

4905

U. S. COAST & GEODETIC SURVEY  
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MAR 18 1935

No. \_\_\_\_\_

Form 504  
Rev. Dec. 1933  
DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY  
R. S. PATTON, DIRECTOR

## DESCRIPTIVE REPORT

Topographic } Sheet No. W  
~~Hydrographic~~

State Texas

### LOCALITY

~~Texas Coast~~

Corpus Christi Pass

Corpus Christi Bay to Padre Island

193 4

### CHIEF OF PARTY

Earl O. Heaton

U. S. GOVERNMENT PRINTING OFFICE: 1934

4905

Applied to drawing of Chart #1286 Dec. 1935 S.B. Maize  
" " " " " 1117 May, 1940 J.H.S.

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

U. S. COAST & GEODETIC SURVEY  
LIBRARY AND ARCHIVES

REG. NO.

MAR 18 1935

Acc. No.

TOPOGRAPHIC TITLE SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. W

REGISTER NO. 4905

State Texas

General locality ~~Texas Coast~~ Corpus Christi Pass

Locality Corpus Christi Pass Bay to Padre Island

Scale 1:10,000 Date of survey August, 19 34

~~Vassak~~ Project: HT-118

Chief of party Earl C. Heaton

Surveyed by W. T. White

Inked by W. T. White

Heights in feet above M.H.W. to ground t6c6638c6f0c6668

Contour, Approximate contour, Form line interval \_\_\_\_\_ feet

Instructions dated Nov. 5, 1932, Supp. Nov. 16, 1933, 19 \_\_\_\_\_

Remarks: \_\_\_\_\_

DESCRIPTIVE REPORT  
TO ACCOMPANY TOPOGRAPHIC SHEET W  
CORPUS CHRISTI PASS

Surveyed August 1934

E. O. Heaton, H. & G. Engr., Chief of Party

W. T. White, Topographer

Instructions dated: Nov. 5, 1932, Supp. Nov. 16, 1933

General Description of the Coast:

This sheet covers Corpus Christi Pass and the parts of Mustang Island and Padre Island in that vicinity. Corpus Christi Pass is an entrance from the Gulf of Mexico into Laguna Madre and Corpus Christi Bay, but it is seldom used even by small craft because of its shallow depth and changable nature. The depth on the bar at the entrance varies from very shallow water in ordinary weather to about 6 ft. after severe hurricanes. Sometimes the pass is entirely closed. Entrance into Laguna Madre can be made only on extremely high tides and entrance into Corpus Christi Bay is governed by a spot at Lat.  $27^{\circ} 40.80'$ , Long.  $97^{\circ} 11.77'$  having 1 ft. of water at M.L.W. There are no landmarks to be used for navigation in the Gulf and the position of the pass can be located only by coming near to shore and observing the break in the sand dunes. The channel leading to the pass at the southerly side of Corpus Christi Bay is marked by two small channel markers which are visible about  $\frac{1}{4}$  mile. Objects in this vicinity which may be recognized a short distance off shore in Laguna Madre by persons fairly familiar with the vicinity are the wooden shell hopper (Topo. signal HOP), a small house on top of a grass covered sand dune (topo. signal Pat), a few shacks in the immediate vicinity of the pass and the ranch house at Lat.  $27^{\circ} 37.5'$ , Long.  $97^{\circ} 13.1'$ . The first two of these objects are the most important for hydrographic signals, but they show up too poorly to be termed landmarks.

The part of Mustang Island in this vicinity is an almost barren strip of land covered with sand dunes and sand drifts. The Gulf shore is a hard sand beach about 100 m. wide. Back of this beach are found sand drifts and scattered sand dunes. The dunes on the southern end of the island are prevented from shifting by a growth of grass. Also a few small dunes in the vicinity of Lat.  $27^{\circ} 41.2'$ , Long.  $97^{\circ} 09.9'$  are prevented from shifting by a growth of loose shifting sand and may be expected to drift and change considerably. Elevations which were obtained from vertical angle readings are shown on a few of the dunes. The west shore of the island is an extensive sand flat. The shore is fairly hard, but soft spots are to be found which make it almost impossible to drive an automobile more than half-way from the pass to triangulation station Flat.

Padre Island is considered to extend from Corpus Christi Pass southward. The present island just south of Corpus Christi Pass which is separated from Padre Island by a small pass is considered a part of Padre Island. A large part of the time this small pass is entirely closed. In August 1934 it was closed at mean low water and at that time automobiles were being driven across the entrance along the Gulf shore; however by February 1935 it had been re-opened by high water.

