

8368

Diag. Cht. No. 5902-2.

Form 504

U. S. DEPARTMENT OF COMMERCE  
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. WCFP-05156 Office No. H-8368

LOCALITY

State Oregon

General locality Nehalem River

Locality Nehalem River Entrance

1957

CHIEF OF PARTY

A. L. Wardwell

LIBRARY & ARCHIVES

DATE March 12, 1958

USCOMM-DC 5087

8368

100B

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

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.

REGISTER No. H- 8368

Field No. WCFP 05156

State OREGON

General locality NEHALEM RIVER

Locality NEHALEM RIVER ENTRANCE

Scale 1:5000 Date of survey 25 June - 26 July 1957

Instructions dated 9 April 1956

Vessel Launch C.S. 160

Chief of party CDR. A.L. Wardwell

Surveyed by Ens. J.K. Richards

Soundings taken by fathometer, ~~graphic recorder, hand lead, wire~~ and pole

Fathograms scaled by A.W. Brain, H.D. Lantzy

Fathograms checked by Ens. J.K. Richards, Ens. V. Kiisk

Protracted by Ens. J.K. Richards

Soundings penciled by Ens. J.K. Richards

Soundings in ~~fathoms~~ feet at MLW MLLW and are true depths

REMARKS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

762

DESCRIPTIVE REPORT

TO ACCOMPANY HYDROGRAPHIC SURVEYS  
H-8368 (WCFP 05156) and H-8369 (WCFP 05256)

NEHALEM RIVER, OREGON  
PROJECT 13820

DATES OF SURVEYS: 1956 and 1957

SCALE OF SHEETS: 1:5000

WEST COAST FIELD PARTY

HORACE G. CONERLY, CHIEF OF PARTY (1956)  
ARTHUR L. WARDWELL, CHIEF OF PARTY (1957)

SURVEYED BY: H.G. CONERLY, J.K. RICHARDS

PROJECT:

The project number is 13820. Instructions are by the Director, dated 9 April 1956. Pertinent data is also included in the supplemental instructions of 8 May 1957 by the Acting Director, and the letter of 31 August 1956 by the Assistant Director.

SURVEY LIMITS AND DATES:

The general locality of these surveys is the Nehalem River, Oregon. The hydrographic survey on sheet H-8368<sup>(57)</sup> extends from the bend in the river at lat.  $45^{\circ} 41.5'$ , long.  $123^{\circ} 55.5'$  downstream to the entrance, including an area<sup>(58)</sup> of development around the bar. The hydrography on sheet H-8369 includes Nehalem Bay and the river from the fork at lat.  $45^{\circ} 44.0'$ , long.  $123^{\circ} 52.5'$  downstream to the junction with survey H-8368.<sup>(57)</sup>

Field work commenced on survey H-8368 on 25 June 1957 and continued intermittently until 26 July 1957. The field work on sheet H-8369 began on 23 October 1956, but was discontinued after 6 November 1956. Hydrography resumed on 2 July 1957 and continued intermittently until 26 July 1957.

Sheet H-8368<sup>(57)</sup> makes a junction with the offshore survey WCFP 1756, H-8346.<sup>(56)</sup> *see P 4 Review*

VESSEL AND EQUIPMENT:

Launch no. C.S. 160 and a skiff were used for all sounding lines. The skiff was used for the hydrography in Nehalem Bay in 1956. All other sounding lines were run with the launch in 1957. All fathometer soundings were taken aboard the launch with an 808 J type

fathometer, no. 152 SPX, with an outboard acoustic unit mounted on the starboard side. All soundings taken from the skiff were pole soundings.

#### TIDE AND CURRENT STATIONS:

Portable tide gages were maintained at Brighton, Wheeler, and Nehalem, Oregon. The Brighton gage was used for all the tide reducers on sheet H-8368. The Wheeler and Nehalem gages were used for the work on sheet H-8369. For full information, see TIDE NOTE in this report. An abstract of smooth tide reducers is attached to this report.

No current stations were occupied.

#### SMOOTH SHEET:

The projection for each sheet was made by hand at the C&GS Ships' Base in Seattle, Washington.

The shoreline was transferred from advance blue-line tracings. The shoreline and most of the topographic details were not inked on the sheets. *Shoreline + topo inked from reviewed Air-photo surveys T-11459, T-11461 + T-11462 of 1954.*

All positions were plotted with the three-arm protractor.

#### CONTROL STATIONS:

Ten control stations were previously-established triangulation stations, three signals were offset from triangulation stations and new G.P.'s computed, nine stations were located by the hydrographic party, and the rest of the signals were located from aerial photographs by the photogrammetry party. See LIST OF SIGNALS USED for details.

#### SHORELINE AND TOPOGRAPHY:

The shoreline was taken from manuscripts T-11457, T-11458, T-11459, T-11461, and T-11462. *Advance Manuscripts applied during processing. Reviewed Manuscripts of 1954 applied during Verification.*

The major discrepancies between the topographic and hydrographic surveys are outlined below:

Sheet H-8368--(1957)

1. The rock jetties at the Nehalem River entrance were found to extend further offshore than shown on the manuscript. The ends of these jetties were located by sextant cuts at low tide, and are shown on the smooth sheet.
2. The northerly two piling of the group of three R.R. rail

*Advance Manuscript.*

piling at lat.  $45^{\circ} 40.45'$ , long.  $(123^{\circ} 55.45')$  were located incorrectly on manuscript T-11461. These piles were located by the hydrographic party, using 3-point sextant fixes with check angles. The correct positions of these piles are shown on the smooth sheet. *Topo positions revised to agree with hydro location during topo review*

3. The offshore rows of piling in the vicinity of the Brighton tide station (lat.  $45^{\circ} 40.22'$ , long.  $123^{\circ} 55.45'$ ) are not completely defined on the manuscript. A series of 3-point sextant fixes were used by the hydrographic party to locate the piling more completely.

Sheet H-8369--

1. The fender of the swing bridge over the Nehalem River at lat.  $45^{\circ} 42.65'$  has been rebuilt since the photogrammetric manuscripts were compiled. The new fender is considerably shorter. Hydrographic signals VEL and JIM define the north and south end of the fender, respectively.
2. The location of some of the numerous piles and dolphins on this sheet was checked by the hydrographic party. In several areas there is a slight discrepancy between the topographic and hydrographic location of these details. In such cases, the same feature is shown both in blue (from the blueline print) and in pencil (hydrographic location) on the smooth sheet.

Not  
Applicable

Several boat floats on both sheets were located by the hydrographic party and are shown in pencil. These floats are not indicated on the manuscripts.

