6404

Form 504
Rev. April 1935

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

# DESCRIPTIVE REPORT

~~Topographic~~
*Hydrographic* } Sheet No. H-6404

State TEXAS

LOCALITY

GULF OF MEXICO

OFF MATAGORDA PENINSULA

*1938*

CHIEF OF PARTY

G. C. Mattison

U. S. GOVERNMENT PRINTING OFFICE

6404

Form 537
Ed. Dec. 1930

REG. NO.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

# HYDROGRAPHIC TITLE SHEET

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. 81 H6404 (1938)

REGISTER NO. H-6404 (1938)

State TEXAS

General locality GULF OF MEXICO

Locality OFF MATAGORDA PENINSULA

Scale 1:80,000 Date of survey June 10-July 29, 1938

Vessel HYDROGRAPHER

Chief of Party G. C. Mattison

Surveyed by L. P. Raynor, G. L. Anderson, P. C. Doran, E. B. Lewey, J. T. Jarman, C.W.Clark & G.W.Moore

Protracted by G. L. Anderson

Soundings penciled by G. L. Anderson

Soundings in fathoms feet Fathoms and sixths

Plane of reference Mean Low Water

Subdivision of wire dragged areas by

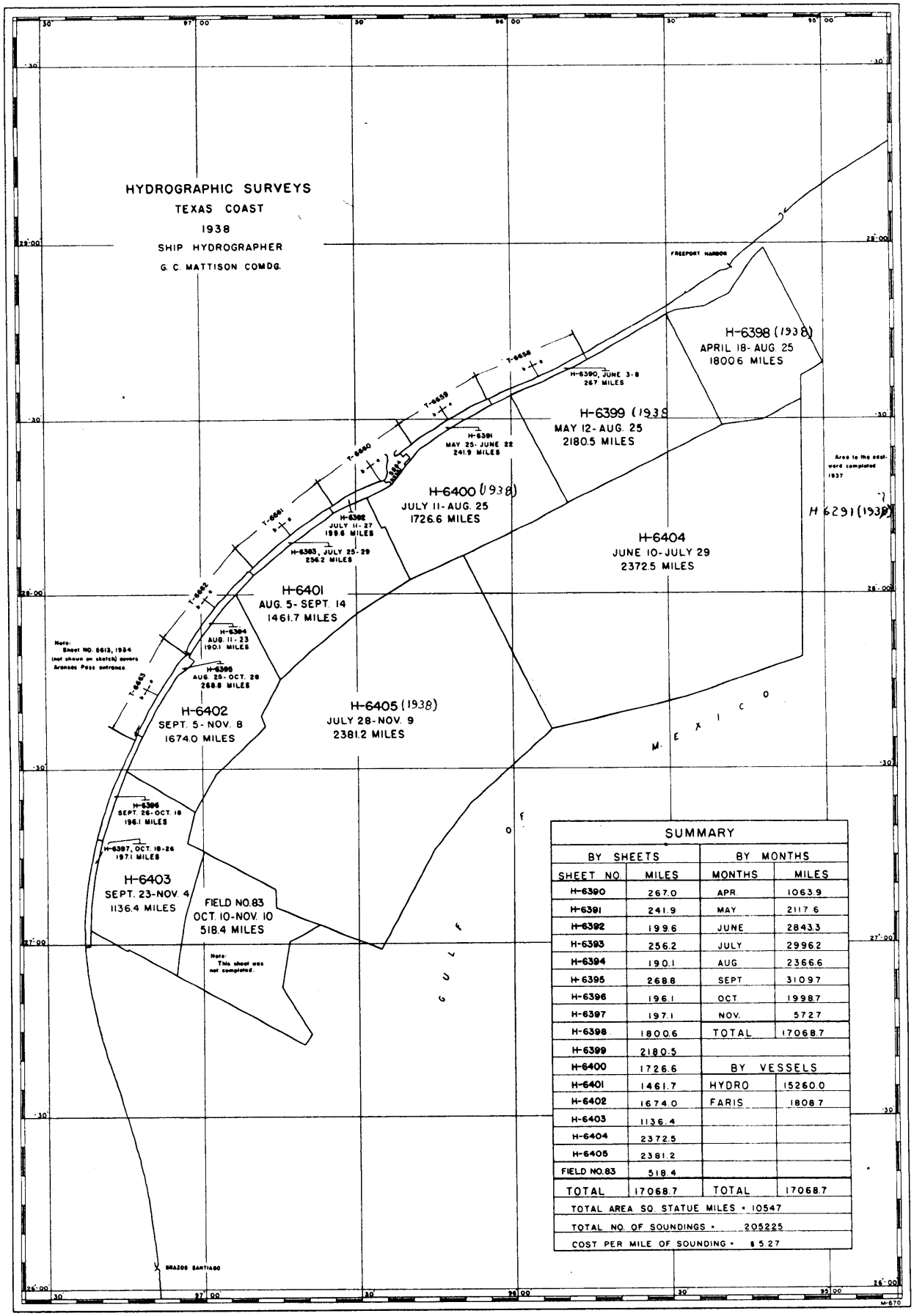
Inked by G C McGlasson

Verified by G C McGlasson

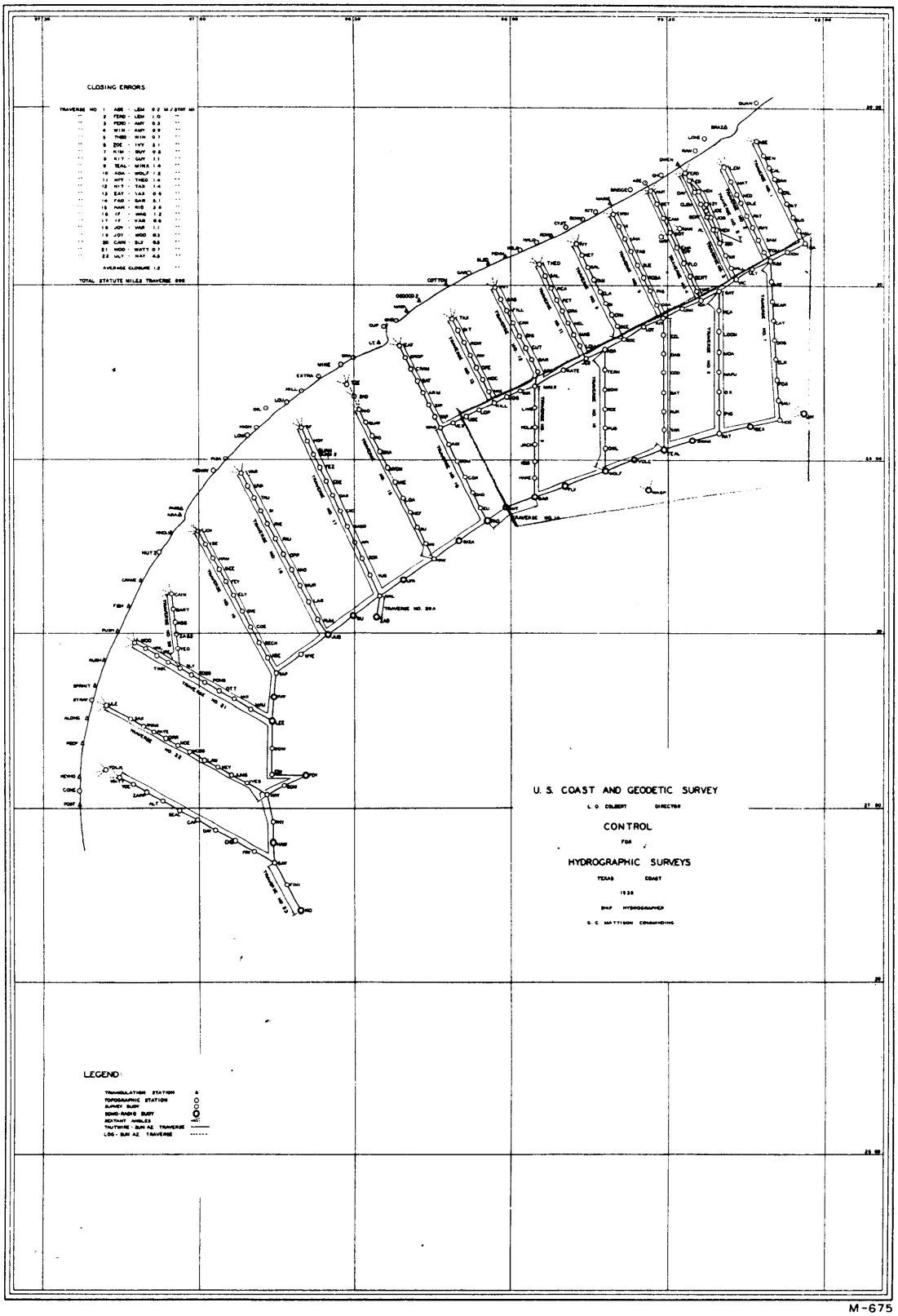
Instructions dated Feb. 17, 1937 Suppl. Feb. 23, 1938, 19

Remarks: Forwarded with this sheet are the following records: 11 Vols. Soundings, 1 Vol. Bomb Record, 1 Smooth Sheet, 1 Boat Sheet, 1 Descriptive Report including a set of tide curves.

U. S. GOVERNMENT PRINTING OFFICE




| SUMMARY | | | |
|---|---|---|---|
| BY SHEETS | | BY MONTHS | |
| SHEET NO. | MILES | MONTHS | MILES |
| H-6390 | 267.0 | APR. | 1063.9 |
| H-6391 | 241.9 | MAY | 2117.6 |
| H-6392 | 199.6 | JUNE | 2843.3 |
| H-6393 | 256.2 | JULY | 2996.2 |
