10403

Diagram No. 1115-3

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Side Scan Sonar

Field No. HE-10-4-91

Office No. H-10403

LOCALITY

State Alabama

General Locality Gulf of Mexico

Locality Southwestern Approach to Mobile Bay

1991

CHIEF OF PARTY
LCDR J.W. Blackwell

LIBRARY & ARCHIVES

DATE May 6, 1993

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

E/G
CP-5
11377 ✓
11376 ✓
11360
11006

10403

NOAA FORM 77-28 (11-72) | U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION | REGISTER NO.

HYDROGRAPHIC TITLE SHEET

H-10403

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. H-E-10-4-91

State Alabama

General locality Gulf of Mexico

Locality Southwestern Approach to Mobile Bay

Scale 1:10,000 Date of survey 19 Sept 91 - 11 Oct 91

Instructions dated 11 June 1991 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. Moeller, LTJG K.N. Harbison, ENS J.E. Martin, ST W.R. Morris

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

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

Graphic record checked by LTJG Harbison

Protracted by N/A Automated plot by HDAPS (FIELD) XYNETICS 1201 Plotter (AHS)

Verification by Atlantic Hydrographic Section, N/CG244 PERSONNEL

Soundings in ~~FEET~~ METERS at ~~FEW~~ MLLW

REMARKS: Change 1 dated 12 July 1991

Change 2 dated 17 September 1991

200% Side Scan coverage in depths less than 20 meters, 100% Side Scan coverage in depths greater than 20 meters.

Data submitted to Atlantic Hydrographic Section, N/CG244

Notes in red were made during office processing

RWOIS/SURFV 6/25/93 SJV

KWW

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

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

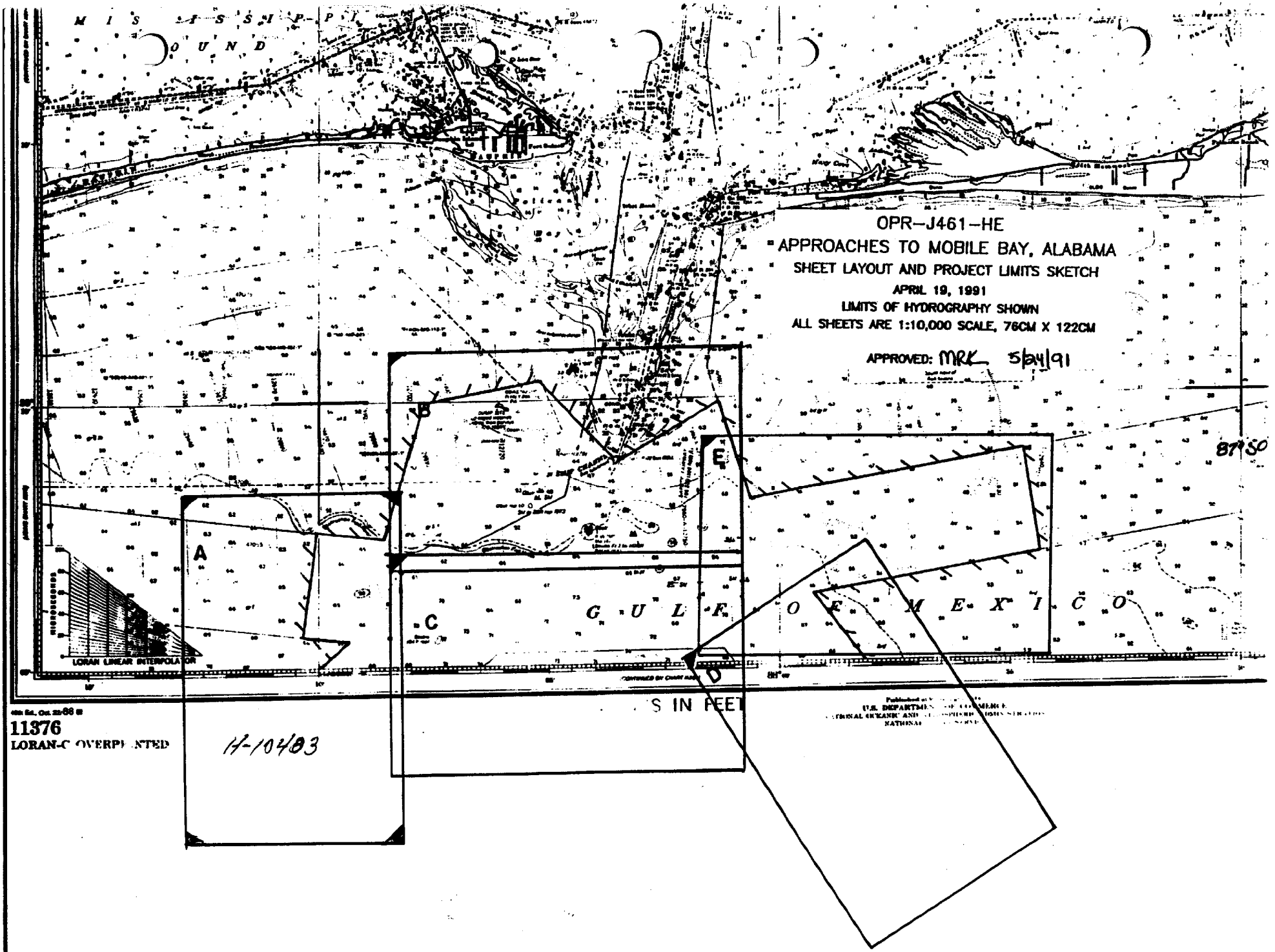
DESCRIPTIVE REPORT APPENDICES

* 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 the original survey data.


