

4728

Diag. Cht. 6002-2

4728

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| Form 504 DEPARTMENT OF COMMERCE U. S. COAST AND GEODETIC SURVEY _____, Director | |
| State: <u>Washington</u> | |
| DESCRIPTIVE REPORT Topographic } Sheet No. ⁴ 4728 Hydrographic } | |
| LOCALITY Grays Harbor | |
| Willapa Bar to Oy hut | |
| _____ 1927 | |
| CHIEF OF PARTY T.J. Maher | |

DESCRIPTIVE REPORT
to accompany
HYDROGRAPHIC SHEET NO.4
of the

Coast of Washington
from
Willapa Bar to Oyhut

Steamer GUIDE
Thos. J. Maher,
Chief of Party.

DESCRIPTIVE REPORT
to accompany
HYDROGRAPHIC SHEET NO.4
Coast of Washington
from
Willapa Bar to Oyhut

*The junction with
H 4732 should be
considered in reviewing
this sheet.*
20m

LIMITS: The limits of this sheet is a rather irregular line beginning at

| | | |
|----------------|------------------|-------------------|
| Lat. 46° 40' | Long. 124° 10' | west to |
| Lat. 46° 40' | Long. 124° 20' | then north to |
| Lat. 46° 48' | Long. 124° 20' | then west to |
| Lat. 46° 48' | Long. 124° 21' | then north to |
| Lat. 47° 01' | Long. 124° 21' | then east to |
| Lat. 47° 01' | Long. 124° 13.5' | then south to |
| Lat. 46° 53.5' | Long. 124° 14' | then southeast to |
| Lat. 46° 52.5' | Long. 124° 10' | then south to |
| Lat. 46° 40' | Long. 124° 10' | |

DESCRIPTION: This head is taken up in detail in the reports accompanying the topographic and launch hydrographic sheets for this area. The country inshore from the beach is flat and with few prominent or distinguishable features, or conspicuous objects. A few of the tall trees on the ridges, running parallel to the shore, were located by sextant cuts for hydrographic control; but difficulty would be experienced by a stranger in attempting to identify any of these; for this reason it is not considered advisable to enter into description.

△Tree,

LAND MARKS: △Lead₃ and △Bea are fully described in descriptive report accompanying launch hydrographic sheet "D", Survey of Willapa Bar. Willapa Bay, and Grays Harbor Light Houses are fully described in Pacific Coast Pilot.

For ⊙Radio, ⊙C.G.Lookout, △Rear, △Front, see description of triangulation stations which are to be forwarded at a later date. Subsequent to the hydrography these stations were located by triangulation (intersection stations).

DANGERS: No offshore dangers were found during the development of this sheet. The contour of the bottom is regular, in so far as the accuracy of the soundings will determine, and for the most part the bottom is of hard fine gray sand with a scattering of rocky and gravel patches.

CURRENTS: The currents for this area run parallel to the shore and seem to depend primarily upon the wind, for example following a northerly blow a current of considerable intensity in a southerly direction is experienced. This conclusion is reached by actual current observations made at various stations while the ship was at anchor for the night, enduring inclement weather.

ANCHORAGES: Grays Harbor and Willapa Bay afford anchorages and protection during bad weather. The channels of both these entrances are well buoyed and marked.

CONTROL: As far north as Grays Harbor the control was furnished by traverse and topographic parties of a previous season. From Grays Harbor north to and beyond the limit of this sheet control was furnished by traverse and topographic party, working as a sub-party from this vessel. These points were supplemented by other objects located by sextant cuts taken from the ship during the progress of the hydrography.

METHOD: The hydrography on this sheet was entirely accomplished by the Ship GUIDE, with her various forms of apparatus. The in-shore section from a junction with the launch sheets to fifteen fathoms was accomplished for the most part by the hand lead and trolley rig or double line system. I may state here that when this hydrography was being done it was not at all times under the most favorable conditions, and when discrepancies exist between launch and ship work, preference should be given to the launch soundings, due to the fact that comparatively calm weather was necessary to do launch hydrography. Beyond fifteen fathoms the Rude-Fischer pressure tubes were used, using two tubes at each cast. Numerous vertical cast soundings were taken for making tube comparisons. In general the tube soundings give a shoaler depth than the vertical cast. Some difficulty was experienced with this method of sounding. In some instances it was almost impossible to obtain even fair agreement between the two tubes, and in one case it was necessary to reject a line of twenty-three positions and rerun the line. It will be noted from the sheet that the greatest difficulty seems to be experienced in that section of the area off Willapa Bay entrance. Part of this difficulty may be due to the fact that this was the first work of the season and the breaking in of a fresh crew is partially responsible. All possible experiments were made in an endeavor to correct any possible faults, such as using different caps, different washers, different ways of attaching tubes to lead, and many other attempts to try and obtain better results. The fathometer was used occasionally, in conjunction with the tube soundings, with very good results.

