

D-19

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(1986)

per [signature]

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey . . . HYDROGRAPHIC
Field No. WH-2.5-1-83
Office No. ~~FE-249~~ D-19

LOCALITY

State . . . GEORGIA
General Locality BRUNSWICK RIVER
Locality VICINITY OF JEKYLL ISLAND

19 83

CHIEF OF PARTY
CDR ROY K. MATSUSHIGE, NOAA

LIBRARY & ARCHIVES

DATE June 7, 1984

☆U.S. GOV. PRINTING OFFICE: 1980-766-230

*CCPG
CHT*

*TWA 11506
TWA 11489A
TWA 11502*

10-31-86 applied SPL

11507AC

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HYDROGRAPHIC TITLE SHEET

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~~FE-249~~

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

FIELD NO. WH-2.5-1-83
Field Examination

State Georgia

General locality Brunswick River

Locality Brunswick Harbor Channel

Scale 1:2,500 Date of survey 03-12^{OK} August 1983

Instructions dated 14 July 1983 Project No. S-G904-WH-83

Vessel NOAA Ship WHITING Launch 1015

Chief of party CDR Roy K. Matsushige, NOAA

Surveyed by VNS, TAW, PMK, PJR

Soundings taken by echo sounder, ~~K&D Model 500~~ Ross Model 5000

Graphic record scaled by VNS, PJR, TAW, PMK, FRC, MF, JAZ

Graphic record checked by WHITING personnel

Protracted by MBH Automated plot by Hydroplot (field)

Verification by Hydrographic Surveys Branch, Atlantic Marine Center

Soundings in ~~fathoms~~ feet at ~~MLW~~ MLLW

REMARKS: All times are Coordinated Universal Time.

The following data was removed from the Descriptive Report and is filed with the survey records:

Parameter Tape Printout

Request for Smooth Tide Data for H-10107

TC/TE Printout

Soundings Correction Abstract

AWOIS and SURF ✓ RUD 10/6/86

Settlement and Squat Report

Abstract of Electronic Correctors

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Daily Calibration Abstracts (Days 215 & 221)

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DESCRIPTIVE REPORT

TO ACCOMPANY

FIELD EXAMINATION

WH-2.5-1-83

SCALE 1:2,500

SURVEYED 03 AUGUST-12 AUGUST 1983

BY NOAA SHIP WHITING LAUNCH 1015

CDR ROY K. MATSUSHIGE, NOAA

COMMANDING OFFICER

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A. PROJECT

Field Examination # ^{D-19}~~249~~ was performed in accordance with Section 8.8 of the Project Instructions S-G904-WH-83, Gray's Reef, Georgia, dated 14 July 1983, and with the survey requirements documented in the Automated Wreck and Obstruction Information System printout, dated 11 July 1983. This examination was a full investigation, to be verified or disproved using 400% side scan sonar coverage, at a minimum radius of 200 meters.

See the Evaluation Report - sections 2, 3, 4, & 9.

B. AREA SURVEYED

The area surveyed was in Brunswick Harbor Channel, near the intersection of Cedar Hammock Range and Jekyll Island Range. The area is bounded by the following points:

31°06'42"N	⁸¹ 82 °25'36"W
31°06'24"N	81°25'36"W
31°06'24"N	81°25'48"W
31°06'42"N	81°25'48"W

The survey was conducted in Julian Days 215, 221 and 224.

C. SOUNDING VESSEL

WHITING survey launch 1015, EDP Number 2931, was used during this examination on JD's 215, 221 and 224. The launch was used for the 1:10,000 scale deficiency investigation of the obstruction reported at the eastern end of Cedar Hammock Range; (AWOIS Item 03042) in the Brunswick River. This survey was plotted at a 1:2,500 scale for clarity. *Find plot at 1:40,000 scale*

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

A Ross 5000 Echo Sounder (s/n 1052) was used aboard WHITING Launch 1015. Additionally, a Klein K-Maps IV side scan sonar system was used during this examination.

Velocity Corrections

Velocity corrections for the launch work were considered insignificant due to the depths involved in the survey and therefore not applied to the examination done in the Brunswick River. Bar checks were not done for Launch 1015. The relative shallow depth of the investigation, and the reduced running speeds necessary while towing the side scan sonar fish should minimize the effect of this omission. *- See the Evaluation Report - sections 3 & 4.*

A launch draft correction of 1.5 feet and an instrument error correction of 0.0 feet was also applied to all plotted soundings. *- See the Evaluation Report - Sections 3 & 4.*

Settlement and squat trials for WHITING Launch 1015 were run on 06 June 1983, JD 157, in approximately 40 feet of water using a Ross 5000 Echo Sounder (s/n 1052).

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Predicted Tides

Predicted Tides were applied to the plotted soundings on this examination. *(field data)*

E. HYDROGRAPHIC SHEETS

The field sheet was prepared by WHITING personnel using a Houston Instrument DP-3 Roll Plotter (s/n 5848-22). The sheet had an origin as follows:

31°06'15"N

81°25'30"W

The skew for this sheet was 90 degrees. Although specified to be at a 1:10,000 scale, the sheet was plotted at 1:2,500 for clarity. The hydrographer recognizes that the accuracy of control does not merit such a scale.

No launch boat sheets are being submitted since the launch plotter was not functioning during the survey.

~~All plotted sheets and field records have been submitted as part of the H-10107 data to N/MOA23, Hydrographic Surveys Branch, for verification.~~
Survey submitted as a separate & independant field examination.

F. CONTROL STATIONS

The following signals were used for electronic positioning control:

<u>Signal No.</u>	<u>Name</u>	<u>Year Est'd</u>
004	JEKYLL	1983
012	SAPELO	1983

These two signals were established by personnel from Operations, AMC, using a Magnavox (Doppler) satellite positioning system, and they were used solely as electronic control sites. Copies of appropriate geodetic control and computatons can be secured from Operations Branch. *- See the Evaluation Report - sections 2. & 4.*

G. HYDROGRAPHIC POSITION CONTROL

Range/range positioning control was used on this survey by Launch 1015. The ARGO DM-54 positioning system was used for all hydrography, since no other short-range system was available. Time slots used for this survey were 02/07/00/00 with a smoothing code of 03 and a frequency of 1646.7 KHz. No problems were encountered with the equipment during this survey.

