lines)	20.4
Square Nautical Lines Surveyed	6.6

Days of Production	20
Detached Positions	110
Bottom Samples	24
Tide Stations Installed	1
Current Stations	0
Number of CTD casts	5
Magnetic Stations	0

S. MISCELLANEOUS See also Evaluation Report.

Bottom samples for the survey area were collected in accordance with the Project Instructions. Oceanographic log sheets for H-10629 are submitted with the data for this survey. Bottom samples were submitted to the Smithsonian Institute as per Project Instructions.

T. RECOMMENDATIONS see also Section P. of the Evaluation Report.

Due to increased development of the area along the shoreline, WHITING recommends new shoreline photography be obtained. concur

U. REFERRAL TO OTHER REPORTS

The following reports were submitted under separate cover as part of OPR-G352-WH.

User Evaluation Report
Coast Pilot Report

Submitted By:

Monica M. Cisternelli

Monica Cisternelli
Survey Technician, NOAA

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

The Differential GPS station at the Charleston Coast Guard station was used for performance checks. The position of the station, scaled from the largest scale chart of the area, is as follows:

Station:	**Charleston**
Latitude:	32° 45' 30.000" N
Longitude:	079° 50' 30.000" W

NOAA FORM 76-40
(8-74)
Replaces C&GS Form 567.

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY
- [x] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL AND REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

- [ ] TO BE CHARTED
- [x] TO BE REVISED
- [ ] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
NOAA Ship WHITING	SOUTH CAROLINA	CALIBOGUE SOUND	02-16-96

The following objects HAVE ☐ HAVE NOT ☐ been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
OPR-G352-WH	WH-10-11-95	H-10629	NAD 83

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station name, where applicable, in parentheses)	POSITION LATITUDE ° '	" D.M. Meters	POSITION LONGITUDE ° '	" D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
Daymarker R "6"		32 12	37.827	080 51	21.168		F-DGPS 10-29-95	11516 11513
Daymarker G "5"		32 12	36.291	080 49	53.758		F-DGPS 10-29-95	11516 11513
Daymarker R "4"		32 12	01.071	080 48	06.340		F-DGPS 10-29-95	11516 11513
Light G "1"		32 12	33.532	080 46	51.628		F-DGPS 11-04-95	11516 11513
Light G "29" PA		32 11	50.446	080 46	57.135		F-DGPS 10-29-95	11516 11513
Light R "34"		32 08	58.621	080 51	09.912		F-DGPS 10-29-95	11516 11513
Daymarker G "1"		32 08	45.388	080 48	46.266		F-DGPS 10-29-95	11516 11513
Light G "1" PA		32 08	20.201	080 48	59.225		F-DGPS 10-29-95	11516 11513
Light QR "2" PA		32 08	18.672	080 48	59.617		F-DGPS 10-29-95	11516 11513
Light R "6" PA		32 06	22.301	080 49	41.723		F-DGPS 10-29-95	11516 11513

✓ CEP

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

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

CAUTION
ADVANCE INFORMATION
SUBJECT TO OFFICE REVIEW

Dear Sir:

The NOAA Ship WHITING recently completed survey operations in Calibogue Sound, South Carolina. This correspondence is to inform you of three aids to navigation, positions approximate, within the survey area that were positioned during survey operations. The following table is a summary of our findings:

Description	Charted Position	Surveyed Position
Fl R "6" PA	32° 06' 15"N 80° 49' 42"W	32° 06' 22.3"N 80° 49' 41.7" W
QR "2" PA (Harbortown)	32° 08' 20" N 80° 48' 58"W	32° 08' 18.7"N 80° 48' 59.6"W
Fl G "1" PA (Harbortown)	32° 08' 20"N 80° 48' 55"W	32° 08' 20.2"N 80° 48' 59.2"W

Differential GPS was used to determine survey positions. Positions are referenced to NAD 83. Chart 11516 is the largest scale chart affected.