SOUNDINGS:

Soundings were taken with the fathometer and/or pole. The outboard acoustic unit was originally set one foot below the water surface, until excessive aeration required the unit to be lowered to two feet. Bar checks were taken with the "fish" at each depth. Further information can be found in the fathometer report for project 13820, which has been forwarded to the Director. An abstract of echo corrections is attached to this report.

CONTROL OF HYDROGRAPHY:

The positions of the launch and skiff were fixed by sextant angles on previously located objects ashore.

ADEQUACY OF SURVEY:

These surveys are considered adequate for charting purposes, and should supercede all previous surveys.

A tracing was made of the soundings and depth curves at the junction of the two sheets. The hydrography done by the launch on sheet H-8369<sup>(56)</sup> compared favorably with the work on sheet H-8368;<sup>(57)</sup> there were no excessive differences in soundings and the depth curves coincided. However, the soundings taken by the skiff on H-8369 did not agree with the launch hydrography on H-8368. Some of the skiff sounding lines may be slightly displaced because of weak fixes in this area. Since the skiff and launch work were done in two different seasons, the depths may have changed. A difference in tidal datums between the two seasons also probably caused some of the discrepancy.\* (See CROSSLINES for more detail.)  
\* *Choppy seas during 1957 work also contributed to this disagreement. By re-sounding 1957 9-day fathogram, with due consideration to chop, a satisfactory junction was effected between H-8368 and H-8369.*

CROSSLINES:

The soundings lines on sheet H-8368 include 7.5% crosslines. All crosslines appear satisfactory, especially the crossings in the river channel. A discrepancy of about 10%, however, occurs at several crossings of the north-south lines outside the entrance with the east-west lines between long. 123° 56.55' and long. 123° 56.95'. See P 7 Review

Survey H-8369 contains 6.4% crosslines. All crosslines appear satisfactory, with the following exception: the lines run by the launch in 1957 between signals JAR and SOUTH, parallel with the channel, do not agree with the east-west lines run by the skiff in 1956. (The skiff work occurs north of lat. 45° 41.55'.) The 1957 hydrography is consistently shoaler than the 1956 work. This discrepancy may be due in part to the fact that the channel is very changeable, and the depths probably changed somewhat between the fall of 1956 and the summer of 1957. Also, the MLIW value on the Wheeler tide staff was lowered from 3.2 feet in 1956 to 2.7 feet in 1957. (The staff remained in the same place between the two seasons.) This change in datum by the Tides Division resulted in shoaler depths for the 1957 work. Finally, the pole used in the skiff sounding may have been jabbed into the river bottom in soft places, resulting in an incorrect reading.

Not  
Applicable

COMPARISON WITH PRIOR SURVEYS:

A comparison of survey H-973, 1868, 1:5000 was made with sheet H-8368. The major difference is, of course, at the river entrance. The two rock jetties have changed the entrance and the bar considerably. See COMPARISON WITH CHART.

There were no copies of old surveys in the area of survey H-8369 issued to the hydrographic party. There were no Corps of Engineers surveys forwarded to the hydrographic party.

Not  
Applicable

COMPARISON WITH CHART:

The two surveys were compared with chart 6122, Nov. 1938. The major differences between the new surveys and the chart are listed below:

Sheet H-8368--

1. The shoal area enclosed by the six-foot curve (extending southwest from the end of the north jetty on the chart) has deepened. A dangerous shoal now extends offshore from the south jetty. (See DANGERS AND SHOALS) *P 6 Review*
2. The hydrographic party verified the existence of Crab Rock (lat.  $45^{\circ} 39.58'$ ; long.  $123^{\circ} 55.82'$ ) and the rocks at lat.  $45^{\circ} 39.82'$ ; long.  $123^{\circ} 55.9'$  and lat.  $45^{\circ} 39.667'$ ; long.  $123^{\circ} 55.90'$ . *These are low water rocks. P 6 Review*
3. The 7-foot shoal sounding at lat.  $45^{\circ} 40.17'$ ; long.  $123^{\circ} 55.51'$  was investigated and verified by the hydrographer.
- 4.\*The face of the old dock at Brighton, immediately north-eastward of the 7-foot shoal, is now just a row of piling in ruins. The daybeacon designated as "BN 2" on the chart *P 6 Review* has been destroyed. *\* The delineation of the wharf ruins on T-11461 is superseded by this survey.*
5. The charted log boom in the river channel at lat.  $45^{\circ} 41'$  no longer exists. *P 6 Review*
6. The detached 6-foot shoal, shown on the chart at lat.  $45^{\circ} 41.58'$ , long.  $123^{\circ} 55.53'$ , was searched for by the hydro- *8' removed from chart* grapher but was not found.
5. The recent survey shows that the river channel has shoaled between latitudes  $45^{\circ} 40.7'$  and  $45^{\circ} 41.5'$ . Otherwise, no great differences in depths occur inside the river entrance.

Sheet H-8369--

1. The charted log boom, shown on the south side of the river between longitudes  $123^{\circ} 54.23'$  and  $123^{\circ} 54.81'$ , no longer exists. There are, however, many broken piles in this area.
2. Considerable shoaling has taken place in the channel between longitudes  $123^{\circ} 53.8'$  and  $123^{\circ} 55.2'$ . A continuous channel of six-foot depth or deeper no longer exists in this area.
3. A dike and bulkhead, now connecting Deans Point with the north end of Lazarus Island, have caused shoaling in the channel northwest of Lazarus Island and have caused a corresponding deepening in the main channel between lat.  $45^{\circ} 42.0'$  and long.  $123^{\circ} 53.8'$ .
4. The charted tidal lagoon and slough at lat.  $45^{\circ} 42.1'$ , long.  $123^{\circ} 52.8'$  have been diked off from the river and are connected to the river by a tide gate.
5. Many uncharted rows of piling and dolphins now exist along the banks of the river in the vicinity of Wheeler and upstream to the project limits. These details are shown on the smooth sheet.

Not  
Applicable

DANGERS AND SHOALS:

The most significant shoal that was found is the area enclosed by the 6-foot curve, just offshore from and south of the Nehalem River entrance. The least depth on this shoal is  $3\frac{1}{2}$  feet (one sounding before position 93e). There are usually heavy breakers in this area. This shoal makes the use of Range 1 hazardous to navigation. p 6 Review

No other important uncharted dangers were found in the area of these surveys. All piling and other obstructions of a permanent nature are shown on the smooth sheets. Many snags and logs become lodged in shoal areas and along the shoreline of the river, but they shift position with variations in the stage of the river.

