

7893

Diag. Cht. No. 6153

339  
Rw

Form 504

U. S. COAST AND GEODETIC SURVEY  
DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC  
HO-1251  
Field No. HO-1351 Office No. H-7893

LOCALITY

State OREGON—WASHINGTON

General locality COLUMBIA RIVER

Locality COFFIN ROCK TO SOUTH END OF  
DEER ISLAND

194 51

CHIEF OF PARTY

H. G. Conerly

LIBRARY & ARCHIVES

DATE Sept 18 - 1951

7893

SEP 4 1951

Form 537  
(Ed. June 1946)

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-7893

Field No. HO-1251 & 1351

State ~~Washington~~ \* Oregon - Washington

General locality Columbia River

Locality Coffin Rock to south end of Deer Island

~~Sandy Island~~

Scale 1:10000 Date of survey May, 1951  
April, 1951

Instructions dated 21 Sept. 1950

Vessel HODGSON

Chief of party H. G. Conerly

Surveyed by J. O. Boyer

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

Fathograms scaled by Ship's personnel

Fathograms checked by Ship's personnel

Protracted by D. L. Wheeler & A. R. Bradie

Soundings penciled by D. E. Fischer & L. R. Whitney

Soundings in ~~fathoms~~ feet at ~~Mean Lower Low Water~~ Columbia River Datum  
C. R. D.  
(Mean Lower Low Water During Lowest River Stages)

REMARKS:

DESCRIPTIVE REPORT

to accompany

- Hydrographic Survey No. H-7898, (HO-11518)
- No. H-7893, (HO-1251) } present survey
- ~~No. H-7894~~, (HO-1351) }
- No. H-7895, (HO-1451)
- No. H-7901, (HO-1551)
- No. H-7902, (HO-1651)
- No. H-7903, (HO-1751)

Columbia River  
Longview, Washington to Vancouver, Washington

Ship HODGSON  
Horace G. Conerly  
Chief of Party

A. PROJECT:

Project CS-339

This hydrographic survey was made in accordance with the following instructions.

1. Original instructions, 22/MEK, S-2-HO dated 24 May, 1949
2. Supplemental instructions, 22/MEK, S-2\*HO dated 21 Sept., 1950
3. Related letter - Letter from Director 22/MEK, S-1-HO, dated 22 May, 1951.

B. SURVEY LIMITS AND DATES: *(Only H-7893 considered in this Desc. Report)*

Sheet H-7892 extends from the mouth of Cowlitz River to coffin rock. Hydrography was begun 20 April, 1951 and ended 30 April 1951.

Sheet H-7893 extends from coffin rock to the downstream tip of Deer Island. Hydrography was begun 17 April 1951, and ended 19 April 1951. } present survey

Sheet H-7894 <sup>Combined with H-7893</sup> extends from the downstream tip of Deer Island to the upstream tip of Deer Island. Hydrography was begun 1 May 1951, and ended 18 May 1951. }

Sheet H-7895 extends from the upstream tip of Deer Island to Bachelor Shoal. Hydrography was begun 22 May 1951, and ended 13 June 1951.

Sheet H-7901 extends from Bachelor Shoal to Willow Point. Hydrography was begun 11 June 1951, and ended 22 June 1951.

Sheet H-7902 extends from Willow River to the mouth of the Willamette River. Hydrography was begun 28 June 1951, and ended 23 July 1951.

Sheet H-7903 extends from the mouth of the Willamette River to the Interstate Bridge, Vancouver Washington. Hydrography was begun 27 July 1951, and ended 17 August 1951.

B. CONT.:

Junction is made with prior surveys, H-7129 1946, H-7121 1946, H-7742 1949, H-7743 1949, and H-7744 1949, H-7129 is 1:8000 scale the remaining surveys are 1:5000 scale. See Review, par. 4.

C. VESSEL AND EQUIPMENT:

Hydrography was done with launch No. 160, a 36 foot landing craft (L.C.P.R.). 808-A type depth recorder No.77 was used with the fish mounted on the keel.

The launch returned to the Ship HODGSON at the end of each working day.

D. TIDES AND CURRENTS:

See discussion under tide note attached.

Three 75 hour current observations were made at the following locations:

- (1) St. Helens, Oregon  
Latitude 45 52.2'  
Longitude 122 47.7'
- (2) Downstream from Willow Point  
Latitude 45 46.1'  
Longitude 122 45.9'
- (3) Mouth of the Willamette River  
Latitude 45 38.6'  
Longitude 122 46.4'

One current station was occupied for 27 hours upstream from Hewlett Point at Latitude 45 40.5' Longitude 122 46.1'

Current observations in the mouth of the Willamette River were made when the Columbia River had about 15½ feet of flood water. The current was flowing upstream in the Willamette River at a velocity of about one knot to flow down the Multnomah Slough.

E. SMOOTH SHEETS:

The projections were made by hand on the Ship HODGSON.