| H-6394 | 190.1 | AUG. | 2366.6 |
| H-6395 | 268.8 | SEPT. | 3109.7 |
| H-6396 | 196.1 | OCT. | 1998.7 |
| H-6397 | 197.1 | NOV. | 572.7 |
| H-6398 | 1800.6 | TOTAL | 17068.7 |
| H-6399 | 2180.5 | | |
| H-6400 | 1726.6 | BY VESSELS | |
| H-6401 | 1461.7 | HYDRO | 15260.0 |
| H-6402 | 1674.0 | FARIS | 1808.7 |
| H-6403 | 1136.4 | | |
| H-6404 | 2372.5 | | |
| H-6405 | 2381.2 | | |
| FIELD NO. 83 | 518.4 | | |
| TOTAL | 17068.7 | TOTAL | 17068.7 |
| TOTAL AREA SQ. STATUE MILES = 10547 | | | |
| TOTAL NO. OF SOUNDINGS = 205225 | | | |
| COST PER MILE OF SOUNDING = $5.27 | | | |


CLOSING ERRORS
TRAVERSE NO. 1 ABE - LEM 0.2 M./STAT. MI.
2 FERD - LEM 1.0 "
3 FERD - HAY 0.2 "
4 WIN - AMY 0.9 "
5 THEO - WIN 0.7 "
6 ZOE - IVY 2.1 "
7 KIM - GUY 0.5 "
8 KIT - GUY 1.1 "
9 TEAL - WINA 1.6 "
10 ADA - WOLF 1.2 "
11 PITT - THEO 1.4 "
12 KIT - TAS 1.4 "
13 EAT - VAS 0.9 "
14 FAID - SAR 2.1 "
15 HAM - RIO 2.2 "
16 IF - WAG 1.2 "
17 IF - VAS 0.9 "
18 JON - VAR 1.1 "
19 JOY - WOO 0.3 "
20 CAIN - SLY 0.3 "
21 WOO - WATT 0.7 "
22 ULT - HAY 4.5 "
AVERAGE CLOSURE 1.2 "
TOTAL STATUTE MILES TRAVERSE 896
U. S. COAST AND GEODETIC SURVEY
L. O. COLBERT DIRECTOR
CONTROL
FOR
HYDROGRAPHIC SURVEYS
TEXAS COAST
1938
SHIP HYDROGRAPHER
G. C. MATTISON COMMANDING
LEGEND:
TRIANGULATION STATION
TOPOGRAPHIC STATION
SURVEY BUOY
SOND-RADIO BUOY
ASTRO AZIMUTH
TAUTWIRE - SUN AZ. TRAVERSE
LOG - SUN AZ. TRAVERSE

M-675

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SHEET No. H-6404 (1938)

A. DATE OF INSTRUCTIONS

This survey was made in accordance with instructions for Project No. 214 dated February 17, 1937 and supplemental instructions dated February 23, 1938.