The following components and serial numbers were used aboard Launch 1015:

<u>ALU</u>	<u>RPU</u>
A0379124	R047844

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See the Evaluation Report - section 4.

The following components and serial numbers were used on the shore stations.

<u>Station Name</u>	<u>ALU</u>	<u>RPU</u>
JEKYLL	A047853	R047851
SAPELO	A647858	R0379112

Brunswick Point Cut Front Range Light (31°06'02.134"N, 81°26'33.364"W) was used for fixed point calibrations of the launch. Calibration data is included in Attachment E. This range had been surveyed to the accuracy specifications required for this survey by Commander Frank Rossi and WHITING personnel, using theodolite methods.

An Andist correction of 0.0 meters was applied to launch data to account for the difference in position of the ARGO antenna and transducers.

All calibration data for this survey is considered adequate and no problems were encountered which would have degraded positional accuracy. All values are shown on the Electronic Corrector Abstract, Attachment E.

See the Evaluation Report - section 4.

H. SHORELINE

There was no shoreline on this survey. ✓

I. CROSSLINES

No crosslines were run per se, as this was a development of a PSR item. However, survey lines crossing at varying angles were run in the area. - *See the Evaluation Report - section 3.* ✓

J. JUNCTIONS

No junctions are required as per Project Instructions, Section 6.9. ✓

K. COMPARISON WITH PRIOR SURVEYS

PSR Item 3042 - An investigation of an obstruction in the Brunswick Harbor Entrance at the eastern end of Cedar Hammock Range (see LNM 19/83) was conducted by WHITING personnel on JD's 215-221. ✓

On 2 August 1983, Edwin Fendig, Jr., and Lawrence Gray of the Brunswick Bar Pilots' Association accompanied Launch 1015 to pin-point the area most suspect to the launch crew. On 3 August 1983, the launch ran a series of 25-meter spaced lines parallel and perpendicular to the channel axis. ✓

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On 9 August 1983, the area was investigated using a series of 50 meter spaced lines and a Klein Side Scan Sonar System, which included a 100 kHz towfish. A Klein representative was aboard the launch during data collection and aided the personnel in record interpretation.

On 10 August 1983, a dive was made at the obstruction site. Visibility was very poor and an accurate depth could not be obtained using a leadline; however, their findings confirmed the data gathered by the echo-sounder and the side scan sonar. *- The leadline was accepted as a least depth since no other data was acceptable.*

Preliminary data confirmed the presence of a solid rock wall, 100-200 meters long, and approximately eight feet high from the base of the channel along the southern boundary of the channel. A shoal depth of 20 feet at MLLW was found at $31^{\circ}06'27.33''$ N, $81^{\circ}25'54.27''$ W (determined from sextant fixes taken on 12 August 1983 by launch personnel and recorded in the sounding volume). The 20-foot shoal at $31^{\circ}06'27.33''$ N, $81^{\circ}25'54.27''$ W should be considered a hazard to navigation for deep-draft vessels, and should be charted as an obstruction. *- See the Evaluation Report - sections 4, 6, and 7.*

Copies of this data have been distributed with the approval of NOS to the Savannah Corps of Engineers, Brunswick Bar Pilots Association, Georgia Ports Authority and to the Seventh Coast Guard District in a letter dated 1 September 1983. Refer to Attachment J.

L. COMPARISON WITH CHART

Field Examination # ^{D-19} ~~249~~ was compared with NOS Chart 11506, 30th Edition, 4 July 1981, scale 1:40,000. All comparisons agreed within the criterion stated in Section 5.3.4.(L) of the Hydrographic Manual.

The 20-foot shoal charted at $31^{\circ}06'27.3''$ N, $81^{\circ}25'53.2''$ W should be considered a hazard to navigation for deep-draft vessels, and should be charted as an obstruction as indicated in Section L. *See the Evaluation Report - section 7.a.*

M. ADEQUACY OF SURVEY

This examination is sufficiently complete to verify the existence of an obstruction to navigation at $31^{\circ}06'27.3''$ N, $81^{\circ}25'53.2''$ W, and shall supersede prior surveys of this specific area. To this extent, this examination is adequate for charting purposes. *- See the Evaluation Report - section 9.*

N. AIDS TO NAVIGATION

There were two fixed aids to navigation positioned on this survey. They are:

Brunswick Point Cut Front Range Light
 $31^{\circ}06'02.134''$ N, $81^{\circ}26'33.364''$ W

Brunswick Point Cut Rear Range Light
 $31^{\circ}05'51.343''$ N, $81^{\circ}26'03.741''$ W

No floating aids to navigation were positioned.

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O. STATISTICS

	<u>VESNO 2931</u>
Number of Positions	148
Nautical Miles of Hydrography	13.0
Square Miles of Hydrography	0.2
Bottom Samples	0
TDC Cast	0

P. MISCELLANEOUS

As per Section 5.8.2 of the Project Instructions, a tide station was established on Sapelo Island, Georgia. All records have been forwarded to N/OMS12 as part of the records for H-10107 for final verification. During the examination it was found that the gage had malfunctioned. It is the opinion of the hydrographer that all information from this gage after 0400 5 August 1983 is incorrect and of no use for providing information on zoning, tide datums (reducers) and harmonic constants for predictions as per Section 5.8.1 of the Project Instructions. See Attachment B for synopsis of events of the tertiary tide station (867-5623) Sapelo Island, Georgia.

As per the Project Instructions for S-G904-WH-83, the obstruction in Brunswick Harbor Channel was treated as a PSR Item. All data and records for the obstruction was submitted to Hydrographic Surveys Branch as part of the Gray's Reef Project. In early October, Commander Kieninger of Hydrographic Surveys Branch informed the WHITING that his conversations with N/CG243 had confirmed the need to make the Brunswick Harbor Channel obstruction a field examination. The command of the WHITING agreed, and the obstruction was separated from the Gray's Reef records.

