10418

Diagram No. 1266-3

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey ... Side Scan Sonar

Field No. ... HE-10-1-92

Registry No. ... H-10418

LOCALITY

State ... Alabama

General Locality ... Gulf of Mexico

Sublocality ... Eastern Approach to Mobile Bay

1992

CHIEF OF PARTY
LCDR J.W. Blackwell

LIBRARY & ARCHIVES

DATE ... July 16, 1993

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

10418

NOAA FORM 77-28 (11-72) U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

REGISTER NO.

HYDROGRAPHIC TITLE SHEET

H-10418

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.

HE-10-1-92

State ALABAMA

General locality GULF OF MEXICO

Locality EASTERN APPROACH TO MOBILE BAY

Scale 1:10,000 Date of survey 25 MARCH 92 - 11 MAY 92

Instructions dated 18 FEBRUARY 92 Project No. OPR-J461-HE

Vessel NOAA Ship HECK (EDP 9140)

Chief of party John W. Blackwell, LCDR, NOAA

Surveyed by LCDR J.W. Blackwell, LT D.W. Abbott, LTJG K.N. Harbison, ENS T.E. Martin, ST W.R. Morris

Soundings taken by echo sounder, ~~hand lead, pole~~

Graphic record scaled by LT Abbott, LTJG Harbison, ENS Martin, ST Morris

Graphic record checked by LTJG Harbison

XYNETICS 1201 PLOTTER (AHS)

Protracted by N/A Automated plot by HDAPS (FIELD)

Verification by Atlantic Hydrographic Section, PERSONNEL N/CG244

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

REMARKS: Change 1 dated 2 April 92

All times UTC

Data submitted to Atlantic Hydrographic Section, N/CG244

Notes in red were made during office processing

AWOIS/SURF 7/21/93 SJV

XWW 8/6/94

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

☆ U.S. GOVERNMENT PRINTING OFFICE: 1978-665-010-1174

DESCRIPTIVE REPORT APPENDICES

*I. DANGER TO NAVIGATION REPORTS

*II. NON-FLOATING AIDS AND LANDMARKS FOR CHARTS

III. LIST OF HORIZONTAL CONTROL STATIONS

*IV. GEOGRAPHIC NAMES (FIELD)