COAST PILOT INFORMATION:

The Nehalem River bar is best approached from the northwest, and Range 2 should be used in navigating the entrance channel. *7' on entrance range* The controlling depth over the bar is  $8\frac{3}{4}$  feet. There is also a controlling depth of 8 feet in the river channel up to the bend in the river at Fishery Point. Between this bend and Lazarus Island the channel is difficult to follow. \*A minimum depth of  $3\frac{1}{2}$  feet occurs between longitudes  $123^{\circ} 54.1'$  and  $123^{\circ} 54.3'$ . \* Not applicable

AIDS TO NAVIGATION:

The fixed aids to navigation in the area of these surveys were located by the topographic party in 1954. Form 567 was submitted at that time. *Chart Ltr 1094 (1954)*

There is a difference in the numbering system of the daybeacons between the chart and the topographic party, as shown below:

| <u>Triangulation Designation</u> | <u>Chart Desig.</u> | <u>Remarks</u>  |
|----------------------------------|---------------------|---|
| NEHALEM RIVER, DAYBEACON 1, 1954 | BN "2"              | Destroyed   |
| NEHALEM RIVER, DAYBEACON 2, 1954 | BN "3"              |   |
| NEHALEM RIVER, DAYBEACON 3, 1954 | BN "5"              |   |
| NEHALEM RIVER, DAYBEACON 4, 1954 | BN "6"              |   |
| NEHALEM RIVER, DAYBEACON 5, 1954 | BN "8"              | This daybeacon has been knocked about 6 meters out of position, and is shown on the sheet as hydro. signal TEX. |

*Not applicable*

No overhead clearances of bridges and cables were determined by the hydrographic party. This data is listed in the descriptive report by the topographer, 1954.



There are no floating aids on these sheets. ✓

There is a submarine cable on sheet H-8368, with termini at signal SIN and the inshore end of the south jetty. ✓

TABULATION OF APPLICABLE DATA:

1. Brighton Tide Station report forwarded to the Director 2 July 1957. Level data for installation of Brighton tide gage forwarded to the Director 2 July 1957. Level data for removal of gage forwarded 13 Aug. 1957. Marigrams 1 thru 8 for Brighton Tide Station were forwarded 6 Aug. 1957. ✓

Wheeler Tide Station, 1956 installation: Tide station report forwarded 30 Nov. 1956. Level data for installation and removal was forwarded 3 Dec. 1956. Marigrams 1-9 sent 4 Dec. 1956. Wheeler Tide Station, 1957 installation: Tide station report forwarded 2 July 1957. Installation level data was forwarded 2 July 1957. Removal level data was forwarded 13 Aug. 1957. Marigrams 1 thru 8 forwarded 6 Aug. 1957. ✓

Not applicable

Nehalem Tide Station report forwarded 2 July 1957. Level data for installation of gage sent 2 July 1957. Level data for removal of gage forwarded 13 Aug. 1957. Marigrams 1 thru 8 forwarded 6 Aug. 1957. ✓

2. Office and field photographs to be forwarded to the Director. ✓
3. Photo manuscripts and blue-line impressions to be forwarded to the Director. ✓
4. Special fathometer report has been forwarded to the Director. ✓
5. Fathograms to be forwarded to the Director. ✓
6. Sounding volumes to be forwarded to the Director. ✓
7. Boat sheets to be forwarded to the Director. ✓
8. Copies of old surveys to be sent to the Director. ✓

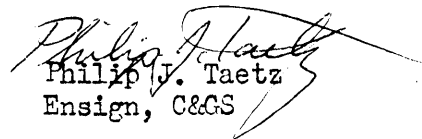
Respectfully Submitted,

*James K. Richards*  
James K. Richards  
Ensign, C&GS

APPROVAL SHEET

HYDROGRAPHIC SURVEYS H-8368 and H-8369

This survey is complete and adequate for charting purposes, and no additional work is recommended. The Chiefs of Party kept close personal supervision over the work.

  
Philip J. Taetz  
Ensign, C&GS

FATHOMETER REPORT

Launch CS-160 1957

PROJECT 13820

NEHALEM RIVER, OREGON

2015  
22  
NOV 20 1957

EQUIPMENT:

All fathometer soundings were taken by an 808 J type fathometer, No. 152 SPX. The acoustic unit was mounted on the starboard side of the launch. This unit was set one foot below the surface of the water for the first day and part of the second day of work only, and the initial held at one foot. Because of excessive aeration with the "fish" at this depth, it was lowered to two feet below the surface, and the initial was held at two feet. The unit remained at two feet for the rest of the project.

COMPUTATION OF CORRECTIONS:

During the season, two bar checks were taken with the "fish" at one foot, and three bar checks and a series of pole comparisons were taken with the "fish" at two feet. All bar checks were taken under good conditions.

The fathometer corrections from the bar checks with the "fish" at one foot were meaned and plotted against the true depth. A smooth curve was drawn and the corrections scaled off to the nearest 0.2 foot. A similar curve was drawn for the bar checks taken when the "fish" was set at two feet.

SCALED CORRECTIONS:

-----  
Fish at 1.0 ft. "A" scale only  
Initial 1.0 ft.

| Fath. Reading (ft.) | Correction to sounding (ft.) |
|---------------------|------------------------------|
| 0 to 17.0           | -0.2                         |
| 17.2 to 35.0        | 0.0                          |

-----

Fish at 2.0 ft. "A" scale only  
Initial 2.0 ft.

| Fath. Reading (ft.) | Correction to sounding (ft.) |
|---------------------|------------------------------|
| 0 to 10.6           | -0.6                         |
| 10.8 to 21.7        | -0.4                         |
| 21.8 to 43.0        | -0.2                         |

*James K. Richards*  
James K. Richards  
ENS, C&GS

Approved and forwarded: *Arthur L. Wardwell*  
Arthur L. Wardwell, Chief of Party