M I S S I S S I P P I
S O U N D
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
87°30
A
B
C
D
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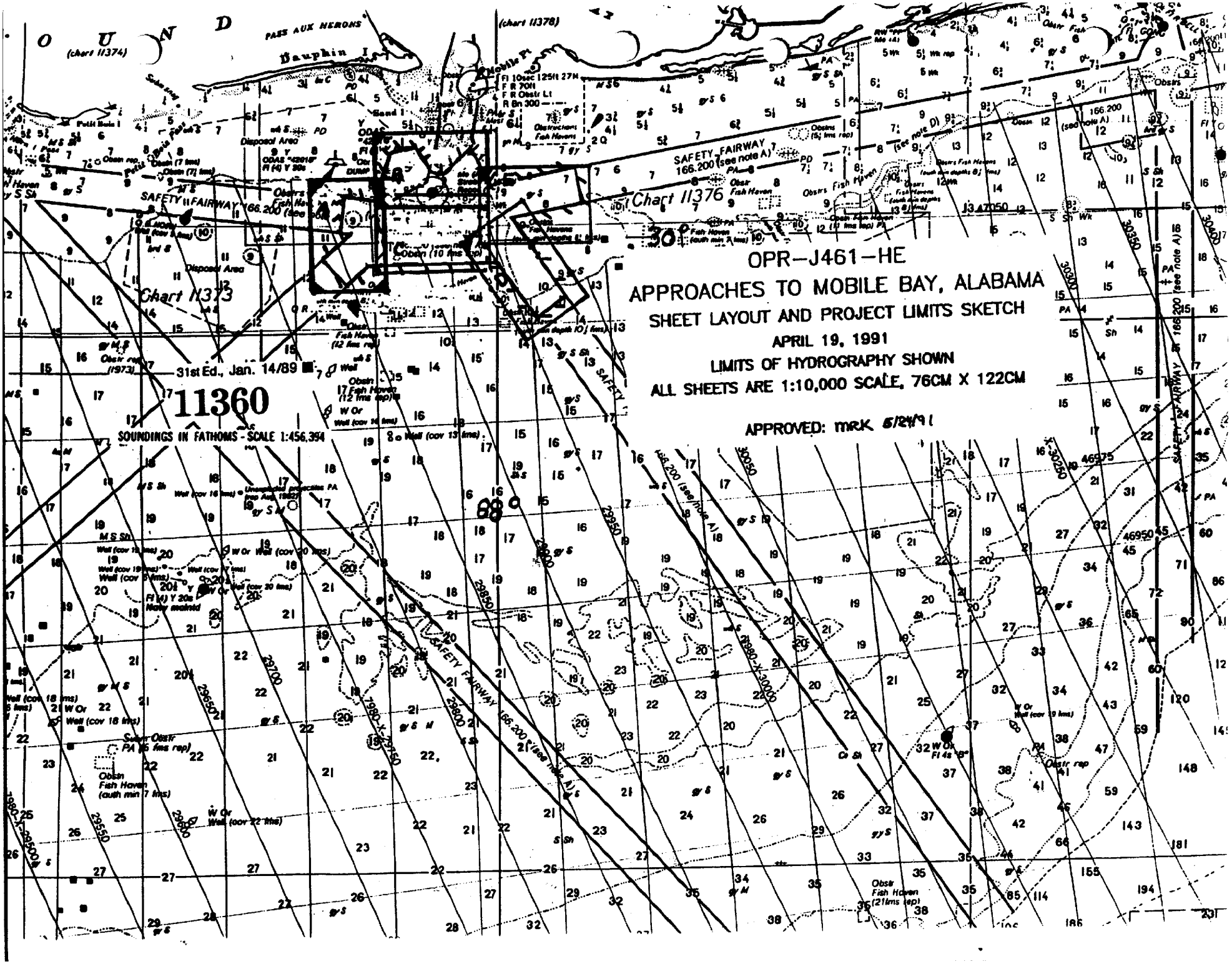
G U L F O F M E X I C O
LORAN LINEAR INTERPOLATOR
S IN FEET
11376
LORAN-C OVERPRINTED
H-10483


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 5/21/91
11360
31st Ed., Jan. 14/89
SOUNDINGS IN FATHOMS - SCALE 1:456,394
Chart 11373
Chart 11376
SAFETY FAIRWAY
Dauphin I.
PASS AUX HERONS
Mobile Pt.
Disposal Area

DESCRIPTIVE REPORT TO ACCOMPANY
SURVEY H-10403
FIELD NUMBER HE-10-4-91
ALABAMA
GULF OF MEXICO
SOUTHWEST 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 June 11,1991, change 1 dated July 12, 1991 and change 2 dated September 17, 1991.

The purpose of this project is to provide updated information in response to requests by the Mobile Bar Pilots Association concerning the presence of submerged obstructions in the area.

B. AREA SURVEYED

The survey area, designated Sheet "A" in the Project Instructions, and expanded to include the fish haven north of the Sheet, lies in the Gulf of Mexico southwest of the entrance to Mobile Bay. The survey area is an irregular shape, formed by connecting the following points:

LAT 30° 08.10' N	LON 088° 08.33' W
LAT 30° 08.41' N	LON 088° 12.09' W
LAT 30° 07.48' N	LON 088° 12.16' W
LAT 30° 07.30' N	LON 088° 10.07' W
LAT 30° 05.57' N	LON 088° 10.33' W
LAT 30° 05.48' N	LON 088° 09.30' W
LAT 30° 04.18' N	LON 088° 11.10' W
LAT 30° 02.62' N	LON 088° 09.70' W
LAT 30° 03.61' N	LON 088° 08.25' W

Survey operations began on September 19, 1991 (DOY 262), and were completed on October 11, 1991 (DOY 284).

The size of the survey area exceeded the width constraints of the HECK's plotter, requiring the area to be split into a south sheet (02) and a north sheet (03). The boat sheet was set up as a 1:15,000 sheet (01) to allow HECK to use one boat sheet through the entire survey. All data was collected and processed using 1:10,000 specifications and submitted on 1:10,000 smooth plots.

C. SURVEY VESSELS

All hydrographic data were collected by the 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 the HDAPS system 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.

Version 1.11 of program VELOCITY was used in determining the sound velocity correctors for this project.

On September 19,1991 (DOY 262) the starting fix in the survey set-up was set to zero (0), when it should have been one (1). To remedy the problem, one fix number was added to all digital data for that day through the HDAPS System. Therefore, the digital data and the hard copy print out data have a discrepancy in fix numbers. This can be eliminated by adding one (1) to all positions on DOY 262 sonargrams, echograms, and data print out. This problem was annotated on all data records.

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 10823	DOY 261 - 276
	S/N 11591	DOY 276 - 284
Recorder	S/N 012104	DOY 261 - 284

The beam width and down angle are not adjustable on this unit. All SSS data was collected using the 50, 75, and 100 meter range scales and 100 Khz frequency.

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.

Line spacing of 170 meters was used on the 100 meter range scale to maintain the required 2mm of adjacent line overlap. The side scan towfish was deployed off the stern when in use. All offset and layback information is provided in the offset table located in section IV of the separates.*

In depths less than 20 meters, 200% side scan coverage was completed. In depths greater than 20 meters, change 1 to the project instructions allowed for 100% coverage.

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 full sonar coverage can be seen by overlaying the plots labeled Smooth Swath Plot and Overlay Plot, which shows NSP data. This method of presentation allows for clearer examination of the coverage.

Along the northern and southern edges of plotter sheet 3, where the swath runs parallel to the project boundary, there are some areas that do not have 200% coverage. These areas lay outside of the survey boundaries and are caused by the offset of the swaths for the 2nd 100% of coverage. Therefore, 200% coverage was attained up to the edge of the sheet.

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 table printout. Both are located in the separates.*

Three HDAPS contact tables were used during this survey. In order to prevent confusion all items were assigned a unique target number which corresponds with the fix position of the contact and is logged in the target number column of the side scan sonar abstracts, and on the contact plot. 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.

F. SOUNDING EQUIPMENT

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

S/N A110N DOY 261 - 284

* Filed with the original survey records.

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 (>30 ft) allowed scope to be minimized. A leadline calibration sheet is included in Separates Section IV.*

*Filed with the original field records.

On September 25, 1991 (DOY 268) the paper take up reel on the DSF 6000 jammed causing a few tears and wrinkling the echogram. No data was destroyed.

G. CORRECTIONS TO ECHOSOUNDINGS

Two velocity casts were conducted using the ODOM Digibar sound velocimeter (S/N 168). They were as follows:

DATE	DOY	POSITION	
September 9, 1991	DOY 253	LAT 30°05.2'N	LON 088°06.8'W
October 2, 1991	DOY 275	LAT 30°04.9'N	LON 088°06.7'W

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 HDAPS sound velocity tables 2 and 3 respectively.

On DOY 108 a dual leadline comparison was conducted and resulted in a mean difference of 0.040 meters or a corrector of 0.0 meters.