F. CONTROL STATIONS: (Located By)

- 1, Triangulation observed through 1949.
- 2, Triangulation observed by H. G. Conerly in 1951.
- 3, Topographic and photo stations located in 1949.
- 4, Army Engineer triangulation observed through 1950. This was converted from lambert coordinates to Geographic Positions.
- 5, Stations located by hydrographic methods.

↑  
H-7751

G. SHORELINE AND TOPOGRAPHY:

Part of the shoreline and topography was done by photogrammetry and is to be added to the sheets later. The rest is from photogrammetry done in previous years.

The low water line was determined wherever possible. Its entire delineation was prevented by steep banks, log rafts, and docks.

H. SOUNDINGS:

Soundings were measured with an 808 A type portable depth recorder, with a few leadline soundings added.

See fathometer report under separate cover <sup>filed with H-7901</sup> for method of obtaining corrections to be applied to fathometer readings.

I. CONTROL OF HYDROGRAPHY:

Hydrography was controlled by three point fixes taken with sextants to shore objects.

J. ADEQUACY OF SURVEY:

The survey is considered to be adequate.

K. CROSSLINES:

About 8% of crosslines were ran.

Soundings on the Vancouver upper range line which was a crossline do not check, as the Army Engineers dredge was working in this area during the survey. A copy of their survey, made after dredging, will be furnished the Supervisor M W District. *Not applicable to H-7893 (1951)*

L. COMPARISON WITH PRIOR SURVEYS: *Applicable surveys underscored*

Prior surveys are H-6245 1937, H-6246 1937, H-6247 1937, H-6332 1938, and H-6333 1938. During the lapse of time between prior surveys and the present survey many changes have occurred from spring freshets and dredging. This survey should supesede all prior surveys.

Satisfactory junction was made with surveys H-7744 1949, H-7743 1949, H-7742 1949, H-7129 1946, and H-7121 1946.

M. COMPARISON WITH CHART:

*See Review, par. 6.*

Comparison with chart 6153, print date Sept. 18, 1950.

All following survey depths reduced for river level corrections only and are not those shown on the Smooth Sheet.

Latitude 46-03-31", Longitude 122 53' 07" 21 feet depth charts shows 30 feet.

Latitude 46 04' 15", Longitude 122 53' 33" 14 feet depth chart shows 18 feet.

*} not within limits of present survey*

M. CONT.:

Latitude 46 03' 06", Longitude 122 53' 07" dock now in ruins. ✓

Latitude 46 02' 35", Longitude 122 52' 58" small boat float. ✓

Latitude 46 01' 58", Longitude 122 52' 10" chart shows dolphin, ✓  
only stub remains.

Latitude 46 01' 29", Longitude 122 51' 55" chart shows dolphin, ✓  
dolphin no longer exists.

Latitude 46 01' 21", Longitude 122 51' 45" chart shows dolphin, ✓  
dolphin no longer exists.

Latitude 46 00' 57", Longitude 122 51' 17" least depth <sup>20</sup> ~~34~~ feet. ✓

Latitude 46 00' 18", Longitude 122 50' 43" dock now in ruins ✓  
only stub piles remain.

Latitude 45 57' 30", Longitude 122 49' 14" chart shows dolphin ✓  
only stub remains.

Latitude 45 57' 17", Longitude 122 49' 12" chart shows dolphin, ✓  
only stub remains.

Latitude 45 55' 51", Longitude 122 48' 46" chart shows dolphin, ✓  
dolphin no longer exists.

Latitude 45 55' 24", Longitude 122 48' 32" <sup>20</sup> 15 feet depth chart ✓  
shows 20 feet. (survey & charted depths in agreement)

Latitude 45 56' 03", Longitude 122 48' 15" <sup>31</sup> 29 feet depth in ✓  
middle of dredged channel. Channel was dredged by the Army Engineers  
after survey.

Latitude 45 55' 03", Longitude 122 48' 27" 26 feet depth near ✓  
dredged channel, chart shows 31 feet depth. (26 presently charted)

not within limits of pres. survey

Comparison with chart 6154, print Sept. 4, 1950.

Latitude 45 51' 08", Longitude 122 46' 56" shoalest depth 24 1/2 ✓  
feet. Depth is near dredged channel.

Latitude 45 41' 15", Longitude 45 44' 15" channel 6 feet shoaler ✓  
then channel depth shown on chart. This area was being dredged by the  
Army Engineers during Sept., 1951. This is a area of large amount of  
dredging in spite of strong currents.

The area from Latitude 45 38.9', Longitude 122 45.5' to Latitude  
45 38.3', Longitude 122 44.6' is a log mooring area. An attempt was  
made to show the offshore dolphins and piles, but there are numerous ones  
inside, that were not located. The area on both sides of the northwestern  
tip of Hayden Island is the same.

not within limits of present survey

N. DANGERS AND SHOALS:

All newly found dangers and shoals are discussed above under  
comparison with chart, or are clearly shown on the sheet.

O. COAST PILOT INFORMATION:

This information was submitted as a separate report.