B. LOCALITY AND LIMITS

This sheet covers an offshore survey extending from the limits of the 1:40,000 scale sheets out to the 100-fathom curve. The eastern limit of the sheet joins with surveys completed by the HYDROGRAPHER in 1937. The general locality and limits of this survey, together with its relation to adjacent sheets is shown on the attached plate (Hydrographic Surveys, Texas Coast).

C. SURVEY METHODS

1. Control:

The control for the hydrographic surveys on this sheet consists of a system of buoys located by taut wire and sun azimuth traverses. These traverses began near the shore at buoys located by sextant angles on shore control and extended out to approximately the 30-fathom curve. The positions of buoys in the traverses were computed. Buoys Jay and Wasp were located by sextant angles and their positions determined graphically on the smooth sheet.

The locations of buoys are described in detail in a separate

report "Location of Hydrographic Signals, Ship HYDROGRAPHER, 1938".

A list of all buoys giving their geographic positions is attached to the front of Volume 1, Soundings.

A sketch showing the buoy control system for the season is attached to this report.

The sounding lines from approximately the 32-fathom curve inshore were controlled by visual fixes. An attempt was made to control work in this area by R A R in an effort to save taut wire but the sounding lines were not sufficiently well controlled and additional buoys were later planted and located to furnish visual control. (See area between Longitude 95° 45' and 95° 50').

The offshore sounding lines extending from the 30- to the 100-fathom curves were controlled by R A R and dead reckoning using four sonic buoys located approximately along the 30-fathom curve. Offshore loops were started and ended close to the line of buoys and visual control carried as far offshore as possible. R A R, supplemented by dead reckoning was used to control the offshore part of each loop.

2. Plotting and Adjusting Offshore Sounding Lines.

In plotting the offshore lines the visual fixes were plotted as far out as they gave good control and the last fixed position held for beginning the R A R controlled line. The visual fixes were plotted at the end of the loop and the fixed position farthest offshore was held. The bomb arcs were then plotted on the sheet and also all additional location data such as single angles, gyro bearings, etc. If the bomb arcs and other location data gave definite positions which checked the time and course, they

were accepted as far out as good positions were obtained. From the last definite position it was necessary to carefully plot the dead reckoning on tracing paper out to the turn in the line and back to a good position on the return line. The dead reckoning loop was then adjusted to fit between the offshore position on each end of the loop. The positions in the adjusted loop were then examined to see if there were good bomb arcs which should be used. A further adjustment was then made to include those arcs which appeared to be correct.

In many of the offshore loops there were more than one set of arc intersections, making it diffucult to decide which set of intersections to use. In those cases the entire loop, from a sextant fix near the beginning to another sextant fix near the end of the line, was first adjusted by dead reckoning and then those bomb positions held which appeared to be correct. The dead reckoning was then re-adjusted between the positions which were held.

All offshore sounding lines were plotted and adjusted from all control data available and after the soundings had been plotted, the crossings and depth curves were found to be in good agreement and no further adjustments were necessary.

In general the R A R gave fair control out to about the 50-fathom curve. For positions outside the 50-fathom curve, seldom more than one RAR buoy gave the correct bomb distance. As the bomb arcs have been inked on the sheet the bomb positions which have been accepted are apparent. When arcs on intermediate positions do not coincide with the inked positions, the sounding line has been adjusted by dead reckoning between the best controlled positions.

The bomb distances were plotted in seconds using a scale graduated for plotting a variable number of meters per second. As no long bomb distances were obtained the arcs were plotted from the buoys. The sheet was checked at regular intervals and the distortion was found to be negligible. Distance arcs were drawn on the sheet with a hard pencil to be used when verifying if there is any distortion in the sheet at that time. A considerable amount of time was saved in plotting the sheet by using seconds instead of reducing the distance to meters and then converting it to the scale of the meter bar and having each operation checked. The bomb arcs have been inked in the same color as the circle at the buoy from which the distance arc is shown, however the names of all R A R buoys were lettered in blue before it was discovered that the buoy name should be in the same colors as the circle and the arcs from it. Instead of erasing the names and using the correct color of ink, the names have been underscored in the correct colors. (See Director's letter 80 LEF dated February 17, 1938).

3. Bomb Records:

The velocities used in the Bomb Record were obtained from the trip curves (see temperature and salinity data for season) using the mean depth between the Sonic buoys and the ship at each bomb position for determining the velocity. The mean depths which were scaled from the boatsheet are shown in red in the margin of the bomb record.

Bomb distances were verified from the tapes by the officer scaling tapes when there was doubt about a scaled value. While plott-

ing the smooth sheet those tapes were checked which the plotted position indicated was in error. Those bomb distances which plotted near the accepted positions were checked in red in the bomb and sounding records as they were plotted and the arcs inked on the smooth sheet. Those arcs which were evidently in error were rejected in the records and erased from the smooth sheet.

4. Gyro Compass Bearings:

Gyro Compass corrections were determined at frequent intervals by sun azimuth, comparison of gyro and sun azimuths on lines of buoys, and observing gyro bearings at the time of sextant fixes. The gyro corrections which apply to this sheet are given under "Deviation Table" in the front of each volume.

5. Soundings:

The soundings on this sheet were read on the Dorsey No. 1 and Dorsey No. 2 Fathometers. The No. 1 fathometer was used as far offshore as possible. Vertical casts for fathometer comparisons were obtained daily on coming to anchor at the close of the day's work. Occasional comparisons were obtained at other convenient times. Both fathometers were giving satisfactory results during the time of surveys on this sheet. The crossings on the visual controlled work inshore from the 32-fathom curve are good, the majority of them are one foot or less with a few as much as two feet. There is one crossing of two and one half feet near position 90 J. The soundings on the R A R controlled offshore work gave satisfactory crossings.

The index corrections for the Dorsey No. 2 fathometer were computed from all available comparisons and mean values used. By

using the computed mean values for the index correction on the No. 2 fathometer, it was noted that some slight discrepancies occur on changing to the No. 2 fathometer, particularly in depths between 42- and 45-fathoms. In a few cases the index correction in this depth has been adjusted to fit a local determination. These adjustments were changed in red in the sounding record.

