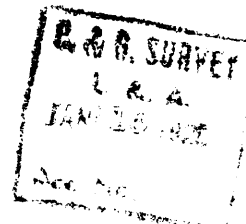


4096



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

State: *California*

11-5613

DESCRIPTIVE REPORT.

Hyd. Sheet No. *4096*

LOCALITY:

Humboldt Bay,
Entrance

St. Menonah

1919

CHIEF OF PARTY:

Luckens, R. R.

4096

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

Field Sheet No/2

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. 4096State . . . CaliforniaGeneral locality . . . Humboldt BayLocality . . . Entrance to Humboldt BayChief of party . . . R.R. LukensSurveyed by . . Party on Str. WENONAHDate of survey . . Sept. - November, 1919Scale 1:10,000Soundings in . . Not reduced.

Plane of reference

Protracted by C.E.C. . . . Soundings in pencil byInked by J.V.T. Verified by J.V.T.

Records accompanying sheet (check those forwarded):

Des. report, 1 Tide books, 0 Marigrams, 3 Boat sheets,1 Sounding books, 4 Wire-drag books, 0 Photographs. 0

Data from other sources affecting sheet Last survey of this
entrance was made in 1917 by U.S. Engineer Corps.

Remarks:

Hydrographic Sheet # 4097
Humboldt Bay Cal.

This projection was evidently made by the field party and probably verified by one of the party, but it had no marginal note to indicate such to be the fact. Neither had it the Lat. and Longt of one triangular station. This has been added and the projection verified.

The sheet was protracted by the Field Party and ^{numerous} verification failed to find errors.

The sheet was not plotted in pencil by the field party but by one of this office force.

The work of the party appears good. The ground well covered and the channels well defined. In the minor channels the lines are run zig-zag. This does not appear good practice in narrow channels for the reason that the turning radius of the boat is liable to vary due to the character of the shore. This make accurate plotting ^{at the turn} out of question. Crossings are exceptionally good. But Capt. Laker recommends rejection of one channel line in the Arcata Channel ^{due to poor crossings}. This has not been done as the difference does not seem to warrant it.

Records are generally good. But the boat head by compass is not given throughout this work. Had this been done some of the questionable turns could have been adjusted.

John D. Torrey
8/28/20.

REFER TO NO. 4-VEC

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

September 22, 1920.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet 4096, Surveyed in 1919.

Chief of Party R. R. Lukens. Surveyed by R. R. Lukens, W. H. Kearns,
H. R. Bartlett.

Protracted by C. C. Christopherson. Soundings plotted by E. K. Ellis.

Verified and inked by J. D. Torrey.

1. The sounding records were well kept except for following omissions:
No reference to wind, sea nor currents, although these factors must have been important; locations of tide gauges not stated; the boat's course was omitted throughout; bottom characteristics should have been noted more often and customary abbreviations used.
2. The plan and character fulfills the requirements of the General Instructions.
3. The plan and extent of the development satisfy the specific instructions.
4. The sounding line crossings are adequate.
5. The depth curves can be completely drawn except in a few places of little importance.
6. The sheet was sent in without soundings having been plotted - probably due to uncertainty of plane of reference. Position numbers and day letters were frequently omitted.
7. The field drafting was found by the office draftsman to be entirely adequate.
8. The adjoining hydrography was not shown as it is too old, in view of the changeable bottom.
9. The following places may be considered worthy of further development:
The 3 foot spot 400 m. southwest of Buckport wharf, which was discredited by the field party, (see boat sheet) seems to indicate a shoal that is only partly shown.
The 24 foot spot 150 m. south of North Spit submerged jetty is doubtful (poor fix).

Hydro. Sheet 4096.

10. Rating of the work:

Character and scope of the surveying - Good.

Field drafting - - - - - Excellent.

11. Although there are minor defects in the survey, it is entirely sufficient for charting purposes. In view of the difficulties under which it was done, it is a creditable piece of work.

The area between the inner ends of the jetties appears to be subject to continuing and radical changes (see descriptive report and compare sheet and chart). It seems desirable that in the coast pilot or in a note on the chart attention should be called to the necessity of a local pilot for this area even more than for the entrance.