P. AIDS TO NAVIGATION:

All aids to navigation are listed on form 567 which is a part of  
this report. See C.L. 678 (1951)

The geographic positions of the following lights do not agree with

P. CONT.:

the positions shown in the 1951 Light List: Willow Light 23, light list No. 1136; Reeder Point Light 28, light list No. 1139; Knapp Point Light, light list No. 1133; Bachelor Point Light 13, light list No. 1130; and St. Helens Jetty Light 79, light list No. 1112.

Termini of two cable crossings are not shown on latest edition of chart 6153. (see smooth sheet) H-7892(1951)

Latitude 46 02' 20"	Longitude 122 52' 22"
Latitude 46 02' 10"	Longitude 122 52' 54"
Latitude 46 02' 20"	Longitude 122 52' 22"
Latitude 46 02' 17"	Longitude 122 52' 52"

Q. LANDMARKS FOR CHARTS:

All landmarks for charts are listed on form 567 which is a part of this report. filed with H-7903(1951)

S. BY-PRODUCT INFORMATION:

In areas near Vancouver, Wash. the river bottom is very rough. In these areas the water apparently moves the sand like wind driven sand dunes, since the steep side is almost invariably downstream.

T. TABULATION OF APPLICABLE DATA:

1. Tidal records for Longview, Kalama, Columbia City, Henrici, Knapp Point, Kelly Point, and Vancouver, forwarded to Washington.
2. Triangulation previous to 1951, and triangulation done by HODGSON in 1951.
3. Fathometer report forwarded to Washington. See H-7901
4. List of Geographic Positions of stations computed from coordinates furnished by U. S. E.D. See H-7901

Respectively submitted,  
Dan L. Wheeler  
Dan L. Wheeler  
Ensign, USC&GS

Approved and Forwarded

*Horace G. Conerly*  
Horace G. Conerly  
Lt. Comdr., USC&GS

NOTE FOR HYDROGRAPHIC SHEET HO. 1251 Reg. H-789<sup>3</sup>

On August 21, 1951 the U.S. Engineers were dredging the main channel  
off Kalama Washington ~~at the lower end of this sheet.~~  
*middle*

*Horace G. Conerly*  
Horace G. Conerly  
Lt. Comdr. U.S.C. & G.S.  
C. mdg. Off. Ship Hodgson.



NOTE FOR HYDROGRAPHIC SHEET NO. 1251 Reg. H-789<sup>3</sup>~~4~~

On August 21, 1951 the U.S. Engineers were dredging the main channel off Kalama Washington ~~at the lower end of this sheet.~~

Horace G. Conerly  
Lt. Comdr. U.S.C. & G.S.  
C.mdg. Off. Ship Hodgson.

STATISTICS

FOR

HYDROGRAPHIC SURVEY FIELD NO. HO-1251  
REGISTRY NO. H-7893

LAUNCH NO. 1<sup>6</sup>/<sub>0</sub>

DATE	DAY	VOL.	HANDLEAD SOUNDINGS	POSITIONS	STAT. MILES OF SOUNDINGS
4/17/51	a	1	--	119	17.5
4/18/51	b	2	--	257	33.9
4/19/51	c	1	23	115	14.1
5/1/51	d	2&3	11	23	1.2
Total For Sheet - - -			34	514	66.7

Total Area of Hydrography - 1.3 sq. stat. miles

STATISTICS

FOR

HYDROGRAPHIC SURVEY FIELD NO. HO-1351  
REGISTRY NO. H-789A3

DATE	DAY	VOL.	LAUNCH NO. 160 HANDLEAD SOUNDINGS	POSITIONS	STAT. MILES OF SOUNDINGS
5/1/51	a	1		72	9.8
5/2/51	b	1		58	8.5
5/3/51	c	2		190	28.6
5/7/51	d	1,2&3		244	40.7
5/8/51	e	4		152	16.6
5/9/51	f	3&5		230	34.2
5/10/51	g	5		213	28.4
5/18/51	h	4		75	7.0
Total for Sheets - - - - -				1234	173.8

Total Area of Hydrography - 3.2 sq. stat. miles

## TIDE NOTE

Hydrographic Sheets: H-7892, H-7893, H-~~7894~~, H-7895,  
H-7901, H-7902, H-7903

The tides were recorded by portable automatic tide gages. The staffs were connected to USC&GS bench marks and referred to the Columbia River Datum.

The tide gages were established so that two gages could be used to determine the river level corrections on all but one sheet. Hydrographic sheet H-7893 was a small sheet and the Kalama tide gage was used directly for river level corrections. The remaining sheets were zoned for a 0.2 foot differences between adjacent zones. This difference however was as much as 0.4 foot on a few occasions.

During April and early part of May some tide action was noted, but as the river rose this action became less, and the tide curves approached horizontal lines during June and July. In early August some tide action was again becoming apparent.

