

6247

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Form 504
Rev. Dec. 1933
DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY
R. S. PATTON, DIRECTOR

DESCRIPTIVE REPORT

~~Topographic~~ } Sheet No. ... OW-21
Hydrographic }

Additional information in
Descriptive Report of H-6242

State ... Oregon-Washington

LOCALITY

Columbia River

Burke Island to Bachelor

Island

1937

CHIEF OF PARTY

Robert W. Knox

CP

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

U. S. COAST & GEODETIC SURVEY
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FEB 26 1938

REG. NO.

HYDROGRAPHIC TITLE SHEET

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

Field No. OW-21

REGISTER NO. 6247

State OREGON - WASHINGTON

General locality Columbia River

Locality Burke Island to Bachelor Island
~~to Burke Island Light~~

Scale 1:10,000 Date of survey Oct. 19 to Nov 18, 1937

Vessel USE sea-sled and chartered launch 29J295

Chief of Party Robert W. Knox

Surveyed by C. J. Wagner & C. R. Read

Protracted by C. R. R.

Soundings penciled by C. J. W.

Soundings in ~~fathoms~~ feet

Plane of reference Columbia River datum (mean lower low water at lowest river stages)

Subdivision of wire dragged areas by _____

Inked by W.A. Bruder

Verified by W.A. Bruder

Instructions dated February 26, 1937, 19

Remarks: _____

This hydrographic sheet is a survey of the Columbia River between Burke Island and the Duck Club Light, a point about one and a half miles south of Warrior Rock, and includes the hydrography of Bachelor Island Slough, Lake River to Ridgefield and Multnomah Channel to the sharp bend of that waterway in $\phi 45^{\circ} 48'$.

SHORE LINE AND SIGNALS: The shore line and topographic signals originate from topographic sheets D, DD and E of the 1937 season. All triangulation stations are from this party's 1937 scheme.

DANGERS: There is but one danger in this area, (Warrior Rock, Reef) about 410 meters SSE of Warrior Rock light in $\phi 45^{\circ} 50.7'$, $\lambda 122^{\circ} 47.35'$. In Multnomah Channel, $\phi 45^{\circ} 50.3'$, $\lambda 122^{\circ} 48.5'$, a group of rocks bearing 4 feet at mean low water lie immediately off the bank.

ANCHORAGES: Vessels seldom attempt to pass the Warrior Rock light in a thick fog, anchoring either above or below this point until the weather clears.

CHANNELS: The controlling depth of the main ship channel is about 30 feet, to St. Helens, 28 feet. The St. Helens cut-off has recently been improved and the resulting controlling depth is not known.

2) Bachelor Island Slough and Lake River are used infrequently, there being only one small sawmill on these channels, that near Ridgefield. Sixteen feet may be carried through Lake River to Ridgefield, possibly 1 foot in Bachelor Island Slough from the junction of Lake River to the south confluence with the Columbia.

3) Multnomah Channel is an important waterway, used not only by log and hog fuel tows but also by small river steamers during the winter months when the main channel is discharging floe ice. The channel is also an important log raft storage grounds. The limiting depth of that portion surveyed was found to be about eight feet.

DISCREPANCIES: Other than an occasional discrepancy of signals and angles, but one was noted in the plotting and reviewing of this sheet; a 41 foot sounding on position 71m in $\phi 45^{\circ} 51.3'$, $\lambda 122^{\circ} 47.0'$ appears 1 fathom shoal.

BOTTOM: The bottom is predominately hard sand and soft mud.

DREDGING NOTE: Dredging of the St. Helens cut-off was in progress during the period of this survey. The advanced state of the season did not admit to the delay of postponing the hydrography until after the dredging had been completed.

COMPARISION WITH PREVIOUS SURVEYS:

1) USE Survey of January 10, 1936, B-9-11/46, is in

B.P. 29306

B.P. 31526 of March, 1938 shows condition after dredging.

16.6 feet at plane of reference

25

see Name List

T-6579 a+b

T-6571 a

SHEET OW-21, continued.

fair agreement with the present survey. The channel appears to have shoaled slightly on the west side opposite and between 0 Slat and the Caples Dike light, also on the east side between 0 Boy and 0 Slat.

2) USE survey of January 7, 1937, B-10-9/64, is in good agreement with the present survey, except in a few instances: B.P. 30172

a) In $\phi 45^{\circ} 53.8'$, $\lambda 122^{\circ} 48.0'$, the present survey cannot check the single 35 foot sounding appearing on the USE Survey, the depths being in the order of 18 feet.

b) Two groups of soundings on an Engineers line extending from $\phi 45^{\circ} 53.5'$, $\lambda 122^{\circ} 47.4'$ to $\phi 45^{\circ} 53.3'$, $\lambda 122^{\circ} 47.85'$ are not consistent with the present sheet, one group being about 3 feet too deep and the other from 5 to 9 feet too deep.

c) One portion of a USE line in the St. Helens cut-off on range between 0 Bol and Warrior Rock Front Range light is a fathom greater depth than the present survey.

3) USE survey of September, 1929, B-4/64, is in poor agreement with the present survey, many differences up to 8 and 10 feet being noted. Generally, the shoaler patches have deepened and the depths have shoaled. No depths now charted from this survey.

4) USE survey of August 20, 1937, A-13-5/27, a survey of the mouth of the Lewis River, is in very good agreement with the present survey, with the exception of a very few soundings near the southern limits which seem to be slightly misplaced in an offshore direction. This B.P. not received in office. Later B.P. 31526 of March 1938 covers entrance. Area upstream is charted from B.P. 27630-33 of 1934.

CHARTS 6153 and 6154, issues of September, 1937.

1) Main channel - Is in fair agreement with the present survey, many differences of a few feet being noted, some deeper and some shoaler than those recently obtained:

	ϕ	λ	depths		
			charted	present	
			ft		
a)	$45^{\circ} 55.7'$	$122^{\circ} 48.8'$	2 ✓	0 ✓	Dumping grounds for dredge
b)	55.5 ⁴	48.3	32 ✓	36 30	
c)	55.8	48.2	32 ✓	36 34	
d)	55.8	48.7	10 ✓	8 ✓	Dumping grounds for dredge
e)	54.4	48.0	5	0	
f)	55.2	48.4	29 ✓	38 ✓	open area. 29 dredged out to 35 1/2. B.P. 31525 of 1938.
g)	55.1	48.8	25 ✓	28 ✓	20 to 28
h)	54.8	48.4	30 ✓	32 ✓	36. - 30 dredged out to 36. B.P. 31525
i)	54.6	48.4	32 ✓	40 ✓	36. - 38 ft. on B.P. 31525
j)	54.1	48.6	24 ✓	30 ✓	
k)	54.0	48.3	39 ✓	42 ✓	40
l)	54.0	48.1 ✓	34 ✓	38 ✓	33
m)	53.5	48.1	45 ✓	40 ✓	44
n)	53.2	47.2	15 ✓	12 ✓	

SHEET OW-21, