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State: *Texas*

DESCRIPTIVE REPORT.

Hydrographic Sheet No. 2277

LOCALITY

Entrance to Brazos River

(See Topo 2250)

1897.

CHIEF OF PARTY:

H. L. Merindin

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State: Texas

DESCRIPTIVE REPORT.

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LOCALITY:

Entrance to Brazos River

1897.

CHIEF OF PARTY:

H. L. Marsdin

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To accompany big Sheet Nos. 2250-2251 & 2277 U.S. SURVEY. 2277, C

APR-5 1900. 0:285
Treasury Department,
Office of the Coast and Geodetic Survey,

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All communications should be forwarded
under cover to the "Superintendent U. S.
Coast and Geodetic Survey, Washington, D. C."

Washington, D. C., January 15 1900.

Descriptive Report - 10.

Accompany original sheets of survey
of Brazos River, Texas - by party
of H. A. Maindlin, Asst. in 1896-97

- { 2 Topographic Sheets Register No 2250 & 2251
- { 1 Hyd. " " " 2277

Title:

Entrance to Brazos River

Texas.
 { Hydrographic
 Topographic Survey made under the direction of
 Brazos River Board
 by Party of H. A. Maindlin, Asst.
 in January, 1897
 Scale 5000

NOTE:

This survey was made in accordance with the
provisions of the River and Harbor Act of June 3, 1896.

1

Treasury Department,

OFFICE OF THE COAST AND GEODETIC SURVEY,

Washington, D. C., 189 .

SUBJECT:

Improvement Co.

The shores are low and principally
marshy - until nearing the city of Belasco when
the height of ground permits the cultivation
of some cotton etc.

About a mile below Belasco on the left
bank a company has erected a cotton
ginn and oil Mill. Schooners come up
to them whenever with their cargoes and
to load.

The city of Quintana is at present
only a shadow of what it was at the
inception of the improvement at the
entrance to the River. not one house
in it is inhabited.

The jetties are lighted at night
with beam lanterns, white and red lights.

Respectfully Submitted
Henry L. Maudin
Assistant.

2

Members of the Brazos River Board
Col. H. M. Robert, Corps of Engineers U.S.A.
Stephen Forney, Ass't. U. Coast & G. Survey.
Robert Moore, Civil Engineer

Objects of Survey.

To ascertain the condition of the improvements made by the Brazos River Channel Co. at the mouth of the Brazos River and including that part of the River to the city of Velasco, Texas.

Under letter of instructions dated Dec. 14-1896, the party in charge of H. L. Maudslayi Ass't. consisting of Messrs A. L. Baldwin, Ass't. and Charles C. Gale - Aid, and Oscar M. Atkrobe an expert Leadman from the Ex. Survey the "Blake" left Washington and arrived at Velasco on Christmas day 1896, having been delayed en route by a railroad accident.

The party took up quarters on shore at Quintana a city grown up at the mouth of the River, on right bank, principally since the beginning of the improvements by the Brazos River Channel & Dock Co. in 1890-91

Place of reference for soundings

The permanent Tidal Bench mark established by the Coast & Geodetic Survey at Quintana in 1891, to which was referred the height of the plane of M. L. Water, was found in good state of preservation, with no indication of having been disturbed since its establishment.

Description of Tidal Bench:

Located 3 meters to the N.W. of Pilot range signal at Quintana, near the office of the Brazos River Channel and Dock Company and 3 meters N.E. of the west limit of its land. B.M. consists of a cement Chimney block, 10 inches square and 2 feet long, bedded in a mass of concrete. The hole through the centre of the block is filled with cement and contains a long bolt the head of which is flush with the top of chimney block. The block projects about 4 inches above the surface of the ground.

B.M. above Mean Low Water	4.70 feet.
Mean rise and fall of tides	1.77 "

Three staff gauges were found, which had been established by the Engineers of the Improvement Co. which read so nearly alike as to that any one of them could be taken as the official gauge.

4

the one off the Co's office, having sufficient ~~water~~
depth of water was chosen. The staffs were
supposed to have been set with their zeros at the
height of plane of M.L. water, but on
referring them to the B.M., it was discovered that
their zeros were an even half foot below
that plane. On inquiry from the Pelots who used
these gauges it was found that the gauges were
then in the same relative position as originally
set by the Co's engineers. It was therefore
inferred that since these gauges were used in
the survey of March 1896, the sds taken at that
time were reduced to a plane $\frac{1}{2}$ foot too low.

