

8251

Diag. Cht. No. 6002-2.

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. WCFP-1255 Office No. H-8251

LOCALITY

State Washington

General locality Pacific Coast

Locality Western Part of Grays Harbor

19/55-56

CHIEF OF PARTY

H. G. Conerly

LIBRARY & ARCHIVES

DATE September 11, 1958

8251

8251 1

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-8251

Field No. WCFP 1255

State WASHINGTON

General locality PACIFIC COAST

Locality Western part of GRAYS HARBOR MAIN CHANNEL

Scale 1:10,000 Date of survey May 1955 - August 1956

Instructions dated 18 February 1955

Vessel Launch CS 160

Chief of party Horace G. Conerly

Surveyed by C. D. Upham, H. L. Runge, K. E. Taggart

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

Fathograms scaled by A. W. B., R. G. W.

Fathograms checked by Various

Protracted by C. A. J. Pauw

Soundings penciled by C. A. J. Pauw

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

REMARKS:

R.T.M.

8251²

DESCRIPTIVE REPORT

TO ACCOMPANY HYDROGRAPHIC SURVEY

REGISTRY NO. H-8251 - FIELD NO. WCFP 1255

GRAYS HARBOR, WASHINGTON

PROJECT 13780

SCALE: 1:10,000

WEST COAST FIELD PARTY, H. G. CONERLY, CHIEF OF PARTY

PROJECT AND INSTRUCTIONS

The survey was done in accordance with the Director's Instructions ✓
dated 13 February 1955.

SURVEY LIMITS AND DATES

(1955)
The general locality of the survey is the main channel in Grays Harbor east of the entrance. It makes a junction with the USED surveys between the jetties and at Point Chehalis. The north limits make a junction with sheet WCSP 1155 Registry No. H-8250 at approximately latitude $58^{\circ} 30'$, the south limits make a junction with sheet WCFP 1556 Registry No. H-8292 and the eastern limits make a junction with sheet WCFP 1656 Registry No. H-8293, and #-8252 (1955) west of Pt. Chehalis, (1953) (1956)

Field work was done in two different seasons, beginning in May 1955 ✓ and ending August 1956.

VESSELS AND EQUIPMENT

Launch CS 160 was used for all soundings on the survey. Types 808 J ✓ and EDO Model 255 fathometers were used for all echo soundings.

For the 808, fish units were mounted in the keel at a depth of three ✓ feet. The EDO transducer was mounted on the starboard side of the launch ✓ and set at one foot during nearly all the sounding.

METHODS

Standard methods of hydrography were used throughout. ✓

TIDES AND CURRENT STATIONS

For tide reducers two tide gages were maintained. One was at Point ✓ Chehalis and one at Aberdeen. See Tidal Note for details.

No current stations were observed. ✓

CROSSLINES

There are ample crosslines to make comparisons on all days of soundings. There are a few places where the crossings are not good but they are in areas of rapidly changing depths and it is believed that the later soundings should be used for charting. The area is near the inside end of the channel through the jetties and to the north of the inside end of the jetties. The bar at approximately latitude 46 - 56.0 longitude 124 - 07.7 breaks at almost any stage of the tide and a certain amount of sand is at all times in suspension. The USED make frequent surveys of the channel to the south but do not go on the bar.

The area northeast of Grays Harbor Rear Range is filling out from the shore and the channel has shifted since last October. The later soundings should be used for charting. *see TP9 Review.*

In the area at approximately latitude 46 - 56.2 longitude 124 - 04.5 to 124 - 06 in the main channel the soundings do not agree with those taken last year a short while after the dredging operations by the USED. The channel has filled and the later soundings should be used pending dredging operations.

COMPARISON WITH PRIOR SURVEYS

Soundings do not agree with H-6646 at all. The only similarity is the zero curve at approximately latitude 46 - 55 and along the middle of the south side of the sheet. Its position is near where it was on the previous survey but has changed appreciably. Depths in other areas have changed greatly. *see TP5 Review.*

Survey H-3229 is not even similar to the present survey. *see TP5 Review*

In the area of survey H-6665 changes have not been so great. In the area of South Channel there are very few changes. The depth curves and soundings have changed little but near the main channel critical depths have changed more. *see TP5 Review*

This survey should supersede all previous surveys and where they differ this survey should be used for charting purposes. *see TP5 Review*

COMPARISON WITH CHART

There is poor agreement with the published chart except in areas where results of very recent surveys have been added. This survey should be used. *see TP6 Review*

DANGERS AND SHOALS ✓

There are numerous shoals shown on the survey but most of them are not especially dangerous as they are sand and if a boat goes aground little damage would result until she could get off on the next high tide. ✓ There are some shoals that should be avoided as there is almost always some surf action at some stage of the tide. They are:

1. The area around latitude 46 - 56.0 longitude 124 - 07.6 breaks almost continuously and definitely is dangerous for small craft that might venture in the area. ✓

2. The shoal at latitude 46 - 57.15 longitude 124 - 06.9 does not always break but during any day when a light swell is coming through the channel it might appear to be calm for as much as 10 or 15 minutes then all at once a 6 or eight foot breaker appears. ✓

3. The area west of the three foot curve from latitude 46 - 57.25 to latitude 46 - 58.0 is treacherous to small craft that might venture into the area. When the sea is rough outside enough swell gets through the entrance to the harbor to cause a sharp breaker just often enough to catch a small boat by surprise ✓

SHORELINE AND TOPOGRAPHY ✓

Shoreline is from T-9517^{N&S}, T-9518^{N&S}, and T-9519^{N&S} with the following exceptions: (1950-51) (1950-51) (1950-51)

1. Goose Island and the island 1/2 mile to the SE has changed and the manuscript is no longer correct. Shoreline should be taken from the planetable sheet done by the field edit party.

2. The shoreline east and north of station "Bar" has changed and topography was done by a party from the Portland Photogrammetric Office during the summer of 1955. It is a part of the planetable sheet no. T-9517 and T-9518 done by the field editing party.

Shoreline chgd. to agree with Registered T-9517, T-9518. WER

Shoreline applied to S/S from above listed surveys which were corrected to include field edit & planetable surveys. See TPI Review

SOUNDINGS

Soundings were taken with 808 and ED0 Model 255 fathometers. In shoal areas where the fathometers would not record the shoaler soundings, a pole was used. Corrections to the fathometers were obtained by direct comparisons with a standard. See abstract of corrections attached to this report. A separate fathometer report was forwarded to the Director. ✓

CONTROL OF HYDROGRAPHY

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

8251 5

ADAQUACY OF SURVEY

The survey is considered as ~~ad~~quate for charting purposes. No additional work is recommended. ✓

PRELIMINARY REVIEW

Note 2. Numerous sounding lines were run over the area at latitude 46 - 55.6 longitude 124 - 05.75 and no indication of the soundings could be found. If they ever existed the area has scoured out and is now deeper. ✓

No indication of the one foot and five foot sounding, ^{Cops of Emers survey 1951 (Bp 48191)} at latitude 46 - 56.6 longitude 124 - 06.7 was found. There is a possibility that the shoal sounding approximately 1/2 mile NNW is the same one but misplaced. ✓
Fall in present depths of 10-14 ft. Delete charted 1ft & 5ft depths

The 5 foot sounding shown at latitude 46 - 57.25 longitude 124 - 06.3 appearantly does not now exist. The whole area is now deeper than shown on the chart. It probably is due to shifting sands. ^{5ft from C. of E. survey 1948 (Bp 43909), Discredited by present survey - Delete 5ft from chart.} ✓

AIDS TO NAVIGATION

No additional fixed aids to navigation were located. None besides those located by the photogrammetric party are recommended. The light shown as Point Chehalis Lt. 2 1952 has been moved and will be located by the field edit party.

Following floating aids were located: *(Not recorded in Desc. Rpt.)*

LANDMARKS FOR CHARTS ✓

8251

No additional landmarks for charts were located. ✓

APPLICABLE DATA

- 1 - Special Fathometer Report to be forwarded to Director, abstract of corrections and copy of report to be forwarded to Seattle Processing Office. ✓
- 2 - Photos, transferred to Portland Photogrammetric Office. ✓
- 3 - Photo Manuscripts to be forwarded to Seattle Processing Office. ✓
- 4 - Tidal levels, marigrams, etc. to be forwarded to Washington Office, abstract of reducers appended to this report. ✓
- 5 - Fathograms and sounding volumes forwarded to Seattle Processing Office. ✓
- 6 - Boat Sheet forwarded to Washington Office for photographing with request that it be forwarded to the Seattle Processing Office. ✓
- 7 - Blue-line prints to be forwarded to the Seattle Processing Office. ✓
- 8 - Sounding volumes forwarded to Seattle Processing Office. ✓

Horace G. Conerly
Horace G. Conerly
Commander, C&GS
OinC., West Coast
Field Party

8251

7

TIDAL NOTE FOR HYDROGRAPHIC SURVEY

FIELD NO. WCFP 1255 - REGISTRY NO. H-8251 ✓

Beyond H-8251
Limits

For tide reducers tide gages were maintained at Point Chehalis Latitude 46 - 54 - 34 Longitude 124 - 06 - 45 and Aberdeen Latitude 46 - 58 - 02 Longitude 123 - 51 - 07, MLLW reading on the Point Chehalis staff was 3.1 and on the Aberdeen staff was 4.6.