STATISTICS FOR HYDROGRAPHIC SURVEY

FIELD NO. WCFP 95156 - REGISTRY NO. H-8368

LAUNCH CS 160 - PROJECT 13820

| VOL.NO. | DAY<br>LETTER | DATE    | NO.POS.    | H.L.& Pole<br>Sdgs. | Stat. Miles | Method |
|---------|---------------|---------|------------|---------------------|-------------|--------|
| 1       | a             | 25 June | 129        | 4                   | 11.0        | L      |
| 1 & 2   | b             | 26 "    | 225        | 32                  | 16.0        | L      |
| 2       | c             | 27 "    | 77         | 17                  | 4.3         | L      |
| 2       | d             | 8 July  | 138        | 16                  | 11.8        | L      |
| 2 & 3   | e             | 12 "    | 100        | 0                   | 10.3        | L      |
| 3       | f             | 13 "    | 42         | 0                   | 3.6         | L      |
| 3       | g             | 15 "    | 15         | 0                   | 1.0         | L      |
| 3       | h             | 17 "    | 44         | 42                  | 0.0         | S      |
| 3       | j             | 18 "    | 73         | 70                  | 0.0         | S W    |
| 3       | k             | 26 "    | 15         | 1                   | 1.0         | L      |
|         |               |         | <u>858</u> | <u>182</u>          | <u>59.0</u> |        |

Total area, square statute miles = 1.36

L Launch  
 S Skiff  
 W Walking shoreline

TIDE NOTE FOR HYDROGRAPHIC SURVEYS

H-8368 (WCFP 05156) and H-8369 (WCFP 05256)

A portable tide gage at Brighton, Oregon (lat.  $45^{\circ} 40.22'$ , long.  $123^{\circ} 55.45'$ ) was used for all tide reducers on survey H-8368. The MLLW value on the tide staff was 4.0 feet. No corrections for differences in time or height were applied to the observed tides.

A portable tide gage was established near Wheeler, Oregon (lat.  $45^{\circ} 41.28'$ , long  $123^{\circ} 53.49'$ ) in 1956, and was used for all the hydrography done on sheet H-8369 in that year. The MLLW value on the tide staff was 3.2 feet. No corrections for differences in time or height were applied to the observed tides.

The same tide gage and staff was used in 1957 for all the hydrography in the river on sheet H-8369 downstream from the north end of the island at latitude  $45^{\circ} 42.1'$ . The MLLW value on the staff at this time was 2.7 feet. No range or height corrections were applied to the observed tides.

*Not applicable*

A portable tide gage and staff was maintained near Nehalem, Oregon (lat.  $45^{\circ} 42.67'$ , long.  $123^{\circ} 53.41'$ ), and was used for all the hydrography on sheet H-8369 upstream from the north end of the island at latitude  $45^{\circ} 42.1'$ . The MLLW value on the staff was 2.7 feet. No corrections for differences in time or height were applied to the observed tides.

## LIST OF SIGNALS USED ✓

FIELD NO. WCFP 05156 REGISTRY NO. H- 8368

| Hydrographic Name | Type of Station | Origin of Signal  |
|-------------------|-----------------|---|
| ABO               | <i>Topo</i>     | Manuscript T- 11461 (Photo- Hydro Point 6102)   |
| BEA               | Δ               | NEHALEM RIVER, DAYBEACON 2, 1954  |
| BEN               | <i>Topo</i>     | Manuscript T- 11459   |
| DAY               | Δ               | NEHALEM RIVER, DAYBEACON 3, 1954  |
| DUN               | <i>Topo</i>     | See G.P. computations, this report  |
| FRONT             | Δ               | NEHALEM RIVER ENTRANCE, RANGE 1, FRONT LIGHT, 1954  |
| GAB               | <i>Topo</i>     | Manuscript T- 11461 (Photo-Hydro Point 6101)  |
| HAL               | Δ               | NEHALEM, 1926-1934-1936   |
| HUT               | <i>Topo</i>     | Manuscript T- 11461 (Photo-Hydro Point 6107)  |
| JAR               | <i>Hydro</i>    | 3 pt. fix - See Index Volume 1  |
| KEL               | <i>Topo</i>     | Manuscript T- 11462   |
| PRO               | Δ               | GABLE, PROMINENT WHITE HOUSE SOUTH OF BRIGHTON, 1926  |
| RAG               | <i>Hydro</i>    | 3 pt. fix - See Index Volume 1  |
| RAN               | <i>Topo</i>     | Manuscript T- 11461 (TOPOGRAPHIC STATION: NEHALEM RIVER ENTRANCE, RANGE 2, FRONT DAYBEACON, 1954) |
| REAR              | Δ               | NEHALEM RIVER ENTRANCE, RANGE 1, REAR LIGHT, 1954   |
| RED               | <i>Topo</i>     | Manuscript T- 11461 (Photo-Hydro Point 6104)  |
| RIG               | <i>Topo</i>     | Manuscript T- 11461   |
| SIN               | <i>Topo</i>     | Manuscript T- 11461 (Photo-Hydro Point 6111)  |
| SOUTH             | Δ               | SOUTH, 1954   |
| SUN               | <i>Topo</i>     | Manuscript T- 11461   |
| TAN               | <i>Topo</i>     | See G.P. computations, this report  |
| TOP               | <i>Topo</i>     | Manuscript T- 11561 (Photo-Hydro Point 6106)  |
| WES               | <i>Topo</i>     | Manuscript T- 11461 (Photo-Hydro Point 6110)  |
| YEL               | <i>Topo</i>     | Manuscript T- 11461 (Photo-Hydro Point 6103)  |

ABSTRACT OF SMOOTH TIDE REDUCERS

BRIGHTON, OREGON TIDE GAGE

SHEET WCFP 05156 REGISTRY NO. H- 8368

"a" day, 25 June

|           |       |     |
|-----------|-------|-----|
| 1031-1054 | - 5.0 | ft. |
| -1205     | - 5.2 |     |
| -1224     | - 5.0 |     |
| -1241     | - 4.8 |     |
| -1256     | - 4.6 |     |
| -1311     | - 4.4 |     |
| -1324     | - 4.2 |     |
| -1338     | - 4.0 |     |
| -1352     | - 3.8 |     |
| -1407     | - 3.6 |     |
| -1422     | - 3.4 |     |

"b" day, 26 June

|           |       |  |
|-----------|-------|--|
| 0906-0913 | - 3.0 |  |
| 0921      | - 3.2 |  |
| -0928     | - 3.4 |  |
| -0937     | - 3.6 |  |
| -0945     | - 3.8 |  |
| -0953     | - 4.0 |  |
| -1003     | - 4.2 |  |
| -1013     | - 4.4 |  |
| -1024     | - 4.6 |  |
| -1035     | - 4.8 |  |
| -1047     | - 5.0 |  |
| -1100     | - 5.2 |  |
| -1113     | - 5.4 |  |
| -1133     | - 5.6 |  |
| -1236     | - 5.8 |  |
| -1300     | - 5.6 |  |
| -1317     | - 5.4 |  |
| -1332     | - 5.2 |  |
| -1347     | - 5.0 |  |
| -1402     | - 4.8 |  |
| -1413     | - 4.6 |  |
| -1427     | - 4.4 |  |
| -1438     | - 4.2 |  |
| -1450     | - 4.0 |  |
| -1504     | - 3.8 |  |
| -1520     | - 3.6 |  |
| -1536     | - 3.4 |  |

