4177

Diag. Cht. No. 5502-1

Form 504
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

State: California

11—5813

DESCRIPTIVE REPORT.

Hyd. Sheet No. 4177

LOCALITY:

Tomales Bay
Hog Island to
Entrance of Bay

1921

CHIEF OF PARTY:

H. D. Engle

4177

Descriptive Report to accompany Hydrographic
Sheet of
Tomales Bay, Calif.
No. 4177

The work extends from about ¾ mi. south of Hog Island to about 1 mile north of Tomales Point and includes several lines run off shore southward of Tomales Point. The hydrography consists of nine "letter" days, "a" to "k".

Control for the survey was furnished by numerous signals and land objects located by plane table and by triangulation stations of 1906 which were recovered. At the entrance to the Bay on the mainland, north of Sand Point, signals were not located until after hydrography was in progress. Therefore on "f" day many of the fixes of the NbyW and SbyE lines were "revolvers". The doubtful positions being plotted on course with the others and by time. To check up whether the course held good, several sounding lines were subsequently run on the same course on a day when whather and tide conditions were as nearly alike to "f" day as possible.

Inside the bay the distance between sounding lines seldom exceeds 100 meters, wherever a doubtful sounding appeared or where the bottom was irregular the spacing was much closer. When the soundings were reduced and plotted additional lines were run to complete doubtful localities as on the inner and outer bars. Most of the soundings were verified by an officer.

Channels & Obstructions:

The outer bar is formed by a shoal (rocky bottom) making off from the second point south of the extreme end of Tomales Point. On a northeasterly continuation of this shoal is an area of sandy shoals which breaks even in moderate swells. Between the two there is a least depth of eleven feet at M.L.L.W.

During rough weather it breaks on the inshore shoal and a continuous line of breakers extends across the outer shoals.

Vessels entering the bay keep nearly half a mile off Tomales point both because of the reef off the point and the heavy rollers in the locality. From that distance the bar appears to be breaking all the way across (due to the overlapping breakers on the one foot shoal to the southward of the bar). According to the two most experienced fishermen frequenting Tomales Bay, it has never been observed to break over the deep water of the bar (11 feet).

After passing the bar, a low point of rock about one foot above M.L.W., projecting about 100 feet off the point immediately south of the bar is to be avoided. From this point past the inner bar deep water is found close to shore. To clear the inner bar follow the western shoreline closely (50-100 feet) from near the first bight or cove across from Sand Point (tide gauge) past the next prominent point to the south (¼ mile from cove) where the shoalest water in the channel is found.

All shoals in the bay, having less than about 6 feet of water, to the south and west of Inner Bar are distinctly marked by eel grass between the

months of April (when the grass appears) and November (when all the grass has died and been washed out). At times other than this period the shoals are indistinguishable from deep water. Consequently channels much used during the summer are abandoned during the winter months. In case of the channel which paralells the shore between Tom's Point and Sand Point not much difficulty is encountered since the shooting "blind" off Toms Point serves to mark the entrance to the channel.

——— The channel between the reefs west of Hamlet dock is much used by fishing vessels since it is a short cut of more than two miles to the wharf for vessels entering the bay. The channel is difficult to follow when the eel grass goes out. Deeper water is to the northward, on the western side of the channel, then follows down to the southern edge at about midway through the channel. From there the deeper water extends well over toward Prestons Point.

The northern point of the "middle ground" off White Gulch is not easily observed by boats (except during the summer) since the point to the westward of it is not prominent enough to locate it.

Small patches of grass extend about 400 meters southeastward off Hog Island; these are to be avoided in crossing the bay.

Changes:

Comparison of present channel lines with the work of 1861 shows practically no changes. The chart shows a kelp patch about 300 yards northeast of Tomales Point, search was made but no kelp patch found. The main change is in the gradual shifting of the sand dune (Sand Point). It is gradually filling in to the northwest, and southeast along the shore between Sand Point and Toms Point (see topographic sheet).