Q. RECOMMENDATIONS

Field Investigation # ^{D-19}~~249~~ is adequate for its assigned purpose and no further field work is recommended (see recommendations in Section L).
See the Evaluation Report - section 9.

Do not concur.

R. AUTOMATED DATA PROCESSING

<u>Program</u>	<u>Description</u>	<u>Version Date</u>
RK112	Range/Range Real-Time Hydroplot	08/04/81
RK201	Grid, Signal and Lattice Plot	04/18/81
RK211	Range/Range Non-Real Time Plot	02/02/81
RK300	Utility Computations	10/21/80
RK330	Data Reformat and Check	05/04/76
RK561	Range/Range Geodetic Calibration	05/26/81
AM602	Extended Line Oriented Editor	12/01/82
RK612	Line Printer Listing	12/08/82

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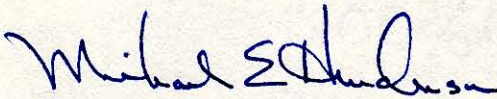
S. REFERRAL TO REPORTS

Tide Station Report submitted to N/OMS12, Tidal Requirements and Acquisitions Branch, dated 16 September 1983.

A User Evaluation Report of the Klein K-Maps System, submitted along with data from H-10107.

A Fixed Aids to Navigation Report will be submitted to MOA11 on 28 October 1983.

Respectfully submitted,



Michael E. Henderson
LT, NOAA

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The following separates were not considered relevant to this Field Examination, and therefore, were not included in this report:

- C. Geographic Names List
- H. Bottom Samples
- I. Landmarks for Charting

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~~1121~~ APPROVAL SHEET

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This examination was conducted in accordance with the amended Project Instructions and the Hydrographic Manual under the daily supervision of Commander Roy K. Matsushige, NOAA, Commanding Officer of the NOAA Ship WHITING (S-329), during the examination period. Commander Matsushige approved the field sheet and the accompanying records which were submitted in conjunction with WH-10-1-83. I have not reviewed this sheet or the records. Except as noted within the text of this Descriptive Report, I find the examination adequate for charting, and recommend no further field work.

*See section 9 of the
Evaluation Report.*

Donald L. Suloff

Donald L. Suloff, LCDR, NOAA
Commanding Officer
NOAA Ship WHITING (S-329)

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~~F~~. LIST OF STATIONS

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Electronic Control
LIST OF STATIONS

FIELD EXAMINATION ~~2-29~~ D-19

Name	Signal Number	Label Position	Latitude	Longitude	Carto Code	Station Height	Frequency	Type	Source
JEKYLL	004 6	31 03	40201 081 24	20753	250 0000	164670	3rd Order, Class I	AMC Ops Branch	
SAPELO	012 6	31 23	53223 081 16	53046	250 0000	164670	3rd Order, Class I	AMC Ops Branch	

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LIST OF STATIONS

S-G904-WH-83, WH-10-1-83, H-10107

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CUMBERLAND ISLAND LIGHTHOUSE										YEAR ESTABLISHED	
031	6	30	53	33518	081	24	47747	250	0302	164670	--
JEKYLL ISLAND SOUTH WATER TANK										1968	
332	6	31	02	42352	081	24	47437	139	0303	000000	
MAY 1983										1933	
003	6	31	03	14840	081	24	29363	139	0302	000000	
→	JEKYLL										1983
034	6	31	03	40201	081	24	20753	250	0300	164670	
JEKYLL ISLAND NORTH WATER TANK										1967	
035	6	31	05	08134	081	24	40686	139	0303	000000	
→	BRUNSWICK POINT CUT FRONT RANGE LIGHT										-- 1934
036	6	31	06	02134	081	26	33364	139	0300	000000	
ST SIMONS ISLAND LIGHTHOUSE										1932	
037	6	31	08	01989	081	23	37555	139	0300	000000	
BRUNSWICK TV CABLE ANTENNA										1967	
038	6	31	08	10373	081	23	53155	139	0303	000000	
ST SIMONS ISLAND WATER TANK										1967	
039	6	31	08	20406	081	23	30209	139	0302	000000	
ST SIMONS SOUND EAST REAR DREDGING RANGE										1967	
010	6	31	03	49797	081	25	05226	139	0300	000000	
↓	ST SIMONS SOUND WEST REAR DREDGING RANGE										1967
011	6	31	08	54365	081	25	07028	139	0000	000000	
↓	SAPALO										1983
012	6	31	23	53223	081	16	53046	250	0000	164670	
↓	BRUNSWICK POINT CUT REAR RANGE LIGHT										-- 1934
013	6	31	05	51343	081	26	03741	139	0000	000000	
↓	BRUNSWICK A B AND C RR CO TANK										-- 1932
014	6	31	07	34759	081	29	19316	139	0000	000000	

See section 4. of the Evaluation Report.

~~IC.~~ ABSTRACT OF POSITIONS

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OPR S-G90. WH-83

POSITION DATA SHEET

VESSEL 2931

SHEET Obstruction Survey (PSR 03042)

REGISTRY # H-10107

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VOL	JUL 'N DAY	FIRST POS. #	TIME (GMT)	LAST POS. #	TIME (GMT)	DEVELOPMENT POSITIONS	DETACHED POSITIONS	REJECTED POSITIONS	OMITTED POSITIONS
II	215	001	133247	073	145940	001-072	0	073	0
	221	5000	140235	5064	191005	5000-5064 - SIDE SCAN SONAR INVESTIGATION	<i>Rejected</i>		
	<i>224</i>	<i>109</i>	<i>194500</i>	-	-	-	<i>109</i>	-	-

The only valid position of the entire Field Examination.

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V.P.T.R.