Daylight Saving Time, or the 105 meridian west, was used from 1600 April 29, 1951 to 2400 September 29, 1951. Prior to and succeeding the above dates Pacific Standard Time or the 120 meridian west was used.

Tide stations were maintained at the following locations during the time of work in each area:

Station	Latitude	Longitude	Staff Reading in Feet Corresponding to C.R.D.
Longview, Wash.	46 06.5'	122 57.6'	-2.8
Kalama, Wash.	46 00.6'	122 57.4'	0.0
Columbia City, Or.	45 43' 32"	122 48' 19"	-3.5
Henrici Landing	45 48.7'	122 47.8'	-4.75
Knapp Landing	45 44' 31"	122 45' 22"	-10.75
Kelley Point	45 39.1'	122 45.8'	-9.55
Vancouver, Wash.	45 37.6'	122 40.5'	-0.90

## ABSTRACT OF RIVER LEVEL CORRECTIONS

Hydrographic Sheet Field HO-1251  
Registry H-7893

DATE	TIME	KALAMA
	120 M.W.	ZONE
4/17/51	1200-1224	7.2
	1225-1500	7.4
	1501-1700	7.2
	1701-end	7.0
4/18/51	0800-1140	7.2
	1141-1206	7.4
	1207-1236	7.6
	1237-1400	7.8
	1401-1600	8.0
	1601-end	7.8
4/19/51	0800-0915	7.8
	0916-1212	7.6
	1213-1300	7.8
	1301-1328	8.0
	1329-1412	8.2
	1413-1640	8.4
	1641-end	8.2
5/1/51	<u>105 M.W.</u>	
	0800-0900	7.0
	0901-1112	6.8
	1113-1154	7.0
	1155-1228	7.2
	1229-1254	7.4
	1255-1330	7.6
	1331-1600	7.8
	1601-1700	7.6
1701-end	7.4	

## ABSTRACTS OF RIVER LEVEL CORRECTIONS

Hydrographic Sheet Field HO-1351  
Registry H-78943

DATE	TIME 105 M.W.	ZONE A	TIME 105M.W.	ZONE B	TIME 105M.W.	ZONE C
5/1/51	0800-0842	7.2	0800-0842	7.4	0800-0830	7.6
	0843-1130	7.0	0843-1150	7.2	0831-0950	7.4
	1131-1212	7.2	1151-1236	7.4	0951-1104	7.2
	1213-1246	7.4	1237-1324	7.6	1105-1220	7.4
	1247-1335	7.6	1325-1724	7.8	1221-1312	7.6
	1336-1630	7.8	1725-end	7.6	1313-1412	7.8
	1631-end	7.6			1413-1654	8.0
				1655-end	7.8	
5/2/51	0800-0858	7.6	0800-0850	7.8	0800-0830	8.0
	0859-1014	7.4	0851-1018	7.6	0831-1000	7.8
	1015-1220	7.2	1019-1232	7.4	1001-1246	7.6
	1221-1306	7.4	1233-1312	7.6	1247-1352	7.8
	1307-1348	7.6	1313-1414	7.8	1353-1445	8.0
	1349-1430	7.8	1415-1503	8.0	1446-1612	8.2
	1431-end	8.0	1504-1738	8.2	1613-1648	8.4
		1739-end	8.0	1649-end	8.2	
5/3/51	0800-0812	8.2	0800-0856	8.2	0800-0840	8.4
	0813-0916	8.0	0857-1020	8.0	0841-1000	8.2
	0917-1030	7.8	1021-1350	7.8	1001-1412	8.0
	1031-1324	7.6	1351-1432	8.0	1413-1458	8.2
	1325-1408	7.8	1433-1514	8.2	1459-1556	8.4
	1409-1444	8.0	1515-1620	8.4	1557-end	8.6
	1445-1526	8.2	1621-1730	8.6		
1527-end	8.4	1731-end	8.4			
5/7/51	0800-0912	9.0	0800-0836	9.2	0800-0930	9.2
	0913-1028	8.8	0837-1008	9.0	0931-1122	9.0
	1029-1144	8.6	1009-1138	8.8	1123-1300	8.8
	1145-1300	8.4	1139-1300	8.6	1301-1500	8.6
	1301-1500	8.2	1301-1500	8.4	1501-1638	8.4
	1501-1630	8.0	1501-1630	8.2	1639-1734	8.6
	1631-1708	8.2	1631-1720	8.4	1735-end	8.8
1709-1734	8.4	1721-1752	8.6			
1735-end	8.6	1753-end	8.8			
5/8/51	0800-0830	9.2	0800-0918	9.2	0800-0854	9.4
	0831-0926	9.0	0919-1100	9.0	0855-1036	9.2
	0927-1104	8.8	1101-1210	8.8	1037-1200	9.0
	1105-1204	8.6	1211-1342	8.6	1201-1358	8.8
	1205-1354	8.4	1343-1730	8.4	1359-1750	8.6
	1355-1732	8.2	1731-end	8.6	1751-end	8.8
	1733-end	8.4				
5/9/51	0800-0812	9.4	0800-0820	9.4	0800-0900	9.6
	0813-1000	9.2	0921-1140	9.2	0901-1130	9.4
	1001-1156	9.0	1141-1330	9.0	1131-1354	9.2
	1157-1326	8.8	1331-1548	8.8	1355-1614	9.0
	1327-1548	8.6	1549-1722	8.6	1615-1724	8.8
	1549-1720	8.4	1723-end	8.8	1725-end	9.0
	1721-1754	8.6				
1755-end	8.8					