Some soundings have been rejected because of difficult reading of the fathometer and erroneous soundings being recorded in the vicinity of positions 71 - 73 R and 92-93 R. Lat 27°54' Long 95°23' Lat 27°57' Long 95° 07'

(a) Fathometer Corrections:

An abstract of the fathometer corrections used are attached to this report. For computations of the fathometer corrections and velocities used in the Bomb Records see season's Temperature and Salinity data submitted in a separate report. Acc. No. S-1663

(b) Tide Reducers:

The standard automatic tide gage No. 268 on the U.S.E.D. Dock at Aransas Pass was used for the tide reducers. The tide on the sheet is assumed to occur one hour earlier and to have a fifty percent greater range than at the gage. The curves used in obtaining tide reducers are attached to this report.

(c) Depth Units:

Soundings were plotted in fathoms and sixths of fathoms to a depth of 100 fathoms and in whole fathoms in greater depths. (See Director's letter dated January 22, 1938, Reference 22 AB, 1995 HY 4).

6. Bottom Samples:

Bottom samples were obtained from the buoy anchors while

picking up buoys, at each ship anchorage, at temperature and salinity stations and while taking vertical casts.

D. DISCREPANCIES:

There are no unadjusted discrepancies on this sheet. The discrepancies noted were corrected and explanatory notes made in the sounding records. The adjustments of the offshore sounding lines are explained under Surveying Methods, Plotting and Adjusting. (C 2).

E. DANGERS, CHANNELS AND ANCHORAGES:

This sheet covers an offshore survey with no dangers to navigation. The entire area is navigable and anchorage is good wherever the depth permits.

F. FISHING GROUND:

While working in the locality fishing boats were seen fishing in the vicinity of Latitude 28° 30' Longitude 95° 07.5'. This area was closely developed and no shoals found, however the depths were found to be deeper than the surrounding area. The maximum depth found was 19-4/6 (not inked) fathoms and the least depth 17-5/6 fathoms. A small fishing buoy located within the area is shown on the smooth sheet.

G. COMPARISON WITH PREVIOUS SURVEYS:

This sheet covers a part of the Gulf in which there have been very little previous surveys. Three sounding lines shown on Sheet No. 1350 (1875-77) cross this sheet. These soundings agree closely ~~with~~ with the present survey except for three adjacent soundings

on the line crossing the southwest corner of the sheet. These soundings are as follows:

| Chart soundings | Correct soundings | Latitude | Longitude |
|---|---|---|---|
| 38 fathoms | 49 fathoms | 27° 43' | 95° 57' |
| 52 " | 69 " | 27 40 | 95 54 |
| 78 " | 130 " | 27 36 | 95 50 |

The above soundings are incorrect and should be expunged from the chart.

The old soundings which appear on the chart and are not shown on any of this bureau's hydrographic sheets are all in error and they should be expunged from the chart. A list of these soundings follow:

| Chart sounding | Correct sounding | Latitude | Longitude |
|---|---|---|---|
| 69 fathoms | 140 fathoms | 27° 38.5' | 95° 43' |
| 17 fathoms | 21-4/6" | 28° 07' | 95° 47' |
| 20 " | 41 " | 27 46 | 95 41 |
| 65 " | 140 " | 27 43.5 | 95 26 |
| 53 " | 95 " | 27 42.5 | 95 34 |
| 75 " | 80 " | 27 48 | 95 21 |
| 17 " | 20 " | 28 12 | 95 40.5 |
| 22 " | 21-4/6" | 28 09 | 95 40.5 |
| 18 " | 18-4/6" | 28 14.5 | 95 39 |
| 17 " | 17-5/6" | 28 17.5 | 95 34.5 |
| 17 " | 16-2/6" | 28 22 | 95 29 |

The last four soundings are in fair agreement with the present survey but as this area is covered by a new survey these soundings are not needed.

H. HYDROGRAPHIC NAMES:

This is an offshore sheet in the Gulf of Mexico and no geographic names apply to this area.

Respectfully submitted,

George L. Anderson,
H.& G.Engineer.

APPROVED:

G. C. Mattison,
Commanding HYDROGRAPHER.

# S T A T I S T I C S

| | |
|---|---|
| Statute miles of sounding line | 2372 |
| Number of positions | 2182 |
| Number of soundings | 25440 |
| Number of bomb positions | 418 |
| Number of sounding volumes | 11 |
| Number of bomb records | 1 |
| Control buoys used including sonics | 69 |
| Sonic buoys used | 10 |
| Area, square statute miles | 2754 |

DEPARTMENT OF COMMERCE

OFFICE OF THE DIRECTOR — U. S. COAST AND GEODETIC SURVEY

WASHINGTON

30-McC

October 20, 1938.

To: Commanding Officer,
U.S. C. & G. S. S. HYDROGRAPHER,
P. O. Box 565,
Galveston, Texas.

From: The Director,
U. S. Coast and Geodetic Survey.

Subject: Tide Data, Texas.

Further reference is made to your letter of September 24, 1938, requesting data for the reduction of soundings off the coast of Texas.

In view of the fact that tide records could not be obtained by use of the fathometer and that no outside tide stations were successfully maintained except for short intervals, it will be necessary to rely on the records of the Aransas Pass station for tide reducers. Hourly heights for this station for the period April 24-August 2, 1938, have been tabulated in this office and are inclosed herewith. The tabulated heights are referred to the zero of the tide staff, which is 2.2 feet below mean low water.

For the hydrographic work of the previous season the tides offshore were assumed to occur one hour earlier and with a range 50% greater than the tides at our primary station in Galveston Harbor. Since the records show the tide at Aransas Pass to be practically the same as at the Galveston primary station, the same allowances for time and range can be assumed to apply to the Aransas Pass records in obtaining tide reducers for this season's work.

(s) L. O. Colbert,
Director.