A copy of this letter has been forwarded to the following offices:

Chief, Marine Charting Division, NOAA
Chief, AMC Operations Division, NOAA
Director, Defense Mapping Agency
Hydrographic/Topographic Center

Sincerely,

Maureen R. Kenny

Maureen R. Kenny
Commander, NOAA
Commanding Officer

cc: AMC1
N/CS2
N/CS33
DMAHTC

APPROVAL SHEET
HYDROGRAPHIC SURVEY
OPR-G352-WH
WH-10-11-95
SHEET A

The data for this survey were acquired and checked under the daily supervision of the Commanding Officer. Position and sounding accuracy meet the requirements specified in the 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:

Maureen R. Kenny

Commander Maureen R. Kenny, 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: May 23, 1996

HYDROGRAPHIC SECTION: Atlantic

HYDROGRAPHIC PROJECT: OPR G352-WH

HYDROGRAPHIC SHEET: H-10629

LOCALITY: Calibogue Sound, S.C.

TIME PERIOD: August 26 - November 8, 1995

TIDE STATION USED: 866-9262 North Bull Island, S.C.
Lat. 32° 12.0'N Lon. 80° 48.9'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 3.82 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 7.8 ft.

REMARKS: RECOMMENDED ZONING

1. MAPINFO polygon: #1

-80.85551	32.120209
-80.894614	32.067989
-80.851394	32.067119
-80.785536	32.107154
-80.820523	32.120209
-80.85551	32.120209

Apply a -24 minute time correction, and a X0.89 range ratio to heights using Bull Island, S.C. (866-9262).

2. MAPINFO polygon: #2

-80.85551	32.120209
-80.820523	32.120209
-80.802688	32.152952
-80.780591	32.186949
-80.791915	32.18716
-80.864091	32.159338
-80.85551	32.120209

Apply a -12 minute correction to times and a X0.94 range ratio to heights using Bull Island, S.C. (866-9262).

3. MAPINFO polygon: #3

-80.820523	32.120209
-80.700799	32.198091
-80.716927	32.204561
-80.780591	32.186949
-80.802688	32.152952
-80.820523	32.120209

Apply a +12 minute correction to times and a X0.99 range ratio to heights using North Bull Island, S.C. (866-9262).

4. MAPINFO polygon: #4

-80.792454	32.18716
-80.780591	32.186949
-80.753636	32.216816
-80.799456	32.236418
-80.864629	32.212701
-80.859243	32.201299

Apply a +12 minute correction to times and heights are direct on North Bull Island, S.C. (866-9262).

Note: Times are tabulated in Greenwich Mean Time.

William M. Hulbert

CHIEF, DATUMS SECTION

NOAA FORM 76-155
(11-72)

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

SURVEY NUMBER

H-10629

GEOGRAPHIC NAMES

Page 1 of 2

Name on Survey	A ON CHART NO. 11516, 11517	B ON PREVIOUS SURVEY NO. 11507, 11512	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	
BARATARIA ISLAND	X		X							1
BARRETT SHOALS	X		X							2
BASS CREEK	X		X							3
BAYNARD COVE	X		X							4
BAYNARD COVE CREEK	X		X							5
BRADDOCK COVE	X		X							6
BRADDOCK POINT	X		X							7
BRAM POINT	X		X							8
BRIGHTON BEACH (ppl)	X		X							9
BROAD CREEK	X		X							10
BRYAN CREEK	X		X							11
BRYAN LANDING (ppl)	X		X							12
BUCK ISLAND	X		X							13
BULL CREEK	X		X							14
BULL ISLAND	X		X							15
CALIBOGUE CAY (ppl)	X		X							16
CALIBOGUE SHOAL	X		X							17
CALIBOGUE SOUND	X		X							18
COOPER RIVER	X		X							19
DAUFUSKIE ISLAND	X		X							20
FERRY POINT	X		X							21
GRENADIER SHOAL	X		X							22
HAIG POINT	X		X							23
HARBOUR TOWN	X		X							24
HILTON HEAD HARBOR	X		X							25