PHASE COMPARISONS

Sheets Field HO-1151, HO-1251, HO-1351

Launch No. CS-160

Fathometer No. 77

"A" Scale	"B" Scale	"A"- "B"
41.0	40.0	1.0
46.2	45.05	1.15
51.3	50.1	1.2
41.0	39.95	1.05
46.3	45.0	1.3
51.4	50.2	1.2
36.2	34.8	1.4
36.1	35.0	1.1
36.1	34.95	1.15
35.95	34.8	1.15
41.2	40.1	1.1
46.4	45.0	1.4
51.2	50.0	1.2
35.8	34.85	0.95
41.0	40.0	1.0
46.2	45.1	1.1
51.5	50.3	1.2
36.1	34.8	1.3
35.8	34.8	1.0
41.2	40.0	1.2
46.5	45.1	1.4
51.55	50.2	1.35
35.85	34.8	1.05
41.0	39.85	1.15
46.5	45.1	1.4
51.6	50.5	1.1
36.1	34.85	1.25
41.5	40.0	1.5
46.8	45.15	(1.65) R
36.1	34.85	1.25
41.5	40.05	1.45
46.8	45.15	(1.65) R
35.9	34.85	1.05
41.2	40.05	1.15
35.9	34.8	1.1
		<u>33   39.35 = 1.192</u>

"B" Scale	"C" Scale	"B"- "C"
78.6	77.6	1.0
78.4	77.6	0.8
79.2	78.6	0.6
80.2	79.8	0.4
80.4	80.1	0.3
80.8	80.1	0.7
80.6	80.0	0.6
80.9	80.5	0.4
80.2	79.1	1.1
80.0	79.1	0.9
80.4	80.1	0.3
		<u>11   7.1 = 0.645</u>

Fathometer Corrections

H-7893 (1951)

Sheets Field HO-1151, HO-1251 & HO-1351

Launch CS-160

Fathometer No. 77

Fath-Depth Feet "A" Scale	Corrections Feet
0 - 1.7	+1.8
1.8 - 5.1	+1.6
5.2 - 8.5	+1.4
8.6 - 12.3	+1.2
12.4 - 16.0	+1.0
16.1 - 20.3	+0.8
20.4 - 25.5	+0.6
25.6 - 30.7	+0.4
30.8 - 35.7	+0.2
35.8 - 39.9	0.0
40.0 - 44.3	-0.2
44.4 - 48.1	-0.4
48.2 - 52.0	-0.6
52.1 - 55.7	-0.8
55.8 - 59.5	-1.0

Leadline Corrections For L.L.No.1  
Sheets HO-1151, HO-1251, HO-1351,  
HO-1451, HO-1551, HO-1651

0 - 10.0	0.0
10.1 - 15.0	+0.2
15.1 - 20.0	+0.4
20.1 - 27.0	+0.6
27.1 - 36.0	+0.8
36.1 - 55.0	+1.0
55.1 - 72.0	+0.8

"B Scale ("A" Scale  
plus 1.2)

30.7 - 35.7	+1.4
35.8 - 39.9	+1.2
40.0 - 44.3	+1.0
44.4 - 48.1	+0.8
48.2 - 52.0	+0.6
52.1 - 55.7	+0.4
55.8 - 59.5	+0.2
59.6 - 63.7	0.0
63.8 - 68.7	-0.2
68.8 - 74.0	-0.4
74.1 - 79.4	-0.6
79.5 - 85.6	-0.8
85.7 - 92.1	-1.0

"C" Scale ("A"  
Scale plus 1.8)

68.7 - 74.0	+0.2
74.1 - 79.4	0.0
79.5 - 85.6	-0.2
85.7 - 92.1	-0.4
<del>92.2</del> - 98.8	-0.6
98.9 - 106.1	-0.8
106.2 - 115.1	-1.0
115.2 - 128.0	-1.2