"c" day, 27 June

|           |       |     |
|-----------|-------|-----|
| 0948-0956 | - 3.4 | ft. |
| -1004     | - 3.6 |     |
| -1012     | - 3.8 |     |
| -1020     | - 4.0 |     |
| -1028     | - 4.2 |     |
| -1036     | - 4.4 |     |
| -1044     | - 4.6 |     |
| -1053     | - 4.8 |     |
| -1102     | - 5.0 |     |
| -1111     | - 5.2 |     |
| -1121     | - 5.4 |     |
| -1131     | - 5.6 |     |
| -1143     | - 5.8 |     |
| -1154     | - 6.0 |     |
| -1205     | - 6.2 |     |
| -1223     | - 6.4 |     |
| -1335     | - 6.6 |     |
| -1355     | - 6.4 |     |
| -1409     | - 6.2 |     |

"d" day, 8 July

|           |       |  |
|-----------|-------|--|
| 0920-0933 | - 5.0 |  |
| -0949     | - 5.2 |  |
| -1013     | - 5.4 |  |
| -1114     | - 5.6 |  |
| -1141     | - 5.4 |  |
| -1200     | - 5.2 |  |
| -1212     | - 5.0 |  |
| -1225     | - 4.8 |  |
| -1239     | - 4.6 |  |
| -1252     | - 4.4 |  |
| -1306     | - 4.2 |  |
| -1323     | - 4.0 |  |
| -1340     | - 3.8 |  |
| -1400     | - 3.6 |  |

"e" day, 12 July

|           |       |     |
|-----------|-------|-----|
| 1031-1038 | - 3.4 | ft. |
| -1045     | - 3.6 |     |
| -1053     | - 3.8 |     |
| -1100     | - 4.0 |     |
| -1107     | - 4.2 |     |
| -1115     | - 4.4 |     |
| -1124     | - 4.6 |     |
| -1133     | - 4.8 |     |
| -1142     | - 5.0 |     |
| -1150     | - 5.2 |     |
| -1203     | - 5.4 |     |
| -1213     | - 5.6 |     |
| -1225     | - 5.8 |     |
| -1237     | - 6.0 |     |
| -1251     | - 6.2 |     |

"f" day, 13 July

|           |       |  |
|-----------|-------|--|
| 1325-1451 | - 6.8 |  |
| -1507     | - 6.6 |  |
| -1521     | - 6.4 |  |

"g" day, 15 July

|           |       |  |
|-----------|-------|--|
| 1441-1532 | - 6.8 |  |
|-----------|-------|--|

"h" day, 17 July

|           |       |  |
|-----------|-------|--|
| 1344-1354 | - 4.6 |  |
| -1403     | - 4.8 |  |
| -1413     | - 5.0 |  |
| -1424     | - 5.2 |  |
| -1435     | - 5.4 |  |
| -1447     | - 5.6 |  |

ABSTRACT OF SMOOTH TIDE REDUCERS

BRIGHTON, OREGON TIDE GAGE

SHEET WCFP 05156    REGISTRY NO. H- 8368

"j" day, 18 July

|           |       |     |
|-----------|-------|-----|
| 0923-1105 | - 1.2 | ft. |
| -1121     | - 1.4 |     |
| -1136     | - 1.6 |     |
| -1150     | - 1.8 |     |
| -1202     | - 2.0 |     |
| -1214     | - 2.2 |     |

"k" day, 26 July

|           |       |     |
|-----------|-------|-----|
| 1113-1128 | - 5.6 | ft. |
| -1148     | - 5.8 |     |
| -1300     | - 6.0 |     |



POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

SIGNAL TAN ° ' "

SIGNAL DUN ° ' "

|                |                       |     |    |      |                |                               |     |    |      |
|----------------|-----------------------|-----|----|------|----------------|-------------------------------|-----|----|------|
| $\alpha$       | 2 MANZANITA, to 3 HOT | 240 | 47 |      | $\alpha$       | 3 NEDOWUA, to 2 NEHALEM, 1926 | 185 | 52 | 06.1 |
| 3d L           | 1926 &                | +86 | 41 |      | 3d L           | 1954 &                        | +94 | 30 | 15.4 |
| $\alpha$       | 2 MANZANITA to 1 TAN  | 154 | 06 |      | $\alpha$       | 3 NEDOWUA to 1 R.M. 2         | 280 | 22 | 21.5 |
| $\Delta\alpha$ |                       |     |    |      | $\Delta\alpha$ |                               |     |    |      |
| $\alpha'$      | 1 to 2                | 180 | 00 | 00.0 | $\alpha'$      | 3 NEDOWUA to 2 DUN            | 180 | 00 | 00.0 |
|                |                       |     |    |      |                |                               | 100 | 22 | 21.5 |