NOAA FORM 76-155 (11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10629

Name on Survey

Page 2 of 2

Name on Survey	A ON CHART NO. 11513, 11516, 11507, 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	
HILTON HEAD ISLAND	X		X							1
JARVIS CREEK	X		X							2
JENKINS ISLAND	X		X							3
MAY RIVER	X		X							4
MIDDLE MARSH ISLAND	X		X							5
NORTH ATLANTIC OCEAN	X		X							6
(title)										7
OLD HOUSE CREEK	X		X							8
POINT COMFORT (ppl)	X		X							9
SOUTH CAROLINA (title)	X		X							10
SOUTH SEA PINES (ppl)	X		X							11
SPANISH WELLS (ppl)	X		X							12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25

Approved

Chief Geographer

MAR 29 1996

NOAA FORM 76-155 SUPERSEDES C&GS 197

12/12/96

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H-10629

NUMBER OF CONTROL STATIONS	2
NUMBER OF POSITIONS	3814
NUMBER OF SOUNDINGS	16057

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	18	03/15/96
VERIFICATION OF FIELD DATA	178	11/13/96
QUALITY CONTROL CHECKS	51	
EVALUATION AND ANALYSIS	59	
FINAL INSPECTION	11	11/13/96
COMPILATION	53	12/12/96
TOTAL TIME	370	

ATLANTIC HYDROGRAPHIC BRANCH APPROVAL 11/19/96

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H-10629 (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 95, version 5.05
I/RAS B, version 5.01

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

H. 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 0.787 seconds (24.255 meters or 2.42 mm at the scale of the survey) north in latitude, and 0.647 seconds (17.011 meters or 1.70 mm at the scale of the survey) east in longitude.

J. SHORELINE

Shoreline originates with 1:20,000 scale final reviewed, Class III* photogrammetric manuscripts TP-01406, TP-01409, and TP-01410 of 1989. Shoreline revisions originating with the present survey are shown in red on the smooth sheet. The following should be noted:

* 1987 Photography

1) An uncharted pier, in Latitude 32°11'41.592"N, Longitude 80°46'58.101"W, originating with T-01406 of 1989 was verified by the present survey. It is recommended that the pier be charted as shown on present survey.

2) Two uncharted jetties, in Latitude 32°12'54.09"N, Longitude 80°46'59.68"W and Latitude 32°12'54.80"N, Longitude 80°47'00.08"W, originating with TP-01406 of 1989 were verified. It is recommended that the jetties be charted as shown on present survey.

3) An uncharted marina, in the vicinity of Latitude 32°12'58"N, Longitude 80°46'51, originating with TP-01406 of 1989 was verified by the present survey. It is recommended that the marina be charted as shown on present survey.

4) The following uncharted piers originating with TP-01406 of 1989 were verified:

Latitude (N)	Longitude (W)
32°12'45.54"	80°51'15.94"
32°12'45.99"	80°51'11.63"
32°12'46.72"	80°51'08.54"
32°12'47.48"	80°51'03.83"
32°12'51.21"	80°50'39.69"
32°12'51.92"	80°50'28.34"
32°12'49.71"	80°50'07.17"
32°12'48.63"	80°50'03.68"
32°12'48.13"	80°50'02.06"
32°12'46.31"	80°49'56.52"
32°11'41.59"	80°46'58.10"
32°11'36.35"	80°46'59.14"
32°11'25.60"	80°46'59.95"
32°11'22.10"	80°47'00.06"

It is recommended that these piers be charted as shown on present survey.

5) An uncharted pier, in Latitude 32°09'42.99"N, Longitude 80°48'03.72"W, originating with TP-01410 of 1989 was verified. It is recommended that the pier be charted as shown on present survey.