C O P Y

C O P Y

FATHOMETER CORRECTIONS
Sheet H-6404

| T.& S.corr. | Depths in fathoms and feet | | | |
|---|---|---|---|---|
| feet | June 3-14 | June 17-29 | July 5-16 | July 19-30 |
| +1.2 | 12-3 | 10-0 | 9-3 | 9-2.5 |
| +1.3 | 13-2 | 10-4 | 10-0.5 | 10-0.5 |
| +1.4 | 14-1.5 | 11-2 | 10-4 | 10-4.5 |
| +1.5 | 15-0 | 12-0 | 11-2 | 11-2 |
| +1.6 | 15-5 | 12-3.5 | 12-0 | 12-0.5 |
| +1.7 | 16-4.5 | 13-1 | 12-3.5 | 12-4.5 |
| +1.8 | 17-3.5 | 13-5.5 | 13-2 | 13-2.5 |
| +1.9 | 18-2.5 | 14-3.5 | 14-0 | 14-1 |
| +2.0 | 19-2 | 15-2 | 14-4 | 14-5.5 |
| +2.1 | 20-1 | 16-0 | 15-2 | 15-4 |
| +2.2 | 21-0 | 16-5 | 16-0 | 16-2.5 |
| +2.3 | 22-0 | 17-3 | 16-3.5 | 17-1 |
| +2.4 | | 18-2 | 17-2 | 17-5.5 |
| +2.5 | 25-3 | 19-0.5 | 18-0 | 18-3.5 |
| +2.6 | | 19-5 | 18-4 | 19-2.5 |
| +2.7 | | 20-4 | 19-2.5 | 20-0.5 |
| +2.8 | | 21-3 | 20-1 | 20-5 |
| +2.9 | | | 20-5.5 | |
| +3.0 | 28-2 | 25-2.5 | 23-3 | 24-0 |
| +3.5 | 31-0 | 30-3 | 27-5 | 27-4 |
| +4.0 | 33-3 | 33-1 | 32-0 | 31-1.5 |
| +4.5 | 36-0 | 35-2.5 | 34-3 | 34-5 |
| +5.0 | 38-4 | 38-3 | 39-3 | 38-3 |
| +5.5 | 42-0 | 42-0 | 45-2 | 42-0 |
| +6.0 | | | 53-0 | |
| +7.0 | | | 66-3 | |
| +8.0 | | | 82-0 | |
| +9.0 | | | 103-0 | |
| +10.0 | | | 162-0 | |
| + 9.0 | | | 185-0 | |

For computations, see seasons temperature and salinity data.

FATHOMETER CORRECTIONS
Sheet H-6404

| 1938 | Day | I ft. | D ft. | S ft. | IDS(D1) ft. | IDS(D20) fm-ft. | IDS(D2T) fm-ft. |
|---|---|---|---|---|---|---|---|
| June 10 | A | -1.4 | +0.3 | +0.8 | -0.3 | -1-4.3 | +3-5.7 |
| 11 | B | -1.4 | +0.2 | +0.8 | -0.4 | -1-4.4 | +3-5.6 |
| 12 | C | -1.4 | +0.2 | +0.8 | -0.4 | -1-4.4 | +3-5.6 |
| 13 | D | -1.4 | +0.1 | +0.8 | -0.5 | -1-4.5 | +3-5.5 |
| 18 | E | -1.4 | +0.6 | +0.8 | 0.0 | -1-4.0 | +4-0.0 |
| 19 | F | -1.4 | +0.5 | +0.8 | -0.1 | -1-4.1 | +3-5.9 |
| 20 | G | -1.4 | +0.4 | +0.8 | -0.2 | -1-4.2 | +3-5.8 |
| 21 | H | -1.4 | +0.4 | +0.8 | -0.2 | -1-4.2 | +3-5.8 |
| 22 | J | -1.4 | +0.3 | +0.8 | -0.3 | -1-4.3 | +3-5.7 |
| 23 | K | -1.4 | +0.3 | +0.8 | -0.3 | -1-4.3 | +3-5.7 |
| 24 | L | -1.4 | +0.2 | +0.8 | -0.4 | -1-4.4 | +3-5.6 |
| 25 | M | -1.4 | +0.2 | +0.8 | -0.4 | -1-4.4 | +3-5.6 |
| 26 | N | -1.4 | +0.1 | +0.8 | -0.5 | -1-4.5 | +3-5.5 |
| 27 | P | -1.4 | +0.1 | +0.8 | -0.5 | -1-4.5 | +3-5.5 |
| 28 | Q | -1.4 | 0.0 | +0.8 | -0.6 | -1-4.6 | +3-5.4 |
| July 6 | R | -1.4 | +1.0 | +0.8 | +0.4 | -1-3.6 | +4-0.4 |
| 7 | S | -1.4 | +0.9 | +0.8 | +0.3 | -1-3.7<br>+0.3 | +4-0.3 |
| 8 | T | -1.4 | +0.8 | +0.8 | +0.2 | +0.2 | +4-0.2 |
| 9 | U | -1.4 | +0.8 | +0.8 | +0.2 | +0.2 | +4-0.2 |
| 10 | V | -1.4 | +0.7 | +0.8 | +0.1 | +0.1 | +4-0.1 |
| 11 | W | -1.4 | +0.6 | +0.8 | 0.0 | 0.0 | +4-0.0 |
| 29 | X | -1.4 | +0.1 | +0.8 | -0.5 | -0.5 | +3-5.5 |

For computations, see seasons temperature and salinity data.

VELOCITIES
Sheet H-6404

| Velocity meters/sec. | Depth in fathoms | | | |
|---|---|---|---|---|
| | June 3-14 | June 17-29 | July 5-16 | July 19-30 |
| 1531 | | | | 27-30 |
| 1530 | | | | 30-34 |
| 1529 | | | | 34-37 |
| 1528 | 20-32 | | 29-32 | 37-39 |
| 1527 | 32-39 | | 32-34 | 39-41 |
| 1526 | 39-42 | 26-36 | 34-37 | 41-44 |
| 1525 | 42-45 | 36-43 | 37-40 | 44-46 |
| 1524 | 45-48 | 43-47 | 40-43 | 46-48 |
| 1523 | 48-50 | 47-50 | 43-46 | 48-50 |
| 1522 | 50-53 | 50-53 | 46-50 | 50-53 |
| 1521 | 53-56 | 53-56 | 50-53 | 53-56 |
| 1520 | 56-59 | 56-59 | 53-57 | 56-59 |
| 1519 | 59-62 | 59-62 | 57-62 | 59-62 |
| 1518 | 62-66 | 62-66 | 62-66 | 62-66 |
| 1517 | 66-70 | 66-70 | 66-70 | 66-70 |

These velocities were scaled from the sheet of mean velocity curves, trips no. 5-18 which is attached to the seasons temperature and salinity data.

C
GTR

DEPARTMENT OF COMMERCE

OFFICE OF THE DIRECTOR — U. S. COAST AND GEODETIC SURVEY

80-LEF — WASHINGTON

February 17, 1938.

To: Commanding Officer,
U. S. Coast and Geodetic Survey
Ship HYDROGRAPHER,
Galveston, Texas.

From: The Acting Director,
U. S. Coast and Geodetic Survey.

Subject: Plotting R.A.R. sheets.

