

H-10111

Diagram No. 1280

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic
Field No. R/H-20-2-83
Office No. H-10111

LOCALITY

State Texas
General Locality Gulf of Mexico
Locality Southwest of Heald Bank

1983

CHIEF OF PARTY
LCDR R.C. Arnold

LIBRARY & ARCHIVES

DATE June 25, 1984

H-10111

Area 4

CHTS:

11323 }
11330 } to sign off see
11340 } Record of Application

NOTE - SURVEY NO LONGER
FALLS ON 11332 BECAUSE
OF REFORMATTING OF THE CHART
LIMITS.

HYDROGRAPHIC TITLE SHEET

H-10111

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.

RH-20-02-83

State TEXASGeneral locality GULF OF MEXICOLocality SOUTHWEST OF HEALD BANKScale 1:20,000Date of survey 7 APRIL 1983 - 27 April 1983Instructions dated 6 JANUARY 1983Project No. K667-RU/HE-83Vessel NOAA SHIPS RUDE (9040) & HECK (9140)Chief of party LCDR RUSSELL C. ARNOLDSurveyed by LCDR R.C. ARNOLD, LCDR WINTER, LTJG J.W. BAILEY, ENS T.G. CALLAHANSoundings taken by echo sounder, ~~hand track, pot~~ DE-719B (RAYTHEON)Graphic record scaled by LTJG J.W. BAILEY, ENS T.G. CALLAHAN, JST G.L. ANDERSENGraphic record checked by LTJG J.W. BAILEY, ENS T.G. CALLAHAN, JST G.L. ANDERSENProtracted by _____ Automated plot by Xybetics 1201 Plotter (Amc)Verification by Hydrographic Surveys Branch, Atlantic Marine CenterSoundings in fathoms feet at ~~MLW~~ MLLW ~~GULF COAST LOW WATER DATUM REDUCED FOR~~
~~PREDICTED TIDES~~REMARKS: ALL TIMES RECORDED FOR THIS SURVEY ARE G.M.T.The following data was removed from the Descriptive Report and filed with
the survey records:Projection ParametersRequest for Smooth TidesAbstract of Corrections to Echo SoundingsAbstract of Electronic Position CorrectionsBottom Sediment DataSO 5-6-97Appd to Std-6-28-84 Pst

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DESCRIPTIVE REPORT
To Accompany
HYDROGRAPHIC SURVEY H-10111
Field Number RH-20-02-83

A. PROJECT

This survey is part of OPR-K667-RU/HE-83, Calcasieu Pass, Sabine Bank, Louisiana, and Heald Bank, Texas. The project was conducted in accordance with project instructions dated 6 January 1983, issued by the Chief, Nautical Charting Division, and forwarded via the Director, Atlantic Marine Center. There were no changes issued during this survey.

B. AREA SURVEYED

This survey was conducted in the Gulf of Mexico, vicinity of Safety Fairway Heald Bank Texas. The actual survey limits are as follows:

29°-07'08"N ✓ 125° True to 29°-04'25"N ✓
094°-17'06"W 094°-12'-40"W

29°-04'25"N ✓ 215° True to 29°-02'26"N ✓
094°-12'40"W 094°-14'16"W

29°-02'25"N ✓ 305° True to 29°-05'12"N ✓
094°-14'16"W 094°-18'40"W

29°-05'12"N ✓ 035° True to 29°-07'08"N ✓
094°-18'40"W 094°-17'06"W

There was no coast line contained within ^{the} above mentioned survey limits. Hydrography was conducted between the dates 7 April 1983, JD097, and 27 April 1983, JD117.

C. SOUNDING VESSEL

Hydrography was performed by the NOAA Ships RUDE (S590) and HECK (S591). Data acquisition was accomplished by hand logging data while on line. The EDP designation numbers are as follows:

NOAA Ship RUDE (S590) VESNO 9040
NOAA Ship HECK (S591) VESNO 9140

These vessels proved to be fair sounding platforms at best. Vessel size and hull design, during even minimal sea conditions, contributed greatly to jagged fathometer traces. — See the Evaluation Report - section 4. ^{3-6 feet}

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

All soundings, for this survey, were obtained by the NOAA Ships RUDE (S590) and HECK (S591), utilizing the Raytheon portable fathometer model DE-719B. The serial numbers for the individual fathometers were as follows:

<u>Vessel</u>	<u>Vesno</u>	<u>Fathometer S/N</u>	<u>JD</u>
NOAA Ship RUDE (S590)	9040	5799	098-108
NOAA Ship HECK (S591)	9140	5497	098-116
		6212	116-117

The ships encountered survey depths of ⁴²29 feet to ⁶⁷63 feet. All fathometers were maintained at a zero initial setting with a static draft of 7 feet being added to all corrector tapes.

The velocity of sound corrections will be based upon a T.D.C. cast taken by NOAA Ship HECK, Vesno 9140. The T.D.C. cast was performed on 26 April 1983, JD116, at 29°-02'-36"N, 094°-14'-24"W, to a depth of 18 meters. The instrument used was a Martek Mark VIII, Model #167, serial number 126. This unit was calibrated by Atlantic Marine Center, Acoustics Branch, during 1982-83 winter inport period. The velocity table, graph and correctors will be computed and applied to all field work by AMC. - See the Evaluation Report - section 4.