*V. TIDES AND WATER LEVELS

*VI. SUPPLEMENTAL CORRESPONDENCE

VII. APPROVAL SHEET

SEPARATES TO BE INCLUDED WITH SURVEY DATA

*I. HYDROGRAPHIC SHEETS AND PARAMETERS

*II. BOTTOM SAMPLES

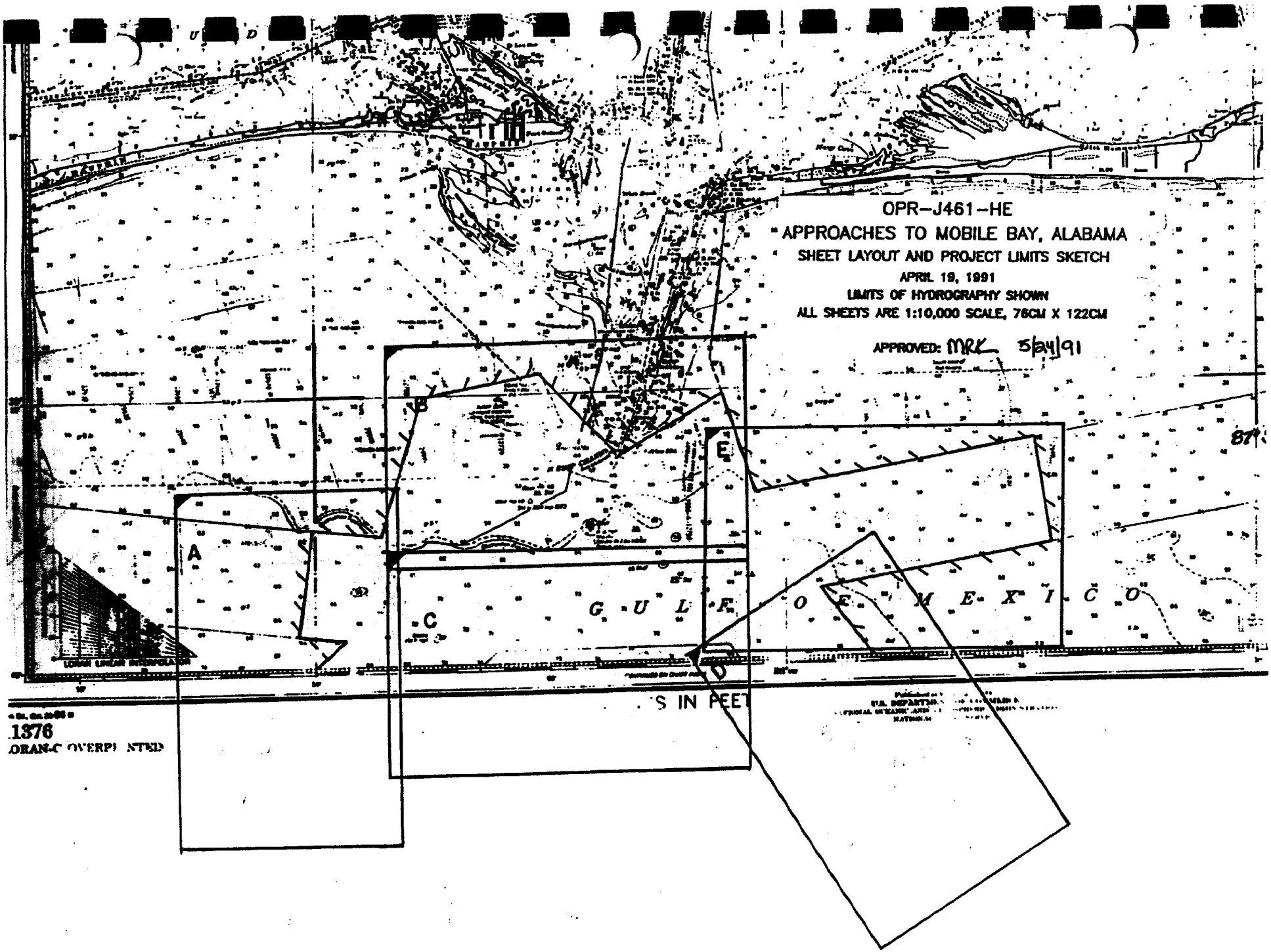
*III. HORIZONTAL POSITION CONTROL AND CORRECTIONS TO POSITION DATA

*IV. SOUNDING EQUIPMENT CALIBRATIONS AND CORRECTIONS

*V. SIDE SCAN SONAR DATA

IV. ITEM INVESTIGATION DATA

* filed with original survey data


OPR–J461–HE
APPROACHES TO MOBILE BAY, ALABAMA
SHEET LAYOUT AND PROJECT LIMITS SKETCH
APRIL 19, 1991
LIMITS OF HYDROGRAPHY SHOWN
ALL SHEETS ARE 1:10,000 SCALE, 76CM X 122CM
APPROVED: MRK 5/24/91
A
B
C
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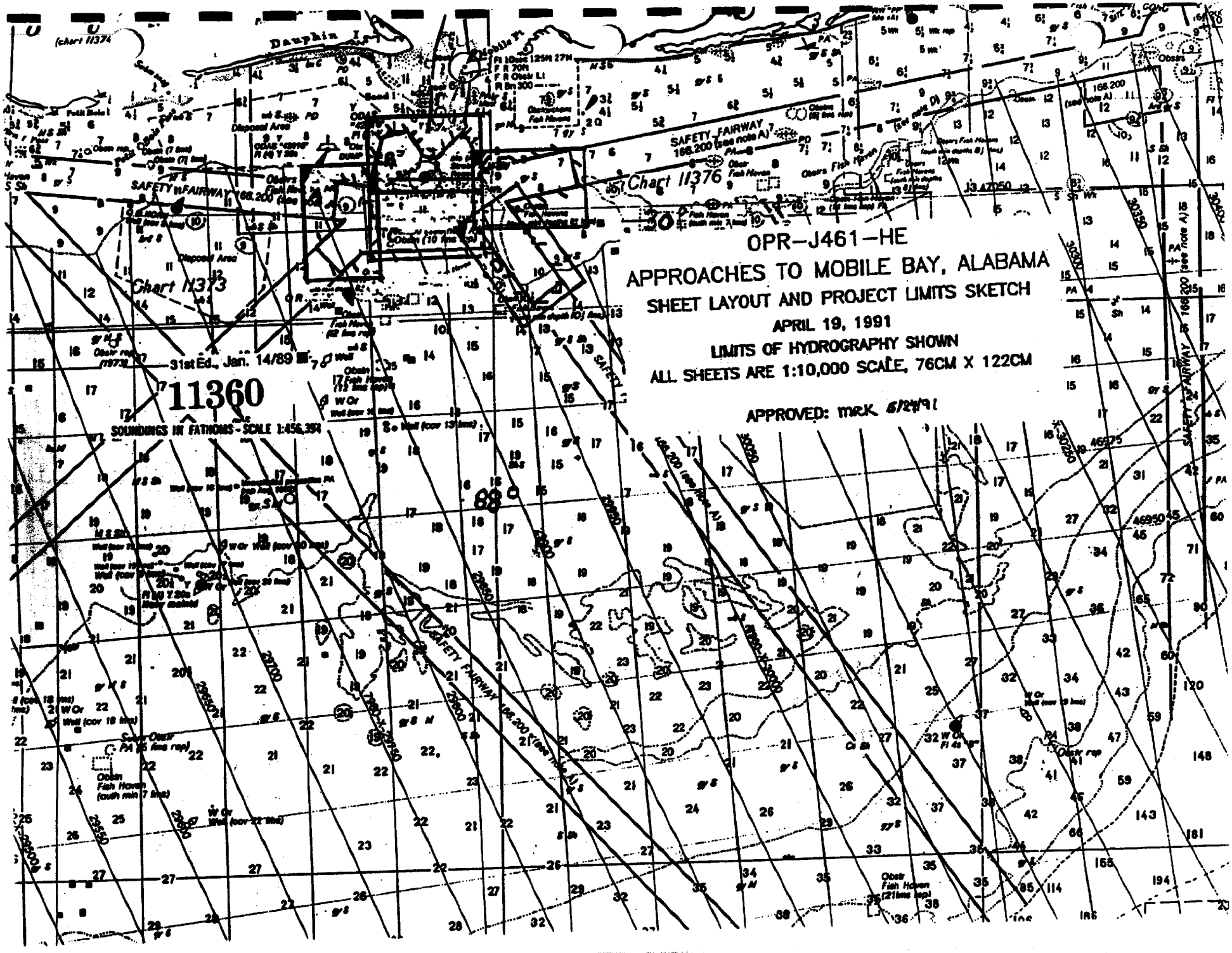
G U L F O F M E X I C O
S IN FEET
1376
LORAN-C OVERPRINTED


OPR-J461-HE
APPROACHES TO MOBILE BAY, ALABAMA
SHEET LAYOUT AND PROJECT LIMITS SKETCH
APRIL 19, 1991
LIMITS OF HYDROGRAPHY SHOWN
ALL SHEETS ARE 1:10,000 SCALE, 76CM X 122CM
APPROVED: mrk 5/24/91
11360
SOUNDINGS IN FATHOMS - SCALE 1:456,394
31st Ed., Jan. 14/89
Chart 11373
Chart 11376
Dauphin I.
SAFETY FAIRWAY
SAFETY FAIRWAY (66.200 (see note A))
166.200 (see note A)

DESCRIPTIVE REPORT TO ACCOMPANY
SURVEY H-10418
FIELD NUMBER HE-10-1-92
ALABAMA
GULF OF MEXICO
EASTERN APPROACH TO MOBILE BAY
Scale 1:10,000
NOAA SHIP HECK S-591
LCDR John W. Blackwell, NOAA, CMDG

A. PROJECT

This survey was conducted in accordance with Hydrographic Project Instructions OPR-J461-HE, Approaches to Mobile Bay, Alabama, dated February 18, 1992, and Change 1 dated April 2, 1992.

The purpose of this project is to accomplish complete 200-percent side scan sonar coverage of the safety fairway and the fairway anchorages at the approaches to Mobile Bay, Alabama, and to investigate a number of wrecks and obstructions in or near the safety fairway. This project responds to requests by the Mobile Bar Pilots Association concerning the presence of submerged obstructions in the area. Change 1 requires additional work to be conducted on H-10393.

B. AREA SURVEYED

The survey area, designated Sheet E in the Project Instructions, lies in the Gulf of Mexico, south east of the entrance to Mobile Bay. The survey area is an irregular polygon formed by connecting, in order, the following points:

1. LAT 30°09′18"N LON 088°01′12"W
2. LAT 30°08′06"N LON 088°00′36"W
3. LAT 30°09′00"N LON 087°54′42"W
4. LAT 30°06′54"N LON 087°54′24"W
5. LAT 30°06′15"N LON 087°59′12"W
6. LAT 30°05′18"N LON 088°01′12"W

Survey operations began on March 25, 1992 (DOY 085), and were completed on May 11, 1992 (DOY 132).

The size of the survey area exceeded the width constraints of HECK's plotter, requiring the area to be split into a north sheet (03) and a south sheet (02). The boat sheet was set up as a 1:20,000 sheet (01) to allow HECK to use one boat sheet through the entire survey. All data was gathered and processed using 1:10,000 specifications and submitted on 1:10,000 smooth plots.

C. SURVEY VESSELS

All hydrographic and side scan data were collected by NOAA Ship HECK (EDP 9140). All offset and layback information is contained in the offset table located in section IV of the separates. No unusual vessel configurations were used.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

Survey data acquisition and processing were accomplished utilizing HDAPS hardware and the latest version of the NAVITRONIC NAVISOFT 300 software provided to the ship by N/CG24. A listing of actual programs and versions is appended in Section VI.

E. SONAR EQUIPMENT

HECK is equipped with an EG&G model 260 slant range corrected Side Scan Sonar (SSS) recorder and model 272 dual frequency towfish. Serial numbers and dates of usage are as follows:

Towfish	S/N 011901	DOY 085 - 132
Recorder	S/N 012106	DOY 085 - 132

The beam width and down angle are not adjustable on this unit. All SSS data was collected using the 50 and 100 meter range scales and 100 Khz frequency. Line spacing of 170 meters was used on the 100 meter scale to maintain the required 2mm of adjacent line overlap. The side scan towfish was deployed off the stern. All offset and layback information is provided in the offset table located in section IV of the separates.

Confidence checks were obtained, and annotated on the sonargrams, by towing the side scan unit either past known items or linear bottom features. A minimum of two confidence checks were obtained on a daily basis as required.

Required proof of sonar coverage is demonstrated through the included sonar coverage plots. The hydrographer chose this method in lieu of the sonar coverage abstract. The choice of method is left to the hydrographer per Side Scan Sonar Manual section 3.1.3.

The sonar contact list (Side Scan Sonar Manual 3.1.1.1.) is provided through the HECK's modified contact abstract table and the automated HDAPS contact printout that is produced during the computation and logging of contacts. Both are located in the separates.

Eleven contact tables were used during this survey. In order to prevent confusion all items were identified using their position number. Some contacts have more than one target number from successive hits during 200% coverage, developments, and detached

positions. In this case the targets plotted on top of each other, however, the recommended charting positions were derived from their DP's.

Annotations required by section 2.6 of the Side Scan Sonar manual (ship's speed, ship's head, weather/sea state) are not placed on the sonargrams. This information is located in the digital records and can be examined using the "List Data" sub-routine located in the Post-Survey routine of HDAPS. This information is also displayed in the "Depth/Position Edit" sub-routine of the Post-Survey routine.