The area in the vicinity of Latitude $46^{\circ} 54'$ and Longitude $124^{\circ} 16.5'$, where doubtful tube soundings existed, was investigated by the launch by a number of vertical cast soundings, and no indication of shoal was found. It is therefore assumed that the tube soundings were in error and the launch soundings in this area should be accepted.

The entire area on this sheet is covered by a system of one quarter mile lines, run in a north and south direction, with closer development at a junction with the launch sheets. The tidal data for the reduction of soundings on this sheet were, with one exception, obtained from observations of an automatic tide gauge established at Westport, Washington, and these tides reduced to outside conditions as per Director's letter of September 13, 1927. The one exception was "T" day, when tides were obtained from an automatic gauge established at Point Grenville, Washington. On this day the tides were used direct, as per same authority.

The compass deviation entered in the sounding volume is the result of a ship swing on February 28, 1927.

During the progress of the work on this sheet the ship based at Port of Grays Harbor, Washington, where supplies of all kinds were easily obtained.

Respectfully submitted,

H. C. Warwick

H. C. Warwick,
Jr. H & G E,
C & G Survey.

HCW/j

Approved:

Thos. J. Maher
Thos. J. Maher,
Chief of Party.

GEOGRAPHIC POSITIONS OF HYDROGRAPHIC SIGNALS.

| Name | Lat. | & Long. | Description |
|--------|------------|--------------------|--|
| | o | : meters | |
| RIDGE | .46 124 | 43 1724 02 862 | Tree on highest part of ridge, north of Willapa Bay Entrance. |
| BUSH | 46 124 | 44 500 02 1104 | Bushy topped tree, difficult to locate without local knowledge. |
| SPRUCE | 46 124 | 45 214 03 604 | Tall spruce tree on top of ridge, most prominent in vicinity. |
| TIP | 46 124 | 47 1726 04 354 | Tallest and northernmost of two spruce trees, similar in appearance on top of ridge. |
| BROWN* | 46 124 | 48 1540 04 1042 | Top of brownish appearing hill side. |
| CO* | 46 124 | 52 882 06 700 | Highest of prominent clump of trees, shows well, often in hazy weather. |
| LONE* | 46 124 | 57 242 07 552 | Prominent lone tree SE of the end of the tree line on Point Brown. |
| END* | 46 124 | 57 576 07 1136 | Highest point near the southern end of the tree line on Point Brown. |

Difficulty will be experienced in recovering or identifying any of the signals except those marked by an asterisk (*).

STATISTICS SHEET 4.

Date, 1927. Letter Volume Positions Soundings Miles, stat.

| | | | | | |
|----------|----|-------|------|------|-------|
| April 29 | A | 1 | 198 | 380 | 70.0 |
| May 4 | B | 1 | 108 | 211 | 39.0 |
| May 10 | C | 2 | 189 | 381 | 62.8 |
| May 13 | D | 2 & 3 | 145 | 434 | 54.0 |
| May 18 | E | 3 | 97 | 276 | 36.0 |
| May 19 | F | 3 & 4 | 137 | 403 | 54.8 |
| May 20 | G | 4 | 166 | 386 | 77.5 |
| May 25 | H | 5 | 146 | 282 | 56.0 |
| June 9 | J | 5 | 175 | 313 | 66.0 |
| June 10 | K | 6 | 114 | 224 | 53.0 |
| June 11 | L | 6 | 58 | 113 | 23.5 |
| June 13 | M | 6 | 46 | 76 | 20.5 |
| June 14 | N | 6 & 7 | 117 | 196 | 46.5 |
| June 15 | P | 7 | 120 | 213 | 47.7 |
| June 17 | Q | 7 | 64 | 147 | 17.0 |
| June 18 | R | 7 | 23 | 45 | 8.0 |
| June 20 | S | 8 | 76 | 192 | 16.0 |
| July 18 | T | 8 | 76 | 131 | 40.5 |
| Oct. 20 | U | 8 | 88 | 235 | 23.2 |
| TOTAL | 19 | 8 | 2143 | 4638 | 812.0 |

Copy for Record Section files.