A vertical cast was taken on 2 May 1983, JD122, for both vessels (Vesno 9040, 9140). Both vessels installed and checked all three fathometers (serial numbers 5497, 5799, 6212) for possible instrument error. Results indicated fathometer, S/N 6212, consistently reading 1-foot shoaler than fathometer 5497 and 5799. This cast also revealed a 0.7 of foot difference between the two vessels. NOAA Ship RUDE, Vesno 9040, records 0.7 of a foot deeper on all fathometers than did those on the HECK, Vesno 9140. These errors are consistent with results obtained during survey operations. These errors will be applied to all final soundings via the TC/T1 tape. - See the Evaluation Report - section 4.

Settlement and Squat corrections were determined on 25 January 1983, JD025, by AMC and ship personnel at Port Norfolk Reach Channel. A copy of settlement and squat results are appended to this report (Supplemental Data File).

Speed changes were noted in daily sounding records and settlement and squat correctors were entered on sounding correction abstracts. Sounding correction abstracts are appended to this report (Appendix D).

E. HYDROGRAPHIC SHEETS

The field sheets were constructed and drawn on board the NOAA Ship RUDE. Sheets were prepared by the Digital PDP11/34 Computer and Houston Instruments roll-bed plotter.

The survey is presented on several plotter sheets and overlays containing mainscheme hydrography, crosslines, and mainscheme splits. ~~Sheets should be overlaid to obtain the complete survey results.~~

F. CONTROL STATIONS

The Datum used was NAD 1927. All electronic and visual control stations used during this survey were of Third Order, Class I positional accuracy standards or better. A complete list of signals can be found in Appendix F. - See the Evaluation Report - section 4.

G. HYDROGRAPHIC POSITION CONTROL

Vessel positioning for all work was accomplished with ARGO, medium range positioning systems, in the range/range mode at frequency 1646.7 KHz. The following is a list of equipment and serial numbers used at the different stations:

<u>Vessel</u>	<u>Vesno</u>	<u>Equipment</u>	<u>S/N</u>	<u>JD</u>
NOAA Ships RUDE (S590)	9040	CDU	C037940	97-108
		RPU	R047855	97-108
		ALU	A0379122	97-108
		Power Supply	V0478104	97-108
		Thermal Printer	A04127	97-108
		Strip Chart	0144	97-108
NOAA Ship HECK (S591)	9140	CDU	C047825	98-117
		RPU	R047864	98-117
		ALU	A0980310	98-117
		Power Supply	V0478106	98-117
		Thermal Printer	2126A6914	98-117
		Strip Chart	00152	98-117
Shore Station H-24-TX-78, 1978		RPU	R047843	98-117
		ALU	A047853	98-117
		Power Supply	V0478107	98-117
Shore Station CITAN, CHAN, 1963		RPU	R0379107	98-117
		ALU	A0379106	98-117
		Power Supply	V0379131	98-117

Vessel calibrations were performed by steering a known range and observing pre-computed sextant angles and ARGO rates. Four independent fixes were observed during opening and closing calibrations. The first observations were used to set exact precomputed values into CDU, with subsequent fixes taken to ensure that the proper values were, in fact, set in. All opening and closing calibrations were averaged as a daily corrector and applied to each day's hydrography. Whole lane "checks" were utilized about the "GA" and R"2" buoys located in vicinity of the work area. This method was employed due to long transit to and from the work area.

A complete file of daily calibrations is appended to this report (Supplemental Data File).

H. SHORELINE

There was no shoreline contained within the survey limits.

I. CROSSLINES

Throughout this survey, a total of 11.4 NM of crosslines were run. This constitutes 8% of the total mainscheme hydrography. Crossline agreement is

good, generally within ^{1 foot} ~~± 2 feet~~ of mainscheme hydrography.

J. JUNCTIONS

Not applicable. - See the Evaluation Report - section 5.

K. COMPARISONS WITH PRIOR SURVEYS

Comparisons were made with the following prior surveys:

<u>Prior Survey</u>	<u>Date</u>	<u>Coverage</u>
H-9775	1978	Western section of area surveyed.
NO-6251	1937	Eastern section of area surveyed.

See the Evaluation Report - section 6.

~~Agreement generally is within ± 3 feet. The depth curves are systematic and do not show any evidence of displacement.~~

L. COMPARISONS WITH THE CHART - See section 7. of the Evaluation Report

Comparisons were made with chart number 11332, 18th Edition, scale 1:20,000, dated 24 April 1982.

Acquired soundings are consistently deeper than charted soundings. General agreement is within 2-3 feet. Two reported shoal soundings were investigated via mainscheme splits. Investigation of a reported shoal sounding of 41 feet at 29°-04'36"N, 094°-15'09"W, revealed a 40-foot sounding. However, this 40-foot sounding is located in vicinity of other 40-42 foot soundings. Investigation of reported 34-foot shoal sounding at 29°-04'05"N, 094°-13'54"W, revealed a least depth of 52.8 feet. ^{at the charted position} No trace of a 34-foot sounding was evident in this area. Other discrepancies with charted soundings ^{in the area} are as follows:

<u>Charted Sounding Position</u>	<u>Charted Depth</u>	<u>Acquired Survey Depth</u>
29°-05'-24"N 094°-16'-00"W	35'	40' 43'
29°-05'-54"N 094°-16'-18"W	38'	44' 48'
29°-05'-53"N 094°-16'-56"W	38'	45' 49'
29°-06'-14"N 094°-16'-06"W	40'	46' 48'

The above mentioned charted depth discrepancies originated from a reconnaissance survey conducted by United States Coast Guard in 1982.

See Attachment 6 for additional information.

See the Evaluation Report - section 7.

M. ADEQUACY OF SURVEY

See Attachment 6 for charting recommendations.