F. SOUNDING EQUIPMENT

The following Raytheon DSF-6000N echosounder was used during this survey:

S/N A107N DOY 085 - 132

Both low and high frequency depths were digitized, but only high frequency depths were plotted.

A leadline was used to measure all diver least depths. Good diving visibility (>60 ft) allowed scope to be eliminated. The comparison sheet is appended.

Annotations for sea state and weather appear at least once a day. Heave information is recorded digitally from the HIPPY and the heave corrector is applied on line. Ship's head and speed are recorded digitally.

G. CORRECTIONS TO ECHOSOUNDINGS

The following table shows dates and locations of velocity casts conducted using the ODOM Digibar sound velocimeter (S/N 168):

VELOCITY TABLE	DATE	LOCATION	
1	25/03/92 (DOY 085)	30°05'03"N	088°00'03"W OFF SHEET
2	08/04/92 (DOY 099)	30°05'06"N	088°01'12"W OFF SHEET
4	29/04/92 (DOY 120)	30°00'30"N	087°57'18"W OFF SHEET

The velocity cast data were reduced and velocity corrections calculated using program VELOCITY Version 1.11. The computed velocity correctors were then applied on line to echosounder depths (both high and low frequency) by entering the correction data into the HDAPS sound velocity table.

The Digibar was checked on November 1, 1991 by ODOM and found to be functioning correctly. Field checks using the prescribed fresh water method were accomplished prior to each cast and recorded on the velocity cast form.

On DOY 115 a dual leadline comparison was conducted. A mean difference of 0.06 meter was obtained resulting in a corrector of 0.0 meter.

The static draft of 2.10 meters was applied on line to all echosoundings via the HDAPS offset table.

New requirements for settlement and squat correctors were agreed upon during the 1992 Hydrographic Field Procedures conference in Norfolk, VA. These requirements allow hydrographic units to conduct settlement and squat calibrations once every two years, or after major modifications to the ship. Settlement and squat correctors for the HECK were determined on March 13, 1991 (DOY 72), in the vicinity of Craney Island fuel pier in Norfolk, Virginia using the level rod method. These correctors are on file at N/CG244 and are included in separates section IV.

Settlement and squat values were applied on line to hydrographic soundings via the HDAPS offset table located in section IV of the separates.

Heave is measured by a Datawell B.V. (S/N 19110-C) heave, roll, and pitch sensor (HIPPY) located midships near the transducer. The sensor gathers on line data which is applied to the soundings in near real time. All data have been corrected by applying HIPPY correctors.

The tidal datum for this survey was mean lower low water (MLLW). The tide station at Dauphin Island, Alabama (873-5180) was the reference station. The station was maintained under contract by Chapin and Associates, and observed by Mike Dardeau. Contact with the observer was made, the station was inspected, and opening levels were run by HECK's crew. No tide stations were established by HECK in support of this survey.

All hydrographic depths have been corrected for predicted tides using the zone correctors specified in the project instructions. Tidal correctors were applied on line via the HDAPS predicted tide table. Approved tides were applied to the present survey during office processing

H. CONTROL STATIONS See also section 2.e. of the Evaluation Report

The horizontal datum for this project is the North American Datum of 1983 (NAD 83). Four existing stations were recovered by HECK personnel. Those stations were:

Number	Station
103	MOBILE POINT LIGHT, 1987
104	STORMY, 1986
105	~~ELANA~~ ELENA, 1986
106	DAUPHIN ISLAND USAF E RADAR DOME, 1986

Positions for MOBILE POINT LIGHT, ELANA, STORMY, and DAUPHIN ISLAND USAF E DOME were obtained from N/CG23322 Coastal Surveys Unit.

A list of the horizontal control stations appears in appendix III, LIST OF HORIZONTAL CONTROL STATIONS submitted with this survey.

I. HYDROGRAPHIC POSITION CONTROL

Position control was multiple LOP, utilizing Motorola Mini-Ranger shore stations. Control station positions were entered into the HDAPS Control Station Tables (see APPENDIX III, LIST OF HORIZONTAL CONTROL STATIONS). To facilitate the tracking of Mini-Ranger remotes the serial numbers of the remotes, RPU's, and R/T's have been added to C-O tables.

Equipment serial numbers appear as part of the header information on each days data print out. The Mini-Ranger remote units are identified by their position and code numbers.

System checks were conducted in accordance with the Field Procedures Manual and appear as HDAPS screen dumps on the data printouts.

All survey offsets were applied on-line using the HDAPS Offset Table number 1.

At no time during this project did the maximum residual consistently exceed 0.5 mm at the survey scale (5 meters) nor did the 95% confidence ECR consistently exceeded 1.5 mm at the survey scale (15 meters). Data not meeting these requirements were examined and high residuals either accepted or smoothed and high ECR's rejected.

The Motorola Mini-Ranger system is starting to show its age. Baseline calibrations revealed very weak remotes, and several useless receiver/transmitters. The MASS setting for some combinations made long range work all but impossible. Although no ship time was lost due to failures, a large amount of money was spent shipping these units to and from the Marine Center.

J. SHORELINE *SEE ALSO SECTION 2.b. OF THE EVALUATION REPORT.*

Not applicable as per project instructions.

K. CROSSLINES *SEE ALSO SECTION 3.a. OF THE EVALUATION REPORT.*

29.6 miles of crosslines were run on this survey, representing 8.0% of all hydrography. Comparison to mainscheme soundings showed good agreement with random differences of ± ~~0.2~~ 0.0 to 0.3 meters.

L. JUNCTIONS SEE SECTION 5. OF THE EVALUATION REPORT.

Not applicable as per project instructions.

M. COMPARISON WITH PRIOR SURVEYS SEE ALSO SECTION 6. OF THE EVALUATION REPORT

Comparisons were made to the following prior surveys:

SURVEY	DATE	SCALE
~~H-8526~~ FE-276 WD	1960 74	1:~~10,000~~ 40,000
H-10179	1985-87	1:20,000
H-9374WD	1973	1:40,000

Comparisons showed excellent agreement with the majority of survey soundings less than 1 foot shoaler than the prior surveys.

AWOIS 3624 This item is listed as a 61FT grounding and wire drag cleared to 56.0FT originating from survey H-9374/73WD--OPR-479-RU/HE-73. HECK was required to complete 200% side scan coverage and reduced line spacing to a maximum of 50 meters in order to disprove this item. 200% side scan coverage was accomplished during normal mainscheme hydrography. No contacts were found anywhere within the boundaries of the AWOIS circle. Additional development using 50 meter line spacing was conducted on DOY 122 resulting in nothing being found. The center of the AWOIS circle is located at the following position:

LAT 30°06'33.74"N LON 088°00'46.98"W AWOIS # 3624

Recommendation: AWOIS 3625 4, charted as "Obstruction Wire Cleared to 56FT", is to be considered disproved and should be removed from the chart. CONCUR

AWOIS 3646 This item is listed as the wreck of the "Gracie L" with a wire drag cleared depth of 52.5FT with CLS 7/73, a scaled position from prior survey H-9374WD(1973), and prior survey originating ~~from survey~~ FE276WD/74--OPR-479-RU/HE-74. HECK was required to complete 200% side scan coverage of this item in order to disprove it. 200% side scan coverage was accomplished during normal mainscheme hydrography. No contacts were found within the AWOIS circle. The center of the AWOIS circle is located at the following position:

LAT 30°07'19.54"N LON 088°01'02.88"W AWOIS # 3646

Recommendation: AWOIS 3646, charted as Wreck → "~~Obstruction~~ Wire Cleared to 52.5FT", is considered disproved and should be removed from the chart. Concur

AWOIS 7132 This item is listed as an obstruction reported with a ~~least~~ depth of 52FT originating from survey H10179/1985/87--OPR-J217-HFP-84. HECK was required to complete 200% side scan coverage of this item in order to disprove it. 200% side scan coverage was accomplished during normal mainscheme hydrography. No contacts were found to reside within the AWOIS circle. The center of the AWOIS circle is located at the following position:

LAT 30°07'20.02"N LON 088°00'35.68"W

Recommendation: reported AWOIS 7132, charted as "Obstruction 52FT", is considered disproved and should be removed from the chart. Concur

N. COMPARISON WITH THE CHART

Comparison of surveyed soundings were made with current editions of the following NOS charts:

CHART	EDITION	DATE	SCALE
11376	42nd	Jan/92	1:80,000
11360	32nd	Mar/91.	1:456,394
11378	26th	~~Sept~~ 92	1: 40,000

The soundings agreed well with the charted soundings on 11376, consistently less than 3 feet shoaler than the survey. Chart 11360 contained only one sounding in the survey area and agreement was exact.