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

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. Settlement and squat values were applied on line to hydrographic soundings via the HDAPS offset table.

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 acquired in the echosounder mode have been corrected by applying HIPPY correctors.

The digibar was checked on March 5, 1991 by ODOM and found to be functioning correctly. Field checks using the prescribed fresh water method were conducted prior to each cast and recorded on the velocity cast form.

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 for this survey. The station was maintained under contract by Chapin and Assoc. and observed by Mike Dardeau. Contact with the observer was made, the station inspected, and the opening levels made by HECK's crew. No tide stations were established by the 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 during office processing

H. CONTROL STATIONS

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

Number	Station
101	DAUPHIN ISLAND WEST BASE, 1991
102	PIRATE, 1987
103	MOBILE POINT LIGHT
1~~1~~04	STORMY, 1986

Positions for PIRATE, STORMY, and MOBILE POINT LIGHT 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 See also section 2.a. of the Evaluation Report

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). During the course of the survey mini-ranger codes were changed due to heavy mini-ranger activity in the area. Occasionally, the remote itself was changed due to equipment failure. To facilitate the tracking of mini-ranger remotes, the serial numbers of the remotes, R/Ts and RPUs have been added to the C-O tables.

Equipment serial numbers appear as part of the header information on each days data print out. The Falcon 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 located in section IV of the separates.

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 smoothed or rejected.

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*

16.0 miles of crosslines were run on this survey and they represent 8.7% of all hydrography. Comparison to main scheme soundings showed good agreement with random differences of ± 0.2 meters. All crosslines are shown on the overlay plots to avoid cluttering of soundings on the depth plots.

L. JUNCTIONS *See section 5. of the Evaluation Report.*

Not aplicable 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:

PRIOR SURVEY	DATE	SCALE
H-4171	*1920*	*1:80,000*
H-10247	1987	1:20,000
H-10226	1986-88	1:20,000
H-10206	1985	1:40,000

Comparisons showed excellent agreement with the majority of survey soundings within ± 2 feet.

N. COMPARISON WITH THE CHART *See also section 7. of the Evaluation Report.*

Comparison of surveyed soundings were made to NOS chart 11376, 41st edition, Mar/91, 1:80,000 and NOS chart 11360, 32nd edition, Mar/91, 1:456,394. The soundings agreed well with the charted soundings with differences ± 2 feet. One area of specific interest is the large fish haven on the northern boundry of the survey area (see chartlet on next page). The fish haven was created in the 1960s by connecting old automobile bodies with cable and dropping them along the 60 foot curve. The sonargrams from DOY 276 of the area showed some areas of dark return, but

there were no shadows associated with them. Several of these areas were developed further on DOY 282 and nothing was found. In communications with the Mobile Bar Pilots Association, HECK found that this obstruction has been of great concern to incoming commercial traffic, despite being discredited by the Pilots Association. It is the opinion of the HECK that these automobile bodies have either rusted away or been buried by shifting sands, or a combination of both and are no longer worthy of charting. Concur

No danger to navigation reports were submitted as a result of this survey. See Section 7.b. of the Evaluation Report.

Seventy-Two (72) contacts were identified during this survey. Fifteen (15) of them were identified as warranting additional investigation based on either their height off the bottom (≥ .5 meters), their locality, their appearance, or existence on multiple side scan passes. All such contacts were investigated with additional side scan coverage and some with divers. The following is the list of targets with associated investigation results and recommendations:

TARGET	NARRATIVE
107.17	Target 107.17 is identified on contact table 1 as position number 107.17 with a computed height off the bottom of 0.2 meters (0.7ft) in 17.7 meters (58.0ft) of water. This target was further investigated on DOY 282 at position number 1130-1131, using 100 meter range scale. Nothing was found and investigation beyond this point was not necessary.

LAT 30°07'41.41"N LON 088°09'24.56"W
E 11312.5 N 14211.1

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

294.33	Target 294.33 is identified on contact table 1 as position number 294.33 with a computed height off the bottom of 0.3 meters (1.0ft) in 20.3 meters (66.6ft) of water. The target was seen on two different side scan passes and is the same as Target 886.27. This target was investigated further on DOY 282 at position numbers 1166-1167, using 50 meter range scale. Diver investigation on DOY 284 found a metal dredge pipeline float on the bottom. A least depth of 19.2 meters (63.0ft) and height off the bottom of 1.0 meters (3.3ft) was obtained at the following position:

D.P. 1309
LAT 30°06'09.64"N LON 088°08'35.89"W
E 12613.4 N 11384.4
LORAN w:12692.2 x:29868.5 y:47049.6 z:64076.0

Recommendation: This item is significant and should be charted as an Obstruction, least depth 19.2 meters (63.0ft) at the above position. Concur. Chart as shown on the present survey. 11376

300.22 Target 300.22 is identified on contact table 1 as position number 300.22 with a computed height off the bottom of 0.7 meters (2.3ft) in 20.1 meters (65.9ft) of water. This target was further investigated on DOY 282 at position numbers 1162-1165, using 75 and 50 meter range scales. Diver investigation on DOY 284 found a pile of net that got hung in the mud. The turtle excluder device was protruding 0.4 meters (1.3 feet) from the bottom. The target was deemed insignificant and no D.P. was taken.

LAT 30°06'07.~~92~~87"N LON 088°09'0~~7.08~~6.97"W Pos. 1308
E 11778.3 N 11332.1

Recommendation: This item is insignificant and should not be charted. Concur. Shown on the present survey as 19 ft H Obstr (Fishing Nets) 11376

342.32 Target 342.32 is identified on contact table 1 as position 342.32 with a computed height off the bottom of 0.3 meters (1.0ft) in 18.9 meters (62.0ft) of water. It was seen on multiple side scan passes and is the same as Target 921.74. The target was investigated further on DOY 282 at position numbers 1177-1180, using 75 and 50 meter range scales. The target was insignificant and investigation beyond this point was not necessary.

LAT 30°05'50.79"N LON 088°09'42.13"W
E 10839.6 N 10805.2

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

350.25 Target 350.25 is identified on contact table 1 as position number 350.25 with a computed height off the bottom of 0.1 meters (0.3ft) in 19.3 meters (63.3ft) of water. This target was investigated further on DOY 282 at position number 1175-1176, using 75 meter range scale. The target was insignificant and investigation beyond this point was not necessary.

LAT 30°05'45.98"N LON 088°09'26.39"W
E 11260.8 N 10656.7

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

495.35 Target 495.35 is identified on contact table 1 as position number 495.35 with a computed height off the bottom of 0.5 meters (1.6ft) in 22.2 meters (72.8ft) of water. This target was investigated further on DOY 282 at position numbers 1204-1205, using 75 meter range scale. Nothing was found and investigation beyond this point was not necessary.

LAT 30°03'49.07"N LON 088°~~09'24.35~~ 10'16.13"W
E 9925.8 N 7058.0

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

605.24 Target 605.24 is identified on contact table 3 as position number 605.24 with a computed height off the bottom of 0.5 meters (1.6ft) in 17.4 meters (57.1ft) of water. This target was investigated further on DOY 282 at position numbers 1153-1154, using the 50 meter range scale. Nothing was found and investigation beyond this point was not necessary.