The greatest change appears to be due to a steady filling in from Arroyo San Antonio. The entire area along this side of the bay shows no such depths as indicated on chart and the marshy area (see topographic sheet) at the mouth is reported steadily increasing. Every old resident verifies the report that about twenty-five years or thirty years ago schooners drawing 6-8 feet of water used to sail up Arroyo San Antonio to a point about 800 meters from the town of Tomales (about 4 miles). The dock and wharehouse then used is still standing, though, from its present elevation it appears impossible that it ever was at sea level. The only outlet for this creek is the channel along the foot of Prestons Point. This channel is nearly dry (about ½ ft) at average low tide.

The wreck shown on chart 5618 in vicinity of Sand Point apparently has been torn up or covered, since fishermen frequenting this place during the last fifteen or eighteen years have no recollection of seeing it.

Currents:

An attempt was made to determine the velocity of the current through the narrows at the entrance, but due to the rapid variation in the velocity no satisfactory data were obtained. It is estimated that the swiftest current is between 6 and 7 knots and the ordinary flood or ebb tide is about 4 knots (see boat sheet). The current follows the main channel hence it cannot endanger a vessel by driving it ashore.

The tidal interval between Sand Point and Hog Island is about 25 minutes.

approved
F. G. Engle
H&G. Comdg.

Respectfully submitted,
Maurice E. Levy, Jr. Engr.

POST-OFFICE ADDRESS: U. S. S. N A T O M A, Vallejo, California.

TELEGRAPH ADDRESS: " " " "

EXPRESS OFFICE: " " " "

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

H-4177

U. S. S. NATOMA
September 30,1921.

To: Commanding Officer
U.S.S. NATOMA.

From: Maurice E. Levy, H & G Engineer.

Subject: Report on resurvey of Tomales Bay.
Directors Orders of July 28th.,1921.

On August 16th oneof the officers of the F.E. Booth Company was informed as to the proposed date of commencing the survey and sequested to make arrangements for the accomodation of the party at Hamlet, the company's base in Tomales Bay. When on August 18th a party of one officer and three men reached Hamlet it was found that no provision whatever had been made for the party or the work. The party was therefore quartered at Tomales, California, until the morning of August 23rd when the equipment (including instruments and materials) which had been shipped by freight from the NATOMA arrived. During the 23rd accomodations for the party at Hamlet was found and preparations for begining work was made. Another officer joined the party on this date.

2. Two tide staffs were set up, one at Hamlet and one on the western side of Tomales Bay at a point nearest to Sand Point. In the afternoon of August 24th simultaneous observations were commenced at the two stations. The observations were continued through the afternoon high tide of August 27th.

3. During the observations one officer recovered and remarked where necessary, the following triangulation stations; Meeshon 1906, Preston 2 1906, Hog I. 2 1906, Tomales Bay 1906.

4. During the following week all signals were built; four additional triangulationsstations of 1906, were recovered and marked (Tomales Point, Trainor, Teton 2, and Smith 2). Whenever hydrographic signals only were being built, a plane table party, one officer and one man, was locating signals already erected and revising the topography.

5. On September 7th a recorder from the NATOMA joined the party soonthat on the following day hydrography was commenced. In the afternoon of the same day instructions were received from the Inspector of the San Francisco Field Station to discontinue work on account of withdrawal of assistance by the F.E.Booth Company.

6. Since the other residents in the vicinity of Tomales Bay desired the survey at this time it was deemed advisable to communicate with the Booth Company. Accordingly, it was called to the companys attention that the greatest expense on their part had already been incurred and that to discontinue work at this time, the expense will have been an utter waste. The officers of the company agreed to have the work completed. The inspector was advised to that effect.