FIRST ANGLE OF TRIANGLE

|                           |          | meters                        |        | meters                        |                 | meters                        |    | meters     |              |                               |    |                   |                 |                               |     |                   |       |
|---------------------------|----------|-------------------------------|--------|-------------------------------|-----------------|-------------------------------|----|------------|--------------|-------------------------------|----|-------------------|-----------------|-------------------------------|-----|-------------------|-------|
| $\phi$                    | 45       | 41                            | 1363.8 | 2 MANZANITA, 1926             | $\lambda$       | 123                           | 56 | 238.2      | $\phi$       | 45                            | 38 | 1097.1            | 3 NEDOWUA, 1954 | $\lambda$                     | 123 | 56                | 494.4 |
| $\Delta\phi$              |          |                               | +72.3  |                               | $\Delta\lambda$ |                               |    | +35.1      | $\Delta\phi$ |                               |    | +2.5              |                 | $\Delta\lambda$               |     |                   | +13.8 |
| $\phi'$                   | 45       | 41                            | 1436.1 | 1 TAN                         | $\lambda'$      | 123                           | 56 | 273.3      | $\phi'$      | 45                            | 38 | 1099.6            | 1 DUN           | $\lambda'$                    | 123 | 56                | 508.2 |
| Logarithms                |          | Values in seconds             |        | Values in seconds             |                 | $\frac{1}{2}(\phi+\phi')$     |    | Logarithms |              | Logarithms                    |    | Values in seconds |                 | Values in seconds             |     | Values in seconds |       |
| s                         | 1.90509  | S = 80.37 m                   |        | S = 14.05 m                   |                 | ° ' "                         |    | ° ' "      |              | ° ' "                         |    | ° ' "             |                 | ° ' "                         |     | ° ' "             |       |
| Cos $\alpha$              | 9.95403  | meters                        |        | meters                        |                 | Logarithms                    |    | Logarithms |              | Logarithms                    |    | Logarithms        |                 | Logarithms                    |     | Logarithms        |       |
| B                         |          |                               |        |                               |                 | 1.90509                       |    | 9.25539    |              | 1.14767                       |    | 1.14767           |                 | 1.14767                       |     | 1.14767           |       |
| h                         | 11.85912 | 1st term                      |        | 1st term                      |                 | Sin $\alpha$                  |    | 9.64028    |              | Sin $\alpha$                  |    | 9.99284           |                 | Sin $\alpha$                  |     | 9.99284           |       |
| $s^2$                     |          | A'                            |        | A'                            |                 | A'                            |    |            |              | A'                            |    | A'                |                 | A'                            |     | A'                |       |
| Sin <sup>2</sup> $\alpha$ |          | Sec $\phi'$                   |        | Sec $\phi'$                   |                 | Sec $\phi'$                   |    | 11.54537   |              | Sec $\phi'$                   |    | 11.14051          |                 | Sec $\phi'$                   |     | 11.14051          |       |
| C                         |          | $\Delta\lambda$               |        | $\Delta\lambda$               |                 | $\Delta\lambda$               |    | +35.1      |              | $\Delta\lambda$               |    | 11.14051          |                 | $\Delta\lambda$               |     | +13.8             |       |
|                           |          | Sin $\frac{1}{2}(\phi+\phi')$ |        | Sin $\frac{1}{2}(\phi+\phi')$ |                 | Sin $\frac{1}{2}(\phi+\phi')$ |    |            |              | Sin $\frac{1}{2}(\phi+\phi')$ |    |                   |                 | Sin $\frac{1}{2}(\phi+\phi')$ |     |                   |       |
| $h^2$                     |          | - $\Delta\alpha$              |        | - $\Delta\alpha$              |                 | - $\Delta\alpha$              |    |            |              | - $\Delta\alpha$              |    |                   |                 | - $\Delta\alpha$              |     |                   |       |
| D                         |          | 3d term                       |        | 3d term                       |                 | 3d term                       |    |            |              | 3d term                       |    |                   |                 | 3d term                       |     |                   |       |
|                           |          | +72.3                         |        | +72.3                         |                 | +72.3                         |    |            |              | +72.3                         |    |                   |                 | +72.3                         |     |                   |       |

See sketch opposite page 2, Vol. 1

See sketch on page 2, Vol. 1

GEOGRAPHIC NAMES

Survey No. H-8368

| Name on Survey                | On Chart No. | On Previous survey No. | On U. S. quadrangle Maps | From local information | On local Maps | P. O. Guide or Map | Rand McNally Atlas | U. S. Light List |     |   |    |
|-------------------------------|--------------|------------------------|--------------------------|------------------------|---------------|--------------------|--------------------|------------------|-----|---|----|
|                               | A            | B                      | C                        | D                      | E             | F                  | G                  | H                | K   |   |    |
| Oregon                        |              |                        | (title)                  |                        |               |                    |                    |                  | BGN | 1 |    |
| <u>Nehalem River Entrance</u> |              |                        | "                        |                        |               |                    |                    |                  |     | 2 |    |
| <u>Nehalem River</u>          |              |                        | "                        |                        |               |                    |                    |                  | BGN | 3 |    |
| <u>Nehalem Beach</u>          |              |                        |                          |                        |               |                    |                    |                  | "   | 4 |    |
| <u>Brighton</u>               |              |                        | (tide station)           |                        |               |                    |                    |                  |     | 5 |    |
| <u>Fishery Point</u>          |              |                        |                          |                        |               |                    |                    |                  |     | 6 |    |
| <u>Nehalem Bay</u>            |              |                        |                          |                        |               |                    |                    |                  | BGN | 7 |    |
|                               |              |                        | Names approved 3-27-58   |                        |               |                    |                    |                  |     |   | 8  |
| Tide stations off sheet       |              |                        |                          |                        | h. Heck       |                    |                    |                  |     |   | 9  |
| <u>Wheeler</u>                |              |                        |                          |                        |               |                    |                    |                  |     |   | 10 |
| <u>Brighton</u>               |              |                        |                          |                        |               |                    |                    |                  |     |   | 11 |
| <u>Crab Rock</u>              | ✓            |                        | Gulf Map 3 1961          |                        |               |                    |                    |                  |     |   | 12 |
|                               |              |                        |                          |                        |               |                    |                    |                  |     |   | 13 |
|                               |              |                        |                          |                        |               |                    |                    |                  |     |   | 14 |
|                               |              |                        |                          |                        |               |                    |                    |                  |     |   | 15 |
|                               |              |                        |                          |                        |               |                    |                    |                  |     |   | 16 |
|                               |              |                        |                          |                        |               |                    |                    |                  |     |   | 17 |
|                               |              |                        |                          |                        |               |                    |                    |                  |     |   | 18 |
|                               |              |                        |                          |                        |               |                    |                    |                  |     |   | 19 |
|                               |              |                        |                          |                        |               |                    |                    |                  |     |   | 20 |
|                               |              |                        |                          |                        |               |                    |                    |                  |     |   | 21 |
|                               |              |                        |                          |                        |               |                    |                    |                  |     |   | 22 |
|                               |              |                        |                          |                        |               |                    |                    |                  |     |   | 23 |
|                               |              |                        |                          |                        |               |                    |                    |                  |     |   | 24 |
|                               |              |                        |                          |                        |               |                    |                    |                  |     |   | 25 |
|                               |              |                        |                          |                        |               |                    |                    |                  |     |   | 26 |
|                               |              |                        |                          |                        |               |                    |                    |                  |     |   | 27 |

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. ..8368..

Records accompanying survey:

Boat sheets ..1..; sounding vols. ..3..; wire drag vols. ....;  
 bomb vols. ....; graphic recorder rolls ~~3~~-Envelopes  
 special reports, etc. ..1-Descriptive report and 1-Smooth sheet.  
 .....