N. AIDS TO NAVIGATION - *See the Evaluation Report - section 7.*

This survey contains one floating aid to navigation, lighted bell buoy R"2", Fl.W.4 seconds. This Coast Guard maintained buoy marks the northern limit of the safety fairway, southwest of Heald Bank. The buoy is listed in the light list (#208) and conforms accurately with light list characteristics. Ships computed position for this aid is 29°-05'-07.3"N, 094°-13'-43.6"W.

O. STATISTICS

<u>Category</u>	<u>Vesno 9040</u>	<u>Vesno 9140</u>
Positions	163	393
NM of Soundings	43.7	121.3
Square Miles of Hydrography	3.3	9.2
Bottom Samples	12	12
T.D.C. Casts	-	1

P. MISCELLANEOUS

Twenty-four bottom samples were taken during this survey. Copies of oceanographic log sheet M are included in Appendix H.

Q. RECOMMENDATIONS

See Attachment 6 for charting recommendations.

R. AUTOMATED DATA PROCESSING - *All automated data processing was accomplished by the Electronic Data Processing Section, Hydrographic Surveys Branch, Atlantic Marine Center.*
~~Not Applicable.~~S. REFERENCE TO REPORTS

Supplemental data file contains ARGO station values, daily calibrations, Settlement and Squat data.

APPROVAL SHEET

RH-20-02-83

Field operations contributing to the accomplishment of this survey were conducted under my supervision with frequent personal checks of progress and adequacy. This report and field sheet have been closely reviewed. See Attachment 6 for charting recommendations.

Russell C. Arnold
Russell C. Arnold
LCDR, NOAA
Commanding Officer
NOAA Ships RUDE & HECK

B. FIELD OPERATIONS

Prevailing southeasterly winds of 20-plus knots finally moderated near the end of April, and good progress was made on survey work during this reporting period. OPR-K667-RU/HE-83 was divided into four work areas per project instructions, with field sheet numbers and titles as follows:

<u>Area 1 (Per Project Inst.)</u>	<u>Field Number</u>	<u>Field Title</u>
1	R/H-20-01-83	Approach to Calcasieu Pass
2	R/H-20-02-83	Heald Bank
3	R/H-20-03-83	South of Calcasieu Pass
4	R/H-20-04-83	South of Sabine Bank

Results from these surveys are summarized below:

~~Area 1, - R/H-20-01-83, Approach to Calcasieu Pass~~

~~This sheet involved wire drag investigation of 15 charted submerged piles east of the Calcasieu Pass Channel between Buoys R"32" and R"42". The ships contacted the U.S. Army Corps of Engineers and the Calcasieu Pass Pilots, both of whom claimed that the piles no longer existed. As no "hard copy" evidence could be obtained from either group, the ships conducted wire drag operations, clearing all of the piles within 2 feet of the bottom except for the first pile south of Buoy R"40". The ships either hung this pile or an obstruction of some sort at the same position on 2 occasions before clearing to an effective depth of 13½ feet (Note: divers were not available to investigate this hang). Drags between Buoys R"30" and R"40" were literally through the soft mud, evidence of which was the number of "TOB's" obtained by the testers.~~

~~Hydrography was run on the west side of the channel between Buoys "31" and "41" in the Discontinued Spoil Area, as indicated on Chart 11347.~~

~~Charting Recommendation~~

~~Remove the submerged piles from the charts of the area. Chart a submerged obstruction, cleared to 13½ feet at Latitude 29°43.42'N, Longitude 93°20.13'W (See attached Notice to Mariners on this item).~~

~~Soundings from the hydrography run in the Discontinued Spoil area west of the channel should also be charted. Hydrography revealed a gently sloping bottom from north to south, with depths very similar to those directly across the channel on the east side.~~

Area 2, R/H-20-02-83, Heald Bank

This sheet involved hydrographic investigation of two shoal areas in the Galveston Safety Fairway southwest of Heald Bank. The first area, a 34-foot shoal reported in 1981, 0.95 nautical mile south of Buoy R"2", was run at 180-meter spacing and later split to 90-meter spacing. No evidence of this shoal was found. Soundings obtained by the ships in this area agreed with soundings on Chart 11332 within 1-4 feet, reduced for predicted tides, settlement and squat, velocity of sound, and instrument corrections. RUDE & HECK soundings were always deeper than charted soundings. — See the Evaluation Report — section 7.

The second area, several soundings in the mid to upper 30-foot range, was run at 180-meter spacing. RUDE & HECK reduced soundings were again deeper than soundings obtained by the MT MITCHELL in 1978 (H-9775) in this area by 0-3 feet. No evidence of the reported shoaling was found. - *See the Evaluation Report. - sections 6. & 7.*

LORAN C comparisons were run by the ships while transiting between Galveston and Heald Bank, Galveston to Sabine Bank, Sabine Bank to Calcasieu Channel and Heald Bank to Sabine Bank. These comparisons show LORAN C fixes using W and X rates, plotting consistently to the northwest of ARGO positions by 0.15 to 0.40 nautical miles. Using the prescribed X and Y rates, there is good agreement between ARGO and LORAN C. - *No data of these comparisons were submitted.*

Charting Recommendation

The 34-foot reported at 29°04'N, 094°13'54"W, would be difficult to miss, as it would represent an 18-foot rise above the next shoalest charted sounding in the area. This command is confident that no such shoal exists. Remove this reported sounding from the charts. - *Concur - See the Evaluation Report - section 7.*

The area of soundings in the mid to upper 30-foot range was surveyed by the MT MITCHELL in 1978, and no such shoal was evident then. The RUDE and HECK confirmed the MT MITCHELL survey of this area. It is recommended that soundings from the MT MITCHELL's survey, which are slightly shoaler than RUDE & HECK soundings, be reapplied to the chart. - *Concur - See the Evaluation Report. - section 7.*