Reg. No. H-7893

Name Used in Hydro- graphic Survey	Source of Station
AHLE	Ahle Point Lt., 1949 (U.S.E.)
AIR	KALAMA AIRWAY BEACON, 1937
ART	Volume 1
BAR	Hunter Bar Upper Dike Lt., 1949 (U.S.E.)
EAT	Volume 1
BURN	KALAMA BURNER (U.S.E.), 1937
CAB	Reg. No. H-7892
CARR	CARR, 1873
COF	Coffin Rock Lt., Field No. HO-K-49
D-1	D-1, 1912
DAY	Hunter Bar Dike Daybeacon 2, Field No. HO-J-49
DIKE	Hunter Bar Dike Lt., 1949 (U.S.E.)
DOL	Dike 36.3 Dolphin W. E. End, 1949 (U.S.E.)
--	DUMP, 1937
DUNE	Field No. HO-J-49
EAT	Field No. HO-K-49
GAB	Field No. HO-K-49
GOBEL	GOBEL'S DOLPHIN (U.S.E.), 1937
H-21	H-21 (U.S.E.), 1912
HOP	Hoffman Light, 1949 (U.S.E.)
HOP	Reg. No. H-7892
INK	Volume 1
JOY	Volume 1
KAL	Kalama River Lt., Field No. HO-K-49
LOG	Volume 1
MIK	Field No. HO-K-49
MIL	Field No. HO-K-49
OAT	Reg. No. H-7892
PORT	Kalama Port Dock Lt., Reg. No. T-9265
POT	Volume 1
RAN	Kalama Lower Range Front, Reg. No. T-9265
REAR	Kalama Lower Range Rear, 1949 (U.S.E.)
RUD	Volume 1
TIN	Field No. HO-K-49
--	TOE, Field No. HO-K-49
YEL	Field No. HO-K-49

NOTE: Stations not having a hydro name were used in control only.

Reg. No. 78943

Name Used in Hydro- graphic Survey	Source of Station
AHLE	Ahle Point Lt., 1949 (USE)
BAN	Volume 1
--	BANK DOL, 1949 (U.S.E.)
BAR	Hunter Bar Upper Dike Lt., 1949 (U.S.E.)
BAT	Reg. No. H-7893
--	BLUFF (U.S.E.) (Wash.), 1912
--	BUCK, 1949 (U.S.E.)
BUR	Burke Lt., Volume 1
CAL	Volume 1
CAP	Caples Dike Lt., Volume 1
--	DAVIS, 1937
DAY	Hunter Bar Dike Daybeacon 2, Field No. HO-J-49
DEER	Deer Island Lt., Volume 1
DIKE	Hunter Bar Dike Lt., 1949 (U.S.E.)
DOG	Volume 1
DOL	Dike 36.3 Dolphin N. E. End, 1949 (U.S.E.)
--	DUMPY, 1949 (U.S.E.)
--	FRONT, 1949 (U.S.E.)
--	H-19 (U.S.E.), 1912
H-21	H-21 (U.S.E.), 1912
--	HILL (U.S.E.) (WASH.), 1912
HOF	Hoffman Lt., 1949 (U.S.E.)
LAND	Martin Island Middle Dike Lt., Volume 1
LOW	Deer Island Lower Dike Lt., Volume 1
MAR	Martin Dike Lt., Volume 1
MARTIN	MARTIN BLUFF (WASH.), 1937
--	MID, 1949 (U.S.E.)
CLD	Stub pile of foundation of (DEER ISLAND MIDDLE DIKE LIGHT, 1937)
PER	Deer Island Upper Dike Lt., Volume 1
POI	Volume 1
POT	Reg. No. H-7893
RAN	Martin Island Range Front, 1949 (U.S.E.)
--	RAP, 1949 (U.S.E.)
REAR	Martin Island Range Rear, Volume 1
ROCKY	1949 (U.S.E.)
SLO	Deer Island Slough Dike, 1949 (U.S.E.)
SPOT	Volume 1
TIN	Martin Slough Dike, Volume 1
UP	Kalama Upper Range Front, Volume 1
--	UPPER DOLPHIN, 1949 (U.S.E.)

NOTE: Stations not having a hydro name were used in control only.

APPROVAL SHEET

Hydrographic Survey No.	H-7892	HO-1151
	H-7893	HO-1251
	H-7894	HO-1361
	H-7895	HO-1451
	H-7901	HO-1551
	H-7902	HO-1651
	H-7903	HO-1751

Columbia River

Longview, Washington to Vancouver, Washington

Project CS-339

The records for these hydrographic sheets have been examined and found to be complete.

The smooth sheets have been examined and found to be complete.

This survey is complete, adequate in detail and is approved.

*Horace G. Conerly*  
Horace G. Conerly  
Lt. Comdr., USC&GS  
Commanding Ship HODGSON

RHC

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography~~

19 September 1951

Division of Charts: R. H. Carstens

Plane of reference approved in 8  
volumes of sounding records for

HYDROGRAPHIC SHEET 7893

Locality Sandy Island to Deer Island, Columbia River

Chief of Party: H. G. Conerly in 1951  
Plane of reference is Columbia River Datum, reading  
-2.8 ft. on tide staff at Longview, Washington  
25.2 ft. below B. M. W B 17 (USE)

0.0 ft. on tide staff at Kalama, Washington  
22.2 ft. below B. M. 1 (1937)

-3.5 ft. on tide staff at Columbia City, Oregon  
77.8 ft. below B. M. J 30 = 78 (USGS)(1898)