Tides.

Tides at the mouth of the ~~Neagos~~ are
of mixed type Diurnal & semi diurnal. From
the 8th to 10th & 20 to 26 they were Sem. Diurnal and
from 11th to 20 and 26 to 30, Diurnal -

Width of Stream

The average width of stream between banks, -
for that portion of the river between the head of the
Jetties and Veluses, without considering the
contraction due to spur dikes is 528 feet,
this is reduced to 479 feet if the contraction due
to wing dams is introduced. The max. width

5

902 feet, is found off Quintana near head of Jetties, and the minimum width, 400 feet, off the wharf at Velasco.

Between the jetties the average width of waterway including the contraction by existing spur dikes is ^{approximately} about 476 feet.

The original project of construction for the jetties contemplated parallel jetties 560 feet between centers with spur dikes distributed equally throughout their length. The jetties were built as intended, the foundation being composed of mattress work, loaded with small stones and topped with rocks weighing from one to seven tons, in repairs. The wing dams still existing number 5 along the West Jetty and 3 along the East Jetty, they were built 60 feet long from center of Jetty, in opposite pairs: this gave a waterway of 440 feet in width, which compared to the width between the outer pair, 460 feet, would indicate that the latter have already to a certain extent been destroyed.

Cross sections of the jetties, measured at points 1050 feet, 3000 feet, 4500 feet and 5000 feet as indicated by the position of the outer spur dike show an average ^{usable} width of 21.8 feet at M.L. Water stage for the E Jetty and 18.6 feet width for the W Jetty.

6

Length of jetties. West Jetty 5018 feet
East Jetty 4708 feet.

Length of these jetties taken from survey of
March 1896.. West Jetty 5050 feet, East Jetty
4753 feet.

Currents in the River.

Currents vary greatly with the changing
stages of the water. During heavy freshets
the currents are reported to reach 7 knots per
hour rel. (or 11 feet per sec.)

The currents during the time of this
survey were very feeble. The max at
mouth of jetties reaching 1.30 ft per sec.

Navigable Channel

Shoal water is encountered almost immediately
on entering the jetties.

The first bar is reached about 2000 feet
inside of W. Jetty, with 14.9 feet at M.L.W. Then for
about 400 feet the depths increases slightly and a
second bar with 14.8 feet is reached. These depths
occupy about $\frac{1}{3}$ of the channel-way.

Following the channel toward Velasco the next
bar is found with 14.3 feet on it at a point 300
yards above the mouth of West-Union Bayou, which
is the northern limit of the city of Quintana.

The river banks are here occupied by spur dikes 10 on the left bank and 6 on the right bank. Following the channel with somewhat deeper water we come to another bar with 13.7 feet on it, about opposite the upper wing dam on the left bank; the channel depths then increase, following the light of the Great Bend and nothing less than 15 feet, with varcalous to 24 feet depth in holes may be carried as far as Velasco when the survey ends.

Changes in the banks of the River and in the Gulf shore line.

The changes in the River shore line are so great amounting in places to one half the width of the river, as to cast a doubt on the accuracy of the delineation of the shore line by the Engineers of the Major River Channel Dock Co. prior to 1891.

Comparing the features of the Gulf shore line as indicated by the contours of 24, 18, and 12 ft in the survey of 1891 and 1897, it is observed that there has been a decided shift to seaward. This is especially the case in front of the jetties.

This evidence points to a betterment in the depths as far as the edges next to 26 and 27 feet.

The shoal of the end of the West Jetty maintains itself with practically the same minimum depth over it. No change in the Gulf shore line is indicated by the High Water line since 1891.

Littoral current

Being perhaps to present a Northeast and Northwesterly wind during our examination we have failed to detect any decided Transverse currents but with prevailingly easterly and southeasterly winds it must follow that the resultant direction of the drift should be westward.

The survey extends from the Jetty to the City of Velasco which ~~was~~ is the terminus of the R.R. from Houston Texas. It was the intention of the Improvement Co to extend a line of railway down the left bank to the Jetty, but this project had not matured in 1897 -

There is very little shipping entering the Jetty, of a class of small Schooners which tow up to Velasco. Both banks of the River are the property of the