The part of Padre Island in this vicinity is an almost barren strip of land largely covered with sand dunes and sand drifts. The Gulf shore is a hard sand beach about 100 m. wide. Sand dunes which are prevented from shifting by a growth of grass are found on several sections of the island, viz., at Lat.  $27^{\circ} 37.5'$ , Long.  $97^{\circ} 12.0'$ ; Lat.  $27^{\circ} 37.4'$ , Long.  $97^{\circ} 13.0'$ ; Lat.  $27^{\circ} 38.7'$ , Long.  $97^{\circ} 11.6'$ ; and Lat.  $27^{\circ} 34.7'$ , Long.  $97^{\circ} 13.3'$ . Other dunes found on the island are of loose shifting sand and may be expected to drift and change considerably. A bituminous asphalt road extends from the wrecked Don Patricio Causeway to the Gulf beach. A growth of grass extends along either side of the road; this is the most extensive growth of vegetation on the part of Padre Island shown on this sheet. The western shore areas of Padre Island are extensive sand flats which are fairly hard except for occasional soft spots. Several lakes both permanent

and intermittent are to be found east of the bituminous asphalt road and near Lat.  $27^{\circ} 58'$ , Long.  $97^{\circ} 12'$ . These lakes are situated along the courses of old passes which are now entirely closed.

Landmarks:

There are no landmarks in this vicinity.

Character of Control Used:

The control for this work consists of stations located by second order triangulation and supplemental stations located by plane-table triangulation.

Traverse Closures and Methods of Adjustment:

Traverses	Closure Error (meters)	Distance (miles)
Flat - Crane via Bay shore	11	$4\frac{1}{2}$
Crane - Flat via Gulf shore	12	$4\frac{1}{2}$
Fish - Scrub	13	$4\frac{1}{2}$
Fish - Crane	2	$5\frac{3}{4}$
Scrub - Scrub, loop to Bay shore	2	$2\frac{1}{4}$
Tcl - Hop	6	$3\frac{3}{4}$
Hop - Crane	4	$2\frac{3}{4}$
Man - Hop	3	$1\frac{1}{2}$

All traverses were adjusted on the sheet in accordance with paragraph 12, part 1, Topographic Manual.

Auxiliary Surveying Methods:

The low water line in Laguna Madre which extends westward from a point near Lat.  $27^{\circ} 41.2'$ , Long.  $97^{\circ} 11.9'$  and meanders around the west edge of the sheet to a point near Lat.  $27^{\circ} 39.0'$ , Long.  $97^{\circ} 12.7'$  was surveyed by taking sextant fixes in the field and plotting these positions with a three-arm protractor. In two places this low water line extends off the sheet. The points off the sheet were protracted on tracing paper on which the latitude and longitude lines had been extended. These tracings are enclosed in this report.

Discrepancies:

The magnetic meridian obtained with the declinoire at triangulation station Flat differs from the one obtained at station Crane. The meridian at Flat is likely affected more by local attraction than the one at Crane, since at Flat the table was set up over the station mark and at Crane it was set up about 5 meters to one side of station. At both stations a cast iron pipe was used as a station mark.

No discrepancies were found in joining with the photo-topographic sheet register No. 5368.

List of Plane-table Positions:

Flag, limb of tree stuck in 2" pipe.  
 Man, center of shack.  
 Hop, shell hopper.  
 Ned, post on sand dune.  
 Tol, stake on sand dune.  
 Pat, center of small house on sand dune.  
 May, center of highway tool shed.

Changes of Coast Line:

Corpus Christi Pass and the islands in the vicinity of the pass as shown on C. & G. S. chart 1286 have been changed considerably. The Corpus Christi

Pass as shown on chart 1286 has been completely closed and there is no longer a deep water channel anywhere in this vicinity comparable to the one shown on the chart. The present Corpus Christi Pass was opened by a hurricane in September 1933. The mouth of this pass is  $3\frac{1}{2}$  miles north of the mouth of the pass as shown on chart 1286. This movement of the main Corpus Christi Pass is characteristic of the changes which may be expected in this vicinity. During long periods of moderate weather passes in this vicinity may partly or completely close; then during storm or hurricane periods old passes may be re-opened or entirely new passes may be formed.