LAT 30°08'01.59"N LON 088°09'24.35"W
E 11318.7 N 14832.7

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

616.34 Target 616.34 is identified on contact table 2 as position number 616.34 with a computed height off the bottom of 0.0 meters (0.0ft) in 17.3 meters (56.7ft) of water. The target was seen on multiple side scan passes and is the same as Target 646.00. This target was further investigated on DOY 282 at position numbers 1151-1152, using 75 meter range scale. Nothing was found and investigation beyond this point was not necessary.

LAT 30°07'55.59"N LON 088°09'22.73"W
E 11361.9 N 14647.8

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

923.21 Target 923.21 can be identified on contact table 3 as position number 923.21 with a computed height off the bottom of 0.1 meters (0.3ft) in 19.9 meters (65.3ft) of water. The target was seen on multiple side scan passes and is the same as Target 933.38. This target was further investigated on DOY 282 at position numbers 1171-1174 using 75 and 50 meter range scales. It was found to be insignificant and investigation beyond this point was not necessary.

LAT 30°05'48.73"N LON 088°09'24.45"W
E 11312.8 N 10741.6

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

942.48 Target 942.48 is identified on contact table 3 as position 942.48 with a computed height off bottom of 1.5 meters (4.9ft) in 18.5 meters (60.7ft) of water. This target was further investigated DOY 282 at position numbers 1181-1182, using 50 meter range scale. Nothing was found and investigation beyond this point was not necessary.

LAT 30°05'40.24"N LON 088°09'32.47"W
E 11097.8 N 10480.3

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

1034.09 Target 1034.09 is identified on contact table 3 as position number 1034.09 with a computed height off the bottom of 4.9 meters (16.1ft) in 22.9 meters (75.1ft) of water. This target was further investigated on DOY 282 at position numbers 1202-1203, using 75 meter range scale. Nothing was found and investigation beyond this point was not necessary.

LAT 30°03'40.04"N LON 088°09'50.07"W
E 10599.3 N 6779.5

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

1040.25 Target 1040.25 can be identified on contact table 3 as position number 1040.25 with a computed height off the bottom of 5.7 meters (18.7ft) in 23.1 meters (75.8ft) of water. This target was

further investigated on DOY 282 at position numbers 1200-1201, using 75 meter range scale. Nothing was found and investigation beyond this point was not necessary.

LAT 30°03'36.21" LON 088°09'49.14"W
E 10648.2 N 6661.5

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

1102.34 Target 1102.34 can be identified on contact table 3 as position number 1102.34 with a computed height off the bottom of 0.2 meters (0.7ft) in 23.1 meters (75.8ft) of water. This target was further investigated on DOY 282 at position numbers 1192-1193, using 75 meter range scale. It was found to be insignificant and investigation beyond this point was not necessary.

LAT 30°03'18.86"N LON 088°09'08.53"W
E 11735.6 N 6126.3

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

1197.40 Target 1197.40 can be identified on contact table 3 as position number 1197.40 with a computed height off the bottom of 3.8 meters (12.5ft) in 21.9 meters (71.8ft) of water. This target was found after further investigation, on DOY 282 at position numbers 1197-1199, of a target that was seen after the end of survey line 2380 (segment 2) and before the start of survey line 2550 (segment 2) on DOY 277. Diver investigation on DOY 284 identified the target as a large metal cylinder with several lightening holes in the sides. A least depth was found to be 20.~~2~~3 meters (66.~~8~~6ft) and a height off the bottom of 3 meters (9.8ft).

D.P. 1312
LAT 30°03'07.99"N LON 088°10'10.99"W
E 10062.3 N 5792.9
LORAN w:12674.8 x:29839.7 y:47036.4 z:64077.8

Recommendation: This item is significant and should be charted as an Obstruction, least depth 20.~~2~~3 meters (66.~~8~~6ft) at the above position. Concur ✓ See also section 7.b. of the Evaluation Report.

O. ADEQUACY OF SURVEY

This survey meets or exceeds 1:10000 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 lie in the area of this survey.

Q. STATISTICS

ITEM	AMOUNT
1. Total No. of Positions	1312 Fixes
2. Lineal NM of Soundings	223.8 NMi
3. Square NM Hydrography	25.9 NMi^2
4. Days of Production	7 Days
5. Bottom Samples	10
6. Tide Stations Established	None
7. Current Stations Established	None
8. Velocity Casts Performed	1 Cast
9. Magnetic Stations Established	None
10. Detached Positions	2

R. MISCELLANEOUS

No anomalies in either tide or current were noted.

Eleven bottom samples were taken on DOY 276, Log Sheet M included in section II of the separates. No actual samples were sent as per project instruction. Sampling was not extensive due to the adequacy of and agreement with the prior survey work.

S. RECOMMENDATIONS

Recommendations concerning specific targets and changes to the chart are located in section N of this report.

T. REFERRAL TO REPORTS

Electronic correction report included with H-10393.

```
HDAPS Survey version: 0.03                    PRE-SURVEY: CONTROL STATION TABLE                    27 Oct 1991   15:50:45

St    No ?
No  type          Lat           Lon    H Cart    Freq    Val Code  MM/DD/YY          Station Name
| |   |            |             |     |   |       |       |   |   |      | |                              |
101 . F 030:14:22.002 088:14:51.512   11  250     0.0      0   7  08/01/91 DAUPHIN ISLAND WEST BASE
102   F 030:15:00.599 088:08:22.020    7  250     0.0      0   9  08/01/91 PIRATE 1987
103   F 030:13:41.558 088:01:20.458   20  250     0.0      0   8  08/01/91 MOBILE POINT LIGHT 1987
104 . F 030:13:40.424 087:57:40.840   11  250     0.0      0   5  08/20/91 STORMY 1980
        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
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        000:00:00.000 000:00:00.000    0    0     0.0      0      03/01/91
```

DN: 284
DATE: Oct 11 1991

DIVING OPERATIONS
OPR-J461-HE-91
APPROACHES TO MOBILE BAY

UNIT: NOAA SHIP HECK S591
POS:# 1309
OF DIVE TARGET 29 4.33

LOCATION: GULF OF MEXICO

DIVE MASTER: LT. MOELLER
TENDERS: SS LEWIS

DIVERS: LT MOELLER
~~LTjg. HARBISON~~
ENS. MARTIN

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX DEPTH: 65 FT
TARGET RADIUS: 40 METER MAX TIME: 9 MIN
DEPTH: (1) ~~63~~ 19.2M PNEUMO/LEAD LINE AVERAGE LEAST DEPTH: 19.2 FM
LEAST DEPTH TIME: 14:32

EQUIPTMENT USED: OPEN CIRCUIT SCUBA.