Area 3, R/H 20-03-83, South of Calcasieu Pass

~~This sheet involved hydrographic investigation of shoaling in the center of the Safety Fairway south of Calcasieu Pass. Main scheme hydrography was run at 180-meter spacing and split to 90-meter spacing. RUDE and HECK soundings on this sheet were 1-3 feet deeper than prior survey H-8738, which was conducted in 1963. The shoalest sounding obtained by the RUDE and HECK in the center of the Fairway was 42 feet.~~

~~Charting Recommendation~~

~~Prior survey H-8738 indicates shoals of 38 feet on the west side of the Fairway and 36 feet on the east side, with 40 feet in the middle. The RUDE and HECK get 40 feet on the west side, 38 feet on the east side, and 42 feet in the middle. The best water in this section of Fairway is still up the middle. Remove the 38 foot reported 1976 from the chart. Continue to chart soundings from H-8738 as they are shoaler than RUDE and HECK soundings.~~

~~Remove the platform at Latitude 29°22'47"N, Longitude 93°14'54"W. This platform no longer exists at that location.~~

Area 4, R/H 20-04-83, South of Sabine Bank

~~This sheet involved hydrographic investigation of reported shoaling in the Sabine Safety Fairway. Two spikes reported by the WHITING in 1982 were also investigated and side scanned. Basic hydrography was run at 180-meter spacing and then split to 90-meter spacing in the reported areas for the spikes and shoaling.~~

~~Appendix F~~

LIST OF STATIONS

PROJECT: K667

H-10111

~~RH-20-02-83~~

SIGNALS/STATIONS

4

~~H-23-TX-71, 1978~~

Source: ID NBR 1
 A.M.C. LAT 293513.603 ✓
 Operations LON 941717.965 ✓
 FREQ 1646.70 KHZ

FILE 1

~~CHAN, 1963~~

Source: ID NBR 2
 N.G.S. LAT 294556.168 ✓
 LON 932051.826 ✓
 FREQ 1646.70 KHZ

FILE 2

BOLIVAR POINT LIGHTHOUSE USE, 1900

~~BOLIVAR L.H.~~

Source: ID NBR 3
 N.G.S. LAT 292159.597 ✓
 LON 944600.263 ✓

FILE 3

GALVESTON BAY LOWER RANGE FRONT LIGHT, 1963

~~GALV. BAY LOWER
RGE FRONT LT.~~

Source: ID NBR 4
 N.G.S. LAT 292043.444 ✓
 LON 944727.340 ✓

FILE 4

GALVESTON COAST GUARD

~~GALV. C.G.~~

~~RADIO MAST, 1960~~

Source: ID NBR 5
 N.G.S. LAT 292001.985 ✓
 LON 944605.559 ✓

FILE 5

CHANNEL

~~HOUSTON SHIP CHAN.
OUTER RGE FRONT LT., 1963~~

Source: ID NBR 6
 N.G.S. LAT 292008.340 ✓
 LON 944611.100 ✓

FILE 6

GALVESTON ENTRANCE NORTH SIDE
DREDGING RANGE REAR DAY BEACON, 1963

~~ENT. N. SIDE
DREDGING RGE.~~

Source: ID NBR 7
 N.G.S. LAT 292215.653 ✓
 LON 944456.929 ✓

FILE 7

~~GALV. S. JETTY LT.~~

Not ID NBR 8
 Used LAT 291939.258
 LON 944132.887

FILE 8

~~Appendix G~~

ABSTRACT OF POSITIONS

ABSTRACT OF POSITIONS

VESNO: 9140

DAY	POSITIONS	CTRL	S1	M	S2	REMARKS
98	500-536	R/R	01	-	02	MAINScheme
108	537-564	"	"		"	"
115	565-712	"	"		"	"
116	713-745	"	"		"	MAINScheme
	746-768	"	"		"	CROSSLINES
	769-795	"	"		"	MAINScheme SPLITS
	796-880	"	"		"	MAINScheme
	881-886	"	"		"	BOTTOM SAMPLES
117	887-892	"	"		"	BOTTOM SAMPLES

* REJECTED POSITION: 629-626, 774

ABSTRACT OF POSITIONS

VESNO: 9040

DAY	POSITIONS	CTRL	S1	M	S2	REMARKS
97	1-12, 124	e/k	01	-	02	BOTTOM SAMPLES D.P. ON BUOY R "2"
98	¹⁰⁹ 13- 123	"	"		"	MAINSCHHEME
	110-123	"	"		"	CROSSLINE
108	124-162	"	"		"	MAINSCHHEME

* DUPLICATED POSITION - 124

~~Appendix I~~

LANDMARKS FOR CHARTS

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	NAME	ORIGINATOR
OBJECTS INSPECTED FROM SEAWARD		<input type="checkbox"/> PHOTO FIELD PARTY <input type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
POSITIONS DETERMINED AND/OR VERIFIED		FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		<input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'

(Consult Photogrammetric Instructions No. 64.)

OFFICE

I. OFFICE IDENTIFIED AND LOCATED OBJECTS

Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.

EXAMPLE: 75E(C)6042
8-12-75

FIELD

I. NEW POSITION DETERMINED OR VERIFIED

Enter the applicable data by symbols as follows:

F - Field	P - Photogrammetric
L - Located	Vis - Visually
V - Verified	
1 - Triangulation	5 - Field identified
2 - Traverse	6 - Theodolite
3 - Intersection	7 - Planetable
4 - Resection	8 - Sextant

A. Field positions* require entry of method of location and date of field work.

EXAMPLE: F-2-6-L
8-12-75

*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

FIELD (Cont'd)

B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.