2.8 (1955)

Three zones were used as follows:

Zone A - In zone A the observations from the Point Chehalis gage were used direct and no time or height corrections made for distance from the gage. ✓

Zone B - In zone B no correction was used for height but a plus 15 minute correction was applied to the time. ✓

Zone D - During the 1955 work the clock on the Aberdeen gage was at times giving trouble. Due to this a plus 30 minutes and a ratio of 1.07 was applied to the Point Chehalis gage for reducers in this area. During the 1956 season a mean of the heights and times between the Aberdeen and Point Chehalis gages was used for all soundings in the zone. ✓

The zones are shown on the boat sheet by green lines and are labeled. D zone extends from its western limits to the eastern end of the sheet. ✓

8251 8

ABSTRACT OF SMOOTH TIDE REDUCERS

TIDE GAGES AT ABERDEEN AND POINT CHEHALIS

HYDROGRAPHIC SHEET FIELD NO. WCFP 1255 - REGISTRY NO. H-8251

"a" day 20 May 1955 Pt. Chehalis T.G.	"b" day (contd) 0 m. time corr.	"c" day (contd) / 15 m. time corr.
0 m. time corr.	1144 - 1146 - 0.2	0854 - 0902 - 3.4
0928 - 0937 - 4.2	1153 - 0.4	0907 - 3.2
0944 - 4.4	1200 - 0.6	0 m. time corr.
0952 - 4.6	1208 - 0.8	0907 - 0908 - 3.0
1000 - 4.8	1214 - 1.0	0918 - 2.8
1010 - 5.0	1221 - 1.2	0927 - 2.6
1018 - 5.2	1228 - 1.4	/ 15 m. time corr.
1028 - 5.4	1235 - 1.6	0927 - 0933 - 2.8
1038 - 5.6	1237 - 1.8	0939 - 2.6
1048 - 5.8	/ 15 m. time corr.	0 m. time corr.
1100 - 6.0	12-37-21	0939 - 0940 - 2.4
1114 - 6.2	1243 - 1.4	0951 - 2.2
1136 - 6.4	1250 - 1.6	1000 - 2.0
1220 - 6.6	12-52-26 - 1.8	/ 15 m. time corr.
1240 - 6.4	0 m. time corr.	0954 - 1006 - 2.2
1254 - 6.2	12-52-26	1015 - 2.0
1308 - 6.0	1255 - 2.2	1023 - 1.8
1317 - 5.8	1300 - 2.4	0 m. time corr.
1327 - 5.6	1308 - 2.6	1023 - 1031 - 1.6
1336 - 5.4	1314 - 2.8	1049 - 1.4
/ 15 m. time corr.	1321 - 3.0	1051 - 1.2
13-35-36	1328 - 3.2	/ 15 m. time corr.
13-43-00 - 5.6	1335 - 3.4	1051 - 1104 - 1.4
13-52-00 - 5.4	1342 - 3.6	1127 - 1.2
13-58-45 - 5.2	1349 - 3.8	1231 - 1.0
0 m. time corr.	1356 - 4.0	0 m. time corr.
1359 - 1400 - 4.8	/ 15 m. time corr.	1231 - 1236 - 1.2
1408 - 4.6	1356	1245 - 1.4
1415 - 4.4	13-56-30 - 3.8	/ 15 m. time corr.
1421 - 4.2	0 m. time corr.	1245 - 1252 - 1.2
"b" day 26 May 1955	1403 - 1409 - 4.4	1309 - 1.4
Pt. Chehalis T.G.	1416 - 4.6	1314 - 1.6
0 m. time corr.	1422 - 4.8	0 m. time corr.
0844 - 0851 / 0.2	1429 - 5.0	1314 - 1318 - 1.8
0900 / 0.4	1436 - 5.2	1327 - 2.0
0910 / 0.6	1444 - 5.4	/ 15 m. time corr.
0921 / 0.8	1451 - 5.6	1327 - 1333 - 1.8
0937 / 1.0	"c" day 13 June 1955	1345 - 2.0
/ 15 m. time corr.	Pt. Chehalis T. G.	1357 - 2.2
0937 - 0951 / 1.0	0 m. time corr.	"c" day contd. on next
1008 / 1.2	0819 - 0827 - 3.8	page.
1037 / 1.4	0837 - 3.6	
	0847 - 3.4	
	0854 - 3.2	

ABSTRACT OF SMOOTH TIDE REDUCERS

825/9

(CONTINUATION)

"c" day (contd)	"d" day (contd)	"e" day 21 June 1955
0 m. time corr.	0930 - 1.4	B Zone
1357 - 1400 - 2.6	0935 - 1.6	0819 - 0825 / 2.4
1409 - 2.8	0941 - 1.8	0833 / 2.2
/ 15 m. time corr.	0947 - 2.0	0840 / 2.0
1409 - 1415 - 2.6	0953 - 2.2	0846 / 1.8
1422 - 2.8	0959 - 2.4	0853 / 1.6
1432 - 3.0	1005 - 2.6	0859 / 1.4
1440 - 3.2	1011 - 2.8	0905 / 1.2
0 m. time corr.	1018 - 3.0	0912 / 1.0
1440 - 1442 - 3.6	1024 - 3.2	0917 / 0.8
1450 - 3.8	1030 - 3.4	0923 / 0.6
"d" day 20 June 1955	1036 - 3.6	0929 / 0.4
A Zone	1042 - 3.8	0935 / 0.2
0837 - 0842 - 0.2	1048 - 4.0	0941 0.0
0847 - 0.4	1054 - 4.2	0947 - 0.2
0853 - 0.6	1100 - 4.4	0954 - 0.4
0859 - 0.8	"e" day 21 June 1955	0959 - 0.6
0904 - 1.0	A Zone	1005 - 0.8
0909 - 1.2	0819 - 0825 / 2.0	1012 - 1.0
0915 - 1.4	0831 / 1.8	1017 - 1.2
0920 - 1.6	0838 / 1.6	1024 - 1.4
0926 - 1.8	0844 / 1.4	1030 - 1.6
0932 - 2.0	0850 / 1.2	1036 - 1.8
0938 - 2.2	0857 / 1.0	1042 - 2.0
0944 - 2.4	0902 / 0.8	1048 - 2.2
0950 - 2.6	0908 / 0.6	1054 - 2.4
0956 - 2.8	0914 / 0.4	1059 - 2.6
1003 - 3.0	0920 / 0.2	1105 - 2.8
1009 - 3.2	0926 0.0	1110 - 3.0
1015 - 3.4	0932 - 0.2	1115 - 3.2
1021 - 3.6	0939 - 0.4	"f" day 22 June 1955
1027 - 3.8	0944 - 0.6	A Zone
1033 - 4.0	0950 - 0.8	0903 - 0911 / 1.6
1039 - 4.2	0957 - 1.0	0918 / 1.4
1045 - 4.4	1002 - 1.2	0926 / 1.2
1052 - 4.6	1009 - 1.4	0933 / 1.0
1100 - 4.8	1015 - 1.6	0940 / 0.8
"d" day 20 June 1955	1021 - 1.8	0946 / 0.6
B Zone	1029 - 2.0	0951 / 0.4
0837 - 0842 / 0.4	1033 - 2.2	0956 / 0.2
0847 / 0.2	1039 - 2.4	1000 0.0
0852 0.0	1044 - 2.6	1006 - 0.2
0857 - 0.2	1050 - 2.8	1012 - 0.4
0902 - 0.4	1055 - 3.0	1018 - 0.6
0908 - 0.6	1100 - 3.2	1024 - 0.8
0914 - 0.8	1106 - 3.4	1030 - 1.0
0919 - 1.0	1111 - 3.6	1110 - 1116 - 2.6
0924 - 1.2	1118 - 3.8	1122 - 2.8
		1128 - 3.0
		1134 - 3.2
		1140 - 3.4

"f" day contd. on next page.

8251¹⁰

ABSTRACT OF SMOOTH TIDE REDUCERS
(CONTINUATION)

"f" day (contd)	"f" day (contd)	"g" day 1 July 1955
- 1147 - 3.6	1215 - 4.0	B Zone
1153 - 3.8	1220 - 4.2	0907 - 0911 - 4.8
1200 - 4.0	1226 - 4.4	0922 - 5.0
1205 - 4.2	1232 - 4.6	0934 - 5.2
1211 - 4.4	1239 - 4.8	0947 - 5.4
1217 - 4.6	1245 - 5.0	1000 - 5.6
1224 - 4.8	1251 - 5.2	1015 - 5.8
1230 - 5.0	1258 - 5.4	1028 - 6.0
1236 - 5.2	1305 - 5.6	1045 - 6.2
1243 - 5.4	1313 - 5.8	1215 - 6.4
1250 - 5.6	1319 - 6.0	1230 - 6.2
1258 - 5.8	1326 - 6.2	1245 - 6.0
1304 - 6.0	1334 - 6.4	1301 - 5.8
1311 - 6.2	1342 - 6.6	1315 - 5.6
1319 - 6.4	1350 - 6.8	1330 - 5.4
1327 - 6.6	1359 - 7.0	1343 - 5.2
1335 - 6.8	1407 - 7.2	1356 - 5.0
1344 - 7.0	1415 - 7.4	1411 - 4.8
1352 - 7.2	1424 - 7.6	1425 - 4.6
1400 - 7.4	1435 - 7.8	1439 - 4.4
1409 - 7.6	1450 - 8.0	1456 - 4.2
1420 - 7.8	1555 - 8.2	1515 - 4.0
1435 - 8.0	"g" day 1 July 1955	"h" day 16 Sept. 1955
1540 - 8.2	A Zone	"A" Zone
"f" day 22 June 1955	0907 - 0919 - 5.2	0915 - 0921 - 4.8
B Zone	0932 - 5.4	0927 - 5.0
0903 - 0909 / 2.0	0945 - 5.6	0934 - 5.2
0918 / 1.8	1000 - 5.8	0940 - 5.4
0926 / 1.6	1013 - 6.0	0947 - 5.6
0933 / 1.4	1030 - 6.2	0954 - 5.8
0941 / 1.2	1200 - 6.4	1000 - 6.0
0948 / 1.0	1215 - 6.2	1007 - 6.2
0955 / 0.8	1230 - 6.0	1014 - 6.4
1001 / 0.6	1246 - 5.8	1021 - 6.6
1006 / 0.4	1300 - 5.6	1029 - 6.8
1011 / 0.2	1315 - 5.4	"h" day 16 Sept. 1955
1015 0.0	1328 - 5.2	B Zone
1021 - 0.2	1341 - 5.0	1009 - 1015 - 6.0
1027 - 0.4	1356 - 4.8	1023 - 6.2
1033 - 0.6	1410 - 4.6	1029 - 6.4
1108 - 1115 - 2.0	1424 - 4.4	1036 - 6.6
1119 - 2.2	1441 - 4.2	1044 - 6.8
1125 - 2.4	1500 - 4.0	1050 - 7.0
1131 - 2.6	1521 - 3.8	1059 - 7.2
1137 - 2.8		1107 - 7.4
1143 - 3.0		1115 - 7.6
1149 - 3.2		1120 - 7.8
1155 - 3.4		1128 - 8.0
1202 - 3.6		1135 - 8.2
1208 - 3.8		"h" day contd. on next

page.