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

CONDITIONS:
WIND: DIR N KTS 15
SEAS: DIR N FT 2 FT
CURRENT: KTS .2

VISIBILITY: 40 FT
AIR TEMP: 18.8 C
WATER TEMP: 25

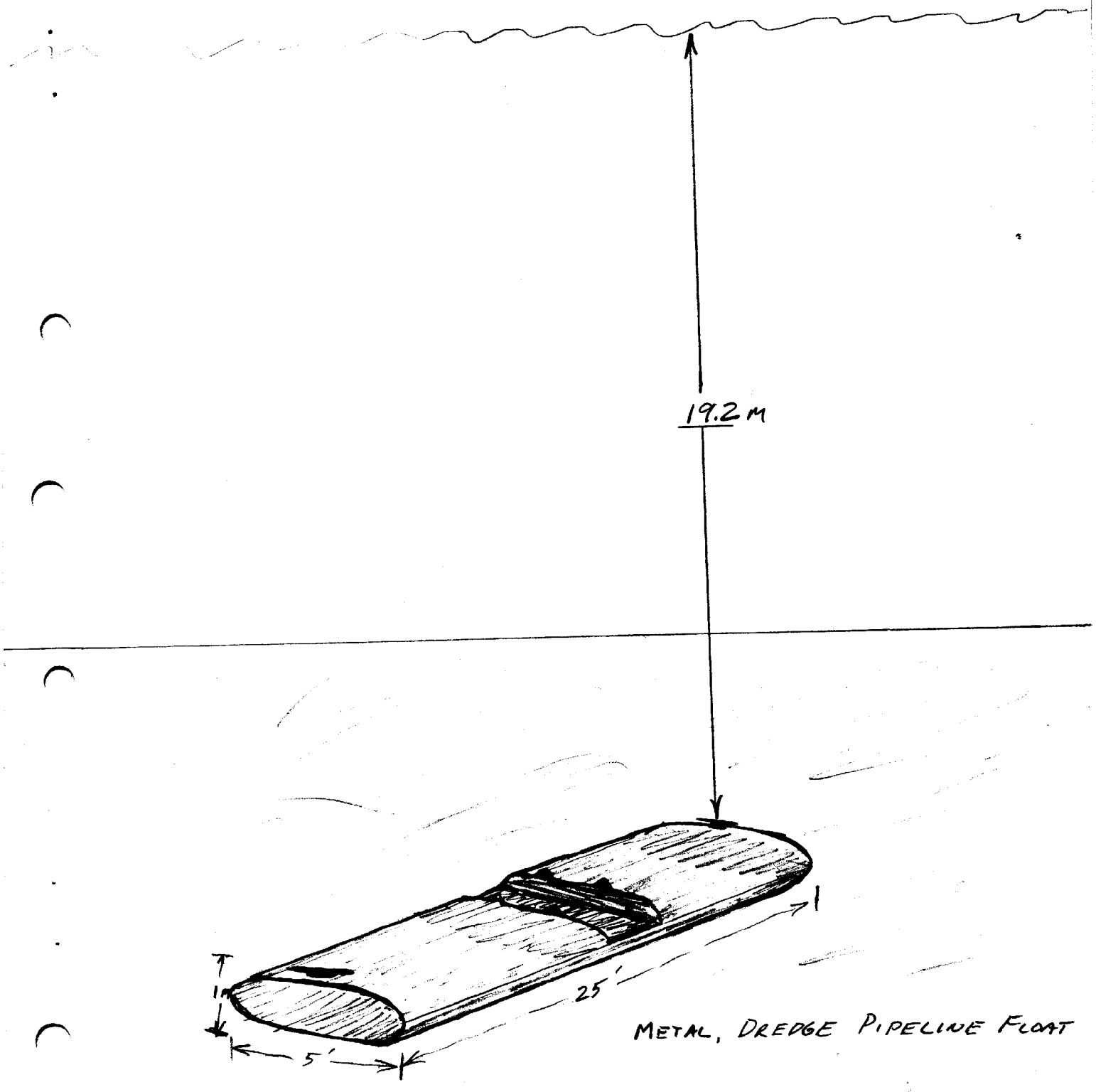
ALL TIMES GMT

DIVERS NAME	SI	GROUP	RNT	TNK PRESURE IN / OUT	PRES. CHANGE	DIVE TIMES DOWN/UP	BOTTOM TIME	DEPTH	GROUP
1 MOELLER				2900 / 1850		D 1421	9		
1 ~~HARBISON~~				/		U 1430	9		
1 MARTIN				2900 / 1800					
2 MOELLER				IN /		D			
2 HARBISON				OUT /		U			
2 MARTIN									

DIVERS POST DIVE COMMENTS: TARGET WAS A METAL DREDGE PIPELINE FLOAT
AND DIAGRAM: WITH A LEAST DEPTH OF 19.2 M

Concur.

DIVE MASTER SIGNATURE



METAL, DREDGE PIPELINE FLOAT

DN: 284
DATE: OCT 11, 1991

DIVING OPERATIONS
OPR-J461-HE-91
APPROACHES TO MOBILE BAY

UNIT: NOAA SHIP HECK S591
POS: # ~~1910~~
OF DIVE TARGET 300.22

LOCATION: GULF OF MEXICO

DIVE MASTER: LT. MOELLER
TENDERS: SS LEWIS

DIVERS: LT MOELLER
~~LTjg. HARBISON~~
ENS. MARTIN

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX DEPTH: _____ FT
TARGET RADIUS: 40 meter MAX TIME: 6 MIN
AVERAGE LEAST DEPTH: _____ FT
DEPTH: (1) _____ PNEUMO/LEAD LINE LEAST DEPTH TIME: ____ : ____

EQUIPTMENT USED: OPEN CIRCUIT SCUBA.

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

CONDITIONS:
WIND: DIR N KTS 10
SEAS: DIR N FT 2
CURRENT: KTS .2

VISIBILITY: _____
AIR TEMP: 18 B C
WATER TEMP: _____

ALL TIMES GMT

DIVERS NAME	SI	GROUP	RNT	TNK PRESURE IN / OUT	PRES. CHANGE	DIVE TIMES DOWN/UP	BOTTOM TIME	DEPTH	GROUP
* MOELLER				1850 / 700		D 1445	6		
1 ~~HARBISON~~				____ / ____		U 1451	6		
MARTIN				1800 / 1150					
MOELLER				IN ____ / ____		D ____			
2 HARBISON				OUT ____ / ____		U ____			
2 MARTIN									

DIVERS POST DIVE COMMENTS: RULE OF NET NO D.P. INSIGNIFICANT
AND DIAGRAM: CONCUR

DIVE MASTER SIGNATURE _____

DN: 264
DATE: Oct 11 1991

DIVING OPERATIONS
OPR-J461-HE-91
APPROACHES TO MOBILE BAY

UNIT: NOAA SHIP HECK S591
POS: # 1311
OF DIVE TARGET 1197.40

LOCATION: GULF OF MEXICO

DIVE MASTER: LT. MOELLER
TENDERS: SS LEWIS

DIVERS: ~~LT MOELLER~~ LCDR J.W. BLACKWELL
LTjg. HARBISON
~~ENS~~ MARTIN

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION.
TARGET RADIUS: 40 meter
DEPTH: (1) ~~66FT~~ 20.3M PNEUMO/LEAD LINE

MAX DEPTH: 72 FT
MAX TIME : ____ MIN
AVERAGE LEAST DEPTH: 20.3 ~~FT~~ M
LEAST DEPTH TIME : 16:15

EQUIPTMENT USED: OPEN CIRCUIT SCUBA.

