

FE315

SIDE SCAN

Diagram No. 1267-2

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-20-1-88
Registry No. FE-315SS

LOCALITY

State Mississippi
General Locality Gulf of Mexico
Sublocality Approaches to Horn Island
..... Pass

1988

CHIEF OF PARTY
LCDR C.B. Lawrence

LIBRARY & ARCHIVES

DATE April 17, 1989

FE315
SIDE SCAN

"DDB" "GP"

CHTS
11375
11374
11373
11360

HYDROGRAPHIC TITLE SHEET

FE-315-SS

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-20-1-88

State MISSISSIPPI

General locality GULF OF MEXICO

Locality APPROACHES TO HORN ISLAND PASS

Scale 1:20000 (FIELD WORK AT 1:10000) Date of survey APR 13 - MAY 12, 1988

Instructions dated JAN 11, 1988 Project No. OPR-J433-RU/HE-88

Vessel NOAA SHIP HECK S-591, EDPN 9140

Chief of party CHRISTOPHER B. LAWRENCE, LCDR, NOAA

Surveyed by ^{C.B.} LCDR LAWRENCE, ^{A.E.} LT FRANCIS, ^{A.L.} ENS BEAVER, ^{W.R.} ST MORRIS

Soundings taken by echo sounder, hand lead, pole DSF 6000N DUAL BEAM ECHOSOUNDER, Pneumatic Depth Gauge.

Graphic record scaled by AUTOMATED, HDAPS

Graphic record checked by ^{A.E.} LT FRANCIS, ^{A.L.} ENS BEAVER, ^{W.R.} ST MORRIS

Protracted by _____ Automated plot by HDAPS (FIELD)

Verification by Hydrographic Surveys Processing Section Personnel

Soundings in ~~fathoms~~ feet at ~~low~~ MLLW

REMARKS: Notes in the Descriptive Report (Hydrographer's) were made in red during office processing

ALWAYS/SURF ✓ 4/12/89 4.5V

KWW 7/13/90



SOUNDINGS IN FEET

LEGEND

NOTES ON THE CHART

DATE: 1/1/88

NO. OF SHEETS	1
NO. OF SHEETS USED	1
NO. OF SHEETS LEFT	0
NO. OF SHEETS MISSING	0
NO. OF SHEETS DAMAGED	0
NO. OF SHEETS REVISIONS	0
NO. OF SHEETS CORRECTIONS	0
NO. OF SHEETS SUPPLIES	0
NO. OF SHEETS OTHER	0

UNITED STATES - GULF COAST
ALABAMA-MISSISSIPPI-LOUISIANA

MISSISSIPPI SOUND AND APPROACHES

DAUPHIN ISLAND TO CAT ISLAND

NO. OF SHEETS	1
NO. OF SHEETS USED	1
NO. OF SHEETS LEFT	0
NO. OF SHEETS MISSING	0
NO. OF SHEETS DAMAGED	0
NO. OF SHEETS REVISIONS	0
NO. OF SHEETS CORRECTIONS	0
NO. OF SHEETS SUPPLIES	0
NO. OF SHEETS OTHER	0

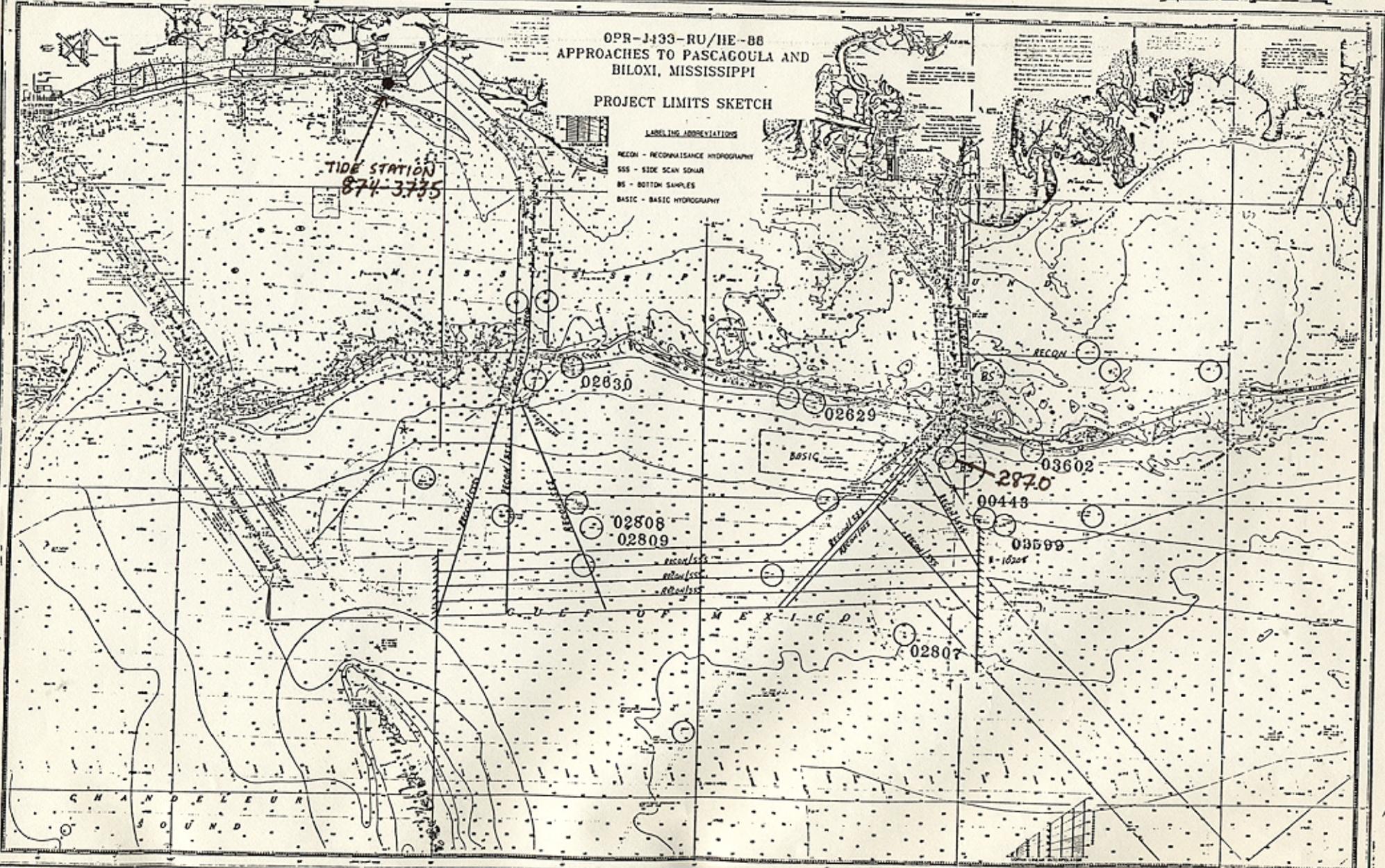
OPR-J433-RU/HE-88
APPROACHES TO PASCAGOULA AND
BILOXI, MISSISSIPPI

PROJECT LIMITS SKETCH

LABELING ABBREVIATIONS

- RECON - RECONNAISSANCE HYDROGRAPHY
- SSS - SIDE SCAN SONAR
- BS - BOTTOM SAMPLES
- BASIC - BASIC HYDROGRAPHY

TIDE STATION
874-3735



SOUNDINGS IN FEET

(Mississippi Sound and Approaches)

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** Removed from original Descriptive Report and filed with the original survey data.*

DESCRIPTIVE REPORT TO ACCOMPANY
SURVEY FE-
FIELD NUMBERS HE-20-2-88 & HE-20-4-88
APPROACHES TO PASCAGOULA AND BILOXI, MS.
VICINITY OF HORN AND PETTIT BOIS ISLANDS
Scale 1:20,000
NOAA Ship HECK (S-591)
LCDR Christopher B. Lawrence, CMDG

PROJECT OVERVIEW

A. Project Authorization

This survey was conducted in accordance with Hydrographic Project Instructions OPR-J433-RU/HE-88, Approaches to Pascagoula and Biloxi, Mississippi, dated January 11, 1988 as amended by Changes No. 1 dated March 4, 1988 and No. 2 dated April 22, 1988.

B. Project Purpose

The purpose of this project is to verify or disprove the existence of wrecks and obstructions and, to conduct limited reconnaissance hydrography in and near the approaches to Pascagoula and Biloxi, Mississippi. This project responds to requests of the U.S. Coast Guard (Eighth District) and Chevron Shipping Company, and to recommendations from the 1984 NOS Planning Staff report entitled, "A Study of NOS Surveys in Major U.S. Ports."

C. Project Area

This report addresses two (2) of the eight (8) first priority AWOIS items assigned for this project. The two items are located in the vicinity of the approach to Pascagoula, Mississippi, Horn Island Pass. The following AWOIS items were investigated for this report:

AWOIS NUMBER	POSITION	SURVEY REQUIREMENTS	DATES SURVEYED (DOY)
2807	030 ^o 05' 36.0" 088 ^o 32' 12.9"	1.5 NM RADIUS 200% COVERAGE	(104 - 133)
2870	030 ^o 11' 30.0" 088 ^o 30' 48.0"	800 M RADIUS 200% coverage	(119 - 120)

D. Survey Vessels

The following survey vessels were used for data collection:

VESSEL	ELECTRONIC DATA PROCESSING NUMBER	PRIMARY FUNCTION
NOAA Ship HECK (S-591)	9140	SSS
HECK Launch (HE-3)	NONE	Diving Operation
HECK Boston Whaler (HE-1)	NONE	Mini-ranger service

E. METHODOLOGY

The survey was carried out using an EG&G Model 260 slant corrected Side Scan Sonar recorder and Model 272, 100/500 khz Side Scan towfish. Side Scan sonification was supplemented by echo-soundings obtained utilizing the ship's Raytheon DSF-6000N echo-sounder. Least depths on contacts found by diver investigations were taken utilizing a pneumofathometer. (See Appendix IC for S/N and dates of use)

Primary position control for survey operations was provided by a Motorola Mini-ranger Falcon 484 system. Multiple lines of position (LOP's), as many as four for each position fix, were recorded on line. Upon recognition of targets deemed significant, diver investigations were performed to visually examine the nature and extent of the wreck or obstruction and to obtain a least depth of clearance.

On April 22, (DOY 113), the HECK received approval from N/CG2 thru change No. 2 to the project instructions to modify existing requirements for conducting daily systems checks and Baseline calibrations to positioning control systems. The new requirements are specific to HDAPS users and have proved to be time and cost effective while not compromising data quality. (See Appendix IIB for a copy of the new Guidelines)

F. Project Overview

Project OPR-J433-RU/HE-88, Approaches to Pascagoula and Biloxi, Mississippi, marks the second season in which the HECK is utilizing the newly developed Hydrographic Data Acquisition and Processing System (HDAPS). Significant changes to the HDAPS programming were made during the 1988 winter layover in Norfolk, VA. These changes are detailed within this report as they relate to the data.

After a somewhat rough transit from Norfolk, the HECK arrived in Pascagoula, MS. on Tuesday April 5, (DOY 96). The rough weather experienced during the transit from Norfolk, VA. was to be an indicator of what was to come in the survey grounds. Adverse weather along with significant amounts of electronics problems was to produce excessive amounts of lost production.

In an attempt to increase vessel production without compromising data quality, several combinations of towfish cable lengths and vessel speeds were experimented with to determine if the HECK could run at speeds greater than 3.5 knots. Through these tests, it was determined that the HECK could effectively run at speeds up to six knots and still obtain the appropriate towfish heights to collect quality data. This would result in a significant increase in productivity over the life of the project. Appendix VII, Table 1 is provided to show estimated times of completion of AWOIS items with different search radii for speeds of 3.5 knots and 6.0 knots. A significant savings in time is seen when running at the greater speed.

Following the initial setup of positioning control sites and the tide gage station (performed by NOAA Ship RUDE), the HECK began Side Scan Sonar operations on April 13, (DOY 104). It was at this time that several problems with the new HDAPS programming were noted. The first problem noted was the internal calendar system, responsible for the automated data tape numbering, did not recognize that 1988 was a leap year. As a result, the automated numbering system, which assigns the first three digits of the five digit tape number with the day of year was off by minus one day (ie: if it was DOY 104, the HDAPS would label the first three digits 103). This problem was specific only to the tape numbering function and did not effect the HDAPS ability to correctly read tables which were queried by day number. Although an inconvenience, data quality was not effected.

One feature removed from HDAPS during the winter layover was the option to select the HIPPY while surveying in any mode. The user no longer had the option of selecting the Heave, Roll, Pitch (HIPPY) sensor while conducting SSS operations. Although this did not effect data quality, it would latter prove significant. Sounding data would have to be manually reduced for heave, to perform an adequate comparison with the prior surveys and charts.

Another problem observed which effects the data quality is that HDAPS is allowing "range flyers" to bypass the filtering system.

While on line the plotter sheet would on occasion, roll out of the plotter as a result of a positioning flyer. When this occurs the entire system has to be rebooted to initialize the plotter. In trying to resolve the flyer, scanning of the raw data showed no apparent reason to explain this occurrence, yet the flyer is carried over to the smooth plot. Evidently, some data field which is not displayed in the post-processing mode is retaining the flyer. Ship's personnel have been unable to resolve this matter and the HDAPS support group is currently looking into it.

