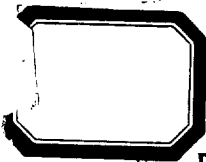


4095



O. & G. SURVEY
L. & A.
FEB 5 1921
Acc. No.

Form 504

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

11-5813

State: *California*

DESCRIPTIVE REPORT.

Hyd. Sheet No. *4095*

LOCALITY:

Cape Mendocino

Str. Menouak

1919

CHIEF OF PARTY:

Lukens, R. R.

4095

4095

C. & G. WINTER
FEB 4 1920
Acc. No.

DESCRIPTIVE REPORT
Sheet 4095 No. 1

Str. WENONAH.

R.R. Lukens
Comdg.

OFF SHORE HYDROGRAPHY

Cape Mendocino

Calif.

1:120,000

LIMITS This sheet includes the off shore soundings executed by this party from a line 3 miles north of Blunts Reef light vessel, to a line 8 miles north of Humboldt Bay entrance. In general the work is carried out to the 100 fathom curve, and extends inshore to the limits of the old inshore work. It covers about 35 lineal miles of the coast line.

CONTROL The signals used are mostly natural features, and their positions were taken from the special publication "Triangulation in California". In some cases there is confusion owing to the fact that two or more stations are sometimes on the same mountain, and the descriptions fail to state which station if any is on the summit. The signals worked satisfactorily however and it is believed that there are no large discrepancies. Two signals near Humboldt Bay were cut in from the ship, and the position of "Chim" was furnished by Mr. Latham.

SURVEY METHODS All soundings are up and down casts made by the Sigsbee machine used in connection with a Ballauf registering ~~xx~~ sheave. This sheave was always read by an officer when sounding. There is no dead reckoning on the sheet. Days suitable for work were very rare making it impossible to do the detailed and close work called for by the instructions. An effort was made to satisfy the demands of navigation, for there has been constant complaint among shipping men concerning the lack of soundings in the vicinity northwest of Cape Mendocino. The work on this sheet when combined with the work of the Str. LYDONIA will give a good development of the steamship track around this important cape.

VALLEY

SUBMARINE The most important feature revealed by the survey is the submarine valley which heads about 9 miles northwest of Cape Mendocino. For many years there have been persistent reports of an uncharted "hole" in this vicinity, but no definite

information was ever received. The steamships "TRICOLOR" and "BEAR" were wrecked near Cape Mendocino, and in both cases the captains were misled as to their positions by having crossed this deep valley, which according to the chart existed only south of the cape. In each case they assumed that they had passed Mendocino, and on changing course for Pt. Arena, soon wrecked their vessel rocky coast that exists there.

SEA BOTTOM In this submarine valley the bottom consists of soft sticky mud; so much so that it often took quite a pull to get the lead free from it. North of the valley, the bottom becomes even and the depth curves are nearly parallel to the shore line. South of the valley, there is a large gently sloping flat extending far out from the shore. The 100 fathom curve extends much further off shore than was indicated on the existing chart. The chart shows a 77 fathom sounding in Lat. 40-47, Long. 124-28. This sounding is no doubt in error, for we got 113 fathoms near it, and the depth curves show the bottom to be very uniform. This sounding put a curious kink in the 100 fathom curve that, on close study, seemed improbable.

ERRORS About 5 miles off Humboldt Bay there is an area where the soundings do not cross well. Upon investigation it appears that the soundings made on "R" day are the principal offenders. On this day a S.E. gale was blowing, and toward the outer ends of the lines there was a heavy choppy sea. It may be that the drift of the vessel caused the soundings to appear too great. It is the only way in which I can account for the discrepancy. It is recommended that the soundings made on this day be rejected here, and that the subsequent work be allowed to stand.

TIDE GAUGE An automatic tide gauge was installed on the North Jetty, Humboldt Bay, and ran for the season. The instructions called for a staff at Shelter Cove, but under the condition that had to be met, this could not be done. The plane of reference is being computed in the office, and the books are sent in without the reducers being entered for that reason. In all cases, both in tides and soundings the time used is standard 120 meridian. (See note on page 1, vol. 1 of sounding records).

CURRENTS Off Cape Mendocino the currents appeared variable. On several nights the ship laid to, and various drifts were noted. One night when close inshore she drifted around in a circle, while on other nights when off shore, the drift seemed to be controlled by the wind. North of the cape there was usually a northerly set. The most notable example of this was in November when the ship started out to look for "Tibbette Bank" A short distance off shore a heavy northwester was encountered forcing the ship to put back to TRINIDAD HEAD for shelter. Upon making the light that night, it was found that we were way to the North, the current having set us into the teeth of a heavy wind and sea. I do not remember having seen the current off the

There are no material differences in the crossing with other lines on this chart or with light of former survey; therefore the work of R day has been retained. E.P. Ellis

the Humboldt Jetties setting other than to the North. I question whether the currents observed on the Blunts Reef light vessel are the true ones of this coast. Cape Mendocino seems to be a changing point for weather, and it also produces eddy currents. Our experience indicated that fog is much more prevalent off shore than nearer the shore. Light winds and calms are often met with inshore while a strong northwester is blowing 20 miles off shore

IN GENERAL Very heavy swells were usually encountered off Cape Mendocino, while the Humboldt Bay bar 20 miles to the Northward was often smooth. A change of wind also usually occurred when rounding the cape.