No scaled comparison was made to determine the change in the shore line of the Laguna Madre side of Mustang Island and Padre Island. However, the present shore line was placed on chart 1286 and the following facts were noted:

a. The west shore line of Mustang Island has filled in to the six ft. depth curve shown on chart 1286.

b. The small marsh covered islands in this vicinity on chart 1286 have been partly washed away and partly included in the area on Padre Island which is now an extensive sand flat. (The term Padre Island is intended to include all the land up to the present Corpus Christi Pass.)

c. The shore line in the vicinity of the wrecked Don Patricio Causeway has emerged from  $\frac{1}{4}$  to about  $\frac{1}{2}$  mile. In this vicinity the old shore line followed approximately the outside limits of the present sand dunes; thus the sand flats west and northwest of the present sand dunes are all new shore areas.

By comparing this sheet with the Gulf shore as shown on chart 1286, it was found that the Gulf shore has receded on the average about 50 meters.

The Crane Islands have been changed somewhat. The small islands shown on chart 1286 north of the largest of the Crane Islands are no longer bare at mean high water. The two large islands shown on the chart have been broken up into a number of smaller islands.

#### Character of Marshes:

At present there are no marsh areas in this vicinity. The areas delineated as marsh on chart 1286 are now sand flats.

Inspected and approved,

*Earl O. Heaton*

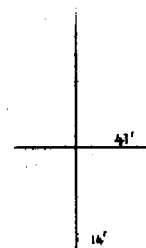
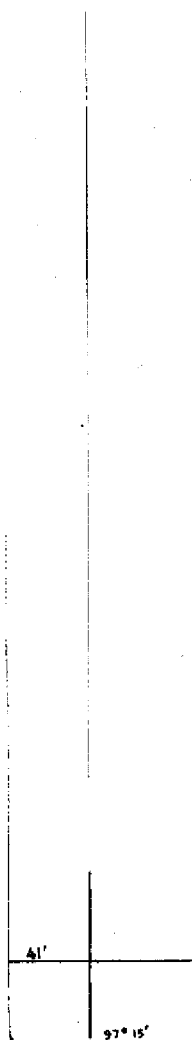
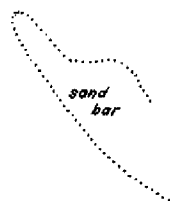
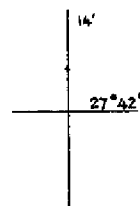
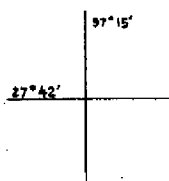
Earl O. Heaton,  
Chief of Party, C. & G.S.

Respectfully submitted,

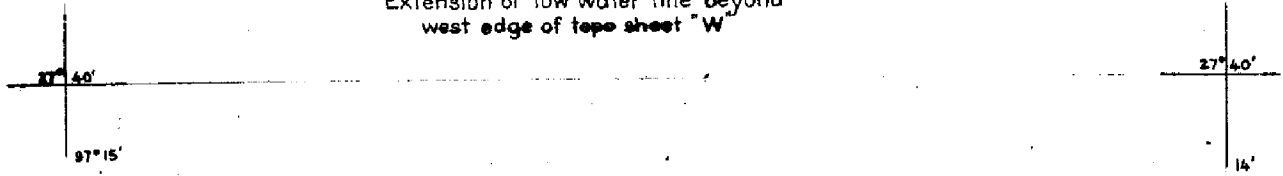
*W. T. White*

W. T. White,  
Observer

Extension of low water line beyond  
west edge of topo sheet "W".



Extension of low water line beyond  
west edge of tape sheet "W"



*sand bar bare  $\frac{1}{2}$ ' at m.l.w.*





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

## LANDMARKS FOR CHARTS

Corpus Christi, Texas

February 27, 1935

DIRECTOR, U.S. COAST AND GEODETIC SURVEY:

The following determined objects are prominent, can be readily distinguished from seaward from the description given below, and should be charted:

Carl O. Heaton

**Chief of Party.**

[illegible]

A list of objects carefully selected because of their value as landmarks as determined from seaward, together with individual descriptions, must be furnished in a special report on this form, and a copy of such report must be attached by the Chief of Party to his descriptive report.

The selection, determination, and description of these points are an important factor in the value of the chart. Landmarks selected at appropriate intervals can be clearly charted. However, when none is outstanding, a group of two or three objects may by their interrelationship provide positive identification. A group so selected should be indicated.