On April 14, (DOY 105), an inoperative stylus driver board in the EG&G recorder unit temporarily stopped side scan operations. When replaced, the unit was tested utilizing a subsurface 100khz pinger transponder supplied to the ship by AMC's EEB. The transponder which is suspended six feet above the ocean floor by a buoyed line produces a distinctive pattern on the SSS record when the towfish is towed past it. This new method of confidence check has proven to be time and cost effective.

During SSS operations on April 21, (DOY 112), station MARK, went off the air and HE-1 was dispatched to determine the reason. HE-1 reported that the Solar recharging cell and two marine batteries used to power the mini-ranger unit were stolen from the site. This was the first of several occurrences in which mini-ranger sites were vandalized. At the time of this report, six batteries had been stolen and two had been shot. This problem has resulted in unexpected costs and lost productivity during the project. The FBI was notified and the thefts are currently under investigation.

On April 26 (DOY 117), the primary SSS towing cable failed. Shipboard repair was not possible so the cable was sent to EG&G for repair. In the interim, a backup 50 meter cable (LOA) was put into service. The shorter cable severely limited SSS operations. The HECK could only run at speeds of 3.5 knots or less and could not conduct operations in seas greater than 2-3 feet. The ship continued use of this cable until May 9, (DOY 130) when the repaired primary cable was returned to service.

It should be noted that on April 24, (DOY 115) the towfish cable was remarked from feet to meters. Raw data printouts from DOY 115 on indicate cable out lengths in meters and not feet.

On May 2, (DOY 123), another problem with the HDAPS was identified. HDAPS began giving a "time beyond time in predicted tides" error message on the CRT.

An investigation of the predicted tides table showed all data was entered correctly but, that on DOY 125 only one predicted tide value was required. Because HDAPS interpolates for predicted tides it was suspected that HDAPS programming could not function utilizing only one predicted tide value for a day. The tide table was disabled to allow the continuation of operations. On DOY 128, the table was re-enabled to see if it would resume operating correctly. The error message was no longer seen and predicted tides were recorded until the end of operations. The HDAPS support group is investigating this problem at the time of this report.

Operations continued until May 12, (DOY 133) when work on AWOIS items 2807 and 2870 were completed.

At the time of this report, no straightforward method of plotting contacts was yet available. In order to plot D.P's taken on contacts, it was necessary to generate a position in the control station table and plot the contacts as though they were control stations. For this report, reported positions of AWOIS items under investigation are plotted in green while contacts identified and investigated are plotted in red. Each individual AWOIS Contact Investigation Report identifies contacts found by both D.P. and a Control Station Table Number (CSTN).

To summarize, several HDAPS programming problems which do not effect the quality of the data but, the ease in which it is either collected or processed were identified. A letter was sent to N/CG24 on May 5 addressing the problems encountered. In addition to programming problems, adverse weather conditions, common to this area during this time of year resulted in a loss of production times beyond those reasonably expected.

To facilitate ease of verification of individual swath and track plots, multiple sheets were plotted in the following patterns:

AWOIS 2807

TRACK PLOT - 1 SMOOTH
SWATH PLOTS - 2 ON-LINE AND 2 SMOOTH PLOTS
CONTACT PLOT - 1 SMOOTH
DEPTH PLOT - 1 SMOOTH

AWOIS 2870

TRACK PLOT - 2 SMOOTH
SWATH PLOTS - 2 ON-LINE AND 2 SMOOTH
CONTACT PLOT - NONE
DEPTH PLOT - 1 SMOOTH

An additional 1:80,000 scale sheet showing control stations, reported positions, contacts identified, and MARTEK sites is included for ease of verification.

SOUNDING EQUIPMENT

A. EG&G MODEL 260 SIDE SCAN SONAR

The HECK is equipped with an EG&G model 260 Slant Corrected Side Scan Sonar recording unit (S/N 0011443) and a model 272, 100/500 khz towfish (S/N 0011591).

The towfish is led through a fairlead block over the stern of the HECK and towed astern. Fish height was controlled by a combination of vessel speed and cable out. During normal SSS operation, the 100khz frequency was used. The 500 khz frequency was used to obtain more resolution when needed. Towing speeds averaged between 4 and 6 knots when the primary towing cable was used, and between 2 and 4 when the backup cable was in use.

Daily printer and rub tests were performed and confidence checks utilizing the 100 khz pinger transponder were performed at the beginning and end of each week or when necessary. The results of these checks and test are included as a part of the graphic record (See Appendix IA for an abstract of SSS tests).

In general the EG&G produced a high quality picture when running with the primary towing cable. The picture quality was somewhat reduced while running with the shorter backup cable, but not enough to raise concerns of data quality or system performance.

B. RAYTHEON DSF 6000N

Echo soundings were taken with a Raytheon DSF 6000N Dual Beam Echo-sounder. Between April 13,(DOY104) to April 28 (DOY119), DSF 6000N S/N A116N was used.

On DOY 119, unit A116N failed prior to survey operations and was replaced with DSF S/N A107. Daily checks verified that the unit functioned properly up to the time of failure and no data was lost.

The units were calibrated daily with and Electronic Depth Simulator Instrument (EDSI) provided by the AMC/EEB. Several dual leadline comparisons were performed to compare DSF depths with actual observed depth. After reducing the depths for draft and velocity, and taking into account the movement of the vessel as a result of wind and currents, the observed values versus the recorded values were in good agreement (See Appendix for Leadline Comparison Data). ^(two)

With the newly acquired (limited) HDAPS capability to reduce sounding data (must reduce for heave manually in SSS mode), a sounding plot (fixes only) was produced to perform chart and prior survey comparisons.

In general, the DSF-6000N provided a good quality representation of the bottom. Some contacts initially identified on the DSF only, were later resolved by reconnaissance to be heavy concentrations of fish. (See Appendix IB for dates of use and abstracts of daily tests)

C. PNEUMOFATHOMETER

Least depths on diver investigated contacts were taken using a pneumofathometer gauge as described in Hydrographic Survey Guideline No. 55. For this survey one pneumofathometer gauge, a 0-140 FSW (S/N 8704986N) was available. The HECK's 0-70 FSW was damaged during transit and was not repaired in time for use on contacts shoaler than 70 FSW. Although a 0-70 FSW gauge is required for depths less than 70 FSW, the 0-140 FSW gauge still provides more accurate data than a leadline or steel tape and therefore was used. Rough weather prevented the calibration of the pneumofathometer on days diving operations were held. A subsequent calibration showed the gauge to be within calibration. Calibrations are performed by attaching the end of the divers hose to a weighted leadline and recording the comparative readings at various depths. (See Appendix IC for leadline calibration information and dates of use.)

CORRECTIONS TO SOUNDINGS

A. VELOCITY CORRECTIONS

Velocity correction data for the Raytheon DSF 6000N echo-sounder was obtained by MARTEK cast (S/N 205). Casts were taken in the vicinity of AWOIS items under investigation.

The data was reduced and velocity corrections calculated using program PC 530 on the ship's IBM computer. On April 22, (DOY 113), Change No. 2 to the project instructions was received which directed the HECK to perform comparisons between program PC 530 and a newly developed velocity calculation program. Several comparisons were performed with significant differences noted. However, the new velocity program results showed better agreement with the dual leadline comparison values than did program PC 530. Since notable differences appeared, the HECK continued to use PC 530 calculated correctors. Further testing will be performed during project J433 to evaluate the new program for future use.

MARTEK units receive a pre- and post-deployment calibration by AMC. A copy of the pre-deployment calibration is enclosed in this report. A copy of the post deployment calibration will be available from AMC at the end of the field season. (See Appendix ID for MARTEK calibration data and velocity correction data.)

B. HEAVE, ROLL, PITCH SENSOR

Heave is measured by a Datawell B.V. (S/N 19110-C) heave, roll, pitch sensor (HIPPY) located on the centerline midships. The sensor gathers on-line heave data which is applied to soundings in near real time (See Appendix IE for S/N and dates of use).

Because of the need to compromise one HDAPS feature for another more needed feature, it is not possible to obtain heave data while conducting SSS operations. Sounding data has to be manually reduced for heave, to perform chart and prior survey comparisons. This problem is under consideration by the HDAPS support group at the time of this report.

To date, no HIPPY calibration requirements or procedures are available.

C. SETTLEMENT AND SQUAT CORRECTORS

Settlement and Squat corrections for the HECK were determined on March 22, 1988, (DOY 82), at the Little Creek Naval Amphibious Base. in Norfolk, VA. (See Appendix IF for Settlement and Squat Correction data)

During a recent drydock period in Norfolk, VA, (March, 1988), an exact measurement of 19.0 feet was taken from the DSF transducers to a point established on each bridge wing of the HECK.

Once in the water, a series of measurements was taken and the HECK's static draft was determined to be 6.88 feet (2.10 meters). This value along with Settlement and Squat correctors was applied to survey data thru the Offset table feature. (See Appendix IF for offset table)

D. TIDES INFORMATION

The tidal datum for this project is mean lower low water. The operating tide station at Pensacola, FL (872-9840) served as control for datum determination at all subordinate gauge sites and is also the reference station for predicted tides. The operating tide station at Bay Waveland Yacht Club, MS. (874-7437) provided additional control for datum determination at all subordinate gauges.

Predicted tides were generated by HDAPS using the 1988 NOS tide Tables with the following time and height correctors supplied in the project instructions:

HYDROGRAPHIC AREA	TIME CORRECTION		HEIGHT RATIO (FT)
	HIGH WATER	LOW WATER	
East of Long. 88° 28.0'	-1 hr 15 min	-1 hr 00 min	x1.14
West of Long. 88° 28.0' to 88° 45.0'	-1 hr 00 min	-0 hr 45 min	x1.22
West of Long. 88° 45.0' to 88° 55.0'	-0 hr 45 min	-0 hr 30 min	x1.30

Tide station 874-3735, located in Biloxi, MS., at Cadet Point, was established by the NOAA Ship RUDE on April 4, (DOY 95). to provide information on zoning, tidal datums(reducers), and harmonic constants for predictions.

STATION NUMBER	STATION NAME	LATITUDE	LONGITUDE
874-3735	Biloxi, Cadet Point	30° 23.4'	88° 51.4'

The gauge was located in the Point Cadet marina adjacent to the berthing of the research vessel TOMMY MUNROE belonging to the Gulf Coast Research Facility. The gauge is a standard ADR gauge attached to the top of a four inch PVC floatwell. The gauge was inspected daily by a contract observer for malfunctions. None were reported.

Opening levels were run on April 4, (DOY 95) to five previously established benchmarks.

(See Appendix IG for a copy of the tide station report filed by the NOAA Ship RUDE) Scheduled operations will end on June 10 at which time the gauge will be discontinued and closing levels run.

A request for smooth tides was made to N/MOA12 on June 3, 1988. (See Appendix IG for a copy of the request)

HORIZONTAL POSITION CONTROL - *See also section 2.2. of the Evaluation Report.*

A. GENERAL

The horizontal datum for this project is the North American Datum of 1983 (NAD 83).

In January of 1988, LT. Francis of the HECK and ST Sramek of the NOAA Ship RUDE accompanied three members of the AMC photogrammetry section to the project area to recover and establish horizontal control for project J433. All data from the preliminary horizontal control party was retained by the AMC photogrammetry section for reduction. Station descriptions and positions calculated for the NAD 1983 were supplied to the HECK & RUDE prior to departure from Norfolk, VA. (See Appendix IIA for a listing of Control Stations)

All stations were readily accessible by small boat weather permitting. On those days where weather prevented direct access to the station site, the small boat was then able to transit to the lee side of the island and ship's personnel could then walk to the site.

Because of the low lying nature of the islands, mini-ranger units were elevated between 10 and 30 feet above the ground to increase the overall output distances of the system. This was done by attaching the mini-ranger reference station to a section(s) of ARGO tower which was then guyed down to spikes driven into the sand. In addition, orange signal banners were attached to the towers so the ship was able to use the same sites as visual objects for conducting critical system calibrations (by 3-point sextant fixes). The signal banners worked well for calibration purposes but, most likely contributed to the theft problems due to their high visibility.

It is suspected that excessive amounts of erosion occurring on the islands will destroy several of the stations within the next two years. This should be taken into account when planning future operations in this area.

B. ELECTRONIC POSITIONING SYSTEMS

Positioning for each AWOIS item was provided by the Motorola Mini-ranger Falcon 484 microwave positioning system. HDAPS utilizes up to four lines of position (LOP'S) for improved positioning accuracy. During work on this survey, four LOP'S were routinely gathered during on-line operations. A minimum acceptable signal strength (MASS) of 15 was used in the positioning algorithm. Any LOP with a MASS of below 15 was deselected and not used in the HDAPS computation of the vessels position.

Multiple LOP's were used and maximum residuals were routinely below 2 meters. Based on observed maximum residuals and ECR values, position quality was deemed excellent.