HECK has noted, through discussions with the pilots and local fishermen, that the present chart layout for the approaches to Mobile Bay is inadequate. A 1:80,000 scale chart extending from about mid-bay to the southern extreme of this survey area would be of much greater use to shipping interests and fishermen.

No danger to navigation reports were submitted as a result of this survey.

One hundred seventy-six (176) contacts were identified during this survey. Eight (8) targets warranted additional investigation based on either height off the bottom (≥1 meters in <20 meters of water or ≥10% of the depth in >20 meters of water), appearance, or relation to an assigned AWOIS item. All such contacts were investigated with additional side scan coverage using the 50 meter range scale and/or divers. The following is a list of targets with associated investigation results and recommendations. Duplicate contacts from adjacent swaths or development work are cross referenced in the "Status/Same as" column of the Side Scan Sonar Abstract located in Separates Section V.

TARGET	NARRATIVE
150.05	Target 150.05 is identified on contact table 1 with a computed height off the bottom of 0.9 meters in 16.4 meters of water. This target was further investigated because of its appearance. Ship's divers investigated this item on DOY 126 and found part of an old buoy. A least depth of 15.3 meters was found using lead line. The buoy has a diameter of 1.4 meters and lays in a scour 0.3 meters deep. Therefore, the true height off the bottom is 1.1 meters. The target is located at the following position: POSITION # 1644 LAT 30°07'52.98"N LON 087°07'52.98"W E: 27078.5 N: 14566.2 Recommendation: This item is significant and should be charted as "Obstruction Least Depth 15.3 meters". Concur
459.37	Target 459.37 is identified on contact table 3 with a computed height off the bottom of 2.8 meters in 18.5 meters of water. This target was further investigated on DOY 126 and DOY 127 between positions 1631-1632, 1641-1644, 1697-1699, 1700-1705 and by ship's divers. The divers found nothing, however, a DSF 6000N least depth was obtained. A least depth of 17.2 meters in 18.5 meters of water was obtained at position 1703.37 on DOY 127. POSITION # 1703.6 LAT 30°06'48.66"N LON 087°59'41.54"W E: 26919.2 N: 12585.6 Recommendation: This item is significant and should be charted as "Obstruction Least Depth 17.2 meters". Do Not Concur See also Section 3.C.3. of the Evaluation Report.

537.02

Target 537.02 is identified on contact table 3 with a computed height off the bottom of 0.3 meters in 17.5 meters of water. This target was further investigated because of its proximity to target 1284.03 on contact table 8, showing a height of 1.9 meters in 17.7 meters of water. The target was investigated on DOY 127 and DOY 132 between positions 1665-1684 and 1753-1764. A DSF 6000N least depth of 16.2 3 meters in 17.8 meters of water was obtained at position 1759.20 on DOY 132.

POSITION # ~~1759.2~~ 1683.6
LAT 30°06'~~41.82~~"N LON 087°58'54.~~87~~ 97"W
E: 28168.8 42.17 N: 12375.7

Recommendation: This item is significant and should be charted as an "Obstruction Least Depth 16.2/3 meters". concur

558.44

Target 558.44 is identified on contact table 3 with a computed height off the bottom of 1.9 meters in 16.0 meters of water. This target was further investigated on DOY 126 and DOY 127 between positions 1649-1652 and 1706-1715. A DSF 6000N least depth of 14.6 meters in 15.8 meters of water was obtained at position 1714.20 on DOY 127.

POSITION # 17~~14.2~~ 10.3
LAT 30°07'03.~~56~~ 53"N LON 087°55'44.~~12~~ 29"W
E: 33274.0 N: 13050.2

Recommendation: This item is significant and should be charted as an "Obstruction Least Depth 14.6 meters". concur

585.26

Target 585.26 is identified on contact table 3 with a computed height off the bottom of 1.4 meters in 18.5 meters of water. This target was further investigated on DOY 126 and DOY 127 between positions 1619-1622 and 1685-1696. Additional passes with the side scan sonar showed the target to be insignificant so further investigation was stopped. The extremely large height was the result of the target being too close to the tow fish. Past experience and several instances on this survey show computed heights to be grossly exaggerated for targets passing close to the towfish.

Recommendation: This item is insignificant and should not be charted. Do not concur. Chart as obstr(A) as shown on the present survey. See also section 3.C.2. of the Evaluation Report

1118.35 Target 1118.35 is identified on contact table 6 with a computed height off the bottom of 0.6 meters in 16.7 meters of water. This target was further investigated because of its appearance (DOY 126 between positions 1637-1638). Additional passes with the side scan sonar showed the target to be insignificant so further investigation was stopped.

Recommendation: This item is insignificant and should not be charted. Concur

1179.33 Target 1179.33 is identified on contact table 6 with a computed height off the bottom of 0.4 meters in 14.1 meters of water. This target was further investigated because of its appearance (DOY 126 between positions 1645-1648). Additional passes with the side scan sonar showed the target to be insignificant so further investigation was stopped.

Recommendation: This item is insignificant and should not be charted. Concur

1222.44 Target 1222.44 is identified on contact table 6 with a computed height off the bottom of 1.2 meters in 17.0 meters of water. This target was further investigated because of its appearance (DOY 126 between positions 1653-1660). Additional passes with the side scan sonar showed the target to be insignificant so further investigation was stopped.

Recommendation: This item is insignificant and should not be charted. Concur

O. ADEQUACY OF SURVEY

This survey has met or exceeded 1:10,000 specifications, and is adequate to supersede all prior surveys for the purposes of charting the depths and hazards to navigation within the survey area.

P. AIDS TO NAVIGATION See also section 7.c. of the Evaluation Report.

No aids to navigation were found in the area of this survey.

No drilling structures were found in the boundaries of this survey.

Q. STATISTICS

ITEM for... NOAA Ship HECK	AMOUNT
1. Total No. of Positions	1764 Fixes
2. Lineal NM of Soundings	359.1 NMi
3. Square NM Hydrography	35.9 NMi^2
4. Days of Production	12 Days
5. Bottom Samples	9
6. Tide Stations Established	None
7. Current Stations Established	None
8. Velocity Casts Performed	3 Casts
9. Magnetic Stations Established	None
10. Detached Positions	10

R. MISCELLANEOUS

No anomalies in either tide or current were noted.

No magnetic anomalies were noted.

Nine bottom samples were taken and recorded on Log Sheet M. The log sheet was submitted to the Smithsonian Institution; a copy is included in section II of the Separates. The bottom samples were given to Dr. William W. Schroeder, Oceanographer, Dauphin Island Sea Lab. The area has been extensively sampled in the past. Minimal samples were required since those taken by HECK match those from prior surveys.

S. RECOMMENDATIONS See also sections 8. and 9. of the Evaluation Report.

Recommendations concerning specific AWOIS items and depths are located in sections M and N of this report.

T. REFERRAL TO REPORTS

Electronic Control Report is included with this survey.

User Evaluation information is found in section M.

Coast Pilot Report will be submitted by August 11, 1992.