The description of each object should be short, but such as will clearly identify it; for example, a standpipe, elevated tank, gas tank, church spire, tall stack, red chimney, radio mast, etc. Assign numerals to landmarks to indicate: (1) Offshore, (2) inshore, (3) harbor, 1, 2, 3 would be a mark useful on all charts. Generally, flagstaves and like objects are not sufficiently permanent to chart.

GEOGRAPHIC NAMES  
TEXAS

Date. March 21, 1935

Survey No. 4905

Chart No. 1286

Diagram No. 1286-2

Approved by the Division of Geographic Names, Department of Interior. \*

Referred to the Division of Geographic Names, Department of Interior. R

Under investigation. Q

[illegible]

## REVIEW OF TOPOGRAPHIC SURVEY No. 4905

Title (Par. 56) *Corpus Christi Bay to Padre Island, Texas*Chief of Party *E.O. Heaton* Surveyed by *W.T. White* Inked by *W.T. White*Ship *Shore Party* Instructions dated *Nov. 5, 1932*  
*Nov. 16, 1933* Surveyed in *August 1934*

1. The survey and preparation for it conform to the requirements of the Topographic Manual. (Par. 7, 8, 9, 13, 16.) ✓
2. The character and scope of the survey satisfy the instructions. ✓
3. The control and closures of traverses were adequate. (Par. 12, 29.) ✓
4. ~~The amount of vertical control that the Manual specifies for contours and for lines was accomplished. (Par. 18, 19, 20, 21, 22, 23.)~~
5. ~~The delineation of contours and for lines is satisfactory. (Par. 49, 50.)~~
6. There is sufficient control on maps from other sources that were transmitted by the field party to enable their application to the charts. (Par. 28.) *None Submitted*
7. ~~High water line on marshy and mangrove coast~~ is clear and adequate for chart compilation. (Par. 16a, 43, 44.) ✓
8. The representation of low water lines, ~~reefs, coral reefs and rocks,~~ and legends pertaining to them is satisfactory. (Par. 36, 37, 38, 39, 40, 41.) ✓
9. ~~Rocks and other important details shown on previous surveys and on the chart were verified. (Par. 25, 26, 27.)~~

*See Reverse Side*

10. ~~The span, draw and clearance of bridges are shown. (Par. 16c.)~~
11. ~~Locations and elevations of summits are given. (Par. 19, 51.)~~
12. ~~The tree line was shown on mountains. (Par. 16g.)~~

NOTE: Strike out paragraphs, words or phrases not applicable and modify those requiring it. Paragraph numbers refer to those in the Topographic Manual. Use reverse side for extending remarks.

**Note:**

The present survey does not check T1044 (1867), T1626 (1881) or Chart 1286. This is fully explained in the Descriptive Report and it is evident that the area is extremely changeable and cannot be expected to check any former surveys.

T4905 should supersede all previous surveys of this area.

13. The descriptive report covers all details listed in the Manual, in so far as they apply to this survey. (Par. 64, 65, 66, 67.)  
*No points for checking distortion shown - Magnetic Meridian not shown properly*
14. ~~The descriptive report also contains additional information required in aero-topography relative to type of photographs, method of compilation and type of ground control.~~
15. The descriptions of recoverable stations and references to shore line were accomplished on Form 524. (Par. 29, 30, 57, 67 except scaling of IMs and DPs, 68.) *7 Cards submitted*
16. A list of landmarks for charts was furnished on Form 567 and plotting checked. (Par. 16d, e, 60.) *No prominent landmarks on sheet.*
17. The magnetic meridian was shown and declination was checked. (Par. 17, 52.) *The magnetic meridian through A Flat apparently in error. No evidence of having checked declinatoire.*
18. The geographic datum of the sheet is *N. A. 1927 (Adjusted)* and the reference station is correctly noted. (Par. 34.)
19. Junctions with contemporary surveys are adequate.  
*Only one junction made on North end of sheet with air photo compilation T 5368 (1934)*
20. Geographic names are shown on the sheet and are covered by the Descriptive report. (Par. 64, 66k.) ✓
21. The quality of the drafting is good. (Par. 31, 32, 33, 35, 36, 37, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49, 50.) ✓
22. No additional surveying is recommended. ✓
23. The Chief of Party inspected and approved the sheet and the descriptive report ~~after review by~~ ✓
24. Remarks:

Reviewed in office by *Chas. R. Bush Jr.* May 21, 1936.

Examined and approved:

*E. H. Green*  
Chief, Section of Field Records

*L. O. Lobnitz*  
Chief, Division of Charts

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

*G. H. de*  
Chief, Division of Hyd. and Top.