 SUPPLEMENTAL CORRESPONDENCE

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NATIONAL OCEAN SURVEY
 WRECK AND OBSTRUCTION INFORMATION SYSTEM
 JULY 11, 1983

NAME	REG #	LATITUDE	LONGITUDE	AREA	GP AC	SVY ST	CARTO CODE	CHART
U3042 OBSTRUCTION	0000000	31/06/31.00N	081/25/42.00W	G	53	11	0067	11009

HISTORY

LNM18/83--HAZARD TO NAVIGATION. UNIDENTIFIED OBSTRUCTION REPORTED NEAR THE INTERSECTION OF CEDAR HAMMOCK RANGE AND JEKYLL ISLAND RANGE IN APPROX. POS. LAT.31-06-31N, LONG.81-25-42W.
 LNM19/83--HAZARD TO NAVIGATION-REPEATED FOR SAFETY. SAME AS ABOVE.
 CL450/83--LTR DATED 2 MAY 1983; COE REGULATORY BRANCH, SAVANNAH DISTRICT; HAZARD TO NAVIGATION REPORTED IN CEDAR HAMMOCK RANGE CHANNEL IN VICINITY OF ITS INTERSECTION WITH JEKYLL ISLAND RANGE IN BRUNSWICK HARBOR, GLYNN COUNTY, GEORGIA. APPROX. POS. LAT.31-06-31N, LONG.81-25-42W IN APPROX. 25 FT (MLW). SURVEY AND SWEEP OF AREA SHOWED NO INDICATION OF OBSTRUCTION

DESCRIPTION

**** TELECON, MAY 24, 1983, EDWIN FENDIG JR. (SENIOR PILOT, BRUNSWICK BAR PILOTS ASSOCIATION, TEL. 912-638-3668) WITH N/CG241. VESSEL OUTBOUND 11-12 KNOTS, STRUCK SUBMERGED OBJECT IN APPROX. POS. LAT.31-06-31N, LONG.81-25-42W. SHIP DREW 24 FT. AFT. COE TIDE GAGE INDICATED 0 AT TIME OF ACCIDENT. FIST-SIZE PUNCTURE NEAR KEEL AND CYLINDRICAL SHAPED GOUGE ON STARBOARD SIDE, 200 FT LONG IN LOWER HULL AREA.

SURVEY REQUIREMENTS

FULL--VERIFY OR DISPROVE THROUGH 400% SIDE SCAN SONAR INVESTIGATION, 200 METER MINIMUM RADIUS.
 ASSIGNED: NOAA SHIP WHITING

THESE DATA WERE GENERATED FROM AUTOMATED FILES WITHIN THE NATIONAL OCEAN SURVEY. INFORMATION IN THE FILE IS INTENDED TO SATISFY THE NEEDS OF HYDROGRAPHIC SURVEY PLANNERS AND IS NOT CONSIDERED TO BE A COMPLETE RECORD OF WRECK AND OBSTRUCTION INFORMATION WITHIN ANY GEOGRAPHIC AREA. FOR ADDITIONAL INFORMATION OR ASSISTANCE IN INTERPRETING THE DATA PLEASE CONTACT THE HYDROGRAPHIC SURVEYS BRANCH (N/CG241), PHONE 301-443-8752.

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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY

NOAA Ship WHITING S-329
439 W. York St.
Norfolk, VA 23510

1 September 1983

Commander
Seventh Coast Guard District
51 SW First Avenue
Miami, FL 33130

Dear Sir:

A search for an obstruction was initiated in response to a report in Local Notice to Mariners 19/83 in the Brunswick River at the eastern end of Cedar Hammock Range. A shoal depth covered by 20 feet of water at MLLW was found at Latitude $31^{\circ}06'27.33''N$, Longitude $81^{\circ}25'27.33''W$ (determined by three point sextant fix).

The preliminary data from our survey confirms the presence of a rock wall along the southern boundary of the channel.

Roy K. Matsushige

Commander Roy K. Matsushige, NOAA
Commanding Officer, NOAA Ship WHITING S-329

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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY

NOAA Ship WHITING
439 W. York St.
Norfolk, VA 23510

15 August 1983

Mr. Wade Seyle
Naval Operations
Savannah Corps of Engineers
200 East St. Julian Street
Savannah, Georgia 31401

Dear Mr. Seyle:

In conjunction with the survey of the Gray's Reef Marine Sanctuary, the NOAA Ship WHITING was requested through NOAA headquarters to investigate an obstruction in the Brunswick Harbor Entrance at the eastern end of the Cedar Hammock Range (see LNM 19/83). The WHITING arrived in Brunswick 29 July, 1983. Capt. Edwin Fendig, Jr. of the Brunswick Bar Pilots' Association visited the ship and discussed with the Operations Officer the situation surrounding the source of the obstruction report.

On the 1st and 2nd of August horizontal control stations for the Gray's Reef Project were established. The geometry of these stations also permitted their use for the obstruction survey. The stations were set at Jekyll Island (31°03'40.201"N, 81°24'20.753"W) and Sapelo Island (31°23'53.223"N, 81°16'53.046"W). Both stations were surveyed in July 1983 by a survey team from NOAA.

The positioning system used was ARGO, a medium-range phase comparison system. Since the quality of positions from the ARGO system is directly related to the quality of the calibration and proximity of the calibration area to the survey area, we chose the Brunswick Point Cut Front Range Light (31°06'02.134"N, 81°26'33.364"W) for calibration. This range had been surveyed to the accuracy specifications required for this survey.

The WHITING's 29-foot survey launch was used. On 2 August, Capt. Fendig and Pilot Lawrence Gray accompanied the launch to the working area and a few reconnaissance lines were run using the launch echo-sounder. Capt. Fendig and Capt. Gray pin-pointed the area most suspect to the launch crew, and this was the area most densely investigated.