Respectfully Submitted,

Kevin N. Harbison, LTJG, NOAA
Field Operations Officer
NOAA Ship HECK

ation No ?	Type	Lat	Lon	H	Cart	Freq	Vel	Code	MM/DD/YY	Station Name
		000:00:00.000	000:00:00.000	0	0	0.0	0		00/00/00	
		000:00:00.000	000:00:00.000	0	0	0.0	0		08/01/91	
103	F	030:13:41.558	088:01:26.458	20	250	0.0	0	2	08/01/91	MOBILE POINT LIGHT 1987
104	F	030:13:49.424	087:57:49.846	11	250	0.0	0	5	09/04/91	STORMY 1986
105	F	030:13:45.572	087:52:32.019	7	250	0.0	0	6	10/13/91	ELENA 1986
106	F	030:15:00.368	088:04:42.274	20	250	0.0	0	1	03/01/91	D. I. USAF E DOME
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/10/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/31	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/91	
		000:00:00.000	000:00:00.000	0	0	0.0	0		03/01/91	

DIVING OPERATIONS
OPR-J461-HE-91
GULF OF MEXICO
APPROACHES TO MOBILE BAY

DN: 126

NOAA SHIP HECK S591
TGT · 150.05
POS # 1664

DATE: 5 MAY 1992

DIVE PLAN: CIRCLE SEARCH / ITEM INVESTIGATION
SEARCH RADIUS: 40m

MAX DEPTH : 60 FT
MAX TIME : 27 MIN
LEAST DEPTH: 15.3 ~~FT~~ METERS
L/D TIME : 2305 UTC

DEPTH FROM: PNEUMO / LEAD LINE

EQUIPMENT USED: OPEN CIRCUIT SCUBA

PNEUMOFATHOMETER:
S/N 8607004N (SHALLOW) GAGE
S/N 8704986 (DEEP) GAGE

CONDITIONS:
WIND : DIR _____ KTS _____
SEAS : DIR - FT 2-1
CURRENT : KTS 0.5 Kts

VISIBILITY: 20'
AIR TEMP : 23.5°C
WATER TEMP: 22.0°C

DIVERS NAME	SURF INT	GP	RNT	TNK PRESURE IN / OUT	PRES. CHANGE	DIVE TIMES DOWN/UP	BOTTOM TIME	DEPTH	GROUP
CO	:			____ / ____		D 2246Z			
XO	:			2900 / 1200					
OPS	:			____ / ____		U 2313Z			
JO	:			3000 / 300					

DETACHED POSITION NUMBER: 1664

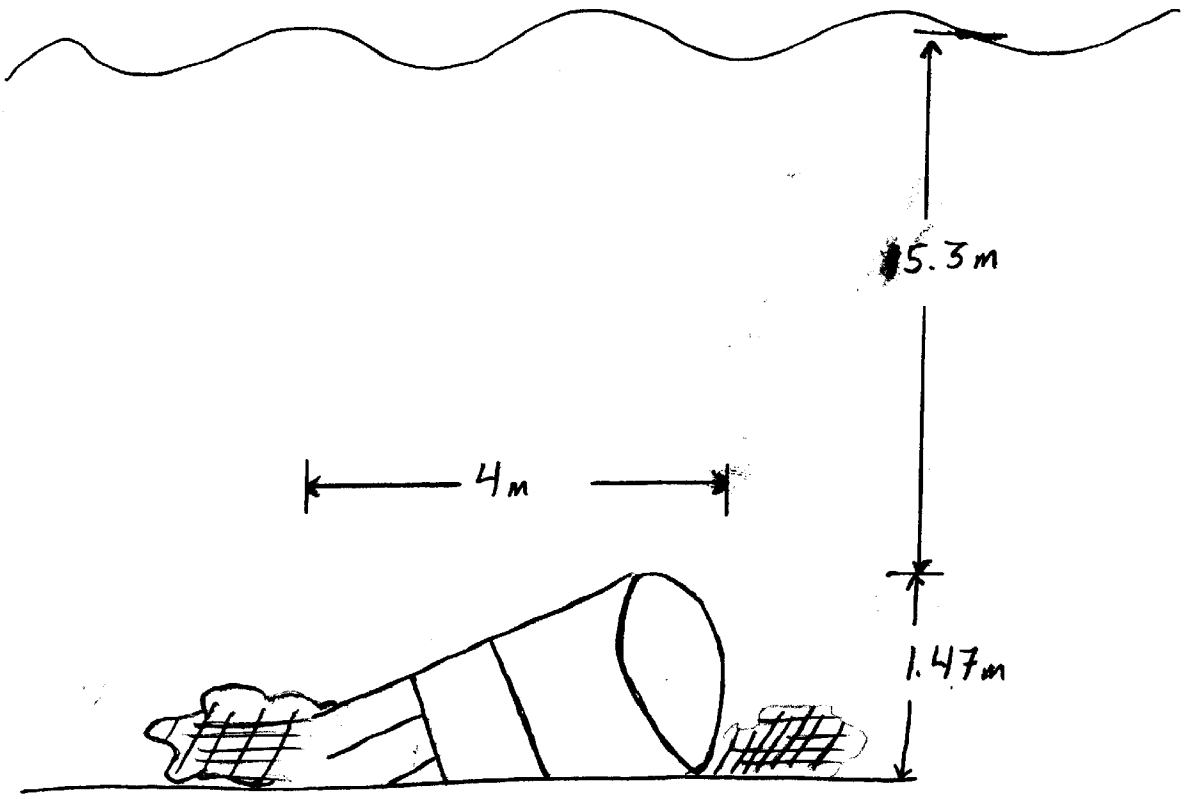
LAT: 30°02'52.977"N LON: 087°02'52.977"W

E: 27078.5 N: 14566.2

LORAN RATES W: _____ X: _____ Y: _____ Z: _____

DIVER COMMENTS:

FOUND AN OLD BOUY WITH SEVERAL SHRIMP NETS HUNG ON IT. LEAST DEPTH BY LEAD LINE 15.3m. BOUY WAS IN A SCOUR AND HAD A HEIGHT OFF THE BOTTOM OF 1.47 METERS. THE BOUY WAS 4 METERS LONG. IT WAS RUSTY BUT SOLID.


5.3m
4m
1.47m

DIVING OPERATIONS
OPR-J461-HE-91
GULF OF MEXICO
APPROACHES TO MOBILE BAY

DN: 126

NOAA SHIP HECK S591

DATE: 5 MAY 1992

POS # 459.37

DIVE PLAN: CIRCLE SEARCH / ITEM INVESTIGATION
SEARCH RADIUS: 40 METER

MAX DEPTH : 60 FT
MAX TIME : 18 MIN
LEAST DEPTH: NF FT
L/D TIME : NF UTC

DEPTH FROM: PNEUMO/LEAD LINE

EQUIPMENT USED: OPEN CIRCUIT SCUBA

PNEUMOFATHOMETER:
S/N 8607004N (SHALLOW) GAGE
S/N 8704986 (DEEP) GAGE

CONDITIONS:
WIND : DIR_____ KTS_____
SEAS : DIR_____ FT_____
CURRENT : KTS 0.5K

VISIBILITY: 20'
AIR TEMP : 23°C
WATER TEMP: 22°C

DIVERS NAME	SURF INT	GP	RNT	TNK PRESURE IN / OUT	PRES. CHANGE	DIVE TIMES DOWN/UP	BOTTOM TIME	DEPTH	GROUP
CO	:			____ / ____		D 2201 Z			D
XO	:			3000 / 1000					
OPS	:			____ / ____		U 2219 Z			D
JO	:			3000 / 900					