8251 11

ABSTRACT OF SMOOTH TIDE REDUCERS
(CONTINUATION)

"h" day (contd)

1143 -8.4
 1151 - 8.6
 1200 - 8.8
 1210 - 9.0
 1219 - 9.2
 1234 - 9.4
 1255 - 9.6
 1330 - 9.8
 1344 - 9.6
 1355 - 9.4
 1404 - 9.2
 1411 - 9.0
 1418 - 8.8
 1425 - 8.6
 1432 - 8.4
 1438 - 8.2
 1444 - 8.0
 1450 - 7.8
 1455 - 7.6
 1500 - 7.4
 1505 - 7.2
 1509 - 7.0
 1515 - 6.8
 1520 - 6.6
 1526 - 6.4
 1532 - 6.2
 1537 - 6.0
 1543 - 5.8
 1550 - 5.6
 1556 - 5.4

"j" day 20 Sept. 1955
B Zone

0833 - 0933 - 1.8
 0955 - 2.0
 1009 - 2.2
 1019 - 2.4
 1029 - 2.6
 1039 - 2.8
 1048 - 3.0
 1058 - 3.2
 1108 - 3.4
 1115 - 3.6
 1125 - 3.8
 1134 - 4.0
 1142 - 4.2
 1151 - 4.4
 1159 - 4.6
 1207 - 4.8
 1215 - 5.0
 1224 - 5.2
 1232 - 5.4

"j" day (contd)

1241 -5.6
 1249 - 5.8
 1257 - 6.0
 1305 - 6.2
 1315 - 6.4
 1324 - 6.6
 1334 - 6.8
 1344 - 7.0
 1356 - 7.2
 1408 - 7.4
 1422 - 7.6
 1438 - 7.8
 1559 - 8.0

"j" day 20 Sept. 1955
D Zone

1047 - 1056 - 3.0
 1105 - 3.2
 1113 - 3.4
 1122 - 3.6
 1130 - 3.8
 1138 - 4.0
 1146 - 4.2
 1154 - 4.4
 1203 - 4.6
 1211 - 4.8
 1219 - 5.0
 1227 - 5.2
 1234 - 5.4
 1243 - 5.6
 1250 - 5.8
 1258 - 6.0
 1306 - 6.2
 1314 - 6.4
 1322 - 6.6
 1330 - 6.8
 1338 - 7.0
 1347 - 7.2
 1356 - 7.4
 1406 - 7.6
 1417 - 7.8
 1430 - 8.0
 1444 - 8.2
 1505 - 8.4
 1604 - 8.6

"k" day 5 October 1955
A Zone

0900 - 0912 - 2.6
 0928 - 2.8
 0940 - 3.0
 1536 - 1546 - 8.8
 1553 - 8.6

"k" day 5 October 1955
B Zone

0927 - 0945 - 2.8
 0955 - 3.0
 1005 - 3.2
 1015 - 3.4
 1026 - 3.6
 1036 - 3.8
 1046 - 4.0
 1055 - 4.2
 1103 - 4.4
 1111 - 4.6
 1120 - 4.8
 1127 - 5.0
 1135 - 5.2
 1144 - 5.4
 1152 - 5.6
 1158 - 5.8
 1206 - 6.0
 1215 - 6.2
 1223 - 6.4
 1228 - 6.6
 1235 - 6.8
 1244 - 7.0
 1251 - 7.2
 1259 - 7.4
 1307 - 7.6
 1316 - 7.8
 1325 - 8.0
 1335 - 8.2
 1345 - 8.4
 1356 - 8.6
 1410 - 8.8
 1425 - 9.0
 1537 - 9.2
 1552 - 9.0

"k" day 5 October 1955
D Zone

1330 - 1328 - 8.4
 1347 - 8.6
 1357 - 8.8
 1407 - 9.0
 1419 - 9.2
 1430 - 9.4
 1452 - 9.6
 1555 - 9.8

8251 12

ABSTRACT OF SMOOTH TIDE REDUCERS
(CONTINUATION)

"l" day 6 October 1955 B Zone	"m" day 10 Oct. 1955 B Zone	"n" day 13 Oct. 1955 D Zone
0905 - 1025 - 2.8	1120 - 1131 - 6.2	1110 - 1210 - 9.2
1045 - 3.0	1141 - 6.0	"p" day 17 Oct. 1955
1100 - 3.2	1152 - 5.8	A Zone
1110 - 3.4	1202 - 5.6	0900 - 0908 - 3.8
1116 - 3.6	1212 - 5.4	0917 - 4.0
1126 - 3.8	1223 - 5.2	0925 - 4.2
1137 - 4.0	1235 - 5.0	"p" day 17 Oct. 1955
1146 - 4.2	1247 - 4.8	B Zone
1155 - 4.4	"n" day 13 Oct. 1955	1450 - 1459 - 8.0
1204 - 4.6	A Zone	1507 - 7.8
1211 - 4.8	1338 - 1345 - 5.4	1515 - 7.6
1217 - 5.0	1352 - 5.2	1523 - 7.4
1225 - 5.2	1400 - 5.0	1531 - 7.2
1233 - 5.4	1404 - 4.8	"p" day 17 Oct. 1955
1240 - 5.6	1410 - 4.6	D Zone
1249 - 5.8	1416 - 4.4	1010 - 1017 - 5.0
1257 - 6.0	1423 - 4.2	1024 - 5.2
1306 - 6.2	1428 - 4.0	1030 - 5.4
1311 - 6.4	1435 - 3.8	1037 - 5.6
1318 - 6.6	1442 - 3.6	1043 - 5.8
1325 - 6.8	1448 - 3.4	1050 - 6.0
1333 - 7.0	1456 - 3.2	1056 - 6.2
1340 - 7.2	1503 - 3.0	1104 - 6.4
1348 - 7.4	1510 - 2.8	1110 - 6.6
1357 - 7.6	1518 - 2.6	1118 - 6.8
1407 - 7.8	1525 - 2.4	1125 - 7.0
1419 - 8.0	1533 - 2.2	1133 - 7.2
1429 - 8.2	1542 - 2.0	1141 - 7.4
1441 - 8.4	1550 - 1.8	1149 - 7.6
1457 - 8.6	1600 - 1.6	1158 - 7.8
1515 - 8.8	1611 - 1.4	1206 - 8.0
1600 - 9.0	1622 - 1.2	1215 - 8.2
"m" day 10 October 1955	"n" day 13 Oct. 1955	1225 - 8.4
A Zone	B Zone	1232 - 8.6
1105 - 1116 - 6.2	0927 - 0937 - 7.2	1242 - 8.8
1126 - 6.0	0947 - 7.4	1253 - 9.0
1136 - 5.8	0957 - 7.6	1307 - 9.2
1147 - 5.6	1008 - 7.8	1420 - 9.4
1158 - 5.4	1019 - 8.0	1436 - 9.2
1207 - 5.2	1029 - 8.2	1516 - 1524 - 8.2
1220 - 5.0	1045 - 8.4	1530 - 8.0
1232 - 4.8	1202 - 8.6	1537 - 7.8
1245 - 4.6	1220 - 8.4	1544 - 7.6
1300 - 4.4	1232 - 8.2	1550 - 7.4
1318 - 4.2	1241 - 8.0	
1337 - 4.0	1249 - 7.8	
1400 - 3.8	1255 - 7.6	
1515 - 3.6	1301 - 7.4	
1535 - 3.8	1306 - 7.2	
1550 - 4.0	1312 - 7.0	
1600 - 4.2	1317 - 6.8	
	1323 - 6.6	

8251 13

ABSTRACT OF SMOOTH TIDE REDUCERS

(CONTINUATION)