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

|   |       |           |
|---|-------|-----------|
| Number of positions on sheet                            | ..... | 861       |
| Number of positions checked                             | ..... | 204       |
| Number of positions revised                             | ..... | 0         |
| Number of soundings revised<br>(refers to depth only)   | ..... | 0         |
| Number of soundings erroneously spaced                  | ..... | 1         |
| Number of signals erroneously plotted<br>or transferred | ..... | 1         |
| Topographic details                                     | Time  | ..4 hours |
| Junctions   | Time  | ..1 hour  |
| Verification of soundings from<br>graphic record        | Time  | ..6 hours |

Verification by L. L. Van Zant..... Total time 130 hours Date 17 Oct 60

Reviewed by Donald R. Engle..... Time 80 Date 24 Feb 61

OFFICE OF CARTOGRAPHY  
REVIEW SECTION -- NAUTICAL CHART DIVISION  
REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-8368

FIELD NO. WCFP-05156

Oregon, Nehalem River, Nehalem River Entrance

SURVEYED: June - July 1957

SCALE: 1:5,000

PROJECT NO. 13820

SOUNDINGS: 808 Depth Recorder  
Pole

CONTROL: Sextant fixes  
on shore signals

Chief of Party ----- A. L. Wardwell  
Surveyed by ----- J. K. Richards  
Protracted by ----- J. K. Richards  
Soundings plotted by ----- J. K. Richards  
Verified and inked by ----- L. L. VanZant  
Reviewed by ----- D. R. Engle  
Inspected by ----- R. H. Carstens

DATE 2-24-61

1. Shoreline and Signals

The shoreline originates with reviewed photogrammetric surveys T-11459, T-11461 and T-11462 of 1954.

The origin of the control is given in the Descriptive Report.

2. Sounding Line Crossings

Depths at crossings, after verification, are in good agreement. See paragraph 7, Condition of Survey.

3. Depth Curves and Bottom Configuration

The usual depth curves are adequately delineated. The 3-ft. curve was added where needed to emphasize dangerous shoals.

4. Junctions with Contemporary Surveys

An adequate junction was effected with H-8369 (1956-57) on the north.

A junction with H-8346 (1956) of the same project, could not be effected due to radical changes in the bottom from the Nehalem River entrance to the offshore limits of the present survey. Differences between the 1956 and 1957 surveys average about 5 feet. The present survey, therefore, supersedes H-8346 in the common area.

5. Comparison with Prior Surveys

H-973 (1868), 1:5,000  
H-4613 (1926), 1:20,000

These prior surveys cover the area of the present survey. A comparison of the prior and present surveys reveals extensive shifting and shoaling inside the river entrance, with a maximum shoaling of about 8 feet just south of Fishery Point. Outside the river entrance a maximum shoaling of 8 feet occurs at Lat.  $45^{\circ}39.7'$ , Long.  $123^{\circ}56.8'$ . The entrance channel is at present about 700 meters north of its 1868 position.

The present survey entirely supersedes the prior surveys in the common area.

6. Comparison with Chart 6122 (Latest print date 12-26-60)

A. Hydrography

Charted hydrography originates with the previously discussed surveys, with numerous surveys by the Corps of Engineers from the river entrance to Brighton, with an undetermined source prior to 1891 in the vicinity of Fishery Point, and with partial application of H-8346 (1956) and the present survey from copies of the boat sheet. Minor revisions in position and depth were made during smooth plotting and verification. As a result survey depths may vary as much as one foot from boat sheet depths.

Attention is called to the following:

(1) The charted 5-ft. shoal at Lat.  $45^{\circ}39.5'$ , Long.  $123^{\circ}56.75'$  falling in present depths of about 10 feet, originates with Corps of Engineers blueprint 31820 of 1938. At this position an isolated  $6\frac{1}{2}$ -foot shoal sounding was found on H-8346 (1956) but was not developed. On the present survey no attempt was made to verify or disprove this shoal; therefore, this 5-ft. shoal should be retained on the chart.

(2) Minor differences in shoreline exist between the chart and the present survey. The charted high water line should be revised to conform to the present survey.

(3) The charted high water rocks at Lat.  $45^{\circ}39.67'$ , Long.  $123^{\circ}55.9'$  and at Lat.  $45^{\circ}39.83'$ , Long.  $123^{\circ}55.9'$  are all rocks awash on the present survey and should be revised accordingly. ✓

(4) The charted log boom at Lat.  $45^{\circ}41'$ , Long.  $123^{\circ}55.8'$  is reported by the hydrographer to be no longer in existence and should be deleted from the chart.

(5) The submerged pile, charted at Lat.  $45^{\circ}41.42'$ , Long.  $123^{\circ}55.82'$  from the present survey before verification, should be revised to two piles awash at MHW in accordance with the reviewed survey.

(6) Nehalem River Entrance Range 1, which formerly marked the best entrance to the river, no longer serves the purpose intended according to present survey information. The 3-to 5-ft. shoal which extends offshore from the south jetty and the heavy breakers in that area are considered to make the use of this range hazardous to navigation. It is recommended that Range 1 be removed from the chart and steps be taken to move the entrance whistle buoy 700-800 meters north of its present charted position to mark better the approach to Range 2.

Except as noted in (1) above, the present survey is adequate to supersede the charted information.

#### B. Aids to Navigation

The aids to navigation located on the present survey are in agreement with the charted aids and adequately mark the features intended with the following exceptions:

(1) Range 1 (par. 6A(6) above) no longer marks the best entrance to the river.

(2) The white day beacon "2", established in 1954 at Lat.  $45^{\circ}40.25'$ , Long.  $123^{\circ}55.43'$  was destroyed prior to the time of the present survey. Although no conclusive evidence could be found that this aid was re-established, it has been carried on the chart since 1955.

(3) Nehalem River Entrance Range 1 front and rear lights, shown on the present survey, have been revised to red and white daybeacons subsequent to the date of the survey. They are charted correctly at present.

#### 7. Condition of Survey

a. In scanning depths the field scanner did not give adequate consideration to the jagged profile on the fathograms which was caused by choppy seas. This is considered to be the cause of numerous 1-ft. depth differences in sounding line crossings originally pencilled just outside the entrance to

Nehalem River and in the area of the junction with H-8369. These differences were resolved by the verifier.

b. No effort was made by the hydrographer to verify or disprove the charted 5-ft. shoal at Lat.  $45^{\circ}39.5'$ , Long.  $123^{\circ}56.8'$ . See paragraph 6A(1) above.

c. With the above exceptions, the field work, records and reports were adequate and conform to the requirements of the Hydrographic Manual.

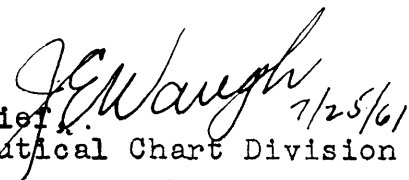
8. Compliance with Project Instructions


The survey adequately complies with the project instructions.