February 25, 1928.

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
8 volumes of sounding records for

HYDROGRAPHIC SHEET 4726

Locality: **COAST OF WASHINGTON.**

Chief of Party: **T. J. Maher, 1927.**

Plane of reference is **M L L W**

2.4 ft. on tide staff at **Westport**

2.9 " " " " " **Pt. Grenville**

Condition of records satisfactory except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of each day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.

Chief, Division of Tides and Currents.

IN REPLY ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY
AND NOT THE SIGNER OF THIS LETTER

AND REFER TO No. 11-DRM

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

WASHINGTON

August 25, 1928.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4728

Willapa Bar to Oyhut, Washington

Surveyed in 1927

Instructions dated March 5, 1927.

Chief of Party, T. J. Maher.

Surveyed by ship's officers.

Protracted by E. H. Bernstein.

Soundings plotted by H. C. Warwick.

Verified and inked by F. B. Kelly.

1. The records conform to the requirements of the General Instructions except that on U day no bottom characteristics were given. The reason for this is given on page 51, volume 8. The tube soundings were not averaged and this considerably increased the time of verification.
2. The plan and character of development satisfied the requirements of the General Instructions.
3. Tubes were used in depths less than 15 fathoms and all tube soundings less than 12 fathoms were rejected.
4. In quite a few instances where tubes differed by more than the allowed amount the Chief of Party accepted the sounding and it was plotted by the field party and accepted by the office draftsman.
5. The few crossing lines generally show good agreement.
6. The apparent shoal soundings on the sheet are undoubtedly erroneous since the field party had considerable difficulty getting good agreement. This is explained in their descriptive report.

7. The inshore junction with H. 4710 is not very good; with H. 4610⁷¹ is worse; with H. 4620 is good, and with H. 4658 is bad.

This sheet also joins H. 4729, H. 4735, H. 4633 and H. 4634 that are not yet inked.

8. Field drafting - good.

Report by F. B. Kelly, August 25, 1928.

IN REPLY ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY
AND NOT THE SIGNER OF THIS LETTER

AND REFER TO No. 11-DRM

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

WASHINGTON

December 11, 1928.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4728

Willapa Bar to Oyhut, Grays Harbor, Washington

Surveyed in 1927

Instructions dated April 17, 1926 and March 5, 1927.

Chief of Party, T. J. Maher.

Surveyed by Ship's Officers.

Protracted by E. H. Bernstein.

Soundings plotted by H. C. Warwick.

Verified and inked by F. B. Kelly.

1. The records conform to the requirements of the General Instructions with the following exceptions:
 - a. The means of the tube readings were not entered causing considerable delay to the verifier.
 - b. No bottom characteristics were given on U day. This is explained on page 51, Volume 8.
 - c. A very large percentage of tube soundings were accepted where the differences between them were greatly in excess of the limits prescribed in Circular No. 57, Bulletin 109 for June 1924. A note concerning this was entered on page 4 of Volume 1.
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 with the following exceptions:
 - a. The sounding lines were run in a north and south direction instead of normal to the coast, as called for in paragraph 12 of Instructions of April 17, 1926.
 - b. Tubes were used for soundings in depths less than 15 fathoms. As this resulted in a very poor overlap with sheet H. 4710, all tube soundings less than 12 fathoms were not inked in on the smooth sheet.