CONDITIONS:
WIND : DIR N KTS 10
SEAS : DIR N FT 2
CURRENT : KTS .2

PNEUMOFATHOMETER:
S/N 8607004N (SHALLOW) GAGE
S/N 8704986 (DEEP) GAGE
VISIBILITY: 40 FT
AIR TEMP: 20.2 C
WATER TEMP: 75°F

ALL TIMES GMT

DIVERS NAME	SI	GROUP	RNT	TNK PRESURE IN / OUT	PRES. CHANGE	DIVE TIMES DOWN/UP	BOTTOM TIME	DEPTH	GROUP
* ~~BLACKWELL~~ ~~MOELLER~~ 1				2800 / 1850		D 1558			
HARBISON 1				2500 / 200		U 1621			
C.K. ~~MARTIN~~				2900 / 500					
MOELLER 2				IN ____ / ____		D ____			
HARBISON 2				OUT ____ / ____		U ____			
MARTIN									

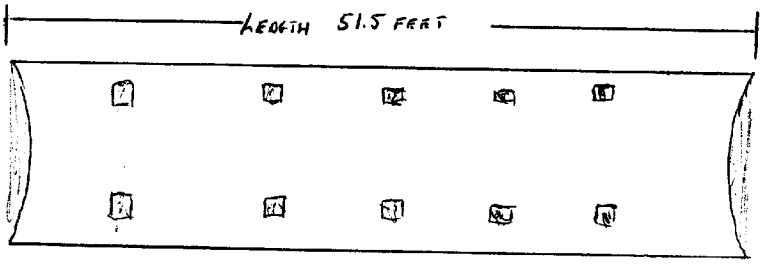
DIVERS POST DIVE COMMENTS AND DIAGRAM: I. DIVED ON TGT 1197.40. FOUND A VERY LARGE SECTION OF PIPE. MEASURED A LEAST DEPTH OF 20.3M ~~66 FEET~~ AND A HEIGHT OFF THE BOTTOM OF 9.8 FEET.

Comer

DIVE MASTER SIGNATURE Paul Moeller

TOP

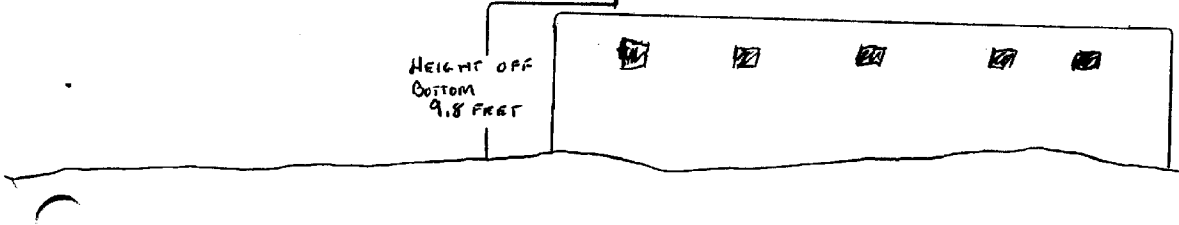
TGT 1197.40



SIDE

LEAST DEPTH

~~66.6 FEET~~
20,3 M



Respectfully Submitted,

James E. Martin, ENS, NOAA
Junior Officer
NOAA Ship HECK

Approved and Forwarded,

Kevin N. Harbison, LT(jg), NOAA
Field Operations Officer
NOAA Ship HECK

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: December 16, 1991

MARINE CENTER: Atlantic

OPR: J461

HYDROGRAPHIC SHEET: H-10403

LOCALITY: Southwest approach to Mobile Bay, Gulf of Mexico, AL

TIME PERIOD: September 19 - October 11, 1991

TIDE STATIONS USED: 873 5180 Dauphin Island, AL
Lat. 30° 15.0'N Lon. 88° 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 correction to all times, and a X1.23 range ratio to all heights.

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10403

Name on Survey	A ON CHART NO. 11360	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)	X									1
MEXICO, GULF OF (title)	X									2
MOBILE BAY (title)	X									3
										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
				Approved:						16
				Charles E. Harrington						17
				Chief Geographer - NOS/CG2x5						18
										19
				NOV 13 1992						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/CG244-53-93

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
Room 151, WSC-2, 6015 Executive Blvd.,
Rockville, Maryland 20852

DATE FORWARDED
16 April 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-10403

Alabama, Gulf of Mexico, Southwestern Approach to Mobile Bay

1 Tube containing:

1 Final Smooth Sheet
1 Final Smooth Position Overlay
2 Excess Overlays
10 Smooth Field Plots (2 (two) swath, 2 (two) track, 2 (two) contact, and 4 (four) sounding plots)

1 Box containing:

1 **Original Descriptive Report for H-10403**
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
12 Envelopes containing, fathograms, daily printouts and side scan sonograms for VESNO 9140 for JDs: 262, 267, 268 (3), 276, 277 (4), 282, and 283

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

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

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

04/16/93

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H-10403

NUMBER OF CONTROL STATIONS	4
NUMBER OF POSITIONS	1277
NUMBER OF SOUNDINGS	8651

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	70	07/01/92
VERIFICATION OF FIELD DATA	122	08/28/92
ELECTRONIC DATA PROCESSING	40	
QUALITY CONTROL CHECKS	110	
EVALUATION AND ANALYSIS	49	12/23/92
FINAL INSPECTION	28	04/15/93
TOTAL TIME	419	

ATLANTIC HYDROGRAPHIC SECTION APPROVAL 04/16/93

COAST AND GEODETIC SURVEY
ATLANTIC HYDROGRAPHIC SECTION
EVALUATION REPORT

SURVEY NO.: H-10403 **FIELD NO.**: HE-10-4-91

Alabama, Gulf of Mexico, Southwestern Approach to Mobile Bay

SURVEYED: 19 September through 11 October 1991

SCALE: 1:10,000 **PROJECT NO.**: OPR-J461-HE-91

SOUNDINGS: RAYTHEON DSF-6000N Fathometer and Leadline

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

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

Surveyed by.....D. W. Moeller
.....K. N. Harbison
.....J. E. Martin
.....W. R. Morris

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

1. INTRODUCTION

a. This is a combined basic hydrographic/side scan sonar survey. Side scan sonar was operated simultaneously with the fathometer during survey operations.

b. No unusual problems were encountered during office processing.

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 move the projection lines 0.740 seconds (22.775 meters or 2.28 mm at the scale of the survey) north in latitude and 0.000 seconds (0.003 meters or 0.000 mm at the scale of the survey) west in longitude.

All geographic positions listed are on NAD 83 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. Dashed curves are also drawn to delineate bottom relief.

c. The development of the bottom configuration and determination of least depths is considered adequate.

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 northeast
H-10394 (1991) to the southeast

Adequate junctions were effected between the present survey and the surveys listed above. Present survey depths are in harmony with the charted hydrography to the north, south, and west.

6. **COMPARISON WITH PRIOR SURVEYS**

a. Hydrographic

H-4171	(1920)	1:80,000
H-10206	(1985)	1:40,000
H-10247	(1987)	1:20,000
H-10226	(1986-88)	1:20,000

The prior surveys listed above cover the present survey area in its entirety.

1) Prior survey H-4171 (1920) covers the present survey area in its entirety. With the exception of a charted

59-ft (9 3/4 fms) sounding (18 m), in Latitude 30°06'24"N, Longitude 88°09'05"W, the prior survey has been superseded by the other prior surveys listed above. There is no indication of a shoal seen on survey H-10226 (1986-88). Present survey hydrography and side scan sonargrams show no indication of a shoal or contact in the vicinity of the charted sounding. Present survey depths in the area are 19^4 to 19^6 meters (63 to 64 ft). The 59-ft (18 m) sounding is considered disproved by the present survey. It is recommended that the 59-ft (9 3/4) sounding be deleted from the charts and charted as shown on the present survey.