On 3 August, Capt. Fendig again accompanied the launch while a series of 25-meter spaced lines were run at 8 knots parallel and perpendicular to the channel axis. This data was positioned accurately by morning and afternoon calibrations, each of which consisted of the launch laying-to alongside the range light to match the ARGO position to that of the range light. The afternoon calibration showed no problems with positioning during the day. On the plot sheet accompanying this report, the lines in black ink were run parallel to the channel axis, while those in green ink were run perpendicular to the channel axis.

The WHITING sailed on 4 August for the Gray's Reef Project, returning to Brunswick on 8 August. On 9 August, the same launch and personnel investigated the same site using a series of 50-meter spaced lines and a Klein side scan sonar system, which included a 100-kHz towfish towed behind the launch at 3-4 knots. A Klein representative was aboard the launch during data collection



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and aided the personnel in record interpretation. On the plot sheet the lines in red ink were run perpendicular and parallel to the channel on this date.

On 10 August three divers from the WHITING made a dive at the site circled on the plot sheet. Unfortunately, visibility was very poor and an accurate depth was not obtained using a leadline, however, their findings confirmed the data gathered by the echo-sounder and the side scan sonar.

All data confirmed the presence of a solid rock wall 100-200 meters long and approximately 8 feet high from the base of the channel along the southern boundary of the channel. A shoal depth of 20 feet at MLLW was found at 31°06'27.33"N, 81°25'53.27"W (determined from sextant fixes taken on 12 August).

All position data was corrected for calibration offset and predicted tides were applied to depths using the Tide Table values for the Savannah River Entrance tide gage with a corrector applied for the difference in latitude between the Brunswick and Savannah areas. The velocity of sound through the water column did not contribute a significant correction, neither did the settlement of the launch in the water at the speeds surveyed. There was no instrument error in the echogram as determined from tests conducted previously in the year by WHITING personnel.

On 11 August, the data was plotted in feet with the above corrections applied. In addition, Capt. Fendig, Bill Dawson of the Georgia Ports Authority, and Bill Dutton of the Corps of Engineers, requested data and the request for data dissemination was approved by NOAA headquarters.

On 14 August, Cedar Hammock Front and Rear Range Lights were surveyed by WHITING personnel. The resulting positions were used to compute the channel boundaries, which are illustrated on the plot sheet.

On 15 August, the results were discussed with Bill Dutton and Capt. Fendig and copies of the report and plot sheet were distributed to the Savannah Corps of Engineers, the Brunswick Bar Pilots' Association, and the Georgia Ports Authority. All data on the plot sheet is subject to revision after review by the verification section in Norfolk, Virginia, and as such, is labelled "preliminary".

Bill Dutton recommended that we forward this data to your office. If you have any questions or comments, feel free to contact us at the address on the letterhead.

GEORGIA
PORTS
AUTHORITY



Brunswick Terminal
P.O. Box 1758
Brunswick, Georgia 31520
(912) 264-7295

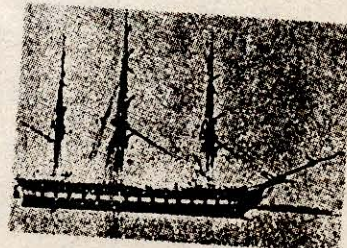
T. F. MORRIS
Bill Dawson
Terminal Manager

Sincerely,

Virginia N. Operations

Virginia N.
Operations
NOAA Ship W

OLD IRONSIDES
TIMBERS CUT ON ST. SIMONS ISLAND 1794



EDWIN FENDIG, JR., PILOT
P. O. BOX 1694 - ST. SIMONS ISLAND, GEORGIA 31522
(912) 638-2380

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USER EVALUATION OF KLEIN K-MAPS IV SYSTEM

The success of the Grays Reef Project (OPR-S-G904-WH-83) was due largely to the technical expertise and guidance of Gary Kozak, Field Representative of Klein Associates, Inc. The actual watch standing that was done, was by personnel from the Deck Department, under the watchful eye of Mr. Kozak or Dr. Jim Henry.

After questioning the officers, survey technicians and Deck personnel who used and/or observed the Klein System, it is a consensus that the K-Maps IV is a good, if not excellent system. The technical details such as electrical power, acoustics problems, initial staging, vessel speed, etc. were all worked wholly or in part by Mr. Kozak. Due to the layout of the WHITING's Plotting Room, it required two persons on watch at all times to operate the entire survey system. A regularly scheduled survey technician stood the watch with the Hydroplot system while two ordinary seamen plus Ms. Carroll Curtis, stood the side scan watch. Since no one aboard the WHITING had ever used the Klein system, it was somewhat intimidating, especially when coupled with the elaborate recording system. As literally everything was handled by Mr. Kozak, it is difficult for WHITING personnel to make definitive comments. The watch standers who were at the Klein system, were solely annotators of time and position numbers. Eventually they were able to handle some very basic tasks such as changing paper. All officers and survey technicians who had had even minimal exposure to side scan sonar, felt the resolution and clarity of the records was excellent. However the actual interpretation of the records, especially to any detail was guesswork on the part of WHITING personnel, when compared to Dr. Henry or Mr. Kozak.

It should be noted that the processing of data from this system is simply impossible to undertake on a vessel the size of the WHITING. The Mosaic requires not only hours and hours to compile, but maybe more importantly, a huge space (such as a gym or lab) in order to properly "lay out" the data. Another consideration mentioned by nearly everyone who was queried, was where does the Survey Department store the tremendous volume of records that are produced by the K-Map system.

To a person, everyone aboard the WHITING suggested and volunteered for additional training in the use of the K-Map's IV system. All personnel felt the fine work of Gary Kozak allowed the system to be used to the best of its capabilities, and everyone expressed concern if the system were installed without thorough and proper training.

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~~B.~~ FIELD TIDE NOTE

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✓

Synopsis of Events

Tide Station 867-5623

Sapelo Island, Georgia

3 August 1983 - 10 August 1983

2 August		Staff leveled to bench marks
3 August	1115 local time	Gage installed and observed for four hours by WHITING personnel. Gage reading consistantly 4.0' higher than staff.
4 August	1510	Gage observed. Gage is 4.1' higher than staff.
5 August	0400	Gage malfunctions.
	1440	Gage observed. Gage is 0.5' lower than staff. Gage recording only high range of tide. High range of tide shifted down.
6 August	2200	Gage not recording.
8 August		WHITING informed of gage malfunction.
	1515	Gage back on line by WHITING personnel. Trace is stepped and truncated on the lower lows.
10 August		Staff leveled to bench marks and gage discontinued.