After carefully considering your 1936 practice in the plotting of R.A.R. sheets (that is, the omission of distance arcs and position intersection arcs), this office is of the opinion that certain distinct advantages accrue from showing such information on the final sheet.

You will, therefore, be guided by the following instructions relative to the plotting of R.A.R. smooth sheets:

1. Distance arcs shall be drawn with black pencil and shall not be inked. It will be necessary to use a fairly hard pencil for this purpose in order that excessive smudging will not take place while plotting the survey. The appropriate station names should be penciled along the various arcs as frequently as needed for identification as well as the distances in meters or times in seconds, whichever the case may be.

2. The station symbols and names shall be inked; preferably using a different color for each station occurring on any one sheet. Where necessary to duplicate colors because of the large number of stations, stations given the same color should be selected with a view to eliminating confusion in so far as possible.

3. Position intersection arcs shall be inked in the color of their respective stations.

4. On your 1937 R.A.R. surveys which may have been smooth plotted without showing distances and intersection arcs, the preliminary aluminum mounted sheets should be retained until the surveys have been reviewed in this office.

(s) J. H. Hawley,
Acting Director.

C O P Y

C O P Y

POST-OFFICE ADDRESS:

TELEGRAPH ADDRESS: U. S. Coast and Geodetic Survey Ship HYDROGRAPHER,
Box 565, Galveston, Texas.

EXPRESS ADDRESS:

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

C O P Y

March 9, 1939.

To: The Director,
Coast and Geodetic Survey,
Washington, D. C.

C O P Y

From: Commanding Officer,
Coast and Geodetic Survey
Ship HYDROGRAPHER.

Subject: Depth Units and Sounding Corrections.

Reference: Circular letter 22-AB, 293, date August 24, 1938.

After a study of the fathometer corrections used during the previous season on the HYDROGRAPHER and considering the recommendations contained in the above reference and attached graph the following units were used for correcting the fathometer sounding obtained during the 1938 season:

Tenths of feet to 20-4/6 fathoms
Half feet to 42 fathoms
Feet beyond 42 fathoms

Some difficulty was experienced in the operation of the fathometers on the HYDROGRAPHER during the latter part of the 1938 season. When the operation of the fathometers are normal it is believed that the correction units stated above are about right.

While computing and entering the different fathometer corrections the question arose whether to follow the units specified in paragraph 135 of the Hydrographic Manual in entering each individual correction. The method used on this vessel in reducing the 1938 season records was to compute and enter individual corrections to the nearest unit and after all corrections were entered in the sounding record, they were combined and then paragraph 135 of the Hydrographic Manual followed in making the total correction to the sounding.

As an example in entering in integral feet the tide correction of -0.5 to 0.5 feet was entered as 0.0 feet and 0.5 to 1.5 feet was intered as 1.0 feet. When combining all corrections to the sounding and the sounding is reduced in integral feet 0.8 to 1.7 feet is called 1.0 foot.

G. C. Mattison,
Commanding HYDROGRAPHER.

GTR

22-AB
1995 HY 4

Washington

January 22, 1938.

To: The Commanding Officer,
U.S.C.& G.S.Ship HYDROGRAPHER,
P. O. Box 565,
Galveston, Texas.

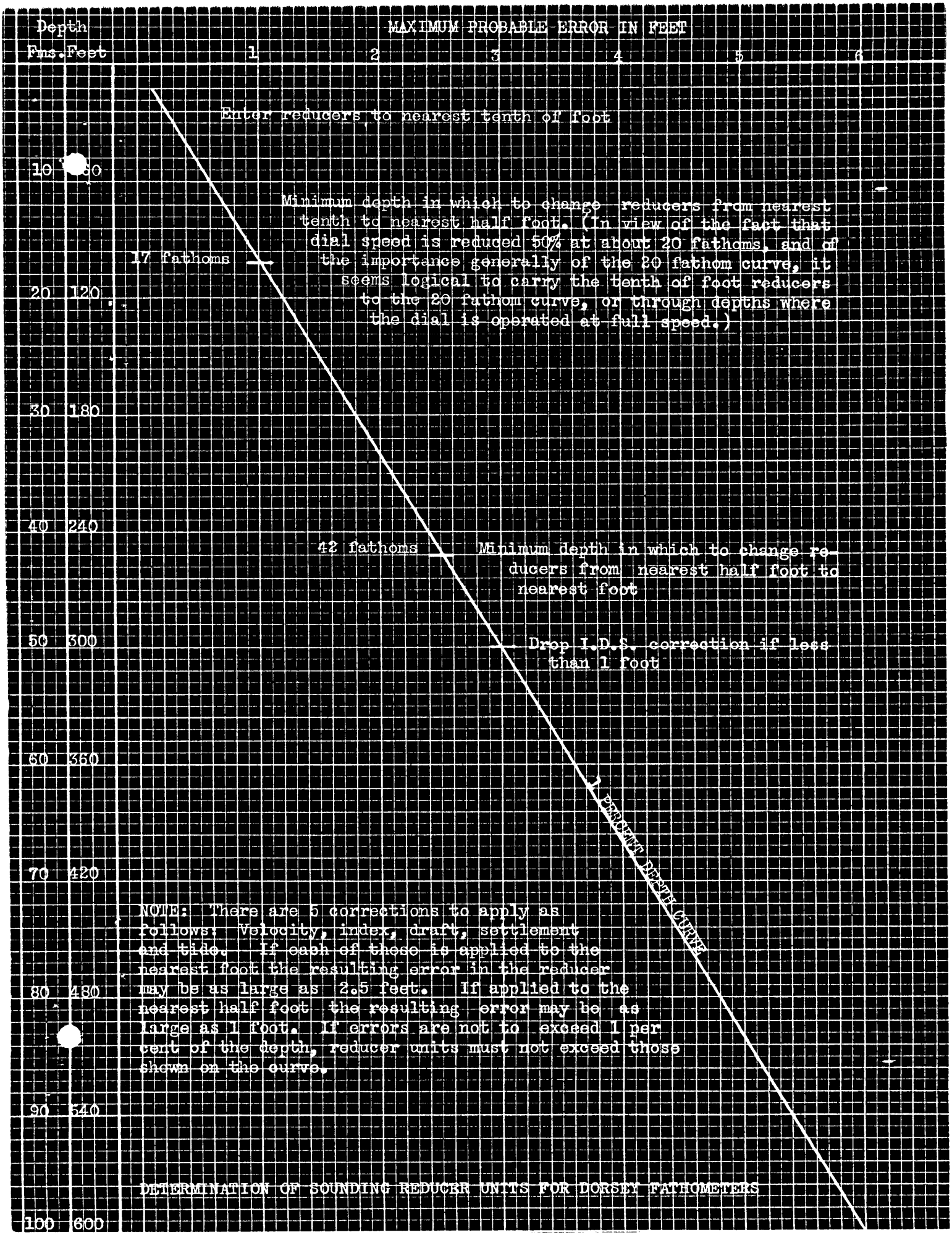
From: The Acting Director,
U. S. Coast and Geodetic Survey.