M. COMPARISON WITH PRIOR SURVEYS

H-4154 (1920) 1:20,000
H-5117 (1931) 1:10,000
H-5568 (1934) 1:10,000
H-5571 (1934) 1:10,000
H-9459 (1974) 1:10,000

Prior survey depths from H-4154 (1920) compare favorably and show a general trend of being 1 foot (0^3 m) deeper than the present survey depths. Numerous shoreline changes are apparent throughout the common area.

H-5117 (1931) compares favorably and depth generally vary plus or minus 2 feet (0^6 m) from present survey depths. Numerous shoreline changes are apparent throughout the common area.

H-5568 (1934) compares favorably and shows a general trend of being 1 to 2 feet (0^3 to 0^6 m) deeper than present survey depths. Numerous shoreline changes are apparent throughout the common area. The following should be noted:

1) An uncharted shoal with a depth of 3 feet (0^9 m), in Latitude 32°12'39.21"N, Longitude 80°51'15.65"W, originating with the prior survey was neither verified nor disproved. The depth has been brought forward from the prior survey to supplement the present survey. No change in charting is recommended.

2) An uncharted shoal with a depth of 4 feet (1^2 m), in Latitude 32°12'28.96"N, Longitude 80°49'49.40"W, originating with the prior survey was neither verified nor disproved. The shoal depth has been brought forward from the prior survey to supplement the present survey. No change in charting is recommended.

3) An uncharted shoal with a depth of 5 feet (1^5 m), in Latitude 32°10'18.50"N, Longitude 80°48'42.65"W, originating with the prior survey was neither verified nor disproved. The shoal depth has been brought forward from the prior survey to supplement the present survey. No change in charting is recommended.

H-5571 (1934) compares favorably and shows a general trend of being 1 to 2 feet (0^3-0^6 m) deeper than present survey depths. Numerous shoreline changes are apparent throughout the common area. The following should be noted:

A charted shoal, in Latitude 32°08'57.21"N, Longitude 80°48'37.40"W, originating with the prior survey was neither verified nor disproved. It is recommended that the charted shoal be revised and charted as shown on present survey.

H-9459 (1974) compares favorably and shows a general trend of being 1-ft (0^3 m) deeper than present survey depths. Numerous shoreline changes are apparent throughout the common area. The following should be noted:

1) The following uncharted soundings originating with the prior survey were neither verified nor disproved:

Sounding (ft/m)	Latitude (N)	Longitude (W)
$28/8^5$	32°05'56.21"	80°49'51.65"
$29/8^8$	32°06'04.21"	80°49'51.65"
$35/10^6$	32°06'09.81"	80°50'02.15"
$35/10^6$	32°06'11.21"	80°49'59.15"

These soundings have been brought forward from the prior survey to supplement the present survey. No change in charting is recommended.

2) A shoal, in the vicinity of Latitude 32°06'28"N, Longitude 80°50'24"W, originating with the prior survey has migrated to the west approximately 50 meters. It is recommended that the shoal be retained as charted.

The differences between the prior surveys and the present survey can be attributed to natural changes, cultural development, and improved hydrographic surveying methods and equipment.

Except as noted above the present survey is adequate to supersede the above prior surveys within the common area.

O. COMPARISON WITH CHARTS 11516 (27th Edition, Oct. 30/93) 11507 (27th Edition, Oct. 23/93)

Hydrography

The charted hydrography originates with above discussed prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in sections N. and O. of the Descriptive Report. The following should be noted:

1) Charted piers, in Latitude 32°09'51.87"N, Longitude 80°47'52.65"W, and Latitude 32°09'39.50"N, Longitude 80°48'05.30"W, were verified by the field unit and described as piers in ruins. It is recommended that the piers be revised and charted as shown on present survey.

2) A charted pier, in Latitude 32°08'51.89"N, Longitude 80°50'19.45"W, was verified by the field unit. It is recommended that the pier be retained as charted.

3) A charted pier, in Latitude 32°08'51"N, Longitude 80°50'21"W, was neither verified nor disproved. It is recommended that the pier be retained as charted.