The observer was asked to call WHITING immediately through the Marine Operator if the tide gage malfunctioned, yet it was not till 8 August 1983 when we first heard of the gage not operating correctly.

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January 5, 1984

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Marine Center: Atlantic

OPR: G904

HYDROGRAPHIC SHEET: ~~FE-249~~ D-19

Locality: Brunswick River, Georgia

Time Period: August 3-12, 1983

Tide Station Used: 867-0870 Ft. Pulaski, Georgia

Plane Of Reference (Mean ~~Lower~~ Low Water): 3.47 feet

Height Of Mean High Water Above Plane Of Reference: 6.9 feet

Remarks: Recommended Zoning:

1. Apply a + 36 minute time correction to all heights.

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James R. Hulbert
Chief, Tidal Datum Section

BR

April 25, 1984

N/CG243:GHM

TO: N/MOA232 - Rudolph D. Sanocki
 FROM: N/CG243 - George H. Mastrogiannis
 SUBJECT: Rescission of Field Examination Registry Number and Reissuance as a "D" Survey Registry Number

The following field examination registry number, FE-249, is rescinded this date by direction and reissued as "D" survey registry number D-19.

Rescission

<u>Registry No.</u>	<u>Field No.</u>	<u>Area</u>	<u>Project No.</u>
FE-249	WH-2.5-1-83	GEORGIA BRUNSWICK RIVER VICINITY OF JEKYL ISLAND	OPR-8904

Reissue

<u>Registry No.</u>	<u>Field No.</u>	<u>Area</u>	<u>Project No.</u>
✓ D-19	WH-2.5-1-83	GEORGIA BRUNSWICK RIVER VICINITY OF JEKYL ISLAND	OPR-8904

CC:
 N/MOA2x1
 N/MOA23 ✓
 N/MOP21
 N/CG24x2

HYDROGRAPHIC SURVEY STATISTICS

~~FE-249~~ D-19

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET		1	SMOOTH OVERLAYS: POS., ARC, EXCESS		0
DESCRIPTIVE REPORT		1	FIELD SHEETS AND OTHER OVERLAYS		2
DESCRIP-TION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/SOURCE DOCUMENTS
ACCORDIAN FILES					
ENVELOPES	1		1		
VOLUMES	1				
CAHIERS				1	
BOXES					

SHORELINE DATA

- SHORELINE MAPS(List):
- PHOTOBATHYMETRIC MAPS(List):
- NOTES TO THE HYDROGRAPHER(List):
- SPECIAL REPORTS(List):
- NAUTICAL CHARTS(List):

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	EVALUATION	TOTALS
POSITIONS ON SHEET			1
POSITIONS REVISED	1	0	1
SOUNDINGS REVISED	1	0	1
CONTROL STATIONS REVISED	0	0	0
	TIME - HOURS		
	VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION		11	11
VERIFICATION OF CONTROL	12		12
VERIFICATION OF POSITIONS	2		2
VERIFICATION OF SOUNDINGS	2		2
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	2		2
COMPARISON WITH PRIOR SURVEYS AND CHARTS		7	7
EVALUATION OF SIDESCAN SONAR RECORDS		4	4
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		19	19
OTHER		9	9
TOTALS	18	50	68
Pre-processing Examination by M. B. Hickson	Beginning Date Nov. 9, 1983	Ending Date Nov. 11, 1983	
Verification of Field Data by M. B. Hickson	Time(Hours) 18	Ending Date Feb. 16, 1984	
Verification Check by	Time(Hours)	Ending Date	
Evaluation and Analysis by M. B. Hickson	Time(Hours) 50	Ending Date Apr. 9, 1984	1121
Inspection by R. D. Sanocki	Time(Hours) 3	Ending Date Apr. 9, 1984	OCT 9 1984

ATLANTIC MARINE CENTER
EVALUATION REPORT

REGISTRY NO.: D-19

FIELD NO.: WH-2.5-1-83

Georgia, Brunswick River, Vicinity of Jekyll Island

SURVEYED: August 3 through August 24, 1983

SCALE: 1:40,000

PROJECT NO.: S-G904-WH-83

SOUNDINGS: Leadline

CONTROL: Visual (Sextant Fixes on
Control Stations)

Chief of Party.....R. K. Matsushige

Surveyed by.....P. L. Wehling
.....V. N. Shaffer
.....M. E. Henderson
.....T. A. Wolf
.....P. M. Kenul
.....P. J. Ruiz

1. INTRODUCTION

Numerous unusual problems were encountered during processing. Refer to sections 2, 3, 4, 7, 8, and 9 of this report for details and dispositions of the problems. Notes in the Descriptive Report in red were made during processing.

2. CONTROL AND SHORELINE

a. The source of control is not adequately described in section F. and Appendix F. of the Descriptive Report. Refer to section 4. of this report for details of control discrepancies.

b. A section of Chart 11506, 30th Edition, July 4, 1981 is used as the final plot and therefore provides the shoreline.

3. HYDROGRAPHY

Automated hydrography gathered during this investigation is of reconnaissance value only and not suitable for charting. Determination of velocity corrections and instrument errors was not accomplished for any of the automated hydrography. The electronic control system used in gathering the automated hydrography further reduces the value of the hydrography; section 4. of this report addresses control problems. A least depth by leadline was obtained on the feature and is the only chartable data of this investigation.