Subject: Depth Units for Offshore Surveys.

Referring to your letter of January 13, 1938, you will please pencil the soundings on your offshore sheets in fathoms and sixths of fathoms, with the denominator of the fraction omitted. In other words, the method will be the same as you have used on your boat sheets, with the addition of the fraction bar beneath the number of feet in excess of the whole number of fathoms. This method of plotting the soundings shall be continued offshore to depths where, because of lack of accuracy of the fathometer, the fraction becomes a meaningless refinement.

For the reason stated in the last paragraph of your letter, it is desired that the soundings on hydrographic sheet Field No. 84 be plotted in feet.

(s) J. H. Hawley,
Acting Director.


Depth
Fms. Feet
MAXIMUM PROBABLE ERROR IN FEET
1
2
3
4
5
6
Enter reducers to nearest tenth of foot
10 60
20 120
30 180
40 240
50 300
60 360
70 420
80 480
90 540
100 600
17 fathoms
Minimum depth in which to change reducers from nearest tenth to nearest half foot. (In view of the fact that dial speed is reduced 50% at about 20 fathoms, and of the importance generally of the 20 fathom curve, it seems logical to carry the tenth of foot reducers to the 20 fathom curve, or through depths where the dial is operated at full speed.)
42 fathoms
Minimum depth in which to change reducers from nearest half foot to nearest foot
Drop I.D.S. correction if less than 1 foot
1 PERCENT DEPTH CURVE
NOTE: There are 5 corrections to apply as follows: Velocity, index, draft, settlement and tide. If each of these is applied to the nearest foot the resulting error in the reducer may be as large as 2.5 feet. If applied to the nearest half foot the resulting error may be as large as 1 foot. If errors are not to exceed 1 per cent of the depth, reducer units must not exceed those shown on the curve.
DETERMINATION OF SOUNDING REDUCER UNITS FOR DORSEY FATHOMETERS

APPROVAL OF RECORDS

SHEET NO. H-6404

The chief of party kept in close touch with the field and office work on this sheet, and the sheet and accompanying records are approved.

It is believed that the discrepancies between the soundings on the sheet and those on the chart are due to errors in the charted positions. It is noted that the 100 fathom curve should be much further inshore than charted, and a corresponding shift of the soundings in the vicinity would practically eliminate the discrepancies.

Several fishermen were consulted as to the existence of shoals indicated by the chart, and they all stated that they did not exist. As these same fishermen know of all offshore shoals found by this party during the season, and told of their methods used in searching for the charted shoals, it is quite certain that the shoals do not exist in the charted positions.

These are not "shoals" but simply soundings out of position. J.A.M.

Attention is called to the indentation in the 100 fathom curve at approximately longitude 95° 40'. This indentation affects all depth curves between 50 and 100 fathoms, and indicates a possible offshore valley. It is expected that this indication will be further developed during the coming season.

G. C. Mattison

G. C. Mattison,
Chief of Party.

Lat 27° 44'
Long 95° 32'

It is recommended that the soundings between 49 and 50 Q. be rejected. They have been left in the records and on the sheet, but an inspection of adjacent lines will indicate a different slope. The fathometer was giving trouble at the time, and it is evident a stray was accepted as the sounding

Rejected. J.A.M.

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. H6404

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

| | |
|---|---|
| Number of positions on sheet | 2182 |
| Number of positions checked | 0 |
| Number of positions revised | 0 |
| Number of soundings recorded | 25,440 |
| Number of soundings revised | 132 |
| Number of soundings erroneously spaced | 0 |
| Number of signals erroneously plotted or transferred | 0 |

Date: 11 Dec, 1939

Verification by G.C. McGlasson Time: 11 days 4 hours 81 hrs

Review by J.A. McCormick 12/14/39 Time: 8 hr.

2629

HYDROGRAPHIC SURVEY NO. H6404

Smooth Sheet Yes

Boat Sheet Yes

Records; Sounding 11 Vols., Wire Drag 0 Vols., Bomb One Vols.

Descriptive Report Yes

Title Sheet Yes

List of Signals Vol.#1

Landmarks for Charts (Form 567) ---

Statistics See D.R.

Approved by Chief of Party Yes

Recoverable Station Cards (Form 524) ---

Special Chart for Lighthouse Service (Circular Nov.30, 1933) ---

Hydrography: Total Days 22 ; Last Date July 29, 1938

Remarks

3776

| | Remarks | Decisions |
|---|---|---|
| 1 | For Title Only | |
| 2 | " " " | |
| 3 | Location of Tide Gage - off limit of survey | File No. 278 970 |
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| M 234 | | |

GEOGRAPHIC NAMES

Survey No. H-6404

| Name on Survey | On Chart No. 1117 A, | On previous survey No. B, | On U. S. quadrangle Maps C, | From local information D | On local Maps E | P. O. Guide or Map F | Rand McNally Atlas G | U. S. Light List H | K | |
|---|---|---|---|---|---|---|---|---|---|---|
| Matagorda Pen. | ✓ | | | | | | | | | 1 |
| Gulf of Mexico | | | | | | | | | | 2 |
| Aransas Pass | ✓ | | | | | | | | | 3 |
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Names underlined in red approved by [illegible] on 3/30/39

M 234

FORM M-238

# MEMORANDUM

# IMMEDIATE ATTENTION

SURVEY
DESCRIPTIVE REPORT } No. H -6404
PHOTOSTAT OF } No. T

received Mar. 20, 1939
registered Mar. 21, 1939
verified
reviewed
approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

| ROUTE | | Initial | Attention called to |
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| 20 | | | |
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| 26 | | | |
| 30 | | | |
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RETURN TO

| | |
|---|---|
| 82 | T. E. Reed |

HBR

RAC

Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Rev. June 1937

# TIDE NOTE FOR HYDROGRAPHIC SHEET

May 12, 1939

Division of Hydrography and Topography:

✓ Division of Charts: Attention: Mr. E. P. Ellis

Plane of reference approved in
11 volumes of sounding records for

HYDROGRAPHIC SHEET 6404

Locality Off Matagorda Peninsula, Gulf of Mexico

Chief of Party: G. C. Mattison in 1938
Plane of reference is mean low water reading
2.2 ft. on tide staff at Port Aransas
5.0 ft. below B. M. 1

Offshore the tide was assumed to occur one hour earlier and to have 50 percent greater range.