EXAMPLE: P-8-V
8-12-75
74L(C)2982

II. TRIANGULATION STATION RECOVERED

When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.

EXAMPLE: Triang. Rec.
8-12-75

III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH

Enter 'V-Vis.' and date.

EXAMPLE: V-Vis.
8-12-75

**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

Special Reports
‡
Supplemental Data



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NOAA SHIPS RUDE & HECK
439 West York St.
Norfolk, VA 23510

May 7, 1983

To: Commander, Eighth Coast Guard District
Hale Boggs Federal Building
New Orleans, LA 70130

From: LCDR Russell C. Arnold
Commanding Officer

Subj: Notice to Mariners

Recent wire drag operations, conducted out of Cameron, LA, by the NOAA Ships RUDE and HECK revealed the existence of an obstruction outside the Calcasieu Channel. This obstruction, located about 120 yards SSE of Buoy R "40", plotted very close to the charted submerged pile in that area (Latitude $29^{\circ}43.42'N$, Longitude $93^{\circ}20.13'W$). General bottom depths in the vicinity of the obstruction were 18 feet, reduced for predicted tides. The obstruction was cleared to an effective depth of 14 feet, reduced for predicted tides.

Mariners operating outside the Calcasieu Channel should exercise caution in this area.

cc: MOA1
N/CG241

*Not within the limits of H-10111
- See the Evaluation Report - section 4.*





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

Marine Operations Atlantic
439 West York Street
Norfolk, Virginia 23510

December 9, 1982

MOA13/034
101-15

TO: MOA1 - Capt. R. L. Speer
FROM: MOA13 - Albert L. Pardue, Jr. *Albert L. Pardue, Jr.*
SUBJECT: RUDE/HECK ELECTRONIC SYSTEM PLANNING

Discussions with shipboard personnel indicate that during the first cruise the ship will be conducting a hydrographic survey. If this is true, it is requested that EEB be notified as to the electronic systems required for the project.

Systems such as

- Sounding (719, Ross, DSF6000N, ETC)
- Computer (PDP8, PDP11)
- XBT
- Printing
- Positioning (ARGO, Del Norte)
- Reversing Thermometer
- DATA Logging

may be required and would have to be moved from other NOAA Ships. Early planning will insure a successful project.

cc: C.O. RUDE/HECK
MOA131



equipped, staffed and trained to conduct and process wire drag surveys and item investigations. They are not equipped, staffed or trained to conduct and process hydrographic surveys.

The RUDE and HECK can accomplish this project using any of the scenarios outlined above. It will take a tremendous amount of effort on the part of the officer complement to do it. The ships are fortunate at present to have officers with strong hydrographic backgrounds aboard. Six months from now, that will not be the case. This Command would prefer to keep the collection and processing of the data as simple as possible, i.e., Scenario 1.



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
NOAA SHIPS RUDE & HECK
439 West York St.
Norfolk, VA 23510

December 20, 1982

To: Director, Atlantic Marine Center
ATTN: MOA1

From: LCDR Russell C. Arnold
Commanding Officer

Subj: Equipping RUDE & HECK for Hydrography

Project instructions for OPR-K667-RH-83, Calcasieu Pass, Heald Bank, Sabine Bank, Louisiana, require conducting basic hydrographic operations for which the ships are not properly equipped. It is estimated that about 1000 nautical miles of hydrography will need to be run to satisfy project requirements. There are several ways to equip the ships, depending on what type of end product is desired:

1. Data could be collected with the equipment that is presently on board. The survey would be recorded in sounding volumes, using Raytheon DE-719B fathometers and the ARGO positioning system. The final field sheet would display hand plotted position numbers and soundings, reduced for predicted tides.

In this case, the final product submitted by the ships would be sounding volumes and a hand plotted field sheet.

2. If data loggers and teletypes were added to the ships, sounding volumes could be eliminated, with the rest of the data collection process being the same as above.

In this case, the final product submitted by the ships would be annotated teletype printouts, paper punched tape, and a hand plotted field sheet.

3. Full-blown Hydroplot systems could be installed. Complete systems would be needed; no components are aboard at this time.

In this case, the final product would be annotated teletype printouts, paper punched tape and a machine plotted field sheet.

4. Portions of the Hydroplot system could perhaps be installed. The final product would depend upon which components were or were not installed. (e.g., the plotter).

This Command would like to think that the assignment of this hydrographic project to the RUDE & HECK is a one-time-only deal. These vessels are



~~Appendix B~~

~~REQUEST FOR SMOOTH TIDES~~

Approved Tide Note

February 23, 1984

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Marine Center: Atlantic Marine Center

OPR: K667

HYDROGRAPHIC SHEET: H-10111

see FE-244

Locality: Offshore Sabine Pass, Texas

Time Period: April 7 - May 6, 1983

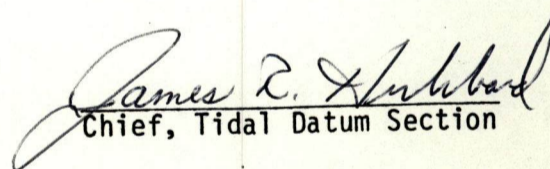
Tide Station Used: 877-0590 Sabine Pass, Texas

Plane Of Reference (Mean Lower Low Water): 4.2 ft.

Height Of Mean High Water Above Plane Of Reference: 1.8 ft.

Remarks: Recommende Zoning:

Apply -25 minute time correction and x1.04 range ratio.