12. Reviewed by E. P. Ellis, September 20, 1920.

13. Two copies of this report to be sent to Hydrography and Topography Division.

HYDROGRAPHIC SHEET No. 4096.

ENTRANCE TO HUMBOLDT BAY, CALIFORNIA.

The work on this sheet develops the entrance to Humboldt Bay and also that part of the Bay immediately inside the entrance and a little to the North and South. The sheet was protracted by the field party and this work has been quite thoroughly verified. Where verified no errors were found, therefore this work may be considered good. The plotting was done in this office and but few changes were found necessary.

The work of the field party appears up to the standard and develops the channels satisfactorily. The limits of the numerous sand spots are, however only approximately determined. The work would be more complete had the limits of these spots been definitely determined.

The crossings are unusually good throughout the work.

The records are in excellent condition, but few cases being found to cause their correctness to be questioned. However, attention is called to the fact that no change in course is given. In one case in particular had this been done the position in doubt could be more definitely fixed.

John D. Torrey

September 22, 1920.

ADDRESS THE SUPERINTENDENT
U. S. COAST AND GEODETIC SURVEY

AND REFER TO NO.

41-EMK

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

March 17, 1920.



Division of Hydrography and Topography:

Division of Charts: ✓

Tidal reductions are approved in
4 volumes of sounding records for

HYDROGRAPHIC SHEET 4096

Humboldt Bay, California
R. R. Lukens in 1919

Plane of reference is
Mean lower low water, reading

2.0 ft. on tide staff at N. Jetty Landing.
2.7 ft. on tide staff at Fields Landing.

Condition of records, very satisfactory.

A handwritten signature in cursive script, appearing to read "G. V.indle".

Chief, Section of Tides
and Currents.

Statistics sheet No.2

Date 1919	Letter	Vol.	Pos.	Sdgs	Stat. Miles	Boat.
Sept. 19	a	1	98	351	10.7	Clyde
" 22	b	1	96	413	11.0	"
" 23	c	1	93	465	10.2	"
" 24	d	2	3	12	0.2	"
" 25	e equals a day of Sheet No.3					
" 26	f	2	77	311	9.6	"
" 27	g	2	67	256	10.1	"
" 29	h	2	134	483	20.0	"
October 9	j	3	125	533	10.5	"
" 10	k	3	129	518	12.5	"
" 11	l	3	39	197	2.4	"
" 28	m	4	70	236	5.1	"
Nov. 6	n	4	15	50	0.5	"
" 10	p	4	48	207	4.3	
Total			994	4032	107.1	

OUTLYING DANGERS.- A shoal with a least depth of about 12 feet lies about one half mile north of the north jetty. This shoal breaks in moderate seas, and as it is of some extent, vessels always approach the bar from the Southward.

CURRENTS.- The currents near the jetty are very strong and with a moderate sea running the strong ebb current produces violent tide rips and heavy breaks both within the jetties and on the bar. I have laid off the bar during the ebb tide and have observed its action closely. Just outside the line of the current the sea would be smooth, but just inside that line there would be a wild confusion of tide rips and breaks that would wet down a pretty good sized ship. The current during the past season was nearly always running to the northward pass the end of the jetties and much care is required to keep a vessel from sheering towards the south jetty when the bow strikes the dead water just within.

It is slack water within a few minutes after high and low water, so that for judging the currents of the bar the tide tables may be used also for current predictions. As there is but very little fresh water draining into Humboldt Bay, the currents are all tidal in character.

LANDMARKS.- Red Bluff is the natural landmark for entering Humboldt Bay. It is a prominent bluff 96 feet in height, and can be steered for in entering the jetties.

INSHORE DANGERS.- Once inside Humboldt Bay the channels are well marked and no trouble is experienced by a stranger in navigating them. Outside of the mud flats which are everywhere there are no inshore dangers.

BARS AND CHANNELS.- The survey shows effective depths of 24 and 25 feet on the bar. When the soundings on the bar were made, there was considerable swell and they cannot be considered in being very accurate. They may be a foot out in either direction.