DETACHED POSITION NUMBER:_____

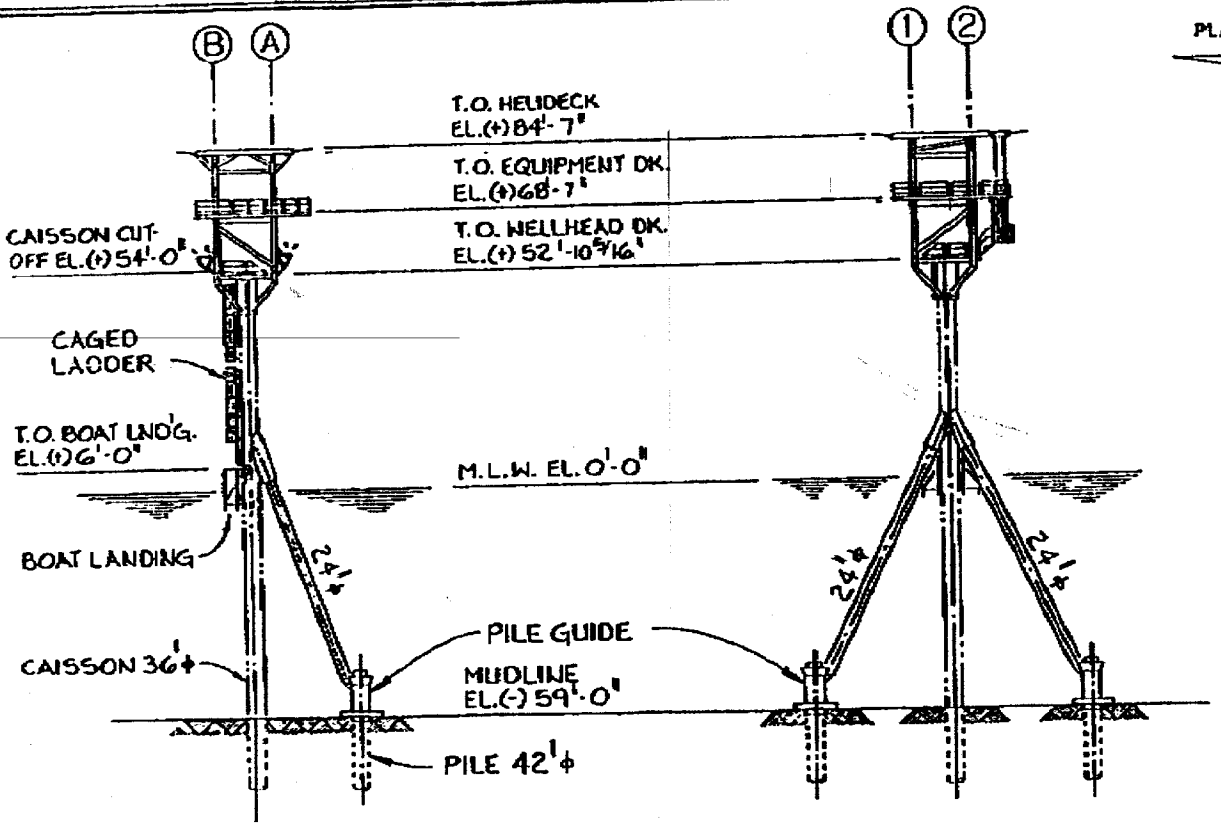
LAT:_____ LON:_____

E:_____ N:_____

LORAN RATES W:_____ X:_____ Y:_____ Z:_____

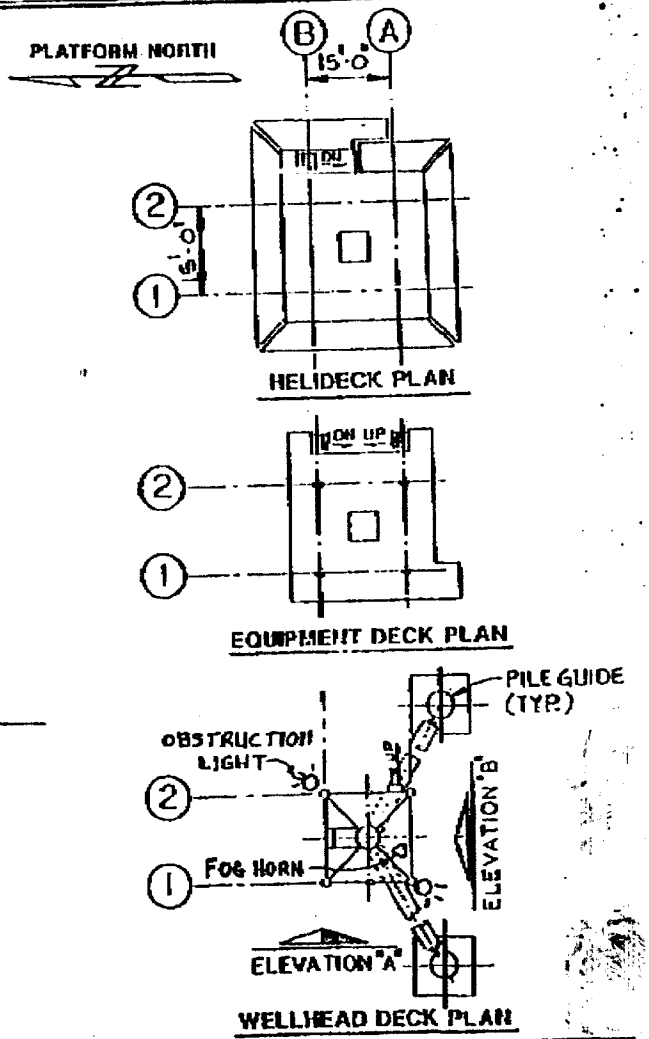
DIVER COMMENTS:

40 METER CIRCLE SEARCH FROM POSITION 459.37. NOTHING FOUND.
FINE BROWN/GREY SAND BOTTOM.



ELEVATION "A"

ELEVATION "B"



NOTES

CBS ENGINEERING, INC.
Houston, Texas

DESIGNED BY _____ SCALE N.T.S.

DRAWN BY KEITH DUNN DATE JAN. '88

MOSS II

MOBILE BLK. 870 WELL NO.2 59' W. I

VII. LETTER OF APPROVAL

Field operations contributing to the accomplishment of this survey were conducted under my direct supervision with frequent personal checks of progress and data quality. This report, field sheets, and data records have been closely reviewed and are complete and adequate for charting.

John W. Blackwell, LCDR, NOAA
Commanding Officer
NOAA Ship HECK

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Ocean and Earth Sciences
Rockville, Maryland 20852

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: June 26, 1992

MARINE CENTER: Atlantic

OPR: J461

HYDROGRAPHIC SHEET: H-10418

LOCALITY: Gulf of Mexico, Eastern Approach to Mobile Bay, Alabama

TIME PERIOD: March 25 - May 11, 1992

TIDE STATIONS USED: 873-5180 Dauphin Island, AL
Lat. 30° 15.0'N Lon. 80° 04.5'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 2.68 feet

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.2 feet

REMARKS: RECOMMENDED ZONING

Apply a -01 hr 40 min time correction and a X1.23 range ratio to Dauphin Island, Alabama (873-5180).

NOTE: Hourly heights are tabulated on Central Standard Time.

CHIEF, DATUMS SECTION

NOAA FORM 76-155
(11-72)

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

SURVEY NUMBER

H-10418

GEOGRAPHIC NAMES

Name on Survey	A ON CHART NO.	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	
ALABAMA (title)										1
MEXICO, GULF OF (title)										2
MOBILE BAY (title)										3
										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
					Approved:					16
										17
					Charles E. Harrington					18
					Chief Geographer - N/CG2x5					19
					FEB 17 1993					20
										21
										22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 61-29
(12-71)

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

REFERENCE NO.