9. Additional Field Work

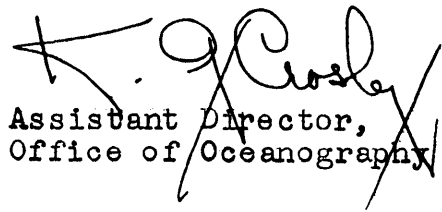
This is a good basic survey and no additional field work is recommended.

Examined and Approved:

  
Chief, Nautical Chart Division  
7/25/61

  
Projects Officer,  
Operations Division

  
Assistant Director,  
Office of Cartography

  
Assistant Director,  
Office of Oceanography

TIDE NOTE FOR HYDROGRAPHIC SHEET

Chart Division: R. H. Carstens

28 March 1958

Plane of reference approved in  
3 volumes of sounding records for

HYDROGRAPHIC SHEET 8368

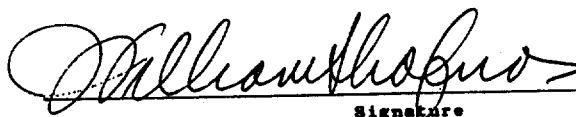
Locality Nehalem River, Oregon

Chief of Party: A. L. Wardwell in 1957

Plane of reference is mean lower low water, reading  
4.0 ft. on tide staff at Brighton  
27.0 ft. below B.M. 1 (1933)

Height of mean high water above plane of reference is 7.1 feet.

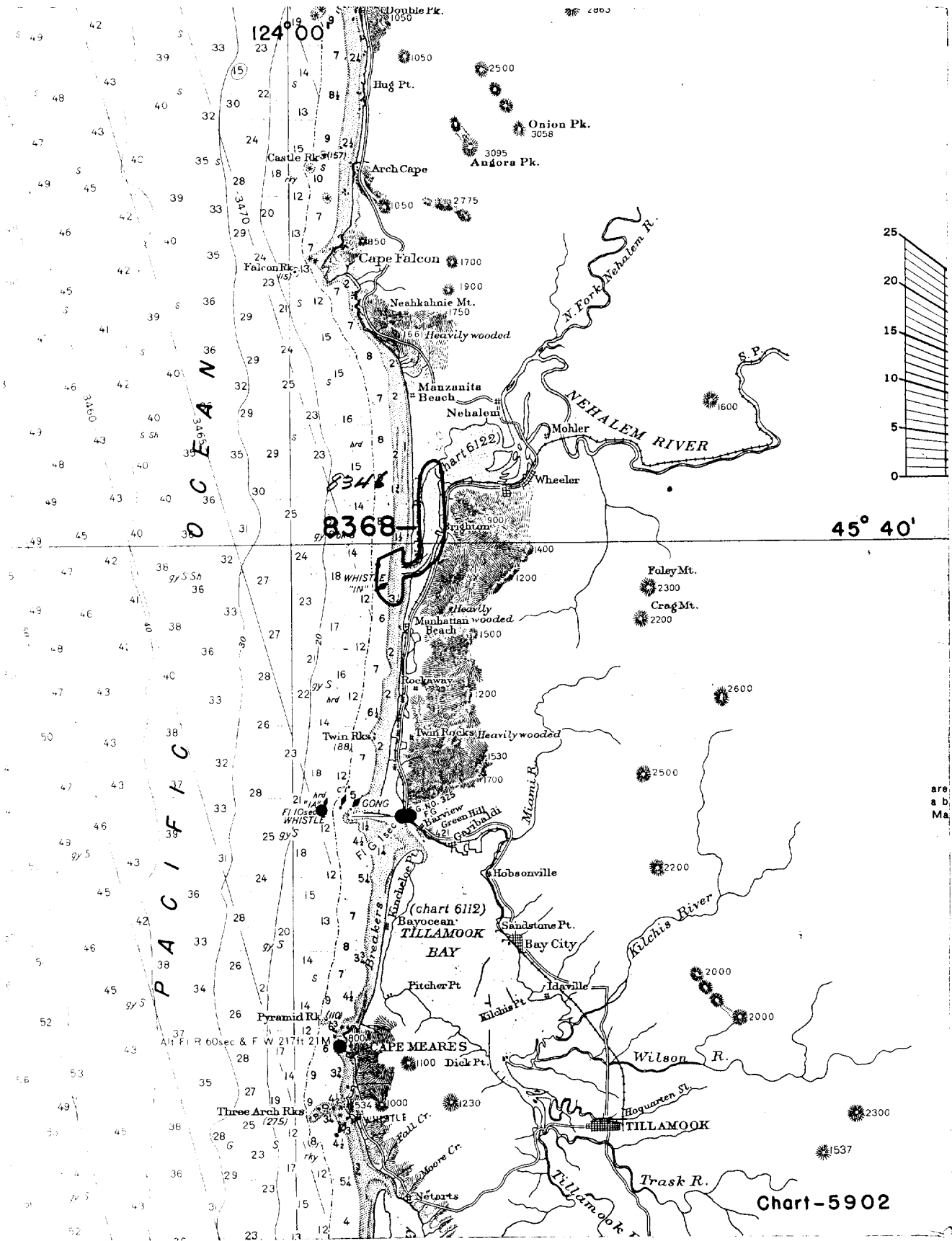
Condition of records satisfactory except as noted below:



Signature

Chief, Tides Branch





124° 00'

45° 40'

PACIFIC OCEAN

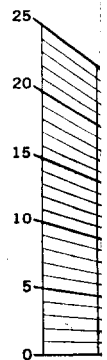


Chart-5902

8368

are  
a b  
Ma

Double Pt. 1050

2500

Onion Pk. 3058

3095 Andora Pk.

Arch Cape

2775

1700

1900

1750

Heavily wooded

Manzanita Beach

Nebalom

Mohler

Wheeler

1400

1200

Heavily wooded

Manhattan Beach

1500

Lockaway

1200

Twin Rocks Heavily wooded

1530

1700

Green Hall

Garibaldi

Hobsonville

(chart 6112) Bayocean

TILLAMOOK BAY

Sandstone Pt.

Bay City

Pitcher Pt.

Idaville

Klabial Pt.

CAPE MEARES

1100 Dick Pt.

1000

1230

Three Arch Rks 1275

18

12

17

12

15

12

Foley Mt. 2300

Crag Mt. 2200

2600

2500

2200

2000

2000

Wilson R.

Hoquamen St.

TILLAMOOK

Trask R.

1537

Tillamook R.