The best time for entering is near the high water flood. On the ebb tide with a heavy sea running the bar is a wild and dangerous place. The big ships commanded by old bar men seldom tackle the bar on the ebb during rough weather. There is no channel over the bar, but it is desirable to keep very close to the south jetty as for some reason the seas do not break so violently there as midway between the jetties. The strength of the current running past the end of the jetties may be judged by the spar buoy off the south jetties and this should be carefully considered by the navigator, for at this point a bad sheer may cause the vessel to ram the south jetty.

For the past two years a scouring action has started near the inner end of the north jetty. The present survey shows that a channel with least depth of 20 feet has been cut through to the deep water along the south jetty. This channel I think will increase in width and depth and will be a great improvement over the present one which requires a sharp turn around the bell buoy. The channel through the south bay to Field's Landing is well marked and can be followed with ease. A good many lumber schooners and sailing vessels go to Field's Landing to load lumber.

The channel towards Eureka is also well marked and easily followed in clear weather, but there are no fog signals and the lead is the only guide in thick weather.

CHANGES IN COAST LINE, DEPTHS, ETC.- The present survey shows very slight changes only in shore line and depths in the main channels. The big changes have occurred at the entrance between the jetties. The main change has been the formation on the channel described above.

SURVEY METHODS.- The Hydrography on this sheet was executed from the U. S. Engineers launch CLYDE, a craft specially designed for sounding work. The party however was green. I was unable to develop a responsible leadsmen so did most of the leading myself. Every precaution was taken to insure good work, but I realize that the work is not up to our pre-war standards. The rough plotting on the boat sheet did not reveal any glaring inaccuracies, and the evident blunders were investigated by additional sounding. The scouring action near the entrance seemed to be going on very rapidly, for soundings taken two weeks after the entrance was surveyed indicated changes in depth.

TIDE GAUGES.- The base tidal station was established at the Engineers Dock, North Jetty. Subsidiary staffs were placed on the South Jetty Landing, and on the base station by simultaneous observations. The results obtained by the first two months observations do not agree with previous observations of the U. S. Engineers. The plane of reference was not computed in the field, but the data was forwarded to the office for computation. The soundings were therefore not reduced by the field party.



R. R. LUKENS,
H. & C. Engineer,
Chief of Party.

DESCRIPTIVE REPORT
To Accompany Sheet No. 2 4096

HUMBOLDT BAY, ENTRANCE
California.

Steamer WENONAH

R. R. Lukens,
Chief of Party.

Humboldt Bay is comparatively shallow bay lying 21 miles northward of Cape Mendocino on the Coast of California. It is an interesting fact that this bay was unknown until the year of 1849 when it was discovered by a party coming overland from the Trinity River. Two years later the schooner LAURA VIRGINIA entered the harbor and landed a party. The officer in charge of the first boat to cross the bar was Captain H. Buhne, who was second officer of the schooner at the time. Captain Buhne remained at HUMBOLDT as it was named, and for many years was a bar pilot. His descendants are now well known residents of Eureka.

Both Sir Francis Drake and Vancouver passed the Humboldt Bay entrance without discovering its existence. Both however passed several days at Trinidad Head, but it seems that the Indians with whom they communicated with were reluctant to inform them of the large bay only 17 miles distant.

When the first surveys were made of Humboldt Bay there was only about 14 feet of water on the bar and the channel was very crooked and changeable. Many vessels were lost when attempting the entrance and the bar gained the reputation of being a dangerous and treacherous one. Just before his death, Captain Westdahl told me that on the survey of Blunts Reef in about 1870 they used a tug from Eureka, and that in going over the bar all hands would jump to the rigging when a sea came up behind them. Even the Captain of the tug would leave the wheel until the breaker passed.

The bar conditions have been greatly improved in late years by the construction of jetties at the entrance. These jetties now maintain a depth on the bar of about 24 feet, and it is very seldom that seaworthy vessels cannot enter the bay on the high water flood tide.