11376 ✓

2) Prior survey H-10206 (1985) covers the southern part present survey. Prior survey hydrography is in agreement with the present survey with scattered soundings ranging plus or minus (±) 0^3 meter (1 ft).

3) Prior survey H-10226 (1986-88) covers most of the eastern part of the present survey. Prior survey hydrography is in agreement with the present survey with scattered soundings ranging plus or minus (±) 0^3 meter (1 ft).

4) Prior survey H-10247 (1987) covers the northwest corner of the present survey. Prior survey hydrography is in agreement with the present survey with soundings generally 0^3 meter (1 ft) deeper than present hydrography.

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

b. Wire Drag

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

The prior survey covers the northern half of the present survey. There are no groundings or hangs originating with the prior survey that fall within the present survey area. There are no conflicts between the present survey and the effective clearance depths shown on the prior survey.

7. COMPARISON WITH CHARTS 11376 (41st Ed., 16 March 1991) 11360 (32nd Ed., 30 March 1991)

a. Hydrography

The charted hydrography originates with the previously addressed prior surveys and requires no further consideration.

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

b. Dangers to Navigation

A danger to navigation was noted during office processing and a letter to the Commander (oan), Eighth Coast Guard District, Hale Boggs Federal Building, 501 Magazine Street, New Orleans, Louisiana 70130-3396, and N/CG221, Chart Information Section has been submitted. A copy of the letter is appended to this report. See also section N. (Target 1197.40) of the Descriptive Report.

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.

9. ADDITIONAL FIELD WORK

This is an adequate hydrographic/side scan sonar survey. No additional work is recommended.

Robert Snow
Robert Snow
Cartographic Technician
Verification of Field Data

Deborah A. Bland
Deborah A. Bland
Senior Cartographic Technician
Evaluation and Analysis

Robert R. Hill
Robert R. Hill
Senior Cartographic Technician
Verification Check

APPROVAL SHEET
H-10403

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.

Richard H. Whitfield Date: 16 April 1993
Richard H. Whitfield
Cartographer, Evaluation and Analysis Team
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: 16 April 1993
Christopher B. Lawrence, CDR, NOAA
Chief, Atlantic Hydrographic Section

****

Final Approval:

Approved: for J. Austin Yeager Date: 3-13-95
J. Austin Yeager
Rear Admiral, NOAA
Director, Coast and Geodetic Survey

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Coast and Geodetic Survey
Norfolk, Virginia 23510-1114

April 15, 1993

Commander, Eighth Coast Guard District
Aids To Navigation Office
Hale Boggs Federal Building
501 Magazine Street
New Orleans, LA 70130-3396

Dear Sir,

The following item was discovered during hydrographic survey operations, and was considered a danger to navigation during office processing of the survey data:

REPORT OF DANGER TO NAVIGATION

Hydrographic Survey Registry Number....H-10403
State.....Alabama
General Locality.....Gulf of Mexico
Locality.....Southwestern Approach to Mobile Bay
Project Number.....OPR-J461
Surveyed by.....NOAA Ship HECK

Objects Addressed:

1. A dangerous submerged obstruction with a least depth of 11 fathoms (20[3] meters) at MLLW was found in Latitude 30°03'07.99"N, Longitude 88°10'10.99"W (NAD83). The presently charted depths in the area are 12 to 14 fathoms.

Affected Nautical Chart:

CHART	EDITION NO.	DATE	HORIZ. DATUM
11360	33rd	May 9/92	NAD83

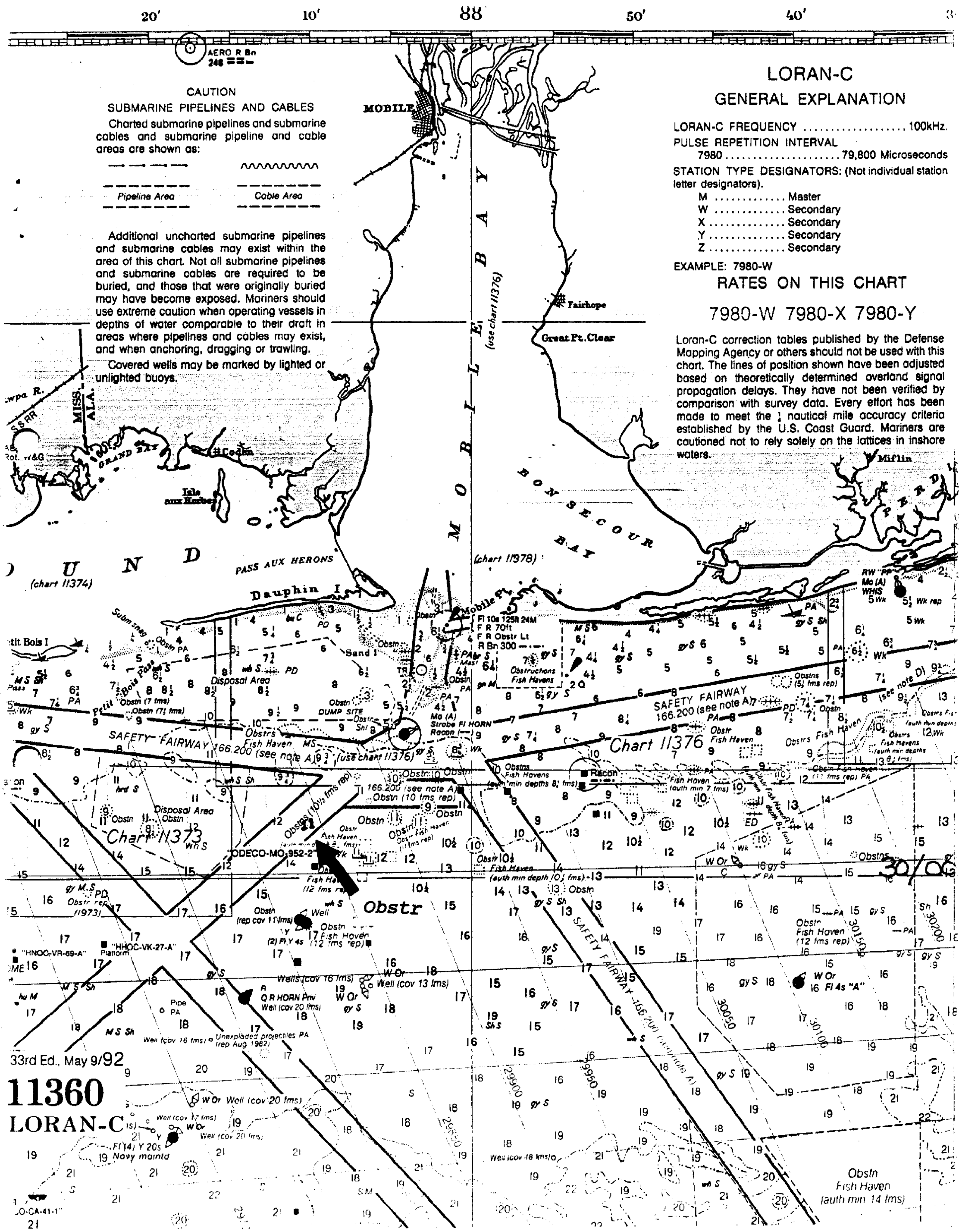
Questions concerning this report should be directed to the Office of Charting and Geodetic Services, Atlantic Hydrographic Section, by calling 804 441-6746 or FTS 827-6746.