"q" day 19 Oct. 1955	"r" day (contd)	"s" day 5 June 1956
A Zone	1224 - 6.6	B Zone
1026 - 1036 - 4.8	1231 - 6.4	0806 - 0817 - 5.2
1046 - 5.0	1238 - 6.2	0827 - 5.4
1054 - 5.2	1245 - 6.0	0841 - 5.6
1103 - 5.4	1253 - 5.8	0855 - 5.8
1112 - 5.6	1300 - 5.6	0908 - 6.0
1122 - 5.8	1334 - 1340 - 4.4	0925 - 6.2
1400 - 1444 - 8.6	1347 - 4.2	0944 - 6.4
1506 - 8.4	1354 - 4.0	1115 - 6.6
1519 - 8.2	1400 - 3.8	1132 - 6.4
1530 - 8.0	1406 - 3.6	1148 - 6.2
1538 - 7.8	1412 - 3.4	1201 - 6.0
1546 - 7.6	1418 - 3.2	1215 - 5.8
1553 - 7.4	1425 - 3.0	1226 - 5.6
1600 - 7.2	1431 - 2.8	1237 - 5.4
	1438 - 2.6	1248 - 5.2
	1446 - 2.4	1257 - 5.0
"q" day 19 Oct. 1955	1453 - 2.2	1307 - 4.8
B Zone	1500 - 2.0	1318 - 4.6
1119 - 1127 - 5.6	1509 - 1.8	1331 - 4.4
1137 - 5.8	1517 - 1.6	1343 - 4.2
1146 - 6.0	1525 - 1.4	1356 - 4.0
1155 - 6.2	1535 - 1.2	1411 - 3.8
1205 - 6.4	1546 - 1.0	
1215 - 6.6		"s" day 5 June
1223 - 6.8	"r" day 28 Oct. 1955	D Zone
1234 - 7.0	B Zone	0800 - 0806 - 5.2
1245 - 7.2	1015 - 1105 - 8.8	0815 - 5.4
1256 - 7.4	1253 - 1300 - 6.0	0823 - 5.6
1307 - 7.6	1308 - 5.8	0833 - 5.8
1319 - 7.8	1315 - 5.6	0844 - 6.0
1333 - 8.0	1321 - 5.4	0856 - 6.2
1348 - 8.2	1328 - 5.2	0911 - 6.4
1415 - 8.4	1335 - 5.0	0930 - 6.6
1459 - 8.6	1540 - 1550 - 1.2	0957 - 6.8
1521 - 8.4	1601 - 1.0	1108 - 7.0
1534 - 8.2	1615 - 0.8	1131 - 6.8
1545 - 8.0	1631 - 0.6	1146 - 6.6
		1200 - 6.4
"r" day 28 Oct. 1955		1212 - 6.2
A Zone	"s" day 5 June 1956	1223 - 6.0
1000 - 1050 - 8.8	A Zone	1234 - 5.8
1108 - 8.6	1242 - 1252 - 4.8	1243 - 5.6
1119 - 8.4	1303 - 4.6	1250 - 5.4
1128 - 8.2	1316 - 4.4	1257 - 5.2
1136 - 8.0		1308 - 5.0
1144 - 7.8		1318 - 4.8
1152 - 7.6		1327 - 4.6
1158 - 7.4		1341 - 4.4
1203 - 7.2		1352 - 4.2
1210 - 7.0		
1217 - 6.8		

8251 14

ABSTRACT OF SMOOTH TIDE REDUCERS
(CONTINUATION)

"t" day 2 July 1956	"v" day (contd)	"x" day (contd)
B Zone	-1446 - 8.4	1255 - 6.6
1215 - 1335 - 2.4	1456 - 8.6	1310 - 6.4
1358 - 2.6	1508 - 8.8	1320 - 6.2
1415 - 2.8	1521 - 9.0	1332 - 6.0
1430 - 3.0	1540 - 9.2	1342 - 5.8
1441 - 3.2	1600 - 9.4	1353 - 5.6
1453 - 3.4	"w" day 12 July 1956	1403 - 5.4
1504 - 3.6	D Zone	1413 - 5.2
1515 - 3.8	1304 - 1308 - 4.2	1423 - 5.0
1526 - 4.0	1315 - 4.4	1433 - 4.8
1536 - 4.2	1320 - 4.6	1444 - 4.6
1547 - 4.4	1326 - 4.8	1454 - 4.4
1559 - 4.6	1332 - 5.0	1506 - 4.2
1610 - 4.8	1337 - 5.2	1523 - 4.0
"u" day 10 July 1956	1343 - 5.4	1543 - 3.8
D Zone	1348 - 5.6	1610 - 3.6
1255 - 1303 - 6.4	1355 - 5.8	"y" day 20 July 1956
1307 - 6.6	1400 - 6.0	D Zone
1315 - 6.8	1406 - 6.2	0900 - 0910 - 4.0
1321 - 7.0	1413 - 6.4	0917 - 4.2
1328 - 7.2	1420 - 6.6	0925 - 4.4
1336 - 7.4	1426 - 6.8	0933 - 4.6
1342 - 7.6	1433 - 7.0	0942 - 4.8
1350 - 7.8	1440 - 7.2	0950 - 5.0
1357 - 8.0	1447 - 7.4	0958 - 5.2
1406 - 8.2	1453 - 7.6	1009 - 5.4
1414 - 8.4	1502 - 7.8	1017 - 5.6
1426 - 8.6	1510 - 8.0	1026 - 5.8
1437 - 8.8	1519 - 8.2	1036 - 6.0
1456 - 9.0	1527 - 8.4	1048 - 6.2
1556 - 9.2	1537 - 8.6	1100 - 6.4
"v" day 11 July 1956	1549 - 8.8	1116 - 6.6
D Zone	1600 - 9.0	1130 - 6.8
1303 - 1308 - 5.4	"x" day 19 July 1956	1150 - 7.0
1314 - 5.6	D Zone	1215 - 7.2
1320 - 5.8	0855 - 0903 - 4.6	1245 - 7.4
1326 - 6.0	0911 - 4.8	1310 - 7.2
1332 - 6.2	0920 - 5.0	1325 - 7.0
1337 - 6.4	0930 - 5.2	1340 - 6.8
1343 - 6.6	0940 - 5.4	1350 - 6.6
1349 - 6.8	0950 - 5.6	1401 - 6.4
1355 - 7.0	1002 - 5.8	1410 - 6.2
1400 - 7.2	1015 - 6.0	1420 - 6.0
1406 - 7.4	1027 - 6.2	1430 - 5.8
1414 - 7.6	1042 - 6.4	1440 - 5.6
1423 - 7.8	1102 - 6.6	1448 - 5.4
1428 - 8.0	1127 - 6.8	1456 - 5.2
1437 - 8.2	1216 - 7.0	1505 - 5.0
	1238 - 6.8	1513 - 4.8

"y" day contd. on next page.

ABSTRACT OF SMOOTH TIDE REDUCERS
(CONTINUATION)

8251 15

"y" day (contd)	"aa" day 30 July 1956	"bb" day 31 July 1956
1524 - 4.6	A Zone	A Zone
1534 - 4.4	0830 - 0842 - 3.2	0842 ²⁴ - 0838 - 4.2
1546 - 4.2	0855 - 3.0	0854 - 4.0
1602 - 4.0	0910 - 2.8	0908 - 3.8
1615 - 3.8	0926 - 2.6	0925 - 3.6
	0947 - 2.4	0942 - 3.4
"z" day 27 July 1956	1010 - 2.2	1000 - 3.2
A Zone	1130 - 2.0	1018 - 3.0
0815 - 0840 - 0.2	1152 - 2.2	1040 - 2.8
0920 - 0.0	1206 - 2.4	1200 - 2.6
0940 - 0.2	1220 - 2.6	
0953 - 0.4	1232 - 2.8	"cc" day 6 August 1956
1006 - 0.6	1243 - 3.0	D Zone
1016 - 0.8	1254 - 3.2	1042 - 1048 - 5.0
1026 - 1.0	1305 - 3.4	1054 - 5.2
1035 - 1.2	1315 - 3.6	1100 - 5.4
1044 - 1.4	1326 - 3.8	1105 - 5.6
1053 - 1.6	1337 - 4.0	1110 - 5.8
1100 - 1.8	1347 - 4.2	1116 - 6.0
1109 - 2.0	1357 - 4.4	1122 - 6.2
1116 - 2.2	1407 - 4.6	1129 - 6.4
1124 - 2.4	1417 - 4.8	1135 - 6.6
1133 - 2.6	1427 - 5.0	1142 - 6.8
1140 - 2.8	1436 - 5.2	1150 - 7.0
1147 - 3.0	1446 - 5.4	1158 - 7.2
1155 - 3.2	1456 - 5.6	1206 - 7.4
1200 - 3.4	1507 - 5.8	1238 - 1251 - 8.2
1210 - 3.6	1520 - 6.0	1400 - 8.4
1218 - 3.8	1530 - 6.2	
1226 - 4.0	1543 - 6.4	"dd" day 8 August 1956
1234 - 4.2	1556 - 6.6	B Zone
1242 - 4.4	1607 - 6.8	1129 - 1135 - 4.4
1250 - 4.6	1619 - 7.0	1140 - 4.6
1257 - 4.8	1630 - 7.2	1147 - 4.8
1305 - 5.0		
1313 - 5.2	"aa" day 30 July 1956	"dd" day 8 August 1956
1320 - 5.4	B Zone	D Zone
1329 - 5.6	1412 - 1422 - 4.6	1230 - 1235 - 6.6
1338 - 5.8	1432 - 4.8	1242 - 6.8
1348 - 6.0	1442 - 5.0	1248 - 7.0
1357 - 6.2	1451 - 5.2	1253 - 7.2
1406 - 6.4	1501 - 5.4	1300 - 7.4
1416 - 6.6	1511 - 5.6	1305 - 7.6
1428 - 6.8	1522 - 5.8	1312 - 7.8
1443 - 7.0		1320 - 8.0
1500 - 7.2		1328 - 8.2
1610 - 7.4		1337 - 8.4
		1348 - 8.6
		1400 - 8.8
		1419 - 9.0
		1512 - 9.2
		1526 - 9.0
		1536 - 8.8
		1545 - 8.6

8251

16

ABSTRACT OF SMOOTH TIDE REDUCERS
(CONTINUATION)

"ee" day 20 August 1956
D Zone

1016 - 1023	- 5.2
1031	- 5.4
1039	- 5.6
1048	- 5.8
1056	- 6.0
1106	- 6.2
1116	- 6.4
1127	- 6.6
1139	- 6.8
1151	- 7.0
1207	- 7.2
1223 - 1336	- 7.6
1352	- 7.4
1405	- 7.2
1415	- 7.0
1425	- 6.8
1434	- 6.6
1442	- 6.4
1450	- 6.2
1458	- 6.0
1506	- 5.8
1514	- 5.6