Chief, Tidal Datum Section

~~Appendix C~~

GEOGRAPHIC NAMES LIST

HYDROGRAPHIC SURVEY STATISTICS

H-10111

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET		1	SMOOTH OVERLAYS: POS., ARC, EXCESS		3
DESCRIPTIVE REPORT		1	FIELD SHEETS AND OTHER OVERLAYS		3
DESCRIP-TION	DEPTH/POS RECORDS	HORIZ. CON1. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/SOURCE DOCUMENTS
ACCORDIAN FILES	1				
ENVELOPES					
VOLUMES					
CAHIERS					
BOXES				1	

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

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	EVALUATION	TOTALS
POSITIONS ON SHEET			444
POSITIONS REVISED	58	0	58
SOUNDINGS REVISED	135	0	135
CONTROL STATIONS REVISED	0	0	0
	TIME - HOURS		
	VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION	1	13	14
VERIFICATION OF CONTROL	2	0	2
VERIFICATION OF POSITIONS	13	0	13
VERIFICATION OF SOUNDINGS	64	40	104
VERIFICATION OF JUNCTIONS	0	0	0
APPLICATION OF PHOTOBATHYMETRY	0	0	0
SHORELINE APPLICATION/VERIFICATION	0	0	0
COMPILATION OF SMOOTH SHEET	5	8	13
COMPARISON WITH PRIOR SURVEYS AND CHARTS	0	9	9
EVALUATION OF SIDESCAN SONAR RECORDS	0	0	0
EVALUATION OF WIRE DRAGS AND SWEEPS	0	0	0
EVALUATION REPORT	0	26	26
OTHER	4	20	24
TOTALS	89	116	205

Pre-processing Examination by J. B. Wilson, C. D. Meador, and R. G. Roberson	Beginning Date July 5, 1983	Ending Date Sept. 15, 1983
Verification of Field Data by D. V. Mason, R. R. Hill, and M. B. Hickson	Time (Hours) 89	Ending Date April 16, 1984
Verification Check by R. R. Hill and M. B. Hickson	Time (Hours) 30	Ending Date April 20, 1984
Evaluation and Analysis by M. B. Hickson	Time (Hours) 116	Ending Date May 10, 1984
Inspector R. D. Sanocki	Time (Hours) 3	Ending Date May 9, 1984

ATLANTIC MARINE CENTER
EVALUATION REPORT

REGISTRY NO.: H-10111

FIELD NO.: R/H-20-2-83

Texas, Gulf of Mexico, Southwest of Heald Bank

SURVEYED: April 7 through April 27, 1983

SCALE: 1:20,000

PROJECT NO.: OPR-K667-RU/HE-83

SOUNDINGS: Raytheon DE-719B
Fathometer

CONTROL: ARGO (Range-Range)

Chief of PartyR. C. Arnold

Surveyed by.....D. D. Winter
.....J. W. Bailey
.....T. G. Callahan

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

1. INTRODUCTION

a. Unusual problems encountered during verification of this survey are addressed in section 4. of this report.

b. Necessary corrections and notes made by the evaluator to the Descriptive Report are denoted in red ink.

2. CONTROL AND SHORELINE

a. The source of control was not adequately described in section F. and Appendix F. of the Descriptive Report. Section 4. of this report addresses this deficiency.

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

3. HYDROGRAPHY

a. Soundings at crossings are in good agreement. Depths are within one foot.

b. The standard 60-foot depth curve is drawn on the smooth sheet. A supplemental brown curve (45-foot) was added to portray the shoal feature (the southwestern part of Heald Bank) crossing the safety fairway which was not apparent from the standard depth curve.

c. The development of the bottom configuration and investigation of least depths is considered adequate. It would have been desirable to have investigated the charted "Shoal PA (35 ft rep 1981)" at Latitude 29°04'18", Longitude 94°18'06".

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 with the following exceptions:

a. In reference to LCDR Arnold's letter of December 20, 1982 to the Director, Atlantic Marine Center (see the Supplemental Data section of the Descriptive Report), it is recognized that the vessels and personnel are not properly equipped to conduct hydrography. The effort involved in accomplishing this project is commendable. It is recommended that the RUDE and HECK not be assigned hydrographic projects in the future without being adequately equipped with a data acquisition and processing system.

b. Velocity correctors submitted were in error and were redone during verification.

c. TC/TI data submitted was in error and was redone during verification.

d. The differences identified with the three Raytheon DE-719B fathometers discussed in section D. of the Descriptive Report are unusual. During recomputation of correctors, only minor differences exist between fathometers #5497 and #5799. However, serious and unacceptable instrument error exists in fathometer #6212. Correctors computed and applied to data gathered with fathometer #6212 brought the hydrography into reasonable agreement with surrounding and crossing hydrography but the instrument error evident reasonably proves the unreliability of the data. This data is considered rejected and has been stripped from the digital files. A plot of this rejected data is included in the survey records for the purpose of showing that no significant shoals exist in the holiday. It is recommended that all three sounding systems be thoroughly investigated and repaired prior to conducting future hydrography.

e. No dangers to navigation were identified by the hydrographer and no report was submitted. A negative report was required. A Notice to Mariners is included with this survey of an obstruction approximately 62 miles from the area of the present survey. This Notice to Mariners does not satisfy the dangers to navigation report for the area of the present survey.

f. No field tide note was included in the Descriptive Report.

g. Control stations listed in Appendix F. of the Descriptive Report were corrected as necessary. The names listed on five stations were not as listed by N.G.S. The year of establishment was not provided for any of the stations. One station name was in error. The source was not provided for any of the stations.

h. Portions of Attachment 6. of the Descriptive Report contains information not relevant to this survey and should have been stricken from the report.

i. Fathogram quality is poor as sea conditions were 3 to 6 feet during times of hydrography which degraded the bottom trace and makes accurate interpretation difficult.

j. Bottom samples were not plotted on the final field sheet.

k. A statement on Loran C comparisons was made in Attachment 6. of the Descriptive Report but it was not evident that Loran C chart verification data was submitted as required by section 8.4 of the Project Instructions and AMC OORDER 35.

l. The Geographic Names List was corrected during Evaluation and Analysis.