As was previously mentioned, Mini-ranger baseline calibrations and systems checks were conducted in accordance with Change No. 2 to the project instructions. An initial Baseline calibration was conducted at Fentress Air Force Base in Norfolk, VA on February 20, (DOY 56), 1988. Subsequent critical and non-critical systems checks were performed as directed. A closing BLC will be conducted subsequent to survey operations on project OPR-J433. A copy of the results will be forwarded for inclusion in this report.

On May 17, (DOY 138), Mini-ranger RPU D0004 exhibited erratic behavior. The unit would suddenly "drop out" all incoming data. The RPU and R/T F3409 were removed from service and replaced with RPU E0141 and R/T F3411. Daily non-critical systems checks and periodic critical systems checks showed the units functioning properly up to the point of removal from service. An attempt to perform a final baseline calibration on RPU D0004 and R/T F3409 will be made at the conclusion of this project

Appendix IIB, contains a listing of the mini-ranger placements and dates of use.

COMPARISONS WITH PRIOR SURVEYS - *See also section 6. of the Evaluation Report.*

AWOIS item 2807 was compared with prior survey H-4171, a 1:80,000 scale survey conducted June - November, 1920. AWOIS item 2870 was compared with prior survey H-9118, a 1:20,000 scale survey conducted April - June, 1970.

On AWOIS 2807, four sounding lines traversing and transecting the search area were plotted (fixes only) on a sounding

comparison sheet after being reduced for predicted tides, draft, velocity of sound corrections and heave. In general, sounding data in the vicinity of AWOIS 2807 shows an apparent migration of the 60 foot depth curve to the south. Soundings were generally 2-4 feet shoaler than those appearing on prior survey H-4171. Although a significant difference, this shoaling does not pose an immediate hazard to surface navigation in this area and no charting recommendation is made.

On AWOIS 2870, three lines traversing and transecting the search area, and one line bordering the charted shoal were plotted (fixes only) after being reduced for predicted tides, draft, velocity of sound and heave. In general, the sounding line run along the shoal area indicates the shoal is migrating to the south and west in the direction of the Horn Island Pass entrance channel. Soundings seaward of the shoal are in good agreement. This southwestwardly migration is typical of the area. U.S. Park Service rangers have indicated the same migration is occurring among the islands. A more detailed survey of the area will be necessary before a recommendation on the charted shoal can be made.

COMPARISONS WITH CHART- *See also section 7. of the Evaluation Report*

AWOIS 2807 was compared with chart 11373, 31st ED. October 24, 1987, 1:80,000 scale. AWOIS 2870 was compared with chart 11375, 25th ED., January 3, 1987, 1:20,000 scale.

In general, the same southerly migration of the 60 ft curve can be seen in the vicinity of AWOIS 2807. Differences ranging from 2-4 feet can be seen within the search area. Again no charting recommendation is made as this shoaling poses no immediate hazard to surface navigation.

On AWOIS 2870, the same southwestwardly migration of the shoal area is observed along with the good comparisons in waters seaward of the shoal area. If this trend continues the shoal will eventually encroach into the Horn Island Pass Entrance Channel. Future survey operations in the area will be necessary to determine the extent to which the shoal has migrated.

SURVEY SHEETS (Field)

All survey sheets were made aboard the NOAA Ship HECK using HDAPS and the Brunning 824 CS Plotter (S/N 15237). Survey sheets were plotted using the NAD 1983.

All field and smooth sheets with the exception of the 1:80,000 project area sheet, were plotted at a scale of 1:10,000 to improve legibility. See Appendix V for plotter sheet parameters.

AWOIS ITEM INVESTIGATION REPORTS - *See also section 6. of the Evaluation Report.*
Following are the individual AWOIS investigation reports on AWOIS items 2807 and 2870.

Respectfully Submitted,

Arthur E. Francis, Lt, NOAA

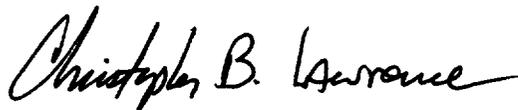
Arthur E. Francis, LT. NOAA
Executive Officer
NOAA Ship HECK

Letter of Approval

Field NO.'s HE 20-2-88 & HE 20-4-88

OPR-J433-RU/HE-88

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, the field sheets and the data records have been closely reviewed and are considered complete and adequate for charting.



Christopher B. Lawrence, LCDR, NOAA
Commanding Officer
NOAA Ship HECK

AWOIS ITEM INVESTIGATION REPORT
AWOIS Item No. 2807

See also section 6. of the Evaluation Report

LARGEST SCALE CHART: 11373, Mississippi Sound and Approaches,
Dauphin Island to Cat Island, 31st ED., October 24, 1987

VESSEL: NOAA Ship HECK (S-591)

PERSONNEL: OIC - LCDR Christopher B. Lawrence CMDG, LT. Arthur
Francis, ENS. Andrew L. Beaver, ST William B. Morris

DATES OF INVESTIGATION: April 13 (104) - May 12 (133), 1988

AWOIS HISTORY: LNM7/76--51 FOOT F/V VACA-DEL-MAR- REPORTED
SUNK IN APPROX. POS. LAT. 30-05-36N, LONG. 88-32-12W IN 50
TO 60 FEET. WRECK NOT LOCATED AND IS UNMARKED. CHARTED
AS A DANGEROUS SUBM. WRECK, PA.

SURVEY REQUIREMENTS: FULL--VERIFY OR DISPROVE THROUGH 200%
SIDE SCAN SONAR SEARCH OR WIRE DRAG INVESTIGATION, 1.5 NM
MIN. RADIUS LD REQUIRED IF FOUND.
ASSIGNED: OPR-J433-RU/HE-88

METHOD OF INVESTIGATION: Side scan sonar supplemented by diver
investigations were the primary investigation techniques.
The DSF echo-sounder was used to obtain the under keel
profile and to aid in deploying the divers search buoy.

RESULTS OF THE INVESTIGATION: Three significant contacts were
identified during side scan sonar operations. Investigation
dives were performed on all three contacts. Two of the three
contacts are the hull portions of intentionally sunk "POGEY
BOATS" placed within the boundaries of a charted fish haven.
The third contact is an intentionally sunk hopper barge located
within the same fish haven. Information on these contacts was
provided by Dr. James Coe of the Mississippi Gulf Fishing Banks
Inc. (See AWOIS contact investigation reports of 2807 for
additional information).

RECOMMENDATION: These contacts do not pose a hazard to surface
navigation. They do; however, constitute a hazard to anchoring
or fishing. Because these wrecks fall within the boundaries of
the charted fish haven, no charted wreck symbol is warranted.
Two soundings of 58 feet are seen within the boundary of the
fish haven. It is recommended that these soundings be removed
and replaced with an annotation giving the authorized minimum
clearance.

*deleted 2 soundings
of 58 < 100' hnt
Added line?
(rep min depth 46ft)
A.P. History*

11376

*No 58 soundings
to delete*

Added line:

(rep min depth 7 1/2 fms)

A.P. History

CONTACT INVESTIGATION REPORT ON
AWOIS NUMBER: 2807
TARGET ABSTRACT NO's: 4, (9 & 12 same)
DETACHED POSITION NO. 6085
(CSTN NO: 071)

DATE/DOY OF DIVE: May 11, 1988 / DOY 132

I. POSITION OF CONTACT: LAT: 30° 05' 14.~~006~~^{7φ}" N
 LONG: 88° 33' 09.~~168~~^{φ7φ}" W

LORAN CHAIN: 7980 RATES: W - 12441.2 X - 29616.6
 Y - 47044.1 Z -

GENERAL STATEMENT OF POSITION QUALITY: Four lines of position were used for the detached position. The standard deviation of the fix was 2.0 meters with an error circle radius of 4.2 meters and the fix is therefore considered of excellent quality.

II. LEAST DEPTH DATA:

METHOD OF DETERMINATION : Pneumofathometer (S/N 8704986N, 0-140 FSW) taken on 11 May, 1988. The 0-70 FSW was not used because it was not functioning correctly.

1) TIME (UTC): 1455	RAW LEAST DEPTH READING	(FT) : 46.4
2) TIME (UTC): 1455	RAW LEAST DEPTH READING	(FT) : 46.4
3) TIME (UTC): 1455	RAW LEAST DEPTH READING	(FT) : 46.4

AVERAGE LEAST DEPTH READING (FT) : 46.4

AVERAGE LEAST DEPTH (FT) : 46.4
TIDE CORRECTOR (FT) : -0.5
TRA CORRECTOR (FT) : N/A

ACTUAL LEAST DEPTH (FT) : ~~45.9~~ 46-Ft least depth obtained on the "BILL WALKER" reduced to MLLW. No depth obtained on the "RAVEN"

III. SEARCH PROCEDURES:

A. DETERMINATION OF DIVE SITE : The target was originally identified by side scan sonar. Further reconnaissance lines were run and a detached position was obtained when the ship passed over the wreck with the DSF 6000N. The dive buoy was deployed while passing over the contact as indicated on the DSF 6000N trace.

B: SEARCH PROCEDURE : Divers descended the buoy line to find that the buoy weight had landed next to the wreck. No circle search was required.

IV. ITEM DESCRIPTION: The remains of two intentionally sunk Pogey boats identified as the "Bill Walker" & "RAVEN", were found within the boundary of a charted fish haven. The hull of the BILL WALKER is heavily encrusted with sea life and is showing the early stages of deterioration. Abundant sea life was seen all around the wreck. The hull is resting on it's keel in an approximate east-west orientation. It is 90 feet in length and approximately 26 feet in beam. The high point of the wreck is a vent housing on what used to be the after deck house of the vessel (See Drawing 1). The forward deck house was apparently removed prior to it's sinking.

In addition to the remains of the BILL WALKER, the bow section of another Pogey boat, RAVEN was located 30 meters bearing 160° magnetic from the stern of the BILL WALKER. The RAVEN (See Drawing 2) has no deck house or structures protruding upward and is not considered a hazard to surface navigation since it rises only 2 to 3 feet above the bottom. Approximately 45 feet of the smaller bow section is exposed.

V. RECOMMENDATIONS : These wrecks do not pose a hazard to surface navigation in the area. They do; however, constitute obstructions to anchoring or fishing in the area. Because these wrecks are within the boundary of a charted fish haven, no charted wreck symbol is warranted. The charted fish haven displays two 58 foot depths visible through the light blue tint on the chart. It is recommended that these soundings be removed from the chart and replaced with an annotation giving the authorized minimum depth of clearance for the fish haven.

See also section 6. of the Evaluation Report.

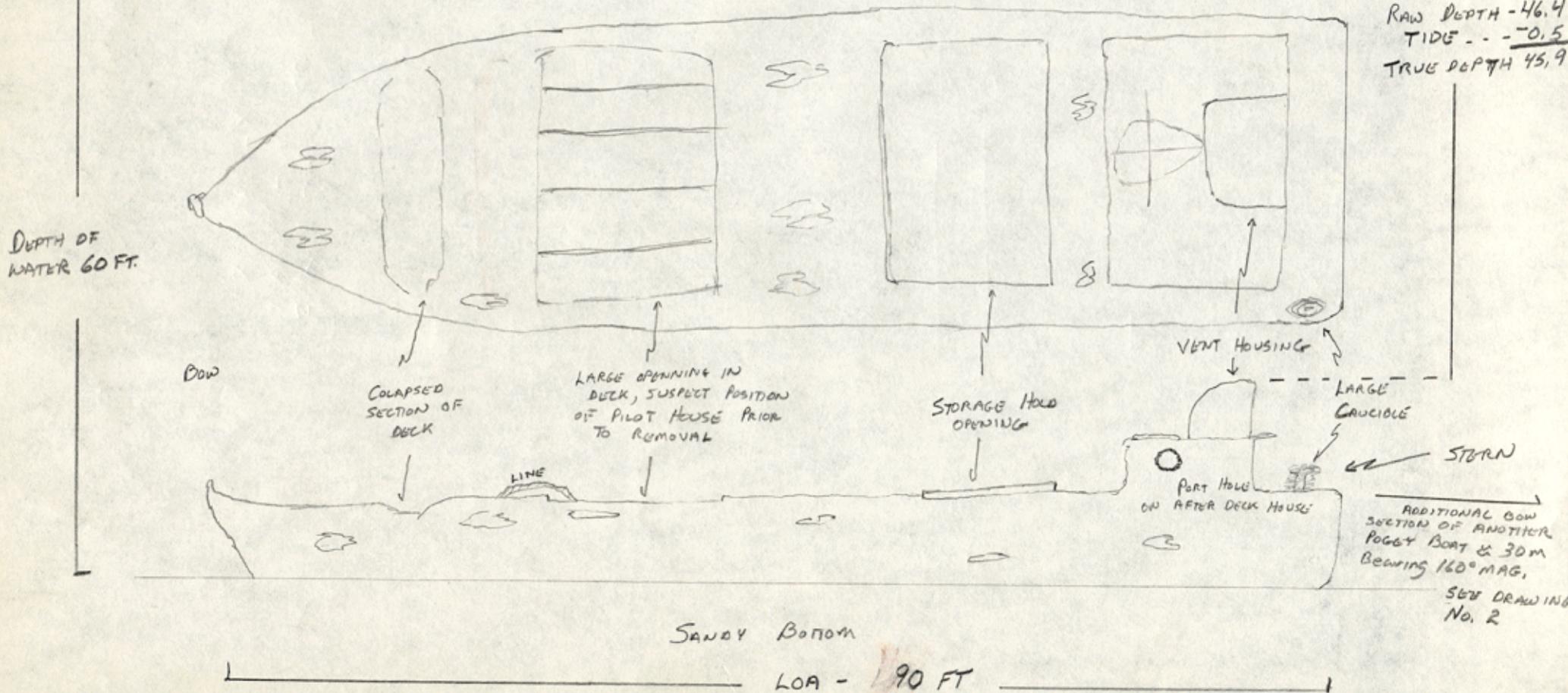
*Recommend charting 46 W/KS in Latitude $33^{\circ}05'14.6''N$,
Longitude $88^{\circ}33'48.48''W$.*