7. Unfavorable weather then prevailed so that the hydrography was not completed until September 24th .

8. The Directors instructions were complied with as nearly as practicable with the following exceptions: paragraph 5 called for the extention of hydrography outside the entrance to the fifty fathom curve. Since the party was not equipped with a sounding machine, that part of the instructions could not be carried out.

Maurice E. Levy

Maurice E. Levy
H & G Engineer.

/w

Copy
To Director
Coast & Geodetic Survey

Nov. 2, 1921.

Division of Hydrography and Topography:

Division of Charts:

Tide Reducers are approved in
3 volumes of sounding records for

HYDROGRAPHIC SHEET 4177

Locality: Tomales Bay, Marin Co., California

Chief of Party: F. G. Engle in 1921

Plane of reference is mean lower low water, reading

2.2 ft. on tide staff at Hamlet Wharf.

Condition of records: Satisfactory.

G T Rude

Chief, Division of Tides and Currents.

Report on Hydrographic Sheet No. 4177

The development of the work satisfies the requirements of the general instructions.

In connection with the sounding records the following points are noted:-

(1) The beginnings and endings of sounding lines are not described except in a very few instances.

(2) During the first part of the work (Vol I) - the Sdgs. were taken at very irregular intervals.

(3) At no time is mention made of any change of speed of the boat.

(4) The boats course is not fully described.

(5) The boats head by compass is not given.

The sounding line crossings are good - with a few exceptions.

The development is such that the usual depth curves may be drawn.

The protracting and plotting of soundings were good. The time interval was carefully adhered to in plotting the soundings.

None of the work of protracting or plotting had to be done over.

No unusual difficulties were encountered in verifying and inking this sheet.

E. M. Vincent

ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY

AND REFER TO No.

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

SECTION OF FIELD RECORDS

REPORT ON HYDROGRAPHIC SHEET No. 4177.

Surveyed in 1921

Chief of Party: F. G. Engle. Surveyed by M. Levy.

Protracted and soundings plotted by A. L. Shalowitz.

Verified and inked by E. M. Vincent.

1. The records fail to conform to the requirements of the General Instructions in the following respects:
   The beginnings and endings of sounding lines are generally not described.
   The soundings were taken at very irregular intervals during about one-third of the work. This added much to the time and difficulty of plotting the soundings.
   No mention was made of change in speed of the boat.
   The boat's head by compass and the courses were omitted altogether.

2. The plan and character of development fulfill the requirements of the General Instructions.

3. The plan and extent of development satisfy the specific instructions except that, due to lack of a sounding machine, the survey was extended out only to the 12 fathom curve instead of the 50 fathom curve.

4. The sounding line crossings are, in general, adequate.

5. The sheet was entirely plotted in the office.

6. No further surveying is required within the limits of the sheet, although a closer development would have been desirable on the inner and outer bars and in the cut-off channel west of Hamlet.

7. The character and scope of the surveying are good.

8. Reviewed by E. P. Ellis, January, 1922.

Form 537
11—6818

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

The finished Hydrographic Sheet is to be accompanied by the following title sheet, filled in as completely as possible, when the sheet is forwarded to the Office.

U. S. Coast and Geodetic Survey.

Register No. 4177

State . . California

General locality . Tomales Bay

Locality . . Hog Island to Entrance

Chief of party . F. G. Engle

Surveyed by . . M. E. Levy

Date of survey . Sept. 8 - 24, 1921

Scale 1:10,000

Soundings in . . Feet

Plane of reference . MLLW

Protracted by ~~M. Levy~~ . Soundings in pencil by . . . . .

Inked by . . . ~~M. E. L.~~ . Verified by . . . . . .

Records accompanying ~~sheet~~ (check those forwarded):

Des. report, 3 Tide books, — Marigrams, 1 Boat sheets,

3 Sounding books, — Wire-drag books, — Photographs.

Data from other sources affecting sheet . . . . . .

Remarks: No finished hydrographic sheet made
Nearly all the soundings (reduced) are inked on the boat sheet.