Height of mean high water above plane of reference at Port Aransas is 1.1 ft.

Condition of records satisfactory except as noted below:

Harris

Acting Chief, Division of Tides and Currents.

U. S. GOVERNMENT PRINTING OFFICE 154327

11 December, 1939.

# Report on H 6404
## Verifying and Inking

1. Shoreline and Signals.

This is an offshore survey and no shoreline is shown. The signals consist of a system of buoys located by taut wire and sun azimuth traverses. ✓

2. Depth Curves.

The usual depth curves may be satisfactorily drawn within the limits of the survey. More over the 30 and 40 fathom depth curves were drawn in pencil. ✓

3. Sounding Line Crossings.

Excellent. ✓

4. Junctions with Contemporary Surveys.

Junctions with H 6398 a (1938), H 6399 (1938), H 6400 (1938) on the north and H 6291 (1937) on the east are ✓ satisfactory. The junction on the west with H 6405 (1938) will be made when that sheet is verified and inked.

5 Condition of Survey.

Excellent. ✓

6 Aids to Navigation.

There are no floating aids to navigation shown on the survey except one fishing buoy. ✓

IN REPLY ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY
AND NOT THE SIGNER OF THIS LETTER

AND REFER TO No. 22-AB
293

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
WASHINGTON

August 24, 1938.

To: Chiefs of Hydrographic Parties.

From: The Director,
U. S. Coast and Geodetic Survey.

Subject: Depth Units and Sounding Corrections.

The marked increase in the accuracy with which soundings can be obtained with modern apparatus, especially the Dorsey Fathometers, makes it desirable that previous requirements with respect to depth units and sounding corrections be modified to take advantage of this accuracy. Some field parties in recognition of the need for such modification of previous requirements have experimented with various methods of carrying the accuracy of the Dorsey Fathometer No. 1 to the smooth sheet.

The usual approach in these experiments is to enter the several corrections, which make up the sounding reducer, in such units that their combination furnishes a reducer fully commensurate with the accuracy of which the sounding apparatus is capable. It seems apparent that with the Dorsey Fathometers it will be necessary to enter all corrections in tenths of feet up to depths of at least 17 fathoms.

It is desired to standardize the reduction of soundings for the more modern sounding apparatus as soon as practicable. Each chief of party engaged on hydrography will therefore give this subject careful thought during the preparation of this season's field records, and will transmit to this office, not later than March 1, 1939, such opinions and recommendations as are in his judgment applicable.

L. O. Colbert

Director.

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 6404 (1938) FIELD NO. 81

Off Matagorda Pennsula, Gulf of Mexico, Texas
Surveyed in June-July, 1938, Scale 1:80,000
Instructions dated Feb. 17, 1937; Feb. 23, 1938 (HYDROGRAPHER)

Dorsey Fathometer Soundings. 3 Point fixes on buoy signals. R. A. R. Control.

Chief of Party - G. C. Mattison
Surveyed by - Officers of Ship HYDROGRAPHER
Protracted by - G. L. Anderson
Soundings plotted by - G. L. Anderson
Verified and inked by - G. C. McGlasson.

1. Shoreline and Signals.

Shoreline is well outside the limits of the smooth sheet. Buoy signals were located by taut wire, sun azimuth traverse, the computations for which are filed on the library shelves with the sounding volumes for the present survey.

2. Depth Curves.

Satisfactory.

3. Sounding Line Crossings.

Satisfactory.

4. Junctions with Contemporary Surveys.

Junctions with H-6398a, H-6399 and H-6400 of 1938 on the north and with H-6291 (1937) on the east are satisfactory. The junction with H-6405 (1938) on the west will be considered in the review of that survey.

5. Comparison with Prior Surveys.

H-1350 (1875-77), 1:600,000.

The area covered by the present survey is but a small portion of the extensive area included on H-1350 (1875-77). Soundings are so widely spaced on the old survey that only about 20 of them fall in the common area. Agreement of depths is fair except in the three instances noted on page 8 of the descriptive report. Differences are undoubtedly due to lesser accuracy of control on the old survey (presumably astronomic fixes and dead reckoning). The present survey supersedes H-1350 in the common area.

6. Comparison with Chart 1117 (New Print of Feb. 7, 1939).
Chart 1283 (New Print of Apr. 11, 1938).
Chart 1284 (New Print of Apr. 14, 1939).

In addition to soundings from H-1350 (1875-77) discussed in the preceding paragraph, chart No. 1117 shows several soundings from outside sources in the area covered by the present survey. These sources could not be definitely identified but, from an inspection of the chart history slips, are believed to be British Admiralty or U. S. Hydrographic Office charts. All soundings from these sources are listed in the descriptive report, page 8, with charted positions and depths in which they fall on the present survey. All were undoubtedly located by dead reckoning or astronomic fixes and are out of position by varying amounts. The development on the present survey precludes the possibility of any one of them being a shoal indication. They should be removed from the Chart.

7. Condition of Survey.

Satisfactory.

8. Compliance with Instructions for the Project.

Satisfactory.

9. Additional Field Work Recommended.

None.

10. Reviewed by - J. A. McCormick, December 14, 1939.

11. Inspected by - H. R. Edmonston.

Examined and Approved:

T. B. Reed,
Chief, Section of Field Records.

K. T. Adams
Chief, Division of Charts.

Fred. L. Peacock
Chief, Section of Field Work.

Chief, Division of H. & T.

7. Note to Reviewer.

In Lat. 27°44', Long. 95°32'. The Chief of Party recommends the soundings between positions 49-50, Q day be rejected. These soundings were omitted from the survey.

Respectfully submitted,

E. C. McGlasson

| | | | |
|---|---|---|---|
| Applied to Check | 1117 | Apr. 3, 1940 | G. H. S. |
| " " " | 1284 | " 26, 1940 | G. H. S. |