"gg" day 5 September 1956
D Zone

1106 - 1110	- 6.4
1115	- 6.6
1120	- 6.8
1126	- 7.0
1132	- 7.2
1138	- 7.4
1144	- 7.6
1151	- 7.8
1200	- 8.0
1207	- 8.2
1216	- 8.4
1225	- 8.6
1259 - 1311	- 9.4
1356	- 9.6
1407	- 9.4
1414	- 9.2
1423	- 9.0

"ff" day 21 August 1956
D Zone

1104 - 1110	- 5.6
1117	- 5.8
1224	- 6.0
1132	- 6.2
1141	- 6.4
1219 - 1232	- 7.4
1249	- 7.6
1314	- 7.8
1345	- 8.0
1408	- 7.8
1421	- 7.6
1432	- 7.4
1442	- 7.2
1452	- 7.0
1501	- 6.8
1510	- 6.6
1518	- 6.4
1526	- 6.2
1534	- 6.0
1541	- 5.8

8251¹²

COMBINED CORRECTIONS FOR FATHOMETER 152 SPX

WHEN BEING USED IN LAUNCH CS 160

SEASON 1955 - PROJECT 13780 AND 13790

"A" Scale		"B" Scale		"C" Scale		"D" Scale	
Fathometer Reading	Corr'n	Fathometer Reading	Corr'n	Fathometer Reading	Corr'n	Fathometer Reading	Corr'n
2.6 - 5.2	- 0.6						
8.6	- 0.4						
17.7	-0.2						
34.7	0.0						
40.0	+ 0.2	39.1	+ 1.1				
45.0	+ 0.4	44.1	+ 1.3				
47.9	+ 0.6	47.0	+ 1.5				
50.1	+ 0.8	49.2	+ 1.7				
52.2	+ 1.0	51.3	+ 1.9				
54.0	+ 1.2	53.1	+ 2.1				
55.9	+ 1.4	55.0	+ 2.3				
57.5	+ 1.6	56.6	+ 2.5				
59.6	+ 1.8	58.7	+ 2.7				
		61.2	+ 2.9				
		63.7	+ 3.1				
		66.7	+ 3.3				
		70.1	+ 3.5	72.1	+ 1.5		
		73.5	+ 3.7	75.5	+ 1.7		
		77.3	+ 3.9	79.5	+ 1.9		
		81.9	+ 4.1	83.9	+ 2.1		
		85.9	+ 4.3	87.9	+ 2.3		
		91.0	+ 4.5	93.0	+ 2.5		
				98.3	+ 2.7		
				133.6	+ 2.9	136.8	- 0.3
						164.3	- 0.1

COMBINED CORRECTIONS WHEN SOUNDING IN FATHOMS WITH INITIAL SET AT 0.0 FMS.

"A" Scale	
Fathometer Reading (Fms)	Corr'n (ft)
14.5 - 15.3	+ 6.6
16.6	+ 6.8
22.1	+ 7.0
30.0	+ 7.2

8251
17

COMBINED CORRECTIONS FOR 808 FATHOMETER 152 SPX

AS USED IN LAUNCH CS 160

PROJECT 13780 - SUMMER 1956

"A" Scale		"B" Scale	
Fathometer	Corr'n	Fathometer	Corr'n
3.6	- 0.6		
5.0	- 0.5		
7.8	- 0.4		
15.0	- 0.3		
24.0	- 0.2		
33.0	- 0.1	32.4	+ 0.5
42.0	0.0	41.4	+ 0.6
51.0	+ 0.1	50.4	+ 0.7
60.0	+ 0.2	59.4	+ 0.8
		68.4	+ 0.9
		76.4	+ 1.0
		85.4	+ 1.1
		90.0	+ 1.2

8251
18

COMBINED CORRECTIONS FOR FATHOMETER 154 SPX

WHEN BEING USED LAUNCH CS 160

SEASON 1955 - PROJECT 13780 AND 13790

"A" Scale		"B" Scale		"C" Scale		"D" Scale	
Fathometer Reading	Corr'n	Fathometer Reading	Corr'n	Fathometer Reading	Corr'n	Fathometer Reading	Corr'n
3.9 - 6.3	- 0.8						
9.4	- 0.6						
21.4	- 0.4						
31.4	- 0.2						
40.0	0.0	39.4	+ 0.6				
45.0	+ 0.2	44.4	+ 0.8				
50.3	+ 0.4	49.7	+ 1.0				
53.1	+ 0.6	52.5	+ 1.2				
55.8	+ 0.8	55.2	+ 1.4				
57.5	+ 1.0	56.9	+ 1.6				
59.9	+ 1.2	59.3	+ 1.8				
		61.5	+ 2.0				
		63.4	+ 2.2				
		65.5	+ 2.4				
		68.6	+ 2.6	70.3	+ 0.9		
		71.7	+ 2.8	73.4	+ 1.1		
		77.3	+ 3.0	79.0	+ 1.3		
		81.3	+ 3.2	83.0	+ 1.5		
		86.3	+ 3.4	88.0	+ 1.7		
		92.4	+ 3.6	94.1	+ 1.9		
				112.9	+ 2.1	114.5	+ 0.5
				161.1	+ 2.3	162.7	+ 0.7

COMBINED CORRECTIONS WHEN SOUNDING IN FATHOMS WITH INITIAL SET AT 0.0 FMS.

"A" Scale	
Fathometer Reading (fms)	Corr'n (ft)
15.0 - 18.7	+ 6.2
30.0	+ 6.4

8251 19

SMOOTH SHEET

The smooth sheet was hand constructed by the Seattle Hydrographic Processing Unit, using standard methods of construction and checking.

SHORELINE AND TOPOGRAPHY

The shoreline was transferred from T-9517, T-9518, and T-9519. ^{N&S} ^{N&S} ^{N&S}

Shoreline shown in red ink was traced from T-9517N which apparently was put on there by the field party, this agrees with the red shoreline shown on the boat sheet. The origin of the red shoreline appears to have been the photo party plane table sheet. *shown in black on S/S*

The shoreline for Goose Island was transferred from T-9518N, no copy of the plane table sheet done by the photo party being available in the processing office.

Revised to agree with revised haul on T-9518

ADEQUACY OF SURVEY

The survey appears complete and adequate for charting. The junctions with H-8250 to the north and H-8293 to the east have been compared and appear in satisfactory agreement with this survey. The comparison with H-8252 to the west and H-8292 to the south will be made when those surveys have been completed. ⁽¹⁹⁵⁵⁻⁵⁶⁾ ⁽¹⁹⁵⁶⁾

see TP 4 REVIEW

The three foot curve was used to delineate the shoaler areas.

This survey was started in 1955 and completed 1956. The positions shown in red on the smooth sheet are from the 1956 work. The 1956 hydrography was given preference of the 1955 where there was conflict.

writing this about preference means nothing next time do it right

CROSSLINES

The crossings are in agreement except in areas where dredging operations took place and on some steep-to channel banks which are subject to scouring action.

COMPARISON WITH PRIOR SURVEYS

Because of the great changes that have taken place, no comparison was attempted.

REVIEW TP 5

COMPARISON WITH CHART

Comparison was made with Chart 6195, 53rd Ed. Revised 1/20/58.

REVIEW TP 6

8251 20

Some differences that were found are as follows: See TP5 & 6 of Review

Lat. & Long.	Chart Depth	Smooth Sheet
46° 55'.60 124 05 .75	18 ft.	1 ⁶ ft. close by
46° 56'.35 124 06 .85	5 ft.	11 ft. See TP6 Review
46° 56'.63 124 06 .72	1 ft.	10-11 ⁹⁻¹⁰ ft. See TP6 Review
46° 56'.70 124 05 .92	6 ft. ✓	16 ft. ✓
46° 57'.20 124 06 .34	5 ft.	15 ft. See TP6 Review
46° 57'.25 125 05 .98	7 ft. ✓	11 ft. ✓
46° 57'.50 124 05 .75	6 ft. ✓	5 ft. ✓
46° 55'.36 124 08 .33	2 & 3 ft. ✓	13-14 ft. 12 ft. shoal near by ✓
46° 56'03" 124 02 10	sand bar ✓	17 ft. or more ✓ 4 ft. shoal 200 m NNE
46° 55'34" 124 02 20	sand bar ✓	7-11 ¹⁵⁻¹⁷ ft. 3 ft. shoal 600 m WSW ✓

There are numerous minor differences in the low water line which are not covered by this report, and probably other sounding discrepancies as well. The ones noted seem to be the most noticeable, also they are out of the dredged area. TP6 Review

AIDS TO NAVIGATION

There are two buoys marked #17 located in Sand Island Shoal Channel. The Bell Buoy #17 Fl G Lt at Lat. 46° 56'.15 N, Long. 124° 05'.4 W was replaced by a Black, 1st-cl can buoy #17 at Lat. 46° 56'.15 N, Long. 124° 05'.68 W. Black Can #17 shown on smooth sheet.

William M. Martin
William M. Martin
Supervisory Cartographer

APPROVED & FORWARDED:

E. H. Kirsch
E. H. KIRSCH, CAPTAIN, C&GS
SEATTLE DISTRICT OFFICER

H 8251

APPROVAL SHEET

WEST COAST FIELD PARTY

HYDROGRAPHIC SHEET FIELD NO. WCFP 1255 - REGISTRY NO. H-8251

The field work has been closely supervised by the chief of party and the records are approved.