PROJECT OPR-5433-R/H-88
 DOY 132/MAY 11, 1988
 AWOIS 2807 CONTACT #4 (SAME AS #'S 9+12)
 DIVER'S - FRANCIS + BEAVER
 DRAWING 1 OF 2

LEAST DEPTH

TIME: 20:14 Z
 RAW DEPTH: 46.4 FEET
 TIDE CORRECTOR: - 0.5
 CORRECTED DEPTH: 45.9 FEET

THE "BILL WALKER"

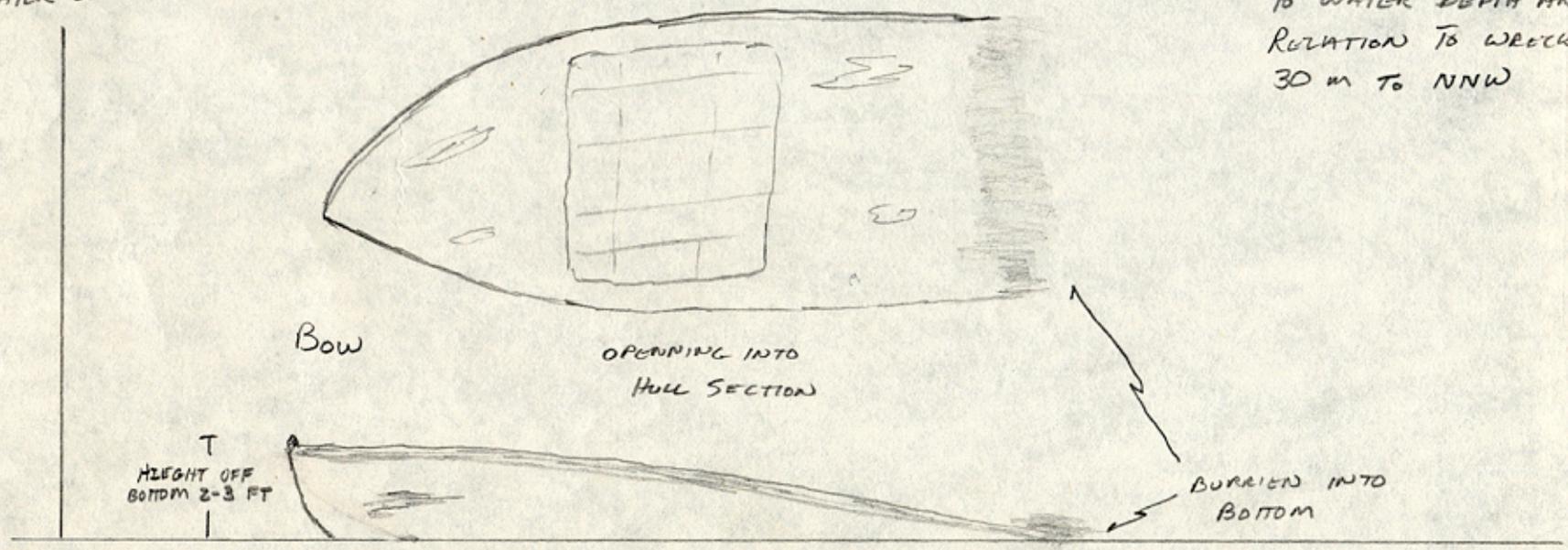


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PROJECT OPR - J433 - R/H - 88
DOY 132 / MAY 11, 1988
AWOIS 2807 CONTACT #4 (SAME AS #'S 9 + 12)
DIVERS - FRANCIS + BEAVER
DRAWING 2 OF 2
THE "RAVEN"

DEPTH OF
WATER 60. FT.

NO LEAST DEPTH TAKEN
INSIG HEIGHT WITH RESPECT
TO WATER DEPTH AND IN
RELATION TO WRECK LOCATED
30 m TO NNW



LOA 45'
THEN BURIED IN BOTTOM

NAD83 UNADJUSTED FIELD POSITIONS

GULF ISLANDS NATIONAL SEASHORE TRAVERSE HC-8801
LIST OF GEOGRAPHIC POSITIONS

9815
SIG.
1985

SPN	STATION NAME	GPN CODE	LATITUDE			LONGITUDE			G-NBR
			K	DEG	MN	SEC	DEG	MN	
✓ 101	PETIT AZMK 1985	9	30	12	12.63396	88	28	8.74297	17307
✓ 102	ROUND ISLAND LIGHTHOUSE	9	30	17	30.95723	88	35	11.80393	3394
✓ 103	BAYOU CASOTTE PORTER CO TANK	9	30	19	55.54271	88	30	8.44183	11772
→ ✓ 104	PASS	9	30	12	54.90608	88	30	22.00686	17307
→ ✓ 105	MARK	9	30	13	21.23712	88	34	24.86855	17307
✓ 106	BELLEFONTAINE PT TANK	9	30	20	35.58976	88	42	29.70760	14480
✓ 107	NPS 46-46-CFRL	9	30	14	40.71778	88	46	31.85500	17307
✓ 108	CHIMNEY 1966 RM 2	9	30	15	7.79841	88	43	5.85859	17307
✓ 109	BILOXI LIGHTHOUSE	9	30	23	39.89531	88	54	4.33526	13788
✓ 110	FORT 1986 USE	9	30	12	43.70787	88	58	19.46428	17307
✓ 111	SHIP ISLAND RANGE REAR LIGHT	9	30	12	45.39437	88	57	58.69470	10745
✓ 112	TIM	9	30	13	19.98428	88	54	44.51015	17307
✓ 113	PETE	9	30	14	17.54636	88	53	24.24175	17307
→ ✓ 114	PETIT BOIS 1985	5	30	12	7.97669	88	27	54.56274	
✓ 115	SKINS	5	30	12	32.07041	88	25	16.41269	-
→ ✓ 116	FOG	5	30	13	44.79907	88	19	39.27640	-
✓ 117	ALEX	5	30	12	11.87832	88	25	1.80049	-
→ ✓ 118	AMY	5	30	12	5.34702	88	25	27.33849	-
✓ 119	HORN IS PASS ENT RNG FRONT LT	5	30	12	49.83896	88	30	19.16048	
→ ✓ 120	HORN IS PASS ENT RNG REAR LT	5	30	13	5.33160	88	30	3.57878	
✓ 121	PASCAGOULA CHAN RNG D FRONT LT	5	30	12	58.80892	88	30	15.63843	
✓ 122	PASCAGOULA CHAN RNG D REAR LT	5	30	12	42.66812	88	30	13.64261	
→ ✓ 123	GOLF	5	30	13	14.23944	88	35	42.39220	-
→ ✓ 124	BIKE	5	30	13	48.30481	88	39	58.22276	-
✓ 125	NANCY	5	30	14	8.12448	88	41	16.77903	-
✓ 126	MAUREEN	5	30	14	36.03197	88	43	11.73659	-
✓ 127	GONE	5	30	14	20.55726	88	44	41.26167	-
✓ 128	GE-01	5	30	14	26.59492	88	45	27.88051	-
✓ 129	CLAY	5	30	12	33.49183	88	57	3.27291	-
✓ 130	CLIFF	5	30	13	37.59073	88	54	3.42567	-
✓ 131	WEST NPS	9	30	12	38.86989	88	59	5.61884	17307
✓ 132	SIGNAL 1966	9	30	12	38.87035	88	59	.74315	14480
✓ 133	SIGNAL 1966 AZMK	9	30	12	34.73248	88	58	19.60865	17307
✓ 134	POND	9	30	15	3.28798	88	42	42.42150	17307
✓ 135	MID	9	30	14	29.05442	88	40	36.14246	17307
✓ 136	SHOE	9	30	13	39.01378	88	36	21.08910	17307
✓ 137	DAUPHIN 1935	9	30	13	50.30365	88	18	15.17201	3394
✓ 138	STOOL 1970	9	30	12	50.27317	88	56	32.14963	14480
✓ 139	NPS PIPE	9	30	14	51.69465	88	52	12.84094	17307
✓ 140	SOUND	9	30	12	38.78518	88	24	7.87212	17307

ONE OR MORE
OF THESE LIGHTS
WERE MISIDENTIFIED

NAVISOFT 300

PRE-SURVEY: UTILITIES: UTM -> LAT/LON

12

May 21:16:04

Easting.....: 111001.1_
Northing.....: 120534.7
Latitude.....: 030:05:14.606
Longitude.....: 088:33:09.169

User 1

Caps

HELP

Dump
Alpha

Dump
Graphics

FH-2 860 ACRE SITE

PROVIDED BY: DR JAMES COE OF
THE MISS. GULF FISHING BANKS INC.

WATERSPOUT

• 12428.9
47044.7

Bill Walker

• 12441.4
47044.1

Marquerite

• 12438.3-.2
47043.2-.0

WATERSPOUT - Remains OF A WOOD HULL SHRIMP BOAT
(booms & tanks)

✓ Maquerite - OLD HOPPER BARGE ~ 150' X 60'
(sides sticking up)

✓ Bill Walker - Steel hull 90' POGY VESSELS WITH BOW
SECTION OF ANOTHER BOAT (RAVEN) AND
NOUSE SECTION OF ANOTHER (WHITEHOUSE).

• - FOUND IN AWDIS 2807 SEARCH AREA

IV. ITEM DESCRIPTION : The contact was what we expected from the side scan sonar trace, a large steel hulled barge. The barge was lying in a east-west orientation with the stern sunken into the bottom. Measurements were taken with a 30 meter tag line. The barge was approximately 36 meters long by 9 meters wide and was lying on its bottom. The vessel was still very much intact with several holes in the deck and sides and several cleats and crucibles located down the sides and on both ends of the barge. There were also several hatch openings along both sides of the barge. Further investigation determined that it was the empty hopper barge MAQUERITE sunk by the Mississippi Gulf Fishing Banks Inc. Several nets and other fishing gear were found caught in the hull and deck protrusions.

V. RECOMMENDATIONS: This wreck does not pose a hazard to surface navigation in the area. The wreck does, however, present an obstruction to anchoring or fishing in the area. Because this wreck is located within the boundary of a charted fish haven, no wreck symbol is necessary. The charted fish haven currently displays depths of 58 feet visible through the light blue fish haven area tint. It is recommended that these soundings be removed from the chart and replaced with an annotation stating the authorized minimum depth of clearance for the fish haven.

*See also section 6. of the Evaluation Report.
Recommend charting 58Wk in the position shown on
the present survey.*