N/CG244-64-93

LETTER TRANSMITTING DATA

DATA AS LISTED BELOW WERE FORWARDED TO YOU BY *(Check)*:

☐ ORDINARY MAIL ☐ AIR MAIL

☐ REGISTERED MAIL ☒ EXPRESS

☐ GBL *(Give number)* _____

FEDERAL EXPRESS

TO:

Chief, Data Control Section, N/CG243
NOAA/National Ocean Service
SSMC3, Station 6815
Silver Spring, Maryland 20910

DATE FORWARDED

8 June 1993

NUMBER OF PACKAGES

1 box, 1 tube

NOTE: A separate transmittal letter is to be used for each type of data, as tidal data, seismology, geomagnetism, etc. State the number of packages and include an executed copy of the transmittal letter in each package. In addition the original and one copy of the letter should be sent under separate cover. The copy will be returned as a receipt. This form should not be used for correspondence or transmitting accounting documents.

H-10418

Alabama, Gulf of Mexico, Eastern Approach to Mobile Bay

1 Tube containing:

~~1~~ Final Smooth Sheet
~~1~~ Final Smooth Position Overlay
~~2~~ Excess Overlays
~~8~~ Smooth Field Plots (4 (four) swath, and 4 (four) sounding plots)

1 Box containing:

~~1~~ **Original Descriptive Report for H-10418**
~~1~~ Envelope containing Miscellaneous Data removed from the original Descriptive Report
~~1~~ Envelope containing Supplemental data removed from printouts
~~1~~ Envelope containing sounding correctors (velocity, tide and TRA data)
~~1~~ Cahier with final sounding, position, control and line file listing
~~10~~ Envelopes containing, fathograms, daily printouts and side scan sonograms for VESNO 9140 for JDs: 85 (2), 86 (2), 87 (3), 90, 91, 92 (3), 100 (2), 101, 122, 126, 127, and 132.

FROM: *(Signature)* Deborah A. Bland
Deborah A. Bland

RECEIVED THE ABOVE
(Name, Division, Date)

D. S. Clark

JUL 16 1993

Return receipted copy to:

Atlantic Hydrographic Section, N/CG244
439 W. York Street
Norfolk, VA 23510-1114

NOAA FORM 61-29 SUPERSEDES FORM C&GS 413 WHICH MAY BE USED.

☆U.S.GPO:1983-0-864-006/1192

05/07/93

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H-10418

NUMBER OF CONTROL STATIONS		4
NUMBER OF POSITIONS		1682
NUMBER OF SOUNDINGS		11423
	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	56	07/31/92
VERIFICATION OF FIELD DATA	91	11/04/92
ELECTRONIC DATA PROCESSING	33	
QUALITY CONTROL CHECKS	71	
EVALUATION AND ANALYSIS	98	02/11/93
FINAL INSPECTION	23	04/29/93
TOTAL TIME	372	
ATLANTIC HYDROGRAPHIC SECTION APPROVAL		05/05/93

COAST AND GEODETIC SURVEY
ATLANTIC HYDROGRAPHIC SECTION
EVALUATION REPORT

SURVEY NO.: H-10418 FIELD NO.: HE-10-1-92

Alabama, Gulf of Mexico, Eastern Approach to Mobile Bay

SURVEYED: 25 March through 11 May 1992

SCALE: 1:10,000 PROJECT NO.: OPR-J461-HE-92

SOUNDINGS: RAYTHEON DSF-6000N Fathometer, Leadline

CONTROL: MOTOROLA Falcon 484 Mini-Ranger (Range/Range)

Chief of Party.....J. W. Blackwell

Surveyed by.....M. S. Abbott
.....K. N. Harbison
.....J. E. Martin
.....W. R. Morris

Automated Plot by.....XYNETICS 1201 Plotter (AHS)

1. INTRODUCTION

a. This is primarily a basic hydrographic, side scan sonar survey. A RAYTHEON DSF-6000N fathometer was operated concurrently with the side scan sonar. In cases where the side scan sonar was used to determine the estimated depth of a feature, the item is shown on the present survey with the upper case letter 'A' in parenthesis. Depths on these items were estimated by scaling heights off the bottom from side scan sonar records. Positions were determined by computing offsets from the vessel's track. This note is shown on the present survey in proximity to the title block. See also memorandum titled, "Showing Estimated Side Scan Sonar Depths on Smooth Sheets", dated 23 February 1989, for an explanation of the note shown on the survey smooth sheet.

b. During office processing of this survey, a problem with the geographic position of control station #105, "SAN SOUCI" was detected by personnel of the Coastal Survey Unit (CSU). It was determined that improper field surveying procedures used by the field unit caused an incorrect geographic position for this control station. All hydrographic data acquired using this control station was considered in error. Additional horizontal control work was performed later, and the data submitted by the field unit was subsequently checked and approved by CSU personnel. The corrected geographic position for control station "SAN SOUCI" was used during office processing to recompute all positions

for hydrographic data acquired using this control station. Correspondence concerning this situation are appended to the Descriptive Report.

c. Notes in the Descriptive Report were made in red during office processing.

2. CONTROL AND SHORELINE

a. Control is adequately discussed in sections H. and I. of the Descriptive Report.

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 survey datum and the North American Datum of 1927 (NAD 27).

To place this survey on the NAD 27 datum move the projection lines 0.741 seconds (22.810 meters or 2.28 mm at the scale of the survey) north in latitude, and 0.020 seconds (0.533 meters or 0.0533 mm at the scale of the survey) east in longitude.

All geographic positions listed in this report are on NAD 83 datum unless otherwise specified.

b. There is no shoreline within the limits of this survey.

3. HYDROGRAPHY

a. Soundings at crossings are in agreement and comply with the criteria found in sections 4.6.1 and 6.3.4.3. of the HYDROGRAPHIC MANUAL.

b. The standard depth curves are drawn in their entirety.

c. The development of the bottom configuration and determination of least depths is considered adequate with the following exceptions:

2) An uncharted dangerous submerged obstruction with an estimated depth 17^3 m (57 feet), in Latitude 30°06'24.03"N Longitude 87°59'20.61"W, was located using side scan sonar. No dive operations were conducted. It is recommended that the obstruction be charted in accordance with Cartographic Order

004/89, dated July 03, 1989. Additional work is recommended at an opportune time.

2) An uncharted dangerous submerged obstruction with an echosounder depth of 16^{9} m (55 feet), in Latitude 30°06'48.66"N, Longitude 87°59'41.54"W, originating with a side scan sonar contact was not adequately investigated by the field unit. Surrounding depths are 18^{3} to 18^{5} m (60 ft). Dive operations were performed and nothing was seen by the divers. The dive report submitted by the field unit did not provide a geographic position to show the location of the dive operations. After a thorough examination of the side scan sonargrams, it is believed that the dive was made in the wrong location. It is recommended that an obstruction be charted as shown on the present survey. Additional work is recommended at an opportune time.

4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records and reports conform to the requirements of the HYDROGRAPHIC MANUAL, SIDE SCAN SONAR MANUAL, and the FIELD PROCEDURES MANUAL.

5. JUNCTIONS

H-10393 (1991) to the west
H-10394 (1991) to the southwest
H-10423 (1992) to the southwest

Adequate junctions were effected between the present survey and the surveys listed above. Present survey soundings are in general harmony with the charted hydrography to the north, east, and southeast.

6. COMPARISON WITH PRIOR SURVEYS

a. Hydrographic

H-10179 (1985-87) 1:20,000

Prior survey H-10179 (1985-87) covers the present survey in its entirety, and is in agreement with the present survey with scattered soundings varying plus or minus (±) 0^{4} meters (1 ft).

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

b. Wire Drag

H-9374WD	1973	(1:40,000)
FE-276WD	1974	(1:40,000)

1) There are one hang and two groundings on prior survey H-9374WD (1973) in the area common to the present survey. One grounding falls within the search area of AWOIS Item #3624. The hang falls in the search area of AWOIS Item #3646. Discussions and charting recommendations are in Section M. of the Descriptive Report.

In the vicinity of Latitude 30°08'30"N, Longitude 88°00'45"W the wire drag effective depths of prior survey H-9374WD (1973) and the present survey are in conflict. The prior survey effective depths are 1 to 3 feet deeper than the present survey depths. These differences may be attributed to natural change in the bottom configuration and/or improved hydrographic surveying technology; therefore, these conflicts can be disregarded.