5. JUNCTIONS

There are no junctions on this survey. All surveys common to this area are considered prior surveys. Prior surveys are adequately addressed under section 6. of this report.

6. COMPARISON WITH PRIOR SURVEYS

a. Hydrography

D-1 (1982)
Chart Letter 1391 (1980)
H-9775 (1978)
H-8737 (1962-63)
H-6251 (1937)

Reconnaissance hydrographic survey D-1 (1982) provided no plots for comparison and therefore no comparison was made. The narrative in the Descriptive Report of this area of investigation indicates findings similar and supportive of the present survey results.

Chart Letter 1391 (1980) is a reconnaissance hydrographic survey conducted by the U.S. Coast Guard. Prior depths range up to 11 feet shoaler than present hydrography. The soundings gained by this reconnaissance survey also range up to 10 feet shoaler than survey H-9775 (1978). Apparently, the soundings gained by this reconnaissance survey are in error. This may have been caused by a vessel draft error or an error in positioning by 50 or 100 microseconds in the Loran C 7980-X chain which would have placed the sounding vessel at the west or east end of Heald Bank. The combination of the present survey and H-9775 (1978) is sufficient to disprove the U.S. Coast Guard reconnaissance hydrography. It is recommended that this data be deleted from the chart and appropriate soundings from H-9775 (1978) be charted.

Hydrographic survey H-9775 (1978) is common to approximately the western half of the present survey. Present hydrography ranges from 0 to 3 feet deeper than prior soundings with no present soundings shoaler than prior hydrography. The deepening trend evident may be due to the withdrawal of gas and oil in the area. The shoalest prior sounding within the common area is 41 feet in Latitude 29°05'02", Longitude 94°16'10" where present depths are 43 feet.

Prior hydrographic survey H-8737 (1962-63) is common to approximately the eastern one-third of the present survey. Present hydrography ranges from 1 to 4 feet deeper than prior soundings with no present soundings shoaler than prior hydrography. The deepening trend evident may be due to the withdrawal of gas and oil in the area.

Prior hydrographic survey H-6251 (1937) is common to approximately the western two-thirds of the present survey. Present hydrography ranges from 1 to 4 feet deeper than prior soundings with no present soundings shoaler than prior hydrography. The deepening trend evident may be due to the withdrawal of gas and oil in the area.

The present hydrography is considered adequate only to supplement prior hydrography within the common area. The prior data is adequately charted and no additional hydrography is recommended for charting except for the hydrography charted from Chart Letter 1391 (1980) which is adequately addressed earlier in this section.

b. Wire Drag

H-9342 WD (1972)

Prior wire drag survey H-9342 WD (1972) is common to the majority of the present survey. This wire drag survey is unprocessed and no field A&D sheet was included in the survey records, therefore no comparison between present hydrography and prior field effective depths was accomplished. No hangs were encountered within the common area. A comparison will be made when H-9342 WD is processed.

7. COMPARISON WITH CHART 11332 (18th Edition, April 24, 1982)

a. Hydrography

The Charted hydrography originates with the previously discussed prior surveys and soundings from sources not readily ascertainable. The previously discussed prior surveys require no further consideration. Comparison of charted hydrography with the present survey is adequately accomplished under section 6. of this report for soundings which the source has been identified. In comparison of charted hydrography of unascertained sources the present hydrography ranges from 4 to 5 feet deeper than charted hydrography. It is recommended that these presently charted soundings be retained as charted. See attached chart section to the Evaluation Report identifying source unknown depths.

ajl
8/7/84

Revise hydro - unascertained
Retain unascertained hydro

The "Shoal PA (34 ft rep 1981)" charted in Latitude 29°04'06", Longitude 94°13'55" is in an area developed by the present survey and no evidence was found to indicate shoaling in the area. Present survey depths are 58 to 60 feet in this area. It is recommended that this shoal notation and symbol be removed from the chart.

The "Shoal PA (35 ft rep 1981)" charted in Latitude 29°04'18", Longitude 94°18'06" was not investigated by the present survey and should be retained as charted.

Section L. of the Descriptive Report discusses a reported 41-foot shoal sounding at Latitude 29°04'36", Longitude 94°15'09" which was investigated on the present survey. Neither the source nor the report of a 41-foot shoal sounding in the vicinity of this position could be found. Additionally, the development is centered on Latitude 29°04'36", Longitude 94°16'09", one minute of Longitude west of the reported position. No evidence of a shoal feature exists at the reported position. The area of this development covers where the southwestern end of Heald Bank crosses the safety fairway and present survey depths range from 42 to 53 feet. Both the reported position and the developed area are adequately charted and should remain as charted.

b. Aids to Navigation

Three fixed aids to navigation were used as calibration stations. These fixed aids are not within the Limits of the smooth sheet. Two floating aids were located by the present survey. Both buoys were used as lane check buoys. Heald Bank Lighted Bell Buoy "2" is plotted on the smooth sheet and was found approximately 100 meters north of its charted position. Galveston Bay Entrance Fairway Lighted Whistle Buoy "GA" is not within the limits of the smooth sheet and is not included in the survey's digital file and was found approximately 40 meters north of its charted position. All aids to navigation are adequately listed in the U.S. Coast Guard Light List, Volume II, 1983, and appear to adequately serve their intended purposes.