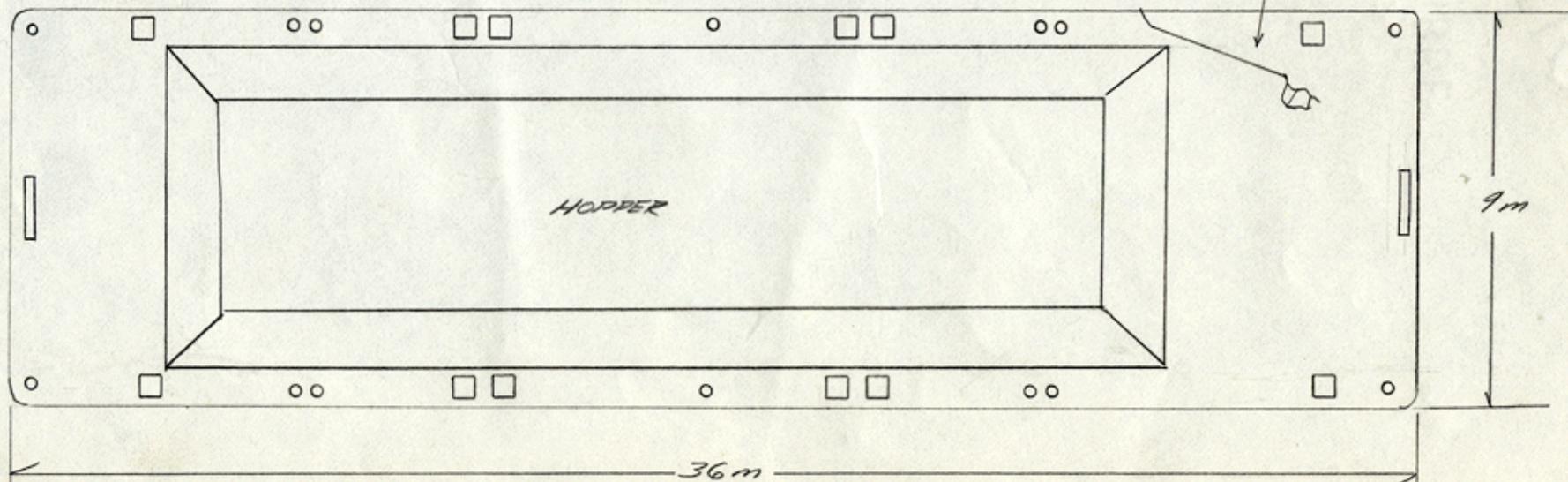
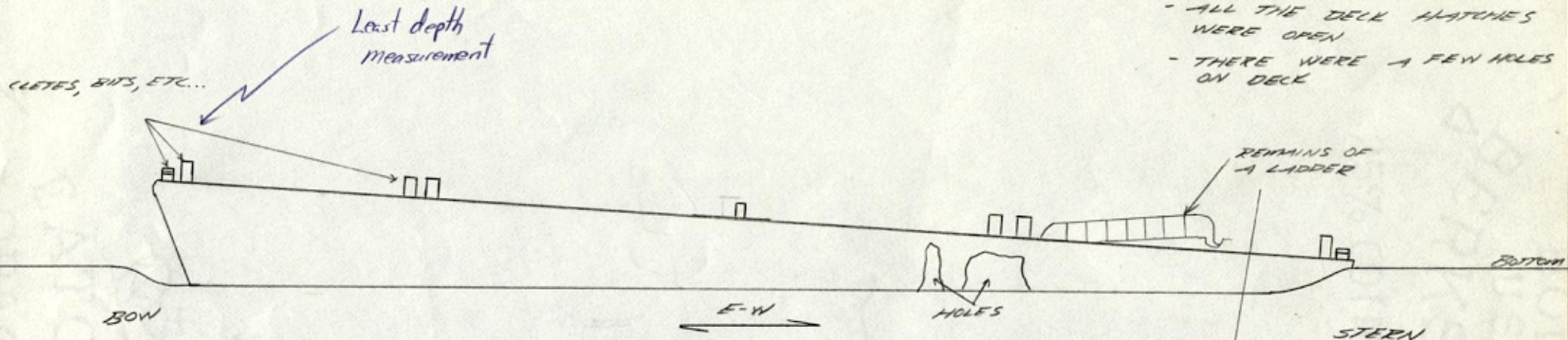
NOAA SHIP HECK 5-591
12 MAY 1988
DOY 133

SKETCH OF CONTACT #5
ALVOIS #2807
HOPPER BARGE
THE "MAQUERITE"

DIVERS: LT FRANKS
ENS BEAVER

SURFACE

- NOTES: - THERE ARE FISH NETS AND LINE CAUGHT IN SOME OF THE DECK AND HULL PROTRUSIONS.
- ALL THE DECK HATCHES WERE OPEN
 - THERE WERE A FEW HOLES ON DECK



FH-2 860 ACRE SITE

PROVIDED BY: DR JAMES COE OF
THE MISS. GULF FISHING BANKS INC.

WATERSPOUT

• 12428.9
47044.7

Bill Walker

• 12441.4
47044.1

Maquerite

• 12438.3-.2
47043.2-.0

WATERSPOUT - Remains OF A WOOD HULL SHRIMP BOAT
(booms & tanks)

✓ Maquerite - OLD HOPPER BARGE ~ 150' x 60'
(sides sticking up)

✓ Bill Walker - Steel hull 90' POGY VESSELS WITH BOW
SECTION OF ANOTHER BOAT (RAVEN) AND
HOUSE SECTION OF ANOTHER (WHITEHOUSE).

ALL - FOUND IN AWDIS 2807 SEARCH AREA

O ing.....: 110531.4
 .hing.....: 120128.2

 Latitude.....: 030:05:01.420
 Longitude.....: 088:33:26.724

O

User 1

Caps

HELP

Dump
Alpha

Dump
Graphics

⊖

Day	Time	Tide	Corr.	Units	FEET
132	12:00	-.8			
132	12:15	-.8			
132	12:30	-.8			
132	12:45	-.8			
⊖	13:00	-.8			
132	13:15	-.8			
132	13:30	-.8			
132	13:45	-.9			
132	14:00	-.9			
132	14:15	-.9			
132	14:30	-.9			
132	14:45	-.8			
132	15:00	-.8			
132	15:15	-.8			
132	15:30	-.8			
132	15:45	-.8			
132	16:00	-.8			
132	16:15	-.8			
132	16:30	-.8			
132	16:45	-.8			
132	17:00	-.7			
⊖	17:15	-.7			
⊖	17:30	-.7			
132	17:45	-.7			
132	18:00	-.7			
132	18:15	-.7			
132	18:30	-.6			
132	18:45	-.6			
132	19:00	-.6			

133	12:00	-1.2
133	12:15	-1.2
133	12:30	-1.2
133	12:45	-1.2
133	13:00	-1.2
133	13:15	-1.2
133	13:30	-1.2
133	13:45	-1.2
133	14:00	-1.2
133	14:15	-1.2
133	14:30	-1.2
133	14:45	-1.1
133	15:00	-1.1
133	15:15	-1.1
133	15:30	-1.1
133	15:45	-1.0
133	16:00	-1.0
133	16:15	-1.0
133	16:30	-.9
133	16:45	-.9
133	17:00	-.9
133	17:15	-.8
133	17:30	-.8
133	17:45	-.8
133	18:00	-.7
133	18:15	-.7
133	18:30	-.7
133	18:45	-.6
133	19:00	-.6
133	19:15	-.6
133	19:30	-.5
133	19:45	-.5
133	20:00	-.5
133	20:15	-.4
133	20:30	-.4
133	20:45	-.4
133	21:00	-.4
133	21:15	-.3
133	21:30	-.3
133	21:45	-.3
133	22:00	-.3
133	22:15	-.3
133	22:30	-.3
133	22:45	-.3
133	23:00	-.2
133	23:15	

AWOIS ITEM INVESTIGATION REPORT
AWOIS Item No. 2870

Revised from H-PA
to H-PP
request

See also section 6. of the Evaluation Report.

LARGEST SCALE CHART: 11375, Pascagoula Harbor, 25th ED.,
January 3, 1987

VESSEL: NOAA Ship HECK (S-591)

PERSONNEL: OIC - LCDR Christopher B. Lawrence, LT. Arthur E.
Francis, ENS Andrew L. Beaver, ST William B. Morris

DATES OF INVESTIGATION: April 28 (119) - April 29 (120), 1988

AWOIS HISTORY: LNM34/74--A 42 FT BOAT REPORTED SUNK OFF HORN
ISLAND PASS CHANNEL. AT APPROX POS. 30-11-30N, 88-30-48W.

SURVEY REQUIREMENTS: FULL--VERIFY OR DISPROVE. SIDE SCAN (200%
COVERAGE) FOR DISPROVAL, 800 METER MINIMUM RADIUS ON
SEAWARD SIDE OF SHOAL. ASSIGNED: OPR-J433-RU/HE-88

METHOD OF INVESTIGATION: Side scan sonar was the primary tool
of investigation. The DSF 6000N echo-sounder was used to
obtain the under keel profile.

RESULTS OF THE INVESTIGATION: Side scan sonar showed no signs
of any contacts seaward of the shoal line. The shoal water in
the search area at times made it difficult to obtain side scan
data. as the fish would drop below the minimum 8% height
requirement reducing the effective swath width.

RECOMMENDATION: Two hundred percent effective coverage of the
search area was obtained. No contacts were seen and AWOIS 2870
is disproved.

Additional field work recommended for this item.

Two hundred percent side scan sonar was performed over the required 1.5 nautical mile search radius. AWOIS 2807 is considered disproved at the reported position and should be removed from future chart editions of this area.

Following are the Contact Investigation Reports on AWOIS 2807 including least depth data, position information and recommendations.

APPENDIX IIA

STATION INFORMATION

The following are the horizontal control and, visual control stations used during work on this survey.

HDAS SIG	STATION NAME	LATITUDE LONGITUDE	EASTING NORTHING	USE
104	PASS	030° 12' 54. 906 ⁸³⁰ " 088° 30' 22. 007 ⁰⁰⁷ "	115457.4 134713.8	PC
105	MARK	030° 13' 21. 857 ¹⁸¹ " 088° 34' 24. 869 ⁸⁶⁹ "	108961.8 135517.4	PC/V
114	PETTIT BOIS	030° 12' 07. 977 ⁸⁹⁰ " 088° 27' 54. 563 ⁵⁶³ "	119403.1 133275.0	V
116	FOG	030° 13' 44. 799 ⁵⁸⁸ " 088° 19' 39. 276 ²⁷⁶ "	132641.6 136287.9	PC *
118	AMY	030° 12' 05. 347 ²⁹³ " 088° 25' 27. 338 ²⁴⁹ "	123341.0 133201.7	PC/V *
120	HORN IS PASS ENT. RANGE REAR LT.	030° 13' 05. 392 ³⁶² " 088° 30' 03. 579 ⁵⁵⁵ "	115949.7 135035.6	PC/V *
124	BIKE	030° 13' 48. 305 ²⁸² " 088° 39' 58. 222 ²³⁶ "	100047.5 136347.2	PC *

USE - PC - POSITION CONTROL
 V - VISUAL CONTROL
 PC/C - BOTH

* Revised positions - subject to adjustment by NGS

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: October 25, 1988

MARINE CENTER: Atlantic

OPR: J433

HYDROGRAPHIC SHEET: FE-315 SS

LOCALITY: Approaches to Biloxi and Pascagoula, Mississippi

TIME PERIOD: April 13 - May 12, 1988

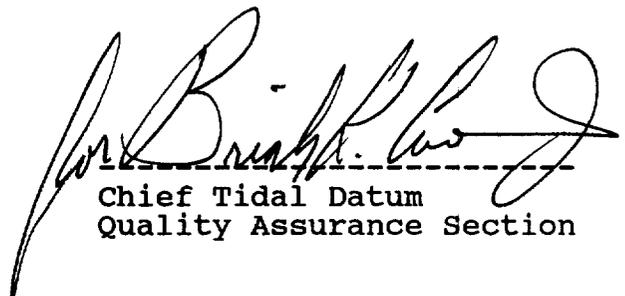
TIDE STATION(S) USED: 874-3735 Cadet Point, MS

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 8.84 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.7 ft.

REMARKS: RECOMMENDED ZONING

1. For AWOIS items 2807 and 2870 apply a -0 hr 50 minute time correction and X0.86 range ratio to all heights.
2. This supersedes tide note of July 14, 1988.



Chief Tidal Datum
Quality Assurance Section

GEOGRAPHIC NAMES

FE-315 SS

Name on Survey	<div style="display: flex; justify-content: space-between;"> 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 </div>											
	HORN ISLAND PASS (title)											
MEXICO, GULF OF (title)												2
MISSISSIPPI (title)												3
												4
												5
												6
												7
												8
												9
												10
												11
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												23
												24
												25

Approved:

Charles E. Hamilton
Chief Geographer - N/CG 2x5

FEB - 2 1989

02/06/89

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: FE-315

NUMBER OF CONTROL STATIONS	7
NUMBER OF POSITIONS	1357
NUMBER OF SOUNDINGS	3794

	TIME-HOURS	DATE COMPLETED
* PREPROCESSING EXAMINATION	37	07/12/88
VERIFICATION OF FIELD DATA	145	09/13/88
QUALITY CONTROL CHECKS	10	
EVALUATION AND ANALYSIS	57	02/02/89
FINAL INSPECTION	12	01/27/89
TOTAL TIME	224	
MARINE CENTER APPROVAL		02/02/89

* Preverification time is not considered as part of total survey time.

ATLANTIC MARINE CENTER
EVALUATION REPORT

SURVEY NO.: FE-315SS

FIELD NO.: HE-20-1-88

Mississippi, Gulf of Mexico, Approaches to Horn Island Pass

SURVEYED: 13 April through 12 May 1988

SCALE: 1:20,000

PROJECT NO.: OPR-J433-RU/HE-88

SOUNDINGS: RAYTHEON DSF-6000N Fathometer, EG&G Model 260 Side Scan Sonar, Pneumatic Depth Gauge

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

Chief of Party.....C. B. Lawrence

Surveyed by.....A. E. Francis

.....A. L. Beaver

.....W. R. Morris

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

1. INTRODUCTION

a. The purpose of this survey is adequately defined in the Descriptive Report and Project Instructions. Processing of this survey is considered complete. The wrecks found by the field unit and least depths have been smooth plotted for AWOIS item #2807. AWOIS item #2870 was investigated with a negative result. The field unit was directed to conduct a side scan sonar survey in the area of AWOIS item #2870. The field unit completed the area in the "minimum 800 meter radius on the seaward side of the shoal" as directed. A discussion between the Hydrographic Surveys Branch at the Atlantic Marine Center and the Operations Section, NOS, Hydrographic Surveys Branch (N/CG241), Rockville, Maryland concluded that, in order to disprove the item, it would be necessary to survey on both sides of the shoal.

b. This is primarily a side scan sonar survey. The RAYTHEON DSF-6000N fathometer was operated concurrently with the side scan sonar. Fathometer developments were conducted to search for items found on the sonargrams. The fathometer data was used to position the item(s), determine the significance and least depth of the item(s). The hydrography is considered reconnaissance hydrography and is not for charting. A pneumatic depth gauge was used to determine least depths on the item(s) that were found during diver investigations.

c. The results of the investigations of AWOIS items #2807 and #2870 are plotted on two (2) page size plots at a scale of 1:40,000 and 1:20,000, respectively. The smooth plots have been inserted into the Descriptive Report. The position overlays for these plots have been filed with the original survey records. The excess overlays for the hydrographic survey work completed on AWOIS item #2870 are also filed with the position overlays.

d. No unusual problems were encountered during office processing.