Horace G. Conerly
Horace G. Conerly
Commander, USC&GS
CinC., West Coast
Field Party

v

✓*

LIST OF SIGNALS USED

WEST COAST FIELD PARTY

HYDROGRAPHIC SURVEY FIELD NO. WCFP 1255 - REGISTRY NO. H-8251

Name Used In Hydro.	Origin of Signal
ARB	GRAYS HARBOR (USE) 1940.
BAR	GRAYS HARBOR BAR RANGE, REAR LIGHT, 1951.
BOR	GRAYS HARBOR RANGE 4, REAR LIGHT, 1951.
CHAN	NORTH CHANNEL LIGHT 36, 1951.
CON	Johns River Daybeacon 1, 1952. T-9518 S.
CUP	GRAYS HARBOR, COAST GUARD STATION CUPOLA, 1951.
DAY	Johns River Daybeacon 3, 1952. T-9519 S.
EAR	GRAYS HARBOR RANGE 3, REAR LIGHT, 1951.
FRONT	GRAYS HARBOR NORTH CHANNEL RANGE 2, FRONT LIGHT, 1952.
GOS	Theodolite cuts, see Descriptive Report WCFP 1255. <i>Filed with fgms</i>
GRAY	GRAYS HARBOR RANGE 1, FRONT LIGHT, 1951.
HAR	GRAYS HARBOR RANGE 1, REAR LIGHT, 1951.
LEA	T-9519 S. See volume 18, page 2.
LIG	GRAYS HARBOR RANGE 3, FRONT LIGHT, 1951.
LT. 2	POINT CHEHALIS LIGHT 2, 1952.
LT. 4	POINT CHEHALIS LIGHT 4, 1951.
LT. 6	POINT CHEHALIS LIGHT 6, 1951.
LOOK	GRAYS HARBOR, COAST GUARD STATION LOOKOUT TOWER, 1951.
NEW	NEW (USE) 1951.
NORTH	WESTHAVEN OUTER BREAKWATER NORTH LIGHT 5, 1951.
PAL	See G. P. computation, Descriptive Report WCFP 1255. <i>Filed with fgms</i>
POD	TRIPOD, T-9518 S.
POINT	POINT, 1940.
RAN	GRAYS HARBOR RANGE 4, FRONT LIGHT, 1951.

LIST OF SIGNALS USED

(Continuation)

Name Used
In Hydro.

Origin of Signal

RAP	Computation in Descriptive Report WCFF 1155. Lat. $46^{\circ} 58' 1484.7m$. (368.7m) Long. $124^{\circ} 08' 373.2m$. (894.9m). (368.1)
REAR	GRAYS HARBOR NORTH CHANNEL RANGE 2, REAR LIGHT, 1952.
RIV	JONES RIVER ENTRANCE LIGHT 14, 1951.
SOUTH	WESTHAVEN OUTER BREAKWATER SOUTH LIGHT, 1951.
SUE	See G. P. computation, Descriptive Report WCFF 1255. <i>Filed with forms</i>
TIDE	TIDE (USE) 1951.

Gem _____

Dry _____

Drift _____ Drift, 1940 (T-9517)

Lone 2 _____ Lone 2 (USE), 1951, (destroyed - T-9517DR)

POINT _____ PT. CHEHALIS RANGE REAR LIGHT, 1951. (LOST-T9518DR)

INNER _____ WESTHAVEN INNER BKWATER LIGHT 6, 1951 (LOST-T 9518DR)

GUS _____ GUS (USE), 1951

MARKHAM _____ MARKHAM, 1940

BLUFF _____ BLUFF (USE) 1940

STATISTICS FOR HYDROGRAPHIC SURVEY

FIELD NO. WCSP 1255 - REGISTRY NO. H-8251

Vol.No.	Day Letter	Date	No. Pos.	H.L.Sdgs.	Stat.miles sdg.
1	a ✓	20 May 1955	34 ✓		4.1
1	b ✓	26 May	127 ✓		20.1
2	c ✓	13 June	186 ✓		29.4
3	d ✓	20 June	78 ✓		12.5
3	e ✓	21 June	83 ✓		13.4
4	f ✓	22 June	132 ✓		20.8
4 & 5	g ✓	1 July	187 ✓		28.0
5 & 6	h ✓	16 September	148 ✓		23.2
6 & 7	j ✓	20 September	177 ✓		24.4
7 & 8	k	5 October	228		28.8
8	l	6 October	200		27.5
9	m ✓	10 October	154 ✓		20.5
9 & 10	n ✓	13 October	196 ✓		27.8
10 & 11	p ✓	17 October	199 ✓		24.4
11 & 12	q ✓	19 October	171 ✓		19.2
12	r ✓	28 October	184 ✓		18.1
Totals			2,484		342.2

Total area, square statute miles 22.5

Contd.

STATISTICS FOR HYDROGRAPHIC SURVEY

FIELD NO. WCFP 1255 - REGISTRY NO. H-8251

Day Letter	Vol.No.	Date	H.L.Sdgs.	No. Pos.	Stat.Miles	Sdg.
s	13	5 June		137 ✓	21.0	Launch
t	13	2 July	108	110 ✓	6.5	Launch & Skiff
u	13 & 14	10 July	44	113 ✓	17.1	Launch
v	14	11 July		91 ✓	12.5	"
w	14 & 15	12 July	11	75 ✓	7.3	"
x	15	19 July	131	232 ✓	32.0	"
y	16	20 July	162	220 ✓	30.8	"
z	17 & 18	27 July		234 ✓	39.1	"
aa	18	30 July	7	221 ✓	33.9	"
bb	19	31 July	20	84 ✓	13.2	"
cc	19	6 August	46	116 ✓	14.1	"
dd	19 & 20	8 August	9	141 ✓	19.0	"
ee	20 & 21	20 August	113	160 ✓	19.8	"
ff	21	21 August	47	141 ✓	14.3	"
gg	21 22	5 September	15	99 ✓	12.3	"
Total, 1956 season -----			713	2,174	292.9	
Total, 1955 season -----				2,484	342.2	
Total for sheet -----			713	4,658	642.1	
Total area, square statute miles, 1956 season				15.9		
Total area, square statute miles, 1955 season				22.5		
Total for sheet -----				38.4		