Respectfully submitted,



Chief of Party

WENONAH

Date, 1919.	Letter	Volume.	Positions.	Soundings.	Miles, statute.	Vessels.
September 4,	A	1	7	71	20	Wenonah
" 8,	B	1	44	89	36	"
" 9,	C	1	34	82	28	"
" 11,	D	1	43	85	24	"
" 30,	E	1	6	10	2	"
October 6,	F	1	36	36	22.2	"
" 28,	G	1	10	15	15	"
" 29,	H	1	33	48	17	"
" 31,	J	1	25	31	20	"
November 12,	K	1	13	18	8	"
" 15,	L	1	28	28	23	"
" 16,	M	1	31	59	20	"
December 4,	N	2	32	70	32	"
" 5,	P	2	44	80	40	"
" 6,	Q	2	47	87	35	"
" 9,	R	2	37	74	20	"
" 12,	S	2	25	45	14	"
" 13,	T	2	22	42	14	"
" 16,	U	2	43	62	36	"
Total			560	1062	426.2	

R. R. LUKENS

H. & G. Engineer,
Chief of Party.

AND REFER TO NO. 41-~~EMK~~

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

March 9, 1920.

Division of Hydrography and Topography: ✓

Division of Charts: ✓

Tidal reductions are approved in
2 volumes of sounding records for

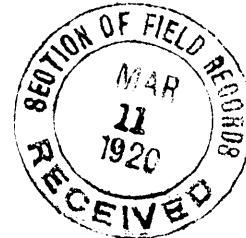
HYDROGRAPHIC SHEET 4095

Off Cape Mendocino, California
R.R. Lukins in 1919

Plane of reference is
Mean lower low water, reading

2.0 ft. on tide staff at N. Jetty Landing,
Humboldt Bay, California.

Condition of records, very satisfactory.



G. T. Under

Chief, Section of Tides
and Currents.

Forwarded
M. G. Parker
Chief, Division of Hyd'y & Top'y

SECTION OF FIELD RECORDS

Report on HYDROGRAPHIC SHEET No. 4095 Surveyed in 1919
Chief of Party R. R. Lukens: Surveyed by Party
Protracted by J. D. Torrey Soundings plotted by J. D. T.
Verified & inked by E. K. Ellis

1. Do the records conform to the requirements of the General Instructions?
Yes, except that soundings were not reduced.
2. Does the plan and character of development fulfill the requirements of the General Instructions? Yes, except for lack of cross lines.
3. Does the plan and extent of development satisfy the specific instructions?
North of the submarine valley the lines are 1 mile apart instead of 1/2 mile and the cross lines are omitted. The 100 fathom curve defining the bank south of submarine valley was not completely developed. Work does not extend to 1000 fathom curve.
4. Are the sounding line crossings adequate? Yes.
5. Can the usual depth curves be completely drawn? Yes, except 100 fathom curve south of submarine valley.
6. Was field plotting completed to the extent prescribed in General Instructions? Note omissions. The soundings were not plotted.
7. Did office draftsmen have to do over any part of drafting done by field party? The work was protracted on poor quality of unbacked paper. It had to be discarded and all the protracting done in the office on standard backed paper.
8. Are the junctions with adjacent sheets satisfactory? Excellent.
9. Is further surveying required to fully develop important areas within the limits of the sheet? Complete the development of 100 fathom curve. Also extend the work out to the 1000 fathom curve. Also additional split lines inside 20 fathom at southern edge of work.
10. Remarks: The field work is excellent, the only criticisms being that the development is not so close as directed by the instructions, there were no cross lines and the work did not extend as far offshore as directed. Plotting the work on unmounted paper was a waste of time as it had to be discarded.
11. Rating of the work ((a) Character and scope of the surveying. Good.
((b) Field drafting (quality) (protracting only).
(Excellent.
(Excellent, good, fair, poor.)

12. Reviewed by E. P. Ellis

Date August 11, 1920

13. Copies of this report to be sent to H. & T. Div. and R. R. Lukens.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

No 1

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. 4095

State California

General locality Pacific Coast, Off-shore

Locality Cape Mendocino to Humboldt Bay

Chief of party R.R. Lukens

Surveyed by WENONAH

Date of survey September-December, 1919

Scale 1:120000

Soundings in Fathoms

Plane of reference

Protracted by C.E.C. Soundings in pencil by

Inked by Verified by

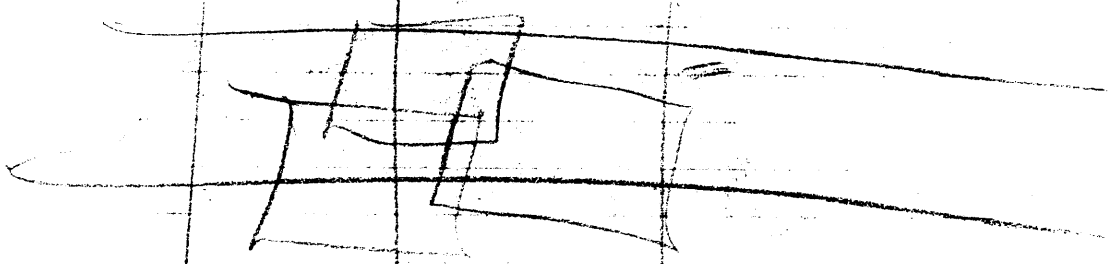
Records accompanying sheet (check those forwarded):

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

2 Sounding books, Wire-drag books, Photographs.

Data from other sources affecting sheet

Remarks:



40

35

45

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