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

2. CONTROL AND SHORELINE

a. Control is adequately discussed in the section titled HORIZONTAL POSITION CONTROL, pages 10-11 of the Descriptive Report.

b. There is no shoreline in the areas surveyed.

c. 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 the 1:20,000 scale plot on the NAD 27 datum move the projection lines 0.725 seconds (22.3 meters or 1.12 mm at the survey scale) north in latitude, and 0.053 seconds (1.4 meters or 0.07 mm at survey scale) east in longitude. To place the 1:40,000 scale plot on the NAD 27 datum move the projection lines 0.725 seconds (22.3 meters or 0.56 mm at the survey scale) north in latitude, and 0.053 seconds (1.4 meters or 0.04 mm at survey scale) east in longitude.

3. HYDROGRAPHY

a. Soundings at crossings are in excellent 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 could not be drawn in their entirety; the eighteen (18) foot curve could not be completely delineated because of vessel safety. The supplemental twenty-four (24) foot curve was drawn to show additional bottom relief.

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

Three (3) uncharted obstructions noted during office processing in Latitude 30°11'34.08"N, Longitude 88°31'15.53"W, Latitude 30°11'34.17"N, Longitude 88°31'17.63"W, Latitude 30°11'20.57"N, Longitude 88°31'18.10"W should have been fully developed by the field unit. See section 6.a. regarding prior survey H-9118 (1970) of the evaluation report for a more complete discussion and charting recommendations.

4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records and reports are adequate and conform to the requirements of the HYDROGRAPHIC MANUAL and/or the PROVISIONAL SIDE SCAN SONAR MANUAL with the following exceptions:

a. Confidence checks for the side scan sonar system were not taken twice daily as required by the PROVISIONAL SIDE SCAN SONAR MANUAL. As a result the field probably did not recognize a problem with the port channel of the side scan sonar fish. The port channel was not receiving properly and at least twenty-five percent (25%) of the range selected was not covered. The majority of the area was covered using 100 meter range scale with 100 meter line spacing. Scanning of the sonargrams during evaluation determined that the effective range of the side scan sonar system was diminished by a factor of as much as fifty percent (50%); the degradation was range scale dependent. A note on the "ITEM INVESTIGATION CHRONOLOGY" sheet for AWOIS Item #2870, Day of the year (DOY) 120 says, "...trace is a little questionable, should be reviewed carefully." Additional consultation with personnel of the Acoustics and Instrumentation Section at the marine center during evaluation of the survey confirmed that the port transducer of the side scan sonar towfish was not functioning properly. Examination of all sonargrams for this survey confirmed that the port transducer was not operating properly during the entire time that field operations were being conducted.

b. The acoustic pinger discussed on page 4 of the hydrographer's report is not an approved method for obtaining a confidence check for the side scan sonar equipment. The pinger is triggered by the side scan sonar towfish signal, and an active sonar pulse is sent through the water column. The items being searched for by the field units are passive sonar targets that reflect only the sound energy emitted by the side scan sonar towfish. Therefore, the pinger is not considered a valid test of the system that is used for identifying a passive target.

5. JUNCTIONS

There are no junctional requirements for this survey.

6. COMPARISON WITH PRIOR SURVEYS

H-4171 (1920) 1:80,000

H-9118 (1970) 1:20,000

Prior survey H-4171 (1920) covers the entire area of AWOIS item #2807. Present survey soundings compare favorably with the prior survey soundings. Present survey soundings range from one (1) foot deeper to four (4) feet shoaler than prior survey soundings. AWOIS item #2807 is a charted dangerous sunken wreck, PA in Latitude 30°05'36"N, Longitude 88°32'12"W. The wreck, the 51 foot F/V "VACA-DEL-MAR", originates with Local Notice to Mariners 7 of 1976 (LNM 7/76). Three (3) contacts were located within the search area by the field unit using side scan sonar. Two (2) wrecks, "BILL WALKER" and "RAVEN" were located approximately 32 meters from each other in Latitude 30°05'14.50N, Longitude 88°33'07.89"W and Latitude 30°05'14.70N, Longitude 88°33'09.07"W, respectively. A mean position of Latitude 30°05'14.60N, Longitude 88°33'08.48"W was computed for the two (2) wrecks because of their proximity to each other. These two (2) wrecks are approximately 1650 meters southwest of the charted AWOIS item. A pneumatic depth gauge least depth of 46 feet was obtained on the "BILL WALKER". Present survey depths in the vicinity of these two (2) wrecks are 58 feet. A third wreck, a sunken barge "MAQUERITE" was located in Latitude 30°05'01.00"N, Longitude 88°33'25.93"W. The pneumatic depth gauge least depth determined for the barge is 58 feet. Present survey depths in the vicinity of the barge are 58 to 59 feet. This wreck is approximately 2248 meters southwest of the charted AWOIS item. These three (3) wrecks are within the boundaries of the fish haven shown on National Ocean Service (NOS) chart 11373 in approximate Latitude 30°04'55"N, Longitude 88°34'02"W. Two 58-ft depths are charted within the limits of the fish haven. It is the opinion of the evaluator that the AWOIS item being searched for may not have been located because the claimed 200% side scan sonar coverage of the area was not achieved. The probability of the existence of the 51 foot F/V "VACA-DEL-MAR" in this search area is considered low. The claimed coverage of the area was not achieved because of the problem with the side scan sonar towfish discussed in section 4. of this report. The chart compiler should consider the application of the two (2) wrecks with a pneumatic depth gauge least depth of 46 feet and the barge with a pneumatic depth gauge least depth of 58 feet to the chart. Also, the charted dangerous sunken wreck, PA in Latitude 30°05'36"N, Longitude 88°32'12"W should be revised from "PA" to "PD". Additional work is considered warranted on this AWOIS item because of incomplete side scan sonar coverage caused by equipment problems encountered during field operations.

Prior survey H-4171 (1920) covers a small portion of the area of AWOIS item #2870. AWOIS item #2870 is a charted dangerous sunken wreck, PA in Latitude 30°11'30"N, Longitude

11373
11374'A'

Obstns
(21ft rep)
Obstn
(28ft rep)

Applied to
X.P. Not

88°30'48"W. AWOIS item #2870 originates with Local Notice to Mariners 34 of 1974 (LNM 34/74) and is described as a 42-ft boat. The field unit did not find the AWOIS item. A sufficient search area was not covered by the field unit because of the presence of a shoal that encroached on a portion of the area to be investigated. The present survey soundings vary considerably from the prior survey soundings. An eighteen (18) foot sounding shown on the prior survey falls slightly out of the area of the present survey; however, it is very apparent that the shoal indicated by the eighteen (18) foot sounding on the prior has migrated to the southwest. Present survey soundings area as much as twenty (20) feet shoaler than the prior survey soundings.

Prior survey H-9118 (1970) covers a small portion of the area of AWOIS item #2870. In the vicinity of the ten-foot (10-ft) shoal shown on the prior survey, approximate Latitude 30°11'48"N, Longitude 88°30'36"W, present survey soundings are eight (8) to nine (9) feet deeper. In general the entire shoal shows a westerly migration and soundings on the present survey are one (1) to two (2) feet deeper than the prior survey soundings. A side scan sonar investigation was conducted by the field unit on day of the year (DOY) 119 and (DOY) 120. Three (3) uncharted obstructions were noted on the sonargrams during office processing of the field data. The obstructions with uninvestigated echo sounder depths of 21-ft, 23-ft, and 28-ft were located in Latitude 30°11'34.08"N, Longitude 88°31'15.53"W, Latitude 30°11'34.17"N, Longitude 88°31'17.63"W, Latitude 30°11'20.57"N, Longitude 88°31'18.10"W, respectively. It is recommended that the three (3) obstructions be charted as shown on the present survey. It is also recommended that the three (3) obstructions noted during office processing be investigated at an opportune time. Also, the charted dangerous sunken wreck, PA in Latitude 30°11'30"N, Longitude 88°30'48"W should be revised from "PA" to "PD".

The present survey is adequate to supplement the above prior surveys within the common areas.

7. COMPARISON WITH CHART 11373 (31st Edition, Oct. 24/87)
11375 (26th Edition, Sept. 17/88)

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys and miscellaneous sources; no further discussion is required.

The present survey is adequate to supplement the charted hydrography in the common areas.

b. Aids to Navigation

There are no fixed or floating aids to navigation within the limits of the areas surveyed.

11376 ⇒ No Correction

AP. Not } 23
11375 } 21
28

8. COMPLIANCE WITH INSTRUCTIONS

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

9. ADDITIONAL FIELD WORK

Recommendations for additional field work are found in section 6. of this report.

Deborah A. Bland
Deborah A. Bland
Cartographic Technician
Verification of Field Data

Robert G. Roberson
Robert G. Roberson
Supervisory Cartographer
Evaluation and Analysis

Heroy G. Cram
Heroy G. Cram
Senior Cartographic Technician
Verification Check

INSPECTION REPORT
FE-315SS

The data that make up this Side Scan Sonar survey have been inspected to gain insight into its overall completeness regarding survey coverage, presentation of survey results, and the verification or disproval of charted data. This survey, except as noted in the Evaluation Report, is considered complete and adequate to meet National Ocean Service standards. Processing is considered complete. The survey records comply with NOS requirements except as noted in the Evaluation Report.

Inspection



R. D. Sanocki
Chief, Hydrographic Surveys
Processing Section
Hydrographic Surveys Branch



William A. Wert, LCDR, NOAA
Chief, Hydrographic Surveys Branch

Approved February 2, 1989



Ray E. Moses, RADM, NOAA
Director, Atlantic Marine Center

88° 36'

88° 34'

88° 32'

30° 08'

FE - 315 SS
 MISSISSIPPI
 GULF OF MEXICO
 APPROACHES TO HORN ISLAND PASS
 APRIL 13 - MAY 12, 1988
 SCALE: 1:40,000
 HORIZONTAL DATUM: NAD 1983
 SOUNDINGS IN FEET AT MLLW
 SHEET 1 OF 2
 ITEM 2807

88° 34' 00"

NAD 27

30° 05' 00"

30° 06'

XYNETICS 1201
 DAB 10-27-88

46 Wks "BILL WALKER & RAVEN"

58 Wk "MAQUERITE" (Hopper Barge 150 ft long x 60 ft wide)

30° 04'

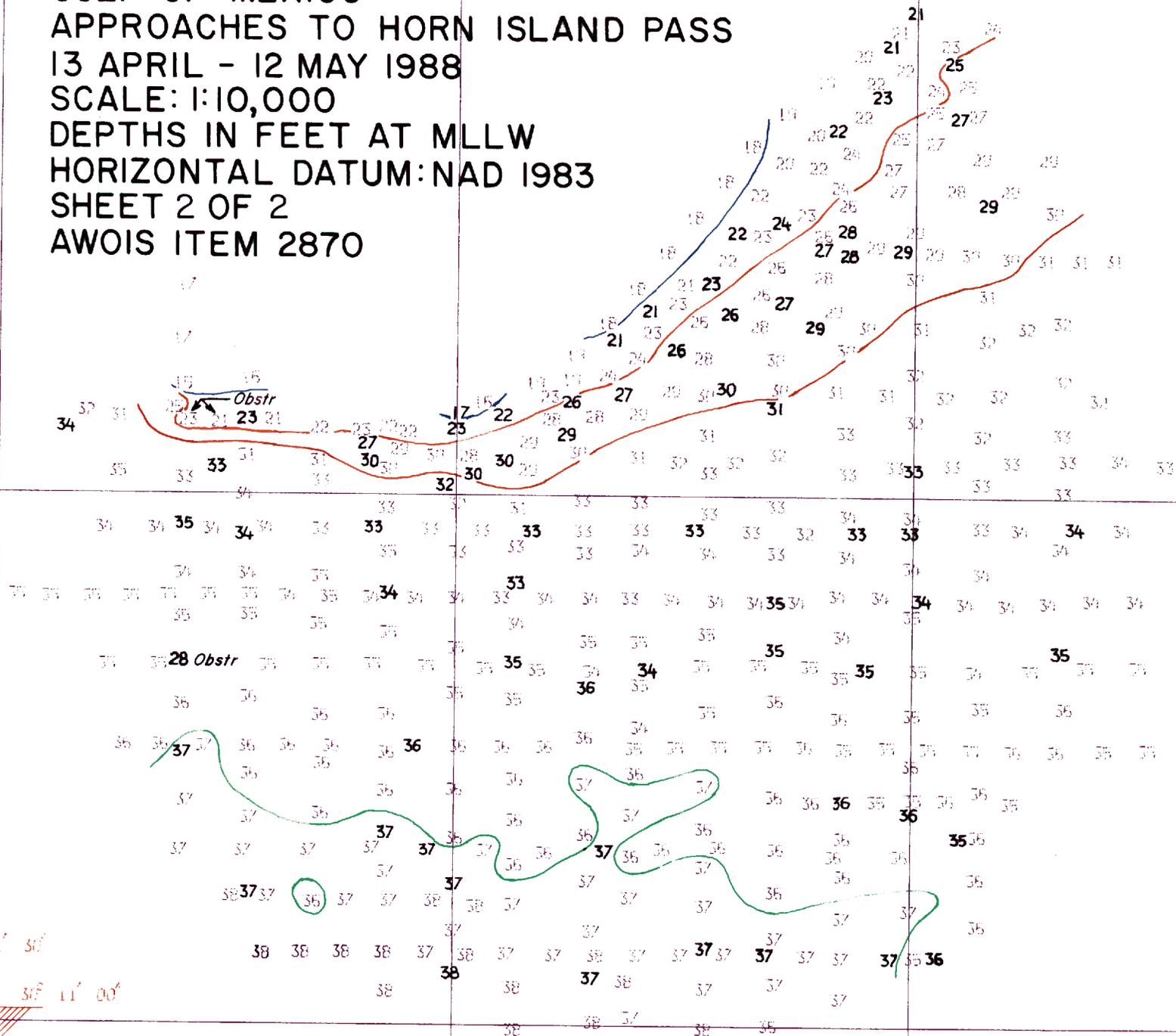
88° 31' 30"