COMBINED CORRECTIONS FOR SDO PATHOMETER #203

AS USED IN LAUNCH CS 160 - SEASON 1955 Project 1378 & 1379

Reading In Feet	Frequency in Cycles per second										
	60.50	60.25	60.00	59.75	59.50	59.25	59.00	58.75	58.50	58.25	58.00
A Scale											
13.3	- 0.7	- 0.6	- 0.6	- 0.6	- 0.5	- 0.5	- 0.5	- 0.4	- 0.4	- 0.4	- 0.3
18.1	- 0.5	- 0.5	- 0.4	- 0.3	- 0.3	- 0.2	- 0.2	- 0.1	0.0	0.0	+ 0.1
22.6	- 0.4	- 0.3	- 0.2	- 0.1	0.0	+ 0.1	+ 0.2	+ 0.3	+ 0.4	+ 0.5	+ 0.5
28.2	- 0.2	- 0.1	0.0	+ 0.1	+ 0.2	+ 0.3	+ 0.4	+ 0.6	+ 0.7	+ 0.8	+ 0.9
37.5	- 0.1	+ 0.1	+ 0.2	+ 0.3	+ 0.5	+ 0.6	+ 0.8	+ 0.9	+ 1.0	+ 1.2	+ 1.3
46.7	0.0	+ 0.2	+ 0.4	+ 0.6	+ 0.8	+ 0.9	+ 1.1	+ 1.3	+ 1.5	+ 1.7	+ 1.8
53.3	+ 0.2	+ 0.4	+ 0.6	+ 0.8	+ 1.0	+ 1.2	+ 1.4	+ 1.6	+ 1.9	+ 2.1	+ 2.3
61.5	+ 0.3	+ 0.6	+ 0.8	+ 1.0	+ 1.3	+ 1.5	+ 1.8	+ 2.0	+ 2.3	+ 2.6	+ 2.8
68.9	+ 0.4	+ 0.7	+ 1.0	+ 1.3	+ 1.6	+ 1.8	+ 2.1	+ 2.4	+ 2.7	+ 3.0	+ 3.2
76.5	+ 0.6	+ 0.9	+ 1.2	+ 1.5	+ 1.8	+ 2.1	+ 2.4	+ 2.7	+ 3.1	+ 3.4	+ 3.7
84.2	+ 0.7	+ 1.1	+ 1.4	+ 1.7	+ 2.1	+ 2.4	+ 2.8	+ 3.1	+ 3.5	+ 3.9	+ 4.2
92.1	+ 0.8	+ 1.2	+ 1.6	+ 2.0	+ 2.4	+ 2.7	+ 3.1	+ 3.5	+ 3.9	+ 4.3	+ 4.6
99.0	+ 1.0	+ 1.4	+ 1.8	+ 2.2	+ 2.6	+ 3.0	+ 3.4	+ 3.8	+ 4.3	+ 4.7	+ 5.1
107.0	+ 1.1	+ 1.6	+ 2.0	+ 2.4	+ 2.9	+ 3.3	+ 3.8	+ 4.2	+ 4.7	+ 5.1	+ 5.6
114.2	+ 1.2	+ 1.7	+ 2.2	+ 2.7	+ 3.2	+ 3.6	+ 4.1	+ 4.6	+ 5.1	+ 5.6	+ 6.0
121.6	+ 1.4	+ 1.9	+ 2.4	+ 2.9	+ 3.4	+ 3.9	+ 4.4	+ 4.9	+ 5.4	+ 5.9	+ 6.5
128.8	+ 1.5	+ 2.1	+ 2.6	+ 3.1	+ 3.2	+ 4.2	+ 4.8	+ 5.3	+ 5.8	+ 6.4	+ 6.9
136.2	+ 1.6	+ 2.2	+ 2.8	+ 3.4	+ 4.0	+ 4.5	+ 5.1	+ 5.7	+ 6.3	+ 6.8	+ 7.4
144.3	+ 1.8	+ 2.4	+ 3.0	+ 3.6	+ 4.2	+ 4.8	+ 5.4	+ 6.0	+ 6.6	+ 7.2	+ 7.8
151.3	+ 1.9	+ 2.6	+ 3.2	+ 3.8	+ 4.4	+ 5.1	+ 5.7	+ 6.4	+ 7.0	+ 7.6	+ 8.3
159.0	+ 2.1	+ 2.7	+ 3.4	+ 4.1	+ 4.7	+ 5.4	+ 6.0	+ 6.7	+ 7.4	+ 8.0	+ 8.7
160.0	+ 2.2	+ 2.9	+ 3.6	+ 4.3	+ 5.0	+ 5.7	+ 6.4	+ 7.1	+ 7.8	+ 8.5	+ 9.1
B Scale											
54.0	- 0.5	- 0.3	- 0.1	+ 0.1	+ 0.3	+ 0.5	+ 0.7	+ 0.9	+ 1.2	+ 1.4	+ 1.6
62.2	- 0.4	- 0.1	+ 0.1	+ 0.3	+ 0.6	+ 0.8	+ 1.1	+ 1.3	+ 1.6	+ 1.9	+ 2.1
69.6	- 0.3	0.0	+ 0.3	+ 0.6	+ 0.9	+ 1.1	+ 1.4	+ 1.7	+ 2.0	+ 2.3	+ 2.5
77.2	- 0.1	+ 0.2	+ 0.5	+ 0.8	+ 1.1	+ 1.4	+ 1.7	+ 2.0	+ 2.4	+ 2.7	+ 3.0
84.9	0.0	+ 0.4	+ 0.7	+ 1.0	+ 1.4	+ 1.7	+ 2.1	+ 2.4	+ 2.8	+ 3.2	+ 3.5
92.8	+ 0.1	+ 0.5	+ 0.9	+ 1.3	+ 1.7	+ 2.0	+ 2.4	+ 2.8	+ 3.2	+ 3.6	+ 3.9
99.7	+ 0.3	+ 0.7	+ 1.1	+ 1.5	+ 1.9	+ 2.3	+ 2.7	+ 3.1	+ 3.6	+ 4.0	+ 4.4
107.7	+ 0.4	+ 0.9	+ 1.3	+ 1.7	+ 2.2	+ 2.6	+ 3.1	+ 3.5	+ 4.0	+ 4.4	+ 4.9
114.9	+ 0.5	+ 1.0	+ 1.5	+ 2.0	+ 2.5	+ 2.9	+ 3.4	+ 3.9	+ 4.4	+ 4.9	+ 5.3
122.3	+ 0.7	+ 1.2	+ 1.7	+ 2.2	+ 2.7	+ 3.2	+ 3.7	+ 4.2	+ 4.7	+ 5.2	+ 5.8
129.5	+ 0.8	+ 1.4	+ 1.9	+ 2.4	+ 3.0	+ 3.5	+ 4.1	+ 4.6	+ 5.1	+ 5.7	+ 6.2
136.9	+ 0.9	+ 1.5	+ 2.1	+ 2.7	+ 3.3	+ 3.8	+ 4.4	+ 5.0	+ 5.6	+ 6.1	+ 6.7
C Scale											
120.2	+ 2.8	+ 3.3	+ 3.8	+ 4.3	+ 4.8	+ 5.3	+ 5.8	+ 6.3	+ 6.8	+ 7.3	+ 7.9
127.4	+ 2.9	+ 3.5	+ 4.0	+ 4.5	+ 5.1	+ 5.6	+ 6.2	+ 6.7	+ 7.2	+ 7.8	+ 8.3
134.8	+ 3.0	+ 3.6	+ 4.2	+ 4.8	+ 5.4	+ 5.9	+ 6.5	+ 7.1	+ 7.7	+ 8.2	+ 8.8
142.9	+ 3.2	+ 3.8	+ 4.4	+ 5.0	+ 5.6	+ 6.2	+ 6.8	+ 7.4	+ 8.0	+ 8.6	+ 9.2
149.9	+ 3.3	+ 4.0	+ 4.6	+ 5.2	+ 5.8	+ 6.5	+ 7.1	+ 7.8	+ 8.4	+ 9.0	+ 9.7
157.6	+ 3.5	+ 4.1	+ 4.8	+ 5.5	+ 6.1	+ 6.8	+ 7.4	+ 8.1	+ 8.8	+ 9.4	+ 10.1
158.6	+ 3.6	+ 4.3	+ 5.0	+ 5.7	+ 6.4	+ 7.1	+ 7.8	+ 8.5	+ 9.2	+ 9.9	+ 10.5

COMBINED CORRECTIONS FOR EDO FATHOMETER #203

AS USED IN LAUNCH CS 160

PROJECT 13780 - SUMMER 1956

Reading In Feet	Frequency in Cycles per second							
	60.75	60.50	60.25	60.00	59.75	59.50	59.25	59.00
A Scale								
5.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.3
8.4	-0.4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2
11.5	-0.3	-0.3	-0.2	-0.2	-0.2	-0.1	-0.1	0.0
14.8	-0.3	-0.2	-0.2	-0.1	0.0	0.0	0.1	0.1
17.8	-0.2	-0.1	-0.1	0.0	0.1	0.1	0.2	0.3
21.1	-0.1	-0.1	0.0	0.1	0.2	0.3	0.3	0.4
24.4	-0.1	0.0	0.1	0.2	0.3	0.4	0.5	0.6
27.5	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7
30.7	0.0	0.2	0.3	0.4	0.5	0.6	0.8	0.9
34.0	0.1	0.2	0.4	0.5	0.6	0.8	0.9	1.0
37.0	0.2	0.3	0.5	0.6	0.7	0.9	1.0	1.2
40.3	0.2	0.4	0.5	0.7	0.9	1.0	1.2	1.4
43.4	0.3	0.5	0.6	0.8	1.0	1.1	1.3	1.5
46.6	0.3	0.5	0.7	0.9	1.1	1.3	1.5	1.6
49.8	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8
53.0	0.5	0.7	0.9	1.1	1.3	1.5	1.7	1.9
56.2	0.5	0.8	1.0	1.2	1.4	1.7	1.9	2.1
59.4	0.6	0.8	1.1	1.3	1.5	1.8	2.0	2.2
62.6	0.6	0.9	1.2	1.4	1.7	1.9	2.1	2.4
65.7	0.7	1.0	1.2	1.5	1.8	2.0	2.3	2.6
68.5	0.8	1.0	1.3	1.6	1.9	2.2	2.4	2.7
71.9	0.8	1.1	1.4	1.7	2.0	2.3	2.6	2.9
75.0	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0
78.1	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.2
81.3	1.0	1.3	1.7	2.0	2.3	2.7	3.0	3.3
84.5	1.0	1.4	1.8	2.1	2.4	2.8	3.1	3.5
87.8	1.1	1.5	1.8	2.2	2.6	2.9	3.3	3.6
91.0	1.1	1.5	1.9	2.3	2.7	3.1	3.4	3.8
B Scale								
53.7	-0.2	0.0	0.2	0.4	0.6	0.8	1.0	1.2
56.9	-0.2	0.1	0.3	0.5	0.7	1.0	1.2	1.4
60.1	-0.1	0.1	0.4	0.6	0.8	1.1	1.3	1.5
63.3	-0.1	0.2	0.5	0.7	1.0	1.2	1.4	1.7
66.4	0.0	0.3	0.5	0.8	1.1	1.3	1.6	1.9
69.2	0.1	0.3	0.6	0.9	1.2	1.5	1.7	2.0
72.6	0.1	0.4	0.7	1.0	1.3	1.6	1.9	2.2
75.7	0.2	0.5	0.8	1.1	1.4	1.7	2.0	2.3
78.8	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.5
82.0	0.3	0.6	1.0	1.3	1.6	2.0	2.3	2.6
85.2	0.3	0.7	1.1	1.4	1.7	2.1	2.4	2.8
88.5	0.4	0.8	1.1	1.5	1.9	2.2	2.6	2.9
91.7	0.4	0.8	1.2	1.6	2.0	2.4	2.7	3.1

GEOGRAPHIC NAMES PENCILED ON H-8251

BRAKENRIDGE BLUFF

GOOSE ISLAND

GRAYS HARBOR

MARKHAM

NORTH CHANNEL

POINT BROWN

POINT CHEHALIS

PT DAMON

SAND ISLAND SHOAL

SOUTH ARBOR

SOUTH BAY

SOUTH CHANNEL

STEARNS BLUFF

WESTHAVEN

WHITCOMB FLATS

GEOGRAPHIC NAMES

Survey No. H-8251

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							
Washington			(for	title)									BGN		1	
Grays Harbor			"	"											2	
Point Chehalis			(tide	station)									BGN		3	
Westhaven															4	
Whitcomb Flats															5	
South Bay															6	
South Channel															7	
Markham															8	
Stearns Bluff															9	
South Arbor													BGN		10	
North Channel															11	
Brackenridge Bluff															12	
Goose Island															13	
Sand Island Shoal															14	
Point Damon															15	
Point Brown															16	
															17	
															18	
Tide station off sheet:															19	
Aberdeen															20	
															21	
															22	
															23	
															24	
															25	
															26	
															27	
															28	

Names approved 9-17-58
h. Heck

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. .8251...

Records accompanying survey:

Boat sheets ..1...; sounding vols. .21...; wire drag vols.; bomb vols.; graphic recorder rolls 15-Envelopes special reports, etc. .1-Smooth sheet and 1-Descriptive report.

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

Number of positions on sheet	.....	4613
Number of positions checked	.....	4547 460
Number of positions revised	.....	73
Number of soundings revised (refers to depth only)	.....	829
Number of soundings erroneously spaced	.....	473
Number of signals erroneously plotted or transferred	.....	0
Topographic details	Time	26 hrs.
Junctions	Time	21 hrs.
Verification of soundings from graphic record	Time	51 hrs.