Condition of records satisfactory except as noted below:

*E. C. McKay*  
*Section*

Chief, ~~Division of Tides and Currents~~

GEOGRAPHIC NAMES

Survey No. H-7893

Name on Survey	Source										
	A	B	C	D	E	F	G	H	K		
Ahle Point											1
Burke Island											2
Burke Slough											3
Columbia River											4
Coffin Point											5
Deer Island											6
Deer Island Pt.											7
Deer Island Slough											8
Elder Rocks											9
Goble											10
Goble Creek											11
Hunter Bar											12
Kalama											13
Martin Bluff											14
Martin Island											15
Martin Slough											16
Oregon											17
Sandy Island											18
Washington											19
											20
											21
											22
											23
											24
											25
											26
											27

Names approved, 12-10-65

A. J. Wraight

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-7893...

Records accompanying survey:

Boat sheets .....; sounding vols. ...<sup>8</sup>...; wire drag vols. ....; bomb vols. ....; graphic recorder rolls <sup>6</sup>...; special reports, etc. <sup>1</sup> Smooth Sheet;.....  
 .....

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

Number of positions on sheet	.....	1748
Number of positions checked	.....	3
Number of positions revised	.....	1
Number of soundings revised (refers to depth only)	.....	54
Number of soundings erroneously spaced	.....	473
Number of signals erroneously plotted or transferred	.....	—
Topographic details	Time	.....
Junctions	Time	.....
Verification of soundings from graphic record	Time	.....
Verification by <i>V.F. Flor</i> .....	Time	119
Verification by <i>W. Werhane</i> .....	Total time	8.4
	Date	March 14 1961
Reviewed by <i>J.A. Dinsmore</i> .....	Time	24 hrs.
	Date	24 April 1952
Addendum by <i>J.D. Mc Evoy</i>	Time	14 hrs
	Date	9 Dec 1965
<i>Stirni</i>	6 - hours	

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-7893

HO-1251  
FIELD NO. HO-1351

Oregon-Washington, Columbia River, Coffin Rock to S. end of Deer Island

Project No. CS-339

Surveyed in April - May 1951

Scale 1:10,000

Soundings:

Control:

808 Fathometer  
Handlead

Sextant fixes on shore signals

Chief of Party - H. G. Conerly  
Surveyed by - J. O. Boyer  
Protracted by - D. L. Wheeler and A. R. Brodie  
Soundings plotted by - D. E. Fisher and L. R. Whitney  
Preliminary Verification by - W. Werline  
Verified and inked by - *V.F. Flor*  
Reviewed by - T. A. Dinsmore, 24 April 1952  
Inspected by - R. H. Carstens

1. Control and Shoreline

The origin of the control is given in the Descriptive Report. Graphic control surveys HO-J and K (1949) which cover the area of the present survey will be destroyed subsequent to the complete verification and review of the surveys in this area. The Descriptive Reports for the G. C. surveys are attached to the Descriptive Report of H-7743 (1949). The fixes for the supplementary hydrographic signals are recorded in the sounding volumes of the present survey and adjoining surveys.

The completion of the shoreline and offshore topographic detail is deferred pending the complete verification and inking of the smooth sheet. *Completed See addendum*

2. Sounding Line Crossings

Considering the irregularities in the river bottom, depths at crossings are in good agreement.

3. Depth Curves and Bottom Configuration

The usual depth curves are adequately delineated. The low-water line was determined where practicable. Its entire delineation by the regular system of sounding lines was prevented by steep banks, log rafts and docks.

The bottom is generally uneven. The sharp irregularities occurring in numerous localities are caused by sand waves which characteristically lie normal to the flow of the river current. Differences in depths from the trough to the crest of the sand waves are as much as 12 feet as exemplified in lat.  $45^{\circ} 55.31'$ , long.  $122^{\circ} 48.39'$ , where a depth of 29 ft. was obtained between 39- and 41-ft. depths. Depths along the axis of the river channel generally range from 31 to 60 feet.

4. Junctions with Contemporary Surveys

Adequate junctions were effected with H-7892 (1951) on the north, H-7895 (1951) on the south, and with H-7742 (1949) northwest of Sandy Island. Southeast of Sandy Island, appreciable differences in depths are noted in the junctional area between H-7742 and the present survey. Such differences are to be expected in an area of such irregular and changeable bottom. The differences have probably resulted from both artificial and natural changes that have taken place between 1949 and 1951. *Butl junction effected with H-7742 See addendum*

5. Comparison with Prior Surveys

a. H-1369b (1877) 1:10,000                      H-1524 (1880) 1:10,000

These early surveys have been compared with and are superseded by the surveys of 1937 which are discussed in the succeeding paragraph. Further consideration of the early surveys are, therefore, considered unnecessary in the present review.

b. H-6246 (1937) 1:10,000                      H-6247 (1937) 1:10,000

The present survey falls within the area covered by these prior surveys. In general, the configuration of the bottom has undergone little change since the time of the prior surveys. Present depths are a few feet deeper than prior depths in some localities and shoaler in others. These differences, however, have not appreciably altered the positions of the depth curves. The closer development on the present survey has revealed in greater detail many of the sand ridges lying normal to the river channel. The main channel is dredged periodically by the Corps of Engineers and the spoil is dumped in the shoal areas. The annual spring freshets that occur in this area cause a constant shifting of the bottom. Little of the information contained in the above surveys is shown on the latest charts. The present survey is adequate to supersede the prior surveys



within the common area.