2) There is one hang from prior survey FE-276WD (1974) in the area common to the present survey. This hang falls within the search area of AWOIS Item #3646. A discussion and charting recommendations are in Section M. of the Descriptive Report.

7. COMPARISON WITH CHARTS 11378 (26th Edition, Sept. 5/92)
11376 (42nd Edition, Jan. 18/92)
11360 (32nd Edition, Mar. 30/91)

a. Hydrography

The charted hydrography originates with the previously addressed prior surveys and requires no further consideration. Specific items discussed in section N. of the Descriptive Report have charting recommendations that require no additional comments except as noted in that report. The following should be noted:

A submerged well, charted in Latitude 30°08'05.0"N, Longitude 88°00'35.0"W, was neither located nor discussed by the present survey. The well, SFIC-MO-0870-2, has light and foghorn characteristics that would indicate that the structure is visible. These characteristics are on page 2 of the Coast Guard listing of "OFFSHORE OIL, GAS, MINERAL AND RELATED STRUCTURES", dated January 7, 1991. An engineering drawing dated January 1988 provided by the Aids to Navigation and Waterways Branch, 8th Coast Guard District is appended to the

Descriptive Report. During office processing the position of the well was determined by computing the mean of two side scan sonar contact positions. The computed position is Latitude 30°08'06.40"N, Longitude 88°00'33.85"W. The well was revised to "submerged" based on prior survey H-10179 (1987) results. It is recommended that the well be revised and charted as shown on the present survey. Additional work is also recommended at an opportune time.

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

b. Dangers to Navigation

There were no dangers to navigation submitted by the field unit. No dangers were noted during office processing.

c. Aids to Navigation

There are no fixed or floating aids to navigation within the limits of this survey.

8. COMPLIANCE WITH INSTRUCTIONS

This survey complies with the Project Instructions except as noted in sections 3 and 4 of this report.

9. ADDITIONAL FIELD WORK

This is an adequate basic survey. See section 3.c. of this report for additional work recommendations.

Robert Snow
Cartographic Technician
Verification of Field Data

Deborah A. Bland
Senior Cartographic
Technician
Evaluation and Analysis

Leroy G. Cram
Senior Cartographic
Technician
Verification Check

APPROVAL SHEET
H-10418

Initial Approvals

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

Leroy G. Cram Date: 05/may/1993
Leroy G. Cram
Supervisory Cartographic Technician
Atlantic Hydrographic Section

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

Christopher B. Lawrence Date: 5 May 1993
Christopher B. Lawrence, CDR, NOAA
Chief, Atlantic Hydrographic Section

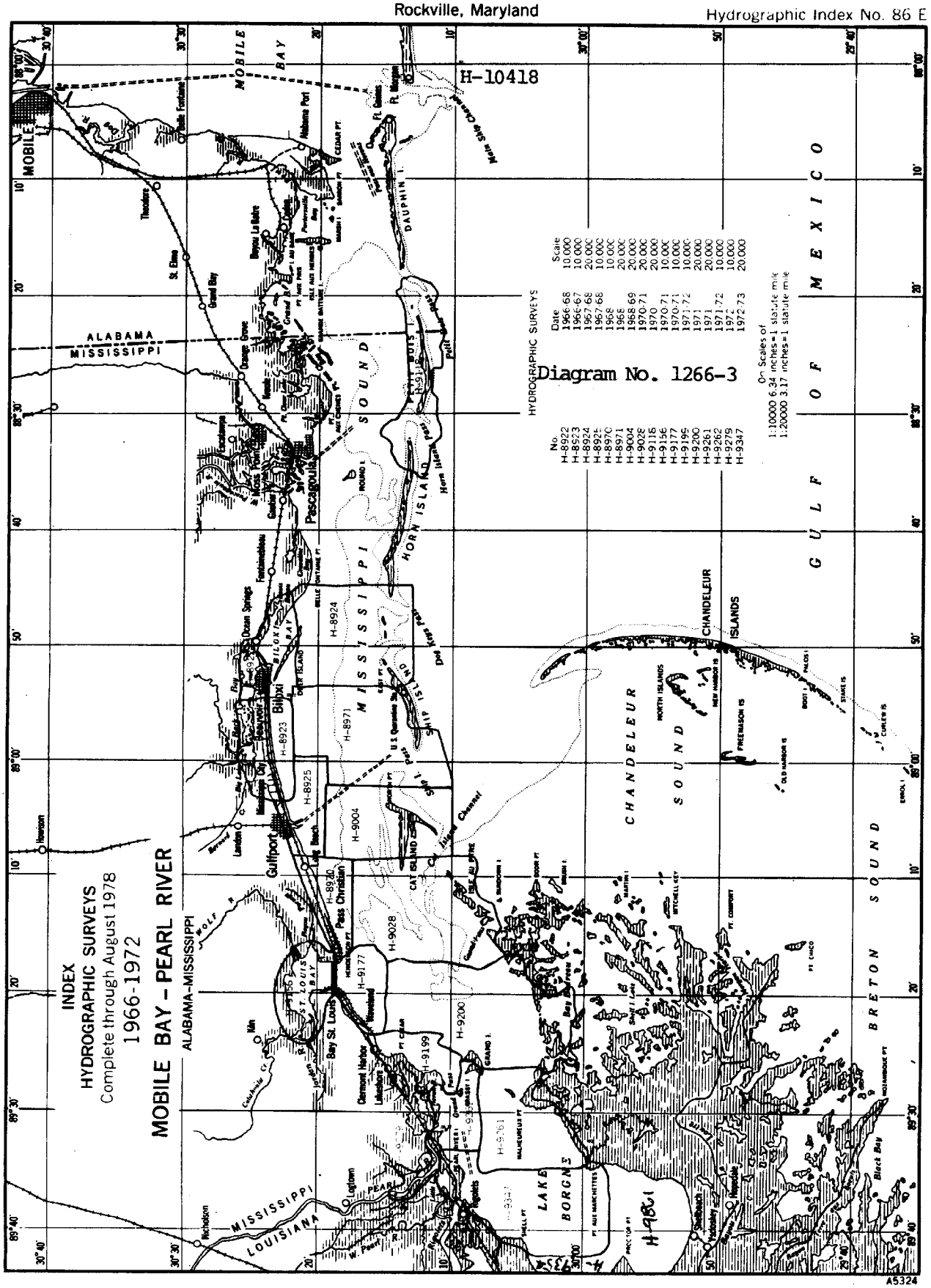
****

Final Approval:

Approved: J. Austin Yeager Date: 8/8/94
J. Austin Yeager
Rear Admiral, NOAA
Director, Coast and Geodetic Survey

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Rockville, Maryland

Hydrographic Index No. 86 E



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-10418

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
11376	9/13/93	Dan Clark	~~Full~~ Part ~~Before~~ After Marine Center Approval ~~Signed~~ Via
			Drawing No. 55 CRITICAL APPLICATION only
11378 B	4/4/94	L. Akerman	~~Full~~ Part ~~Before~~ After Marine Center Approval Signed Via
			Drawing No. 27. Exam. N/CRITICAL Corr. at PROOF
11377	5/9/94	Dan Clark	Full ~~Part-Before~~ After Marine Center Approval Signed Via
			Drawing No. 2
11378B	5/9/94	Dan Clark	Full ~~Part-Before~~ After Marine Center Approval Signed Via
			Drawing No. 27 B
11376	5/10/94	Dan Clark	Full ~~Part-Before~~ After Marine Center Approval Signed Via
			Drawing No. 56 THRU CHT. 11377
11360	5/10/94	Dan Clark	Full ~~Part-Before~~ After Marine Center Approval Signed Via
			Drawing No. 48 THRU CHT. 11376
11006	7-19-95	CWF	Full ~~Part-Before~~ After Marine Center Approval Signed Via
			Drawing No. 39 thru cht 11360
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.