Sincerely,

Christopher B. Lawrence

Christopher B. Lawrence, CDR, NOAA
Chief, Atlantic Hydrographic Section

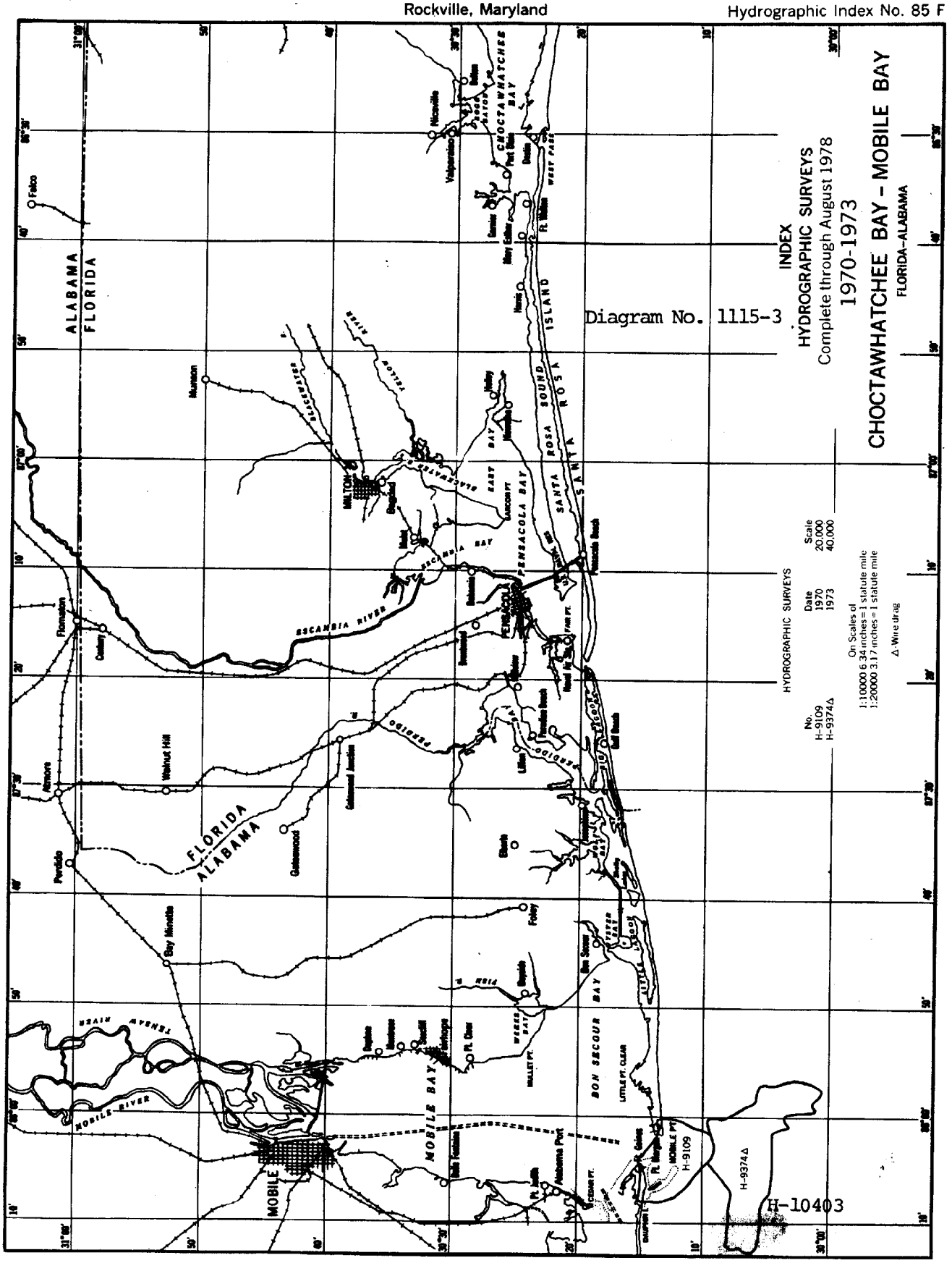
Attachment



20′
10′
88
50′
40′
AERO R Bn 248
CAUTION
SUBMARINE PIPELINES AND CABLES
Charted submarine pipelines and submarine cables and submarine pipeline and cable areas are shown as:
Pipeline Area
Cable Area
Additional uncharted submarine pipelines and submarine cables may exist within the area of this chart. Not all submarine pipelines and submarine cables are required to be buried, and those that were originally buried may have become exposed. Mariners should use extreme caution when operating vessels in depths of water comparable to their draft in areas where pipelines and cables may exist, and when anchoring, dragging or trawling.
Covered wells may be marked by lighted or unlighted buoys.
LORAN-C
GENERAL EXPLANATION
LORAN-C FREQUENCY .... 100kHz.
PULSE REPETITION INTERVAL
7980 .... 79,800 Microseconds
STATION TYPE DESIGNATORS: (Not individual station letter designators).
M .... Master
W .... Secondary
X .... Secondary
Y .... Secondary
Z .... Secondary
EXAMPLE: 7980-W
RATES ON THIS CHART
7980-W 7980-X 7980-Y
Loran-C correction tables published by the Defense Mapping Agency or others should not be used with this chart. The lines of position shown have been adjusted based on theoretically determined overland signal propagation delays. They have not been verified by comparison with survey data. Every effort has been made to meet the ¼ nautical mile accuracy criteria established by the U.S. Coast Guard. Mariners are cautioned not to rely solely on the lattices in inshore waters.
MOBILE
MOBILE BAY
(use chart 11376)
Fairhope
Great Pt. Clear
BON SECOUR BAY
Miflin
MISS.
ALA.
GRAND BAY
Coden
Isle aux Herbes
PASS AUX HERONS
(chart 11374)
(chart 11378)
Dauphin I
Mobile Pt.
Petit Bois I
Petit Bois Pass
Sand I
Disposal Area
DUMP SITE
SAFETY FAIRWAY 166.200 (see note A)
(use chart 11376)
Chart 11376
Chart 11373
Fish Haven
Obstructions Fish Havens
Racon
Obstr
ODECO-MO-952-2
"HHOC-VK-27-A" Platform
"HNOC-VR-69-A"
Unexploded projectiles PA (rep Aug 1982)
Navy maintd
Obstn Fish Haven (auth min 14 fms)
33rd Ed., May 9/92
11360
LORAN-C

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

Hydrographic Index No. 85 F



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-10403

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	7/26/93	John Barber	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 55 APP'd critical corr's.
11377	7/26/93	John Barber	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 2 APP'd critical corr's.
11006	7/26/93	John Barber	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 38 APP'd critical corr's.
411	7/26/93	John Barber	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 65 APP'd critical corr's.
11360	7/26/93	John Barber	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 47 APP'd critical corr's.
11360	5/20/94	John Barber	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 48
11006	9/15/95	Jason Shadid	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 39
			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.