6. Comparison with Chart 6153 (Latest print date 1/14/52)

A. Hydrography

Charted hydrography originates with various surveys by the Corps of Engineers to 1951 and the present survey prior to verification and review. No important differences are noted between the charted depths and depths on the present survey. *see addendum*

A comparison was also made with Chart 3362 (1st Edition of July 1950). The charted information originates principally with various surveys by the Corps of Engineers to 1949. Many differences are noted between the charted depths and depths on the present survey. The present survey supersedes the charted information.

B. Aids to Navigation

The aids to navigation located on the present survey are in substantial agreement with the charted aids and adequately mark the features intended.

C. Dredged Channels

The project depth in the main river channel is 35 ft. The present survey shows numerous soundings ranging in depth from 31-34 ft. within the limits of the marked channel. Dredging accomplished since the present survey was made has probably restored the project depth.

7. Condition of Survey

- a. The sounding records are complete; the Descriptive Report covers all matters of importance.
- b. The smooth plotting was done by the field party. The preliminary verification of the smooth sheet indicates that the work was accurately plotted.

8. Compliance with Project Instructions


The survey adequately complies with the Project Instructions.


9. Additional Field Work

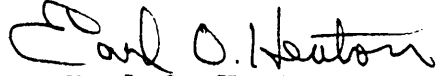
The survey is considered to be basic for the area covered and no additional field work is recommended. This is a highly changeable area over which the Corps of Engineers make periodic surveys.

Examined and approved:

  
H. R. Edmonston  
Chief, Nautical Chart Branch

  
H. Arnold Karo  
Chief, Division of Charts

  
L. S. Hubbard  
Chief, Section of Hydrography

  
Earl O. Heaton  
Chief, Division of Coastal Surveys

## Addendum to Review

H-7893 (1951)

Verification and inking completed by-----V. F. Flor  
Curves inked by-----J. D. McEvoy 12/9/65  
Review addendum by-----J. D. McEvoy 12/9/65  
Inspected by-----R. H. Carstens

The verification of this survey has been completed. Soundings and depth curves have been completely inked and junctional soundings transferred.

### Shoreline

Minor corrections were made to the shoreline from the reviewed photogrammetric surveys T-9511 of 1955 and T-9264--T-9265 of 1953.

### Junction with Contemporary Surveys

Adequate junctions were completed with the adjoining surveys mentioned in the review. A butt junction was made with H-7742 (1949) southeast of Sandy Island where appreciable changes in depths are noted. The present survey supersedes H-7742 in this junctional area.

### Comparison with Chart 6153 Latest Print Date 8/9/65

The charted hydrography originates with surveys by the Corps of Engineers and the present survey after preliminary verification and review. Attention is directed to the following items:

- a. The 12-foot sounding formerly charted in lat.  $46^{\circ}00.55'$  long.  $122^{\circ}50.96'$  from BP-65251 Nov. 1963 was removed from chart 6153 in error. This sounding was verified by the Corps of Engineers L-214 (64), and should be restored to the chart.

*L-21 charted and retained at this location from subsequent survey of Feb. 1965 (Bp 67481)*

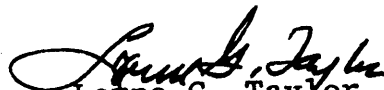
- b. Numerous soundings charted adjacent to the dredged channel originate with Corps of Engineers surveys which are subsequent to and supersede the present survey. Differences are attributed to periodic dredging accomplished since the present survey.
- c. An uncharted row of piling exists in lat.  $45^{\circ}54.7'$   
long.  $122^{\circ}48.88'$ . added to 6153 4/6/66 NB

No other significant differences were noted in comparison with the chart.

Condition of Survey

- a. Completion of verification and inking reveals that the smooth plotting was well done.
- b. The Descriptive Report is complete and comprehensive.

Approved:

  
Lorne G. Taylor  
Chief, Nautical Chart  
Division

# NAUTICAL CHARTS BRANCH

SURVEY NO. H-7893

## Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
11/24/51	6153	Chas R. Wittmann	Before <del>After</del> Verification and Review
5/28/54	6153	J.P. Walker	<del>Before</del> <sup>Prelim.</sup> After, Verification and Review <i>Completely applied</i> (Review read)
4/6/66	6153	Helen Diermley	<del>Before</del> After Verification, <del>and</del> Review <i>and addendum</i> <i>to review. Completely applied.</i> ✓MR
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
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			Before After Verification and Review

M-2168-1

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.