- c. Echo soundings with fathometer were taken in depth less than 30 fathoms. Paragraph 11 of Instructions of April 17, 1926 stated that they were to be taken only in depths in excess of 100 fathoms. These were supplemented with tube soundings, however, and a very close agreement was obtained between them. The instructions may have referred to sonic depth finder only, as from information received here at the office the fathometer was installed in 1927.
4. Only a few crossing lines were run and these show fairly good agreement.
5. The information furnished is sufficient for drawing in the depth curves.
6. The usual field plotting was done by the field party and was found to be very good.
7. The junction with sheet H. 4710 is not very good when all soundings on sheet 4728 are used, but by rejecting all tube soundings under 12 fathoms a good agreement is obtained. The junction with sheet H. 4621 is only fair. Where the trolley rig was used for sounding there appear to be several discrepancies, but the hand lead soundings show good agreement; the junction with H. 4620 is very good; with H. 4658 the junction is good with the exception of the soundings between positions 38 S and 41 S (taken with the trolley rig) which run considerably higher, as much as 3 fathoms difference in 6; the junction with sheet H. 4732 (not shown on 4728 at this date) is very good except in the vicinity of the 20 fathom curve where sheet 4728 has a few shoaler soundings. This may be due to an erroneous reading of the tubes, as considerable difficulty was had with them at times as per notes in the record books by the Commanding Officer. The 18 and 19 fathom soundings shown on sheet H. 4728 at Lat. 46° 40', Long. 124° 12' do not seem to be substantiated by the soundings of sheet H. 4732, and as good results were being obtained with the tubes on E day on sheet 4732, while working in this locality, their values are probably more correct than those obtained on S day on sheet 4728, where several erratic values were obtained.

This sheet also joins sheets H. 4729, H. 4633a, H. 4634 and H. 4735, which have not yet been inked in.

8. In reviewing this sheet considerable time had to be spent in rejecting soundings that had been accepted in the field and had been inked in by the verifier. These rejections comprised soundings where the difference between the tube readings greatly exceeded the allowable 3% of the depth, and also where only one tube reading was obtained, the other being a miss. However, all soundings falling under the above classifications were not re-

jected, as that would have opened up some large gaps on the sheet. For instance, on page 58, Vol. 2, there are eight pairs of soundings that differ by more than 3% of the depth and on page 6, Vol. 7, there are four soundings with only one tube, three of which are successive. Where a sounding was obtained that wasn't substantiated by other local soundings and also came under one of the two classifications, it was rejected by authority of the Chiefs of the Sections of Field Records and Field Work.

The Commanding Officer by his notes in the remarks columns (as on page 61, Vol. 2 and on page 51, Vol. 4) has also given authority to reject some of the plotted soundings. To quote him, "Results from tubes very erratic. Checked by officers and men. Caps and tubes changed without improving results."

It may be possible that some of the error was due to the corrections applied to the tube readings. On page 13, Vol. 1 there is a difference of 2 1/2 fathoms between the tube readings and the vertical cast; on page 55, Vol. 4 there is a difference of 2 fathoms between the tube reading and the vertical cast, yet in each of these instances corrections of only 2 and 3 feet were applied to the tube readings.

9. The sounding 16 shown in approximate Lat. 46° 54' and Long. 124° 17' is marked doubtful in the record, page 33, Vol. 5. A launch party was evidently sent out to develop that area, but missed the point in question by about 1/4 of a mile. In view of the Commanding Officer marking this doubtful and the other soundings in the locality not substantiating its existence, it is very questionable as to whether it exists.

reject
16 fathom
sndg, consid-
ered to be
faulty.
R.H.C.
9/18/52

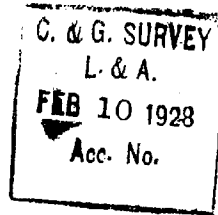
10. Reviewed by J. M. Snook, December, 1928.

Approved:

Chief, Section of Field Records (Charts)

Chief, Section of Field Work (H. & T.)

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY



REG. NO.
4728

HYDROGRAPHIC TITLE SHEET

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. 4

REGISTER NO. 4728

State Washington

General locality Coast of Washington Grays Harbor

Locality Willapa Bar to Oyahut

April 29, 1927 to

Scale: 40,000 Date of survey October 20, 1927

Vessel U.S.C. & G.S.S. GUIDE

Chief of Party Thos. J. Maher

Surveyed by Ship's Officers

Protracted by E. H. Bernstein

Soundings penciled by H. C. Warwick

Soundings in fathoms ~~XXX~~

Plane of reference M.L.L.W.

Subdivision of wire dragged areas by

Inked by

Verified by

Instructions dated March 5, 1927.

Remarks: Work on this sheet contained in eight volumes, accompanying sheet is one cahier of tidal data and one cahier of tube graphs.

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. *4728*.

The following statistics will be submitted with the
cartographer's report on the sheet:

Number of positions on sheet *.2298* .

Number of positions checked *.182* .

Number of positions revised *.27* .

Number of soundings recorded *.4987*

Number of soundings revised *178* .

Number of signals erroneously

plotted or transferred *. . . 0 . . .*

Date: *August 25, 1928* -----

Cartographer: *Francis B. Kelly* -----