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Diag. Cht. 5101-2

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey *Hydrographic*
Field No. Office No. *2561*

LOCALITY

State *California*
General locality *San Diego*
Locality *Bar*

1902

CHIEF OF PARTY

Freemont Morse

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DATE

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APR 5 1902



Department of Commerce and Labor
COAST AND GEODETIC SURVEY

O. H. Tittmann
Superintendent.

State: *Calif*

DESCRIPTIVE REPORT.

Hyd C Sheet No. *2561*

LOCALITY:

San Diego Bar

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CHIEF OF PARTY:

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Comd

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5001 J 87A
JUL 24
1887

SAN DIEGO BAY BAR - CAL.

Note -

18 foot curve is shown thus

	Survey of 1899 by Asst. WESTON	Survey of 1902 by Asst. FREMONT MORSE
20 "		
22 "		
24 "		



To accompany
Description of Report

Descriptive Report to accompany Hydro-
graphic Sheet San Diego Bar, 1902.

This survey was made for the purpose of determining what changes have occurred on the outer bar at the entrance to San Diego Bay since the date of the survey by Assistant Ferdinand Westdahl in 1898-9.

Before giving the results of the survey and making any comparisons with previous work a statement of the changes near the entrance made by the U.S. Army Engineers in the course of their harbor improvements will give the cause for such changes as have developed on the bar.

The plan for the improvements at San Diego, as outlined in the Annual Report of the Chief of Engineers to the Secretary of War dated Oct. 1st, 1901, "had for its object the construction of a jetty on Gunninga Shoal, at the entrance to the harbor; the maintaining of a channel 24 ft. deep

"at mean low water and 500 ft. wide
 "through the middle ground, and the
 "repairs to the dyke. The jetty was to
 "be about 7500 ft. long, extending from
 "Coronado Island out on Guiranga Shoal,
 "with a view to gaining 26 ft. at mean
 "low tide on the outer bar, where the
 "survey of 1887 showed a depth of 21 ft.

Following out this plan work was
 begun on the jetty, and at the date
 of Assistant Westdahl's survey it had
 been constructed up to high water level
 out to a distance of 3,347 ft. from shore,
 with a foundation course of brush and
 stone extending 1,678 ft. farther.

During the fiscal year ending Jan.
 30th 1901 the jetty was extended so that
 the high water part reached out to a
 point 4,595 ft. from shore. The foundation
 course reached 430 ft. beyond the end
 of the completed part. Hence between
 the dates of the two surveys the high
 water jetty had been extended 1248 ft.,
 a change sufficient to account for any
 difference in the contour of the bar
 developed by comparing the two.

In order to make a comparison of the general outline of the outer bar in 1898-9 and 1902, a tracing was made of the 18, 20, 22 and 24 ft. curves as shown in each survey; those for 1902 in full lines and for 1898-9 in dashed lines.

The 24-ft. curve along the outer edge of the bar is practically the same in both surveys. On the inner slope of the bar, however, there is a decided difference - the width of the bar between the two 24-ft. curves, outer and inner, being very decidedly greater at the present time. At the point where in 1898-9 the bar was narrowest between these curves, it is now more than three times as wide. On the East side of the main channel inside the bar the 24-ft. curve is now farther to the Eastward than it was in 1898-9. In other words the East bank of this channel seems to be eroding, and the material depositing on the inner slope of the bar, increasing its width.

Taking next the 22-ft. curve we find similarly that along the greater part of the outer slope of the bar it is practically the same in both surveys, except that on the West side of the bar channel the point of the ^{new} curve, extends about 125 meters farther S.E. and almost meets the same curve on the East side of the channel.

The same position of the East bank of the channel inside the bar shown by the 24-ft curve, and the depositing of material on the inner edge of the bar is apparent from the position of the 22-ft curve. In like manner the 20-ft. and 18-ft curves show the same tendency.

Gannett Shoal:

This shoal as indicated by the 18-ft. curve has increased in size North and South, while the West point of it has been slightly eroded. The depth of water on it is now less than in 1898-9, 15 feet being the least depth obtained as against 16 feet in the

former survey.

Depth of Water on the Bar:

The least depth found in the channel over the bar was 21 ft. in one spot at the S.E. extremity of the loop of the 22 ft. curve. To the South and East of this spot there is a channel over the bar about 65 metres wide in which the least depth found was $21\frac{1}{2}$ feet. To the North and West of the same spot there is a channel about 115 metres wide in which the least depth found was $21\frac{1}{4}$ feet. These two channels are indicated on the accompanying tracing showing the curves of the two surveys. In a very narrow passage between the two loops of the 22 ft. curve $22\frac{1}{2}$ ft. can be carried over the bar; but it would be practically impossible to keep a ship in so narrow a passage.

It is interesting to note that the original survey of this bar (in 1851?) gave a depth of 21 ft.; that of 1887 gave the same; and finally the present survey

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shows a like depth. So far as the depth of water on the bar is concerned the jetty thus far appears to have been without effect.

Buoys:

The present black buoy on the bar seems to be situated too far north, and should, in my opinion, be moved south about 100 metres. To define the Eastern edge of the bar channel and the point of Gannan Shoal a red buoy might be placed at the spot indicated on the tracing. Then in entering if the black buoy is kept close aboard nothing less than $2\frac{1}{4}$ ft will be crossed; or by hugging the red buoy the $2\frac{1}{2}$ ft spot will be avoided and nothing less than $2\frac{1}{2}$ ft. crossed.

Fremont Moore
Assistant.