88° 31' 00"

88° 30' 30"

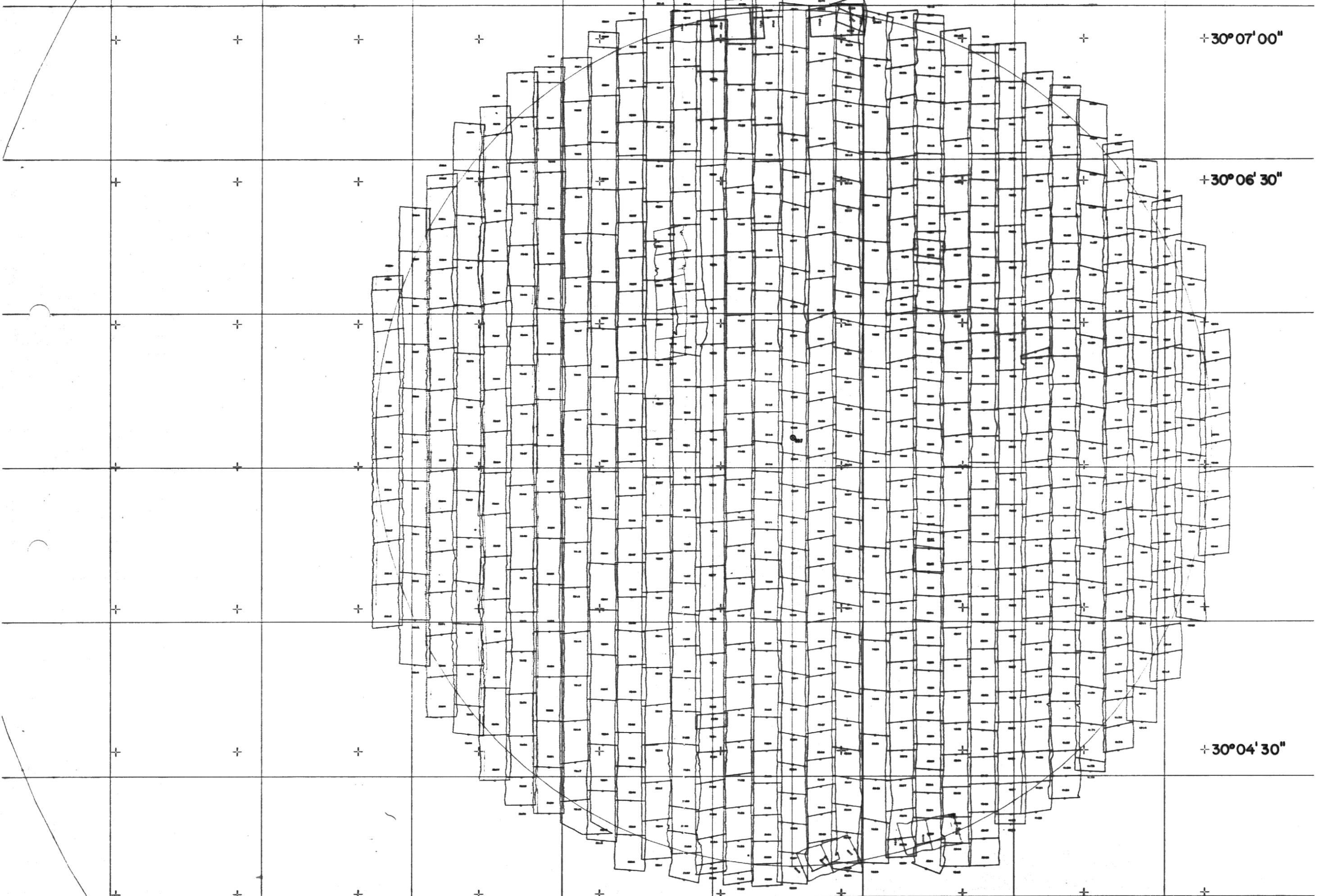
FE-315SS
MISSISSIPPI
GULF OF MEXICO
APPROACHES TO HORN ISLAND PASS
13 APRIL - 12 MAY 1988
SCALE: 1:10,000
DEPTHS IN FEET AT MLLW
HORIZONTAL DATUM: NAD 1983
SHEET 2 OF 2
AWOIS ITEM 2870

30° 12' 00"



30° 11' 30"

30° 11' 00"



+30°07'00"

+30°06'30"

+30°04'30"

E 108000
ON RR 35 30

E 109000
ON RR 34 30

E 110000
ON RR 34 00

E 111000
ON RR 33 30

E 112000
ON RR 33 00

E 113000
ON RR 32 30

E 114000
ON RR 32 00

E 115000
ON RR 31 30

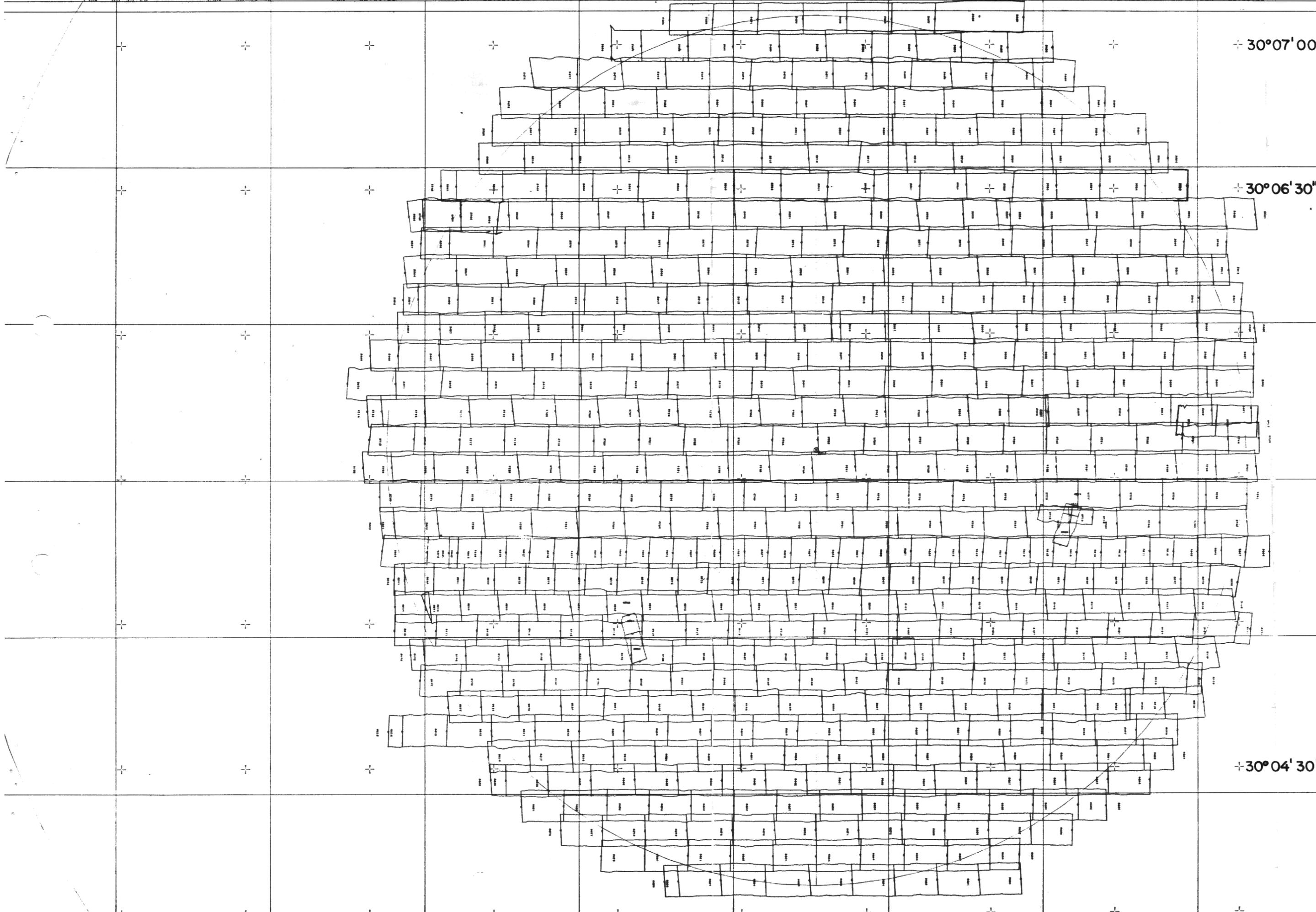
E 116000
ON RR 31 00

E 117000
ON RR 30 30

+ 30°07'00"

+ 30°06'30"

+ 30°04'30"





NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE
CHARTING AND GEODETIC SERVICES WESLEY V. HULL, RADM DIRECTOR
APPROACHES TO PASCAGOULA AND BILOXI, MISSISSIPPI
AMDIS #2870 1ST 100% SMOOTH SWATHPLOT

VESSEL NO / PLOTTER SHEET NO / REC. NO / SHEET. 9140 - HE-50-2-88 -
PROJECT 7433-88
HORIZONTAL DATUM: NAD 83
SOUNDING DATUM: MLLW
PROJECTION: MODIFIED UTM PROJECTION
SCALE: 1:10000
SURVEYED BY: NOAA SHIP HECK S-591
CDR C. B. LAWRENCE