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4. CONDITION OF SURVEY

The hydrographic records, final plot, field plots, and Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual with the following exceptions:

- a. The Descriptive Report is not in accordance with section 4.12 of the Hydrographic Manual as required by the Project Instructions. Several sections required were omitted.
- b. The electronic control used for automated hydrography is of questionable accuracy as the intersection angles of the electronic lattice border on the acceptable limits. Considerable land path exists in both patterns of the electronic control which probably degraded the accuracy of the position data.
- c. Three of the four visual stations used to position the least depth of Year Day 224 are considered as lost by N.G.S. No existing control stations were recovered by the field. Brunswick Point Cut Front Range Light, 1934 was rebuilt in 1971 and not resurveyed. Brunswick Point Cut Rear Range Light, 1934 was rebuilt in 1951 and not resurveyed. Brunswick A, B, and C R. R. Co. Tank, 1932 is recorded as lost. Neither N.G.S., U.S. Coast Guard (7th District), Area Team 3 (Nautical Charts Branch), nor Photogrammetry has current data on any of these three stations. St. Simons Sound West Rear Dredging Range, 1967 has a published N.G.S. position but the U.S. Coast Guard Light List gives an establishment date of 1973. A visual fix and check fix was taken simultaneously on the least depth and an inverse of approximately 360 meters exists between the two fixes. The plotted position of the least depth is plotted from all available information contained in the survey records.
- d. Section N. of the Descriptive Report states that two fixed aids were positioned on this survey. However no records were included with this survey of the position determination. No records were submitted to N/MOA2x1 for verification and submission to N.G.S. The positions listed in the Descriptive Report match exactly with the N.G.S. positions obtained in 1934 which is not possible since both range lights have been rebuilt since 1934. Weekly Notice to Mariners No. 17 of 1968 records that Brunswick Point Cut Front Range Light was moved and re-established and the U.S. Coast Guard Light List records 1971 as the latest re-establishment date. The U.S. Coast Guard Light List records 1951 as the latest re-establishment date for Brunswick Point Cut Rear Range Light. No fixed aids to navigation were plotted on any of the field sheets.
- e. Appropriate correctors to echo soundings were not accomplished in accordance with section 4.12.5.3. of the Hydrographic Manual. Refer to section 3. of this report for details of this deficiency.
- f. The smooth tides requested by the field in Appendix B. of the Descriptive Report were for the Grays Reef area which is approximately 34 miles northeast of the area of this investigation. Appropriate smooth tide correctors were requested and applied during verification.
- g. No fixed or floating aids to navigation were located, listed, or verified as required by the Project Instructions in accordance with sections 4.12.2.6. of the Hydrographic Manual. (No form 76-40 was submitted.)

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h. Landmarks were not identified in accordance with section 4.12.2.5. of the Hydrographic Manual as required by the Project Instructions. (No form 76-40 was submitted.)

i. One floating aid to navigation (St. Simons Sound Lighted Buoy "22") is common to the surveyed area and is plotted on the field sheet. Section N. of the Descriptive Report states that no floating aids to navigation were positioned and no floating aids were recorded in any of the survey records.

j. Side scan sonar coverage of 400% was required by the Project Instructions. Side scan sonar usage, coverage, and results were not discussed in any section of the Descriptive Report.

k. Side scan sonargrams were not annotated in accordance with existing instructions.

l. An unstamped, unlabeled, and basically unannotated echogram for Year Day 224 was included in the survey records. This echogram contains 10 detached positions (100-109). No record of this data is contained in any of the survey records nor is it noted in the Descriptive Report. The only data recorded on Year Day 224 is the one unnumbered least depth detached position recorded in the volume. Investigations conducted on Year Day 224 are not noted in either the text, Appendices, or abstracts of the Descriptive Report and no data tapes or printouts exist for this data. The least depth was not plotted on the field sheets.

m. Strip chart records are virtually unannotated and impossible to correlate to the hydrography.

n. No corrector tape printout for Year Day 221 was included in the survey records.

o. The Coast Pilot Inspection was not accomplished as required by section 4.12.2.7 of the Hydrographic Manual.

5. JUNCTIONS

There are no junctions on this field examination.

6. COMPARISON WITH PRIOR SURVEYS

H-5579 (1934)

Prior hydrographic survey H-5579 (1934) is common to the area of this field examination. A prior 23-foot sounding is in close proximity (40 meters east) to the present 20-foot least depth. Other prior depths in the vicinity are 27 feet. This prior survey is not the source of charted hydrography in the vicinity of the least depth.

The U.S. Army Corps of Engineers, Savannah District, conducted an examination survey (Drawing No. DBH 172/369) of the reported area of the collision between the M/V SUMADIJA and an unknown submerged obstruction. The area surveyed by the Corps of Engineers is well to the east of the obstruction found by this field examination. The Corps of Engineers survey has no data

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common to the area of the present field examination and the C.O.E. survey did not locate any obstructions.

7. COMPARISON WITH CHART 11506 (30th Edition, July 4, 1981

a. Hydrography

The charted hydrography within the common area of this field examination originate from sources not readily available. The item investigated is AWOIS item number 03042 which originated with Chart Letter 450 of 1983 dated May 2, 1983. Comparison of the present least depth with the chart reveals an uncharted dangerous shoal on the southern edge of the Cedar Hammock Range in approximately Latitude 31°06'27", Longitude 81°25'54" which should be charted as a 20-foot Rock sounding, Position Approximate. Divers revealed the shoal to be a rock ledge along the southern boundary of the channel, extending approximately 8 feet above the base of the channel and approximately 100 to 200 meters in length.

b. Controlling Depths in Maintained Channels

As a result of finding this rock ledge, the controlling depth along the southern edge of the existing channel is limited to 20 feet.

c. Aids to Navigation

Fixed and floating aids to navigation common to this field examination are adequately discussed in section 4. of this report. See also section 9. of this report.

8. COMPLIANCE WITH INSTRUCTIONS

This field examination adequately complies with Project Instructions S-G904-WH-83 dated July 14, 1983 except as noted in this report.