8. COMPLIANCE WITH PROJECT INSTRUCTIONS

This survey adequately complies with the intent of the Project Instructions OPR-K667-RU/HE-83 dated January 6, 1983 except as noted in this report.

9. ADDITIONAL WORK

This survey adequately serves the intended purpose except as noted in this report. Additional work may be desirable in the form of a complete hydrographic survey of the safety fairway, Heald Bank, along with an investigation of the charted "Shoal PA" noted in section 3.c. of this report.

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

INSPECTION REPORT
H-10111

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 complies with National Ocean Service requirements except as noted in the Evaluation Report. The survey records comply with NOS requirements except where noted in the Evaluation Report.

Inspected

R. D. Sanocki

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

David D. MacFarland, Jr.

David D. MacFarland, Jr., LCDR, NOAA
Chief, Hydrographic Surveys Branch

Approved May 11, 1984

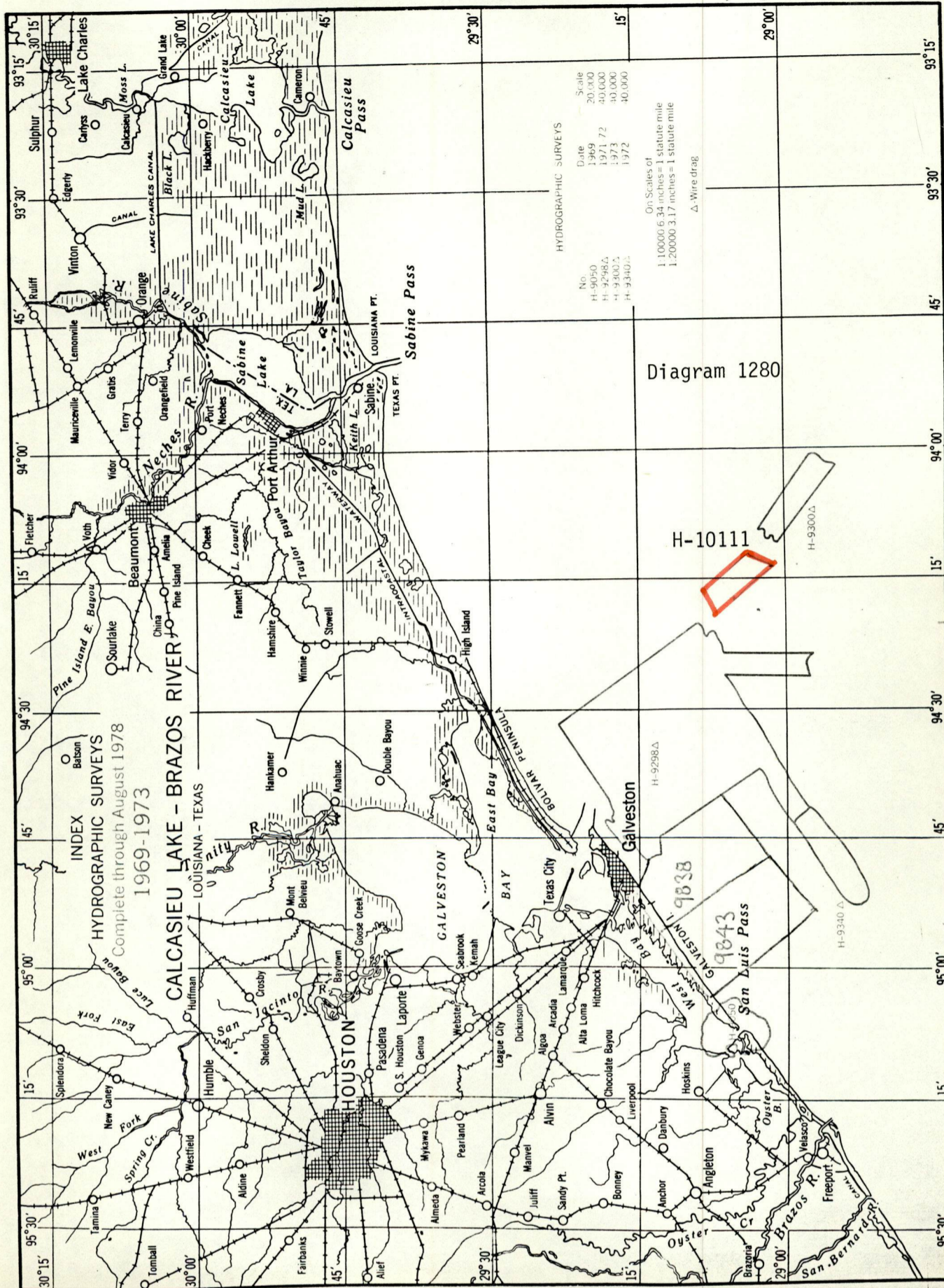
Wesley V. Hull

Wesley V. Hull, RADM, NOAA
Director, Atlantic Marine Center

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

National Ocean Survey
Rockville, Maryland

Hydrographic Index No. 89 G



HYDROGRAPHIC SURVEYS

No.	Date	Scale
H-90950	1969	20,000
H-92982	1971/72	40,000
H-93002	1973	40,000
H-93003	1972	40,000

On Scales of
1:100,000 6.34 inches = 1 statute mile
1:200,000 3.17 inches = 1 statute mile
Δ Wire drag

INDEX
HYDROGRAPHIC SURVEYS
Complete through August 1978
1969-1973

CALCASIEU LAKE - BRAZOS RIVER - TEXAS
LOUISIANA - TEXAS

Diagram 1280

H-10111

9838

9843

H-92988

H-93140