Verification by *William E. Reig* Total time 345 hrs. Date 9/1/59

Reviewed by *J. Zeskent* Time 97 Date 3-8-60

TIDE NOTE FOR HYDROGRAPHIC SHEET

Chart Division: R. H. Carstens

26 November 1958

Plane of reference approved in
21 volumes of sounding records for

HYDROGRAPHIC SHEET 8251

Locality Grays Harbor, Washington

Chief of Party: H. G. Conerly in 1955-1956

Plane of reference is mean lower low water, reading

4.6 ft. on tide staff at Aberdeen

15.3 ft. below B.M. 2 (1927) ✓

2.8 ft. on tide staff of 1955 at Pt. Chehalis
17.5 ft. below B.M. 1 (1927) ✓

Height of mean high water above plane of reference is:

Aberdeen 9.2 ft. ✓

Pt. Chehalis 8.3 ft. ✓

Condition of records satisfactory except as noted below:


Signature

Chief, Tides Branch

DIVISION OF CHARTS

REVIEW SECTION -- NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-8251

FIELD NO. WCFP-1255

Washington, Pacific Coast, Western Part of Grays Harbor

SURVEYED: May 1955 - August 1956

SCALE 1:10,000

PROJECT NO. 13780

SOUNDINGS: Edo Depth Recorder
808 Depth Recorder
Sounding Pole
Handlead

CONTROL: Sextant fixes
on shore signals

Chief of Party ----- H. G. Conerly
Surveyed by ----- C. D. Upham, H. L. Runge, K. E. Taggart
Protracted by ----- C. A. J. Pauw
Soundings plotted by ----- C. A. J. Pauw
Verified and inked by ----- W. E. Roig
Reviewed by ----- I. M. Zeskind
Inspected by ----- R. H. Carstens

DATE: 3/17/60

1. Shoreline and Control

The shoreline originates with reviewed air-photographic surveys T-9517 N & S (1950-55), T-9518 N & S (1950-56) and T-9519 N & S (1950-57).

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

2. Sounding Line Crossings

Depths at crossings are in adequate agreement.

3. Depth Curves and Bottom Configuration

The usual depth curves supplemented by the 3-ft. and 36-ft. curves were adequately delineated.

The bottom is very irregular. Submarine features such as shoals, flats and deeps contribute to the bottom configuration.

4. Junctions with Contemporary Surveys

Adequate junctions were effected with H-8250 (1955) on the north, with H-8293 (1956) on the east; with H-8292 (1956) on the south, and with H-8252 (1955) west of Pt. Chehalis.

5. Comparison with Prior Surveys

A.	H-809 (1862), 1-20,000	H-2371 (1898), 1-20,000
	H-1589 a & b (1883), 1-20,000	H-3228 (1911), 1-10,000
	H-2085 (1891), 1-20,000	H-3229 (1911), 1-10,000

The above listed surveys were compared with and superseded by surveys H-6646 (1940) and H-6665 (1940-41) within their common areas. Outside the limits of H-6646 and H-6665, a comparison of the prior surveys with the present survey reveals the bottom to be highly changeable, with the greatest changes in depths occurring in the vicinity of the entrance to Grays Harbor, and the least changes in depths occurring in the flats. These changes in bottom configuration are attributed to the construction of jetties, the action of the current on the bottom and dredging operations.

The present survey is adequate to supersede that portion of the prior surveys within the common area which fall outside the limits of H-6646 and H-6665.

B. H-6646 (1940), 1-10,000
H-6665 (1940-41), 1-10,000

These surveys cover that portion of the present survey which lies east of approximate long. $124^{\circ}05'$ and south of North Channel. A comparison between the prior and present surveys reveals considerable changes in bottom configuration in that portion of the present survey covered by H-6646. Here both shoaling and deepening of the bottom has occurred, as for example in lat. $46^{\circ}55.42'$, long. $124^{\circ}05.15'$, where a former depth of 29 ft. falls in present depths of 13 ft., or in the vicinity of lat. $46^{\circ}55.7'$, long. $124^{\circ}03.0'$, where a former shoal which uncovered by as much as 3 ft., falls in present depths as great as 19 ft. Lesser changes in bottom configuration has occurred in that portion of the present survey covered by H-6665. Here, in general, only minor differences of 1-2 ft. in depths are noted. However, in several areas greater differences in depths have occurred, as for example in the vicinity of lat. $46^{\circ}57.0'$, long. $124^{\circ}58.9'$, where differences in depth of as much as 7 ft. are noted, or in lat. $46^{\circ}55.8'$, long. $124^{\circ}01.0'$, where the western edge of the sand flat has moved eastward about $1/3$ mile

with the resultant changes in depths. These changes in bottom configuration are attributed to causes similar to those given in paragraph A above.

The present survey is adequate to supersede the prior surveys within the common area.

6. Comparison with Chart 6195 (Latest print date 2/23/59)

A. Hydrography

The charted information originates with prior surveys previously discussed which need no further consideration, with the boat sheet (Bp 54398) of the present survey and with U. S. Corps of Engineers' surveys both prior and subsequent to the present survey. A comparison between the charted and present survey depths reveals the present survey to be as much as 14 ft. deeper in the area which lies roughly west of long. $124^{\circ} 04.0'$ and south of lat. $47^{\circ} 57.0'$. Elsewhere differences in depths of 1-3 ft. are generally noted. Attention is directed specifically to the following charted soundings:

1. The 1-ft. sounding charted in lat. $46^{\circ} 56.62'$, long. $124^{\circ} 06.72'$, from the U. S. Corps of Engineers' survey of 1951 (Bp 48191) should be deleted from the chart. The charted sounding is discredited by depths of 9-10 ft. found on the present survey.
2. The 5-ft. sounding charted in lat. $46^{\circ} 56.35'$, long. $124^{\circ} 06.85'$, from the U. S. Corps of Engineers' survey of 1951 (Bp 48191) should be deleted from the chart. The charted sounding is discredited by depths of 12-14 ft. found on the present survey.
3. The submerged pile charted in lat. $47^{\circ} 57.48'$, long. $124^{\circ} 06.82'$, is charted from a landmark report (CL 851, 1951). The remnants of the pilings are not considered disproved and should be retained on the chart.
4. The 5-ft. sounding charted in lat. $46^{\circ} 57.22'$, long. $124^{\circ} 06.34'$, from the U. S. Corps of Engineers' survey of 1948 (Bp 43909) should be deleted from the chart. The charted sounding is discredited by depths of 15-22 ft. on the present survey.

The present survey is adequate to supersede the charted hydrography accomplished prior to the present survey.

B. Dredged Channels

The charted tabulated depths of Sand Island Shoal and Crossover Channels and Moon Island Reach falling within

the area of the present survey, originate with U. S. Corps of Engineers' surveys which were accomplished subsequent to the present survey.

C. Aids to Navigation

The present survey positions of aids to navigation are in substantial agreement with the charted positions and adequately mark the features intended, except as follows:

1. Buoys N "2" and N "4" charted in the vicinity of lat. $46^{\circ}55.2'$, long. $124^{\circ}05.5'$ were established subsequent to the present survey in accordance with H.C.N. to M. 27, 1957.
2. Buoy R "36" charted in lat. $46^{\circ}57.40'$, long. $123^{\circ}58.95'$, was established subsequent to the present survey in accordance with H.O.N. to M. 27, 1957.
3. Buoy R "6" charted in lat. $46^{\circ}55.15'$, long. $124^{\circ}04.05'$, was formerly designated N "2" as shown on the present survey. Its designation was changed to R "6" subsequent to the present survey in accordance with H.C.N. to M. 27, 1957.
4. Buoy C "21" charted in lat. $46^{\circ}56.24'$, long. $124^{\circ}04.18'$, was moved subsequent to the present survey about 950 meters westward from its survey position in accordance with H.O.N. to M. 50, 1956.
5. Buoy C "19" located on the present survey in lat. $46^{\circ}56.24'$, long. $124^{\circ}04.65'$, was deleted from the chart subsequent to the present survey in accordance with H.C.N. to M. 50, 1956.

7. Condition of Survey

- a. The sounding records and Descriptive Report are complete and comprehensive.
- b. The smooth plotting was accurately done, except as follows:
 - (1) The use of too hard a pencil by the smooth plotter in drawing the depth curves caused the smooth sheet paper to be indented. This condition necessitated the use of an erasing machine whenever corrections to the penciled depth curves were made by the verifier.

Many of the curves were penciled in error and a considerable amount of erasing of curves was required.

- (2) Many errors were made, generally in the check scanning of the fathograms. Usually the original scanning was correct. A considerable number of errors of 5 and 10 ft. were also made in the scanning, all of which was corrected during verification.
- (3) The spacing of numerous soundings was in error, generally where soundings were omitted and the remaining soundings improperly spaced.

8. Compliance with Project Instructions

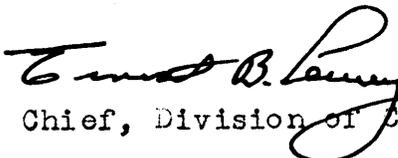
The survey adequately complies with the Project Instructions.

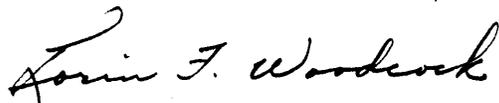
9. Additional Field Work Recommended

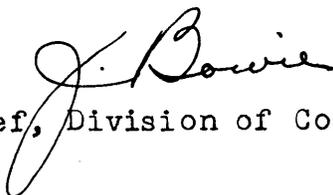
The survey is considered basic and no additional field work is recommended. Periodic surveys are accomplished by the U. S. Corps of Engineers at the entrance and in the navigable channels of Grays Harbor which fall within the area of the present survey.

Examined and Approved:


Chief, Nautical Chart Branch


Chief, Division of Charts


Chief, Hydrography Branch


Chief, Division of Coastal Surveys