9. ADDITIONAL WORK

This is an inadequate and incomplete field examination. A complete re-investigation is recommended to adequately position and define the extent of this hazard to navigation. It is further recommended that any encroachment on controlling depths of the maintained channel be resolved by the U.S. Army Corps of Engineers. This survey was processed to determine at best what information we had to facilitate a further investigation. There is substantial doubt about the location of fixed aids in the vicinity of the channel which may be used to position floating aids for navigation in this area.

Maurice B. Hickson, III
Maurice B. Hickson, III
Cartographer
Verification of Field Data
Evaluation and Analysis

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INSPECTION REPORT
D-19

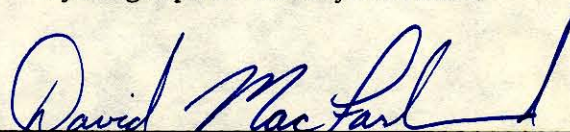
This survey has been inspected with regard to survey coverage, development of critical depths, cartographic symbolization, and verification or disproval of charted data. The digital data have been completed and all revisions and additions made to the smooth sheet during survey processing have been entered in the magnetic tape record for this survey. Final control, positioning, and sounding printouts of the survey have been made. This survey does not comply with National Ocean Service requirements as noted in the Evaluation Report. The survey records do not comply with NOS requirements as noted in the Evaluation Report. Registry No. FE-249 originally assigned to this survey has been rescinded and registry number D-19 has been assigned to it for accounting purposes. It is recommended that this report be entered into the Nautical Charting System as a Chart Letter for what information it will provide to the Nautical Charting System. Special attention is directed to sections 7 and 9 of the Evaluation Report regarding consideration and application of the data provided. This survey is not considered basic survey data and has not been approved as such by the Director of the Atlantic Marine Center.

Inspected



R. D. Sanocki

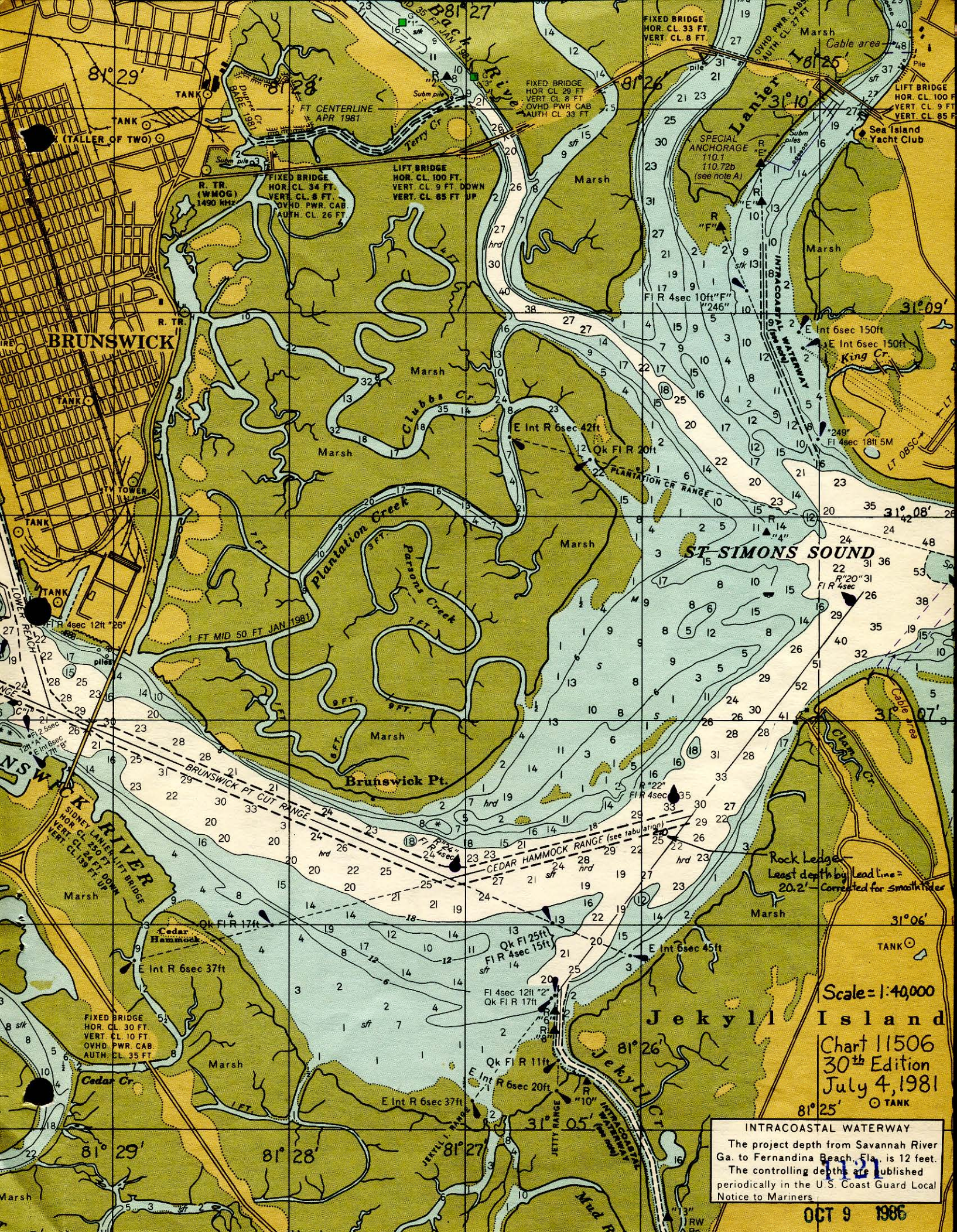
Chief, Hydrographic Surveys Processing Section
Hydrographic Surveys Branch



David B. MacFarland, LCDR, NOAA
Chief, Hydrographic Surveys Branch

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Scale = 1:40,000
 Chart 11506
 30th Edition
 July 4, 1981

INTRACOASTAL WATERWAY
 The project depth from Savannah River Ga. to Fernandina Beach, Fla. is 12 feet. The controlling depths are published periodically in the U.S. Coast Guard Local Notice to Mariners

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