APRIL 1988
CONTROL LATITUDE: 029.00.00.000
CENTRAL MERIDIAN: 088.40.00.000
SOUNDINGS IN FEET



N 130000

LAT 30:10:30

N 131000

LAT 30:11:00

N 132000

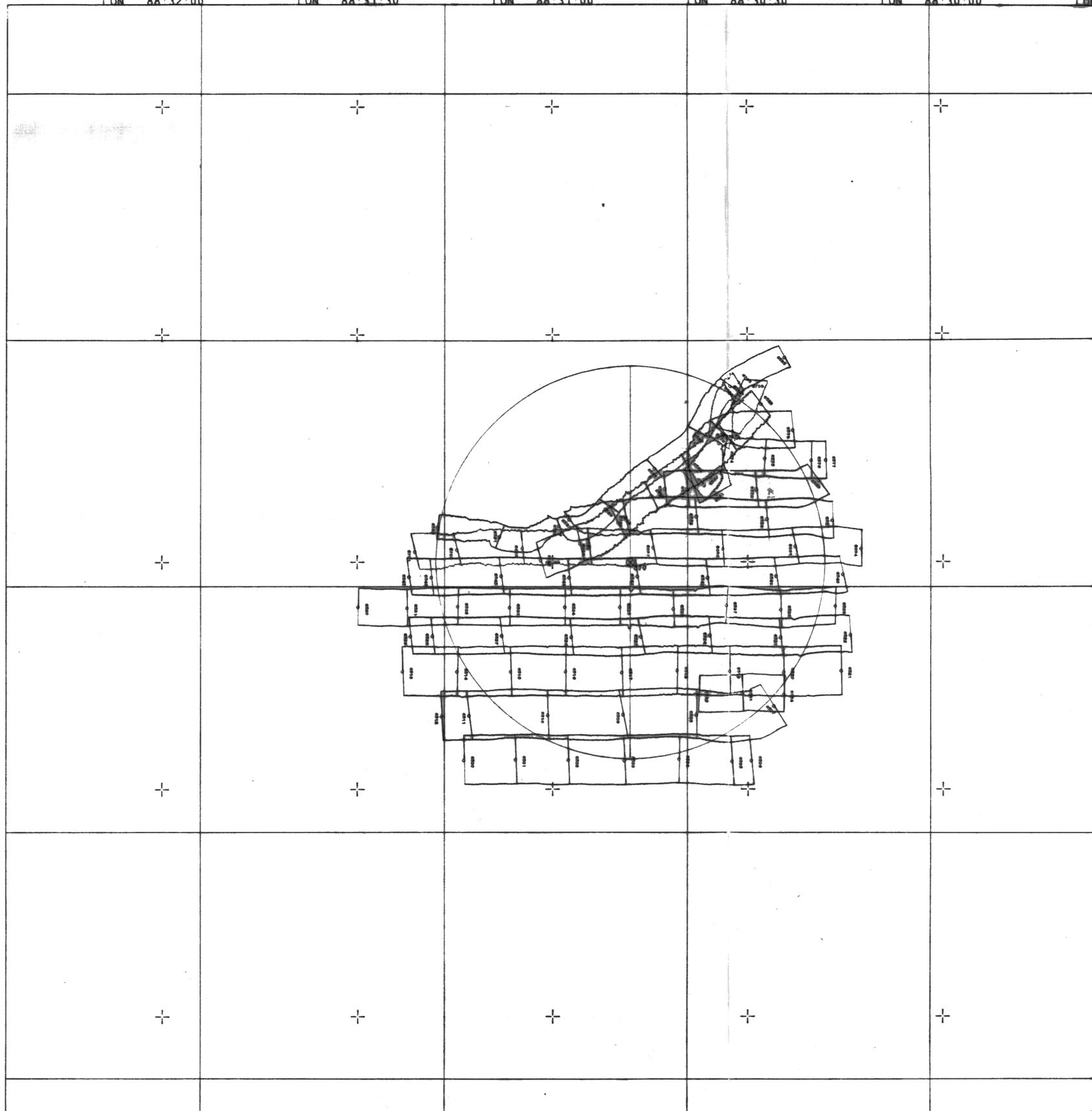
LAT 30:11:30

N 133000

LAT 30:12:00

N 134000
LAT 30:12:30

E 113000 E 114000 E 115000 E 116000
LON 88:32:00 LON 88:31:30 LON 88:31:00 LON 88:30:30 LON 88:30:00 LON





NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SERVICE
 CHARTING AND GEODETIC SERVICES WESLEY V. HULL, PAUM DIRECTOR
 APPROACHES TO PASCAGOULA AND BILOXI, MISSISSIPPI
 AWPIS #2870 2ND 100% SWATHPLOT FIELD SHEET

WESSEL NO. / PLOTTER SHEET NO. / REG. NO. / SHEET: 9140 - HE-20-2-86 -
 HORIZONTAL DATUM: NAD 83
 SOUNDING DATUM: MLLW
 PROJECTION: MODIFIED UTM PROJECTION
 SCALE: 1:10000
 SURVEYED BY: NOAA SHIP HECK S-591
 UDR S. B. LAWRENCE

N 134000
 LAT 30.12.30

N 133000
 LAT 30.12.00

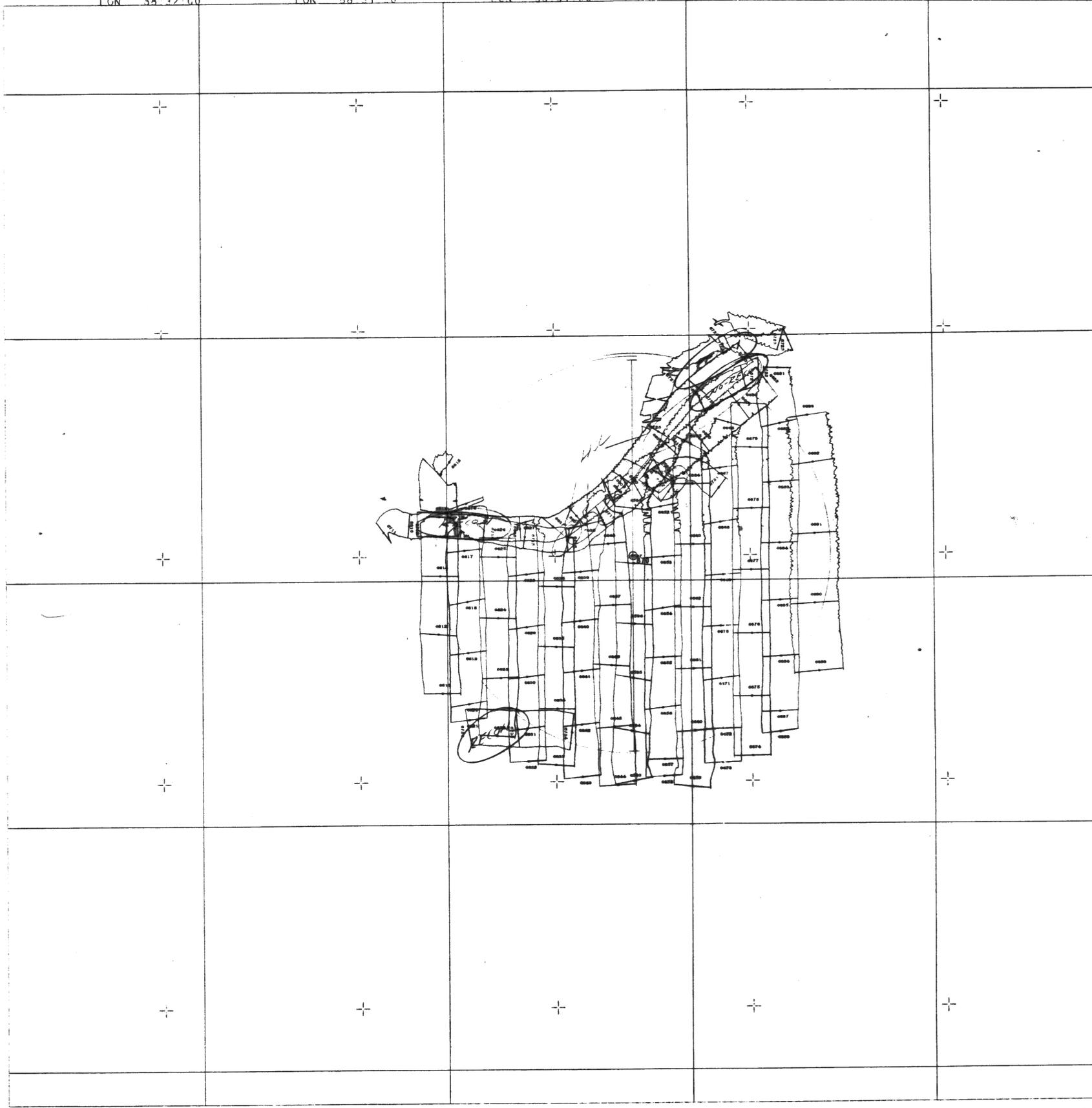
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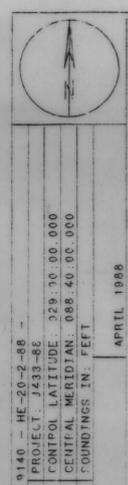
N 131000
 LAT 30.11.00

N 130000
 LAT 30.10.30

E 113000 E 114000 E 115000 E 116000

LON 88.32.00 LON 88.31.30 LON 88.31.00 LON 88.30.30 LON 88.30.00 LON 88.29.30





VESSEL NO. / PLOTTER SHEET NO. / REG. NO. / SHEET: 9140 - HE-20-2-88 -
PROJECT: J433-88
HORIZONTAL DATUM: TAD 83
SOUNDING DATUM: MLW
PROJECTION: MODIFIED UTM PROJECTION
SCALE: 1:10000
SURVEYED BY: NOAA SHIP HECK S-58
CDR C. B. LAWRENCE

NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE
CHARTING AND GEODETIC SERVICES WISLEY V. HULL, RADM DIRECTOR
APPROACHES TO PASCAGOULA AND BILOXI, MS.
AWOIS #2870 2ND 100% SMOOTH SWATH PLOT



E 113000 E 114000 E 115000 E 116000
LCN 89.22.00 LCN 88.31.30 LCN 88.31.00 LCN 88.30.30 LCN 88.30.00

N 134000
LAT 30.12.30

N 133000
LAT 30.12.00

LAT 30.11.30

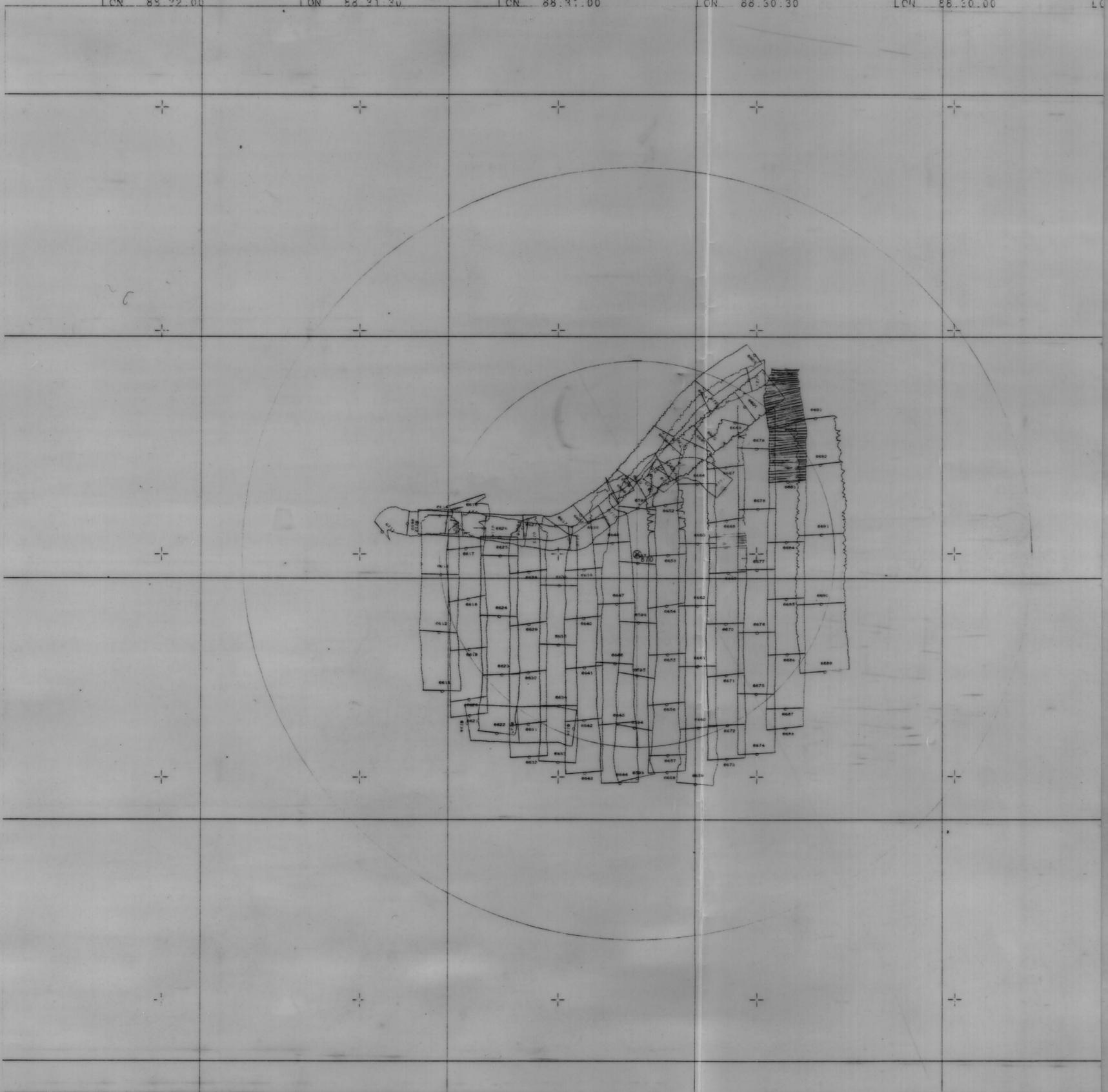
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LAT 30.11.00

N 131000

LAT 30.10.30

N 130000



MARINE CHART BRANCH
RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. FE-315SS

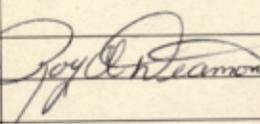
**EXAMINED FOR NM
GDBU**

11-2-89 
11-27-89 

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
11375	10-26-89	[Signature]	Full Part Before After Marine Center Approval Signed Via
	11-24-89		Drawing No. 28 Applied thru Section
11374	10-26-89	[Signature]	Full Part Before After Marine Center Approval Signed Via
			Drawing No. 23 Applied thru Section
11373	12-17-89	[Signature]	Full Part Before After Marine Center Approval Signed Via
			Drawing No. 55
11360	10-26-89	[Signature]	Full Part Before After Marine Center Approval Signed Via
			Drawing No. 45
11375	5-23-90		Full Part Before After Marine Center Approval Signed Via
			Drawing No. 28 applied thru <u>card section</u>
11374	5-31-90	Russell Kennedy	Full Part Before After Marine Center Approval Signed Via
			Drawing No. 23
11373	6/4/90	Dan Black	Full Part Before After Marine Center Approval Signed Via
			Drawing No. 55 <u>app'd thru LNM 50/89, ITEM AG.</u>
11360	7-9-90	ELLEN SPENCER	Full Part Before After Marine Center Approval Signed Via
			Drawing No. 45 applied thru A.P. HISTORY <u>(Z)</u> and <u>(AG)</u>
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.