4) The following uncharted piers were located by the field unit:

Latitude (N)	Longitude (W)
32°12'47.09"	80°51'05.58"
32°12'48.11"	80°51'00.86"
32°12'49.66"	80°50'51.36"
32°12'49.89"	80°50'48.94"
32°12'50.14"	80°50'46.64"
32°12'51.53"	80°50'34.51"
32°12'51.76"	80°50'30.80"
32°12'51.46"	80°50'22.70"
32°12'49.92"	80°50'10.34"
32°12'49.45"	80°50'05.91"
32°12'59.71"	80°47'02.91"
32'11'22.09"	80°47'00.06"
32°11'06.38"	80°47'03.26"
32°11'04.53"	80°47'03.69"
32°11'02.16"	80°47'04.10"
32°11'01.12"	80°47'04.50"
32°10'56.78"	80°47'06.27"
32°10'55.21"	80°47'07.47"
32°08'52.17"	80°50'33.45"
32°08'52.08"	80°50'24.88"

It is recommended the piers be charted as shown on present survey.

5) A charted pier, in Latitude 32°11'33.28"N, Longitude 80°46'59.11"W, was located by the field unit and described as a pier in ruins. It is recommended that the charted pier be revised and charted as shown on present survey.

6) A charted pier in ruins, in Latitude 32°11'25.60"N, Longitude 80°46'59.95"W, was located by the field unit and described as a pier. It is recommended that the charted pier in ruins be revised and charted as shown on present survey.

7) A charted pier in ruins, in Latitude 32°11'30"N, Longitude 80°46'59"W, was neither verified nor disproved. It is recommended that the charted pier in ruins be retained as charted.

8) Two charted piles, in the vicinity of Latitude 32°08'16"N, Longitude 80°48'45"W, were neither verified nor disproved. It is recommended that the piles be retained as charted.

9) Piers in the following areas are considered disproved due to shoreline changes in the areas.

Latitude (N)	Longitude (W)
32°12'51.00"	80°50'38.00"
32°12'49.30"	80°50'05.30"
32°12'47.30"	80°50'02.30"

It is recommended that the piers be deleted and the area charted as shown on the present survey.

10) A charted marker, in Latitude 32°09'40"N, Longitude 80°49'12"W, was neither verified nor disproved. It is recommended that the charted marker be retained as charted.

11) The following fixed or floating aids to navigation were located by the field unit.

Aid to Navigation	Latitude (N)	Longitude (W)
Calibogue Light 31	32°10'01.79"	80°47'45.38"
Harbour Town Light 1	32°08'20.42"	80°48'59.12"
Harbour Town Light 2	32°08'18.85"	80°48'59.63"
Harbour Town Light 3	32°08'19.38"	80°48'50.87"
Harbour Town Light 4	32°08'18.44"	80°48'51.11"
G "7" (Daymarker)	32°06'29.84"	80°50'19.52"
Calibogue Sound Entrance Light	32°06'22.30"	80°49'42.07"

These aids to navigation are presently charted as Position Approximately (PA). It is recommended that the notation PA be removed from the chart.

Except as noted above 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. Additional work has been requested and will be performed in accordance with project instructions OPR-G352-WH-97, dated October 4, 1996.

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

Robert Snow

Robert Snow
Cartographic Technician
Verification of Field Data
Evaluation and Analysis

APPROVAL SHEET
H-10629

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

Date: 19 Nov 96

Norris A. Wike
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.

Date: 19 November 1996

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

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Final Approval:

Approved: Date: Jan 7, 1997

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. H-10629

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
11516	12/12/96	[signature]	Full ~~Part Before~~ After Marine Center Approval Signed Via FULL APPLICATION
			Drawing No. OF SOUNDINGS FROM SMOOTH SHEET
11513	4/24/97	[signature]	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 40 Revised thru chart 11516
11512	10-23-97	[signature]	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. Revised through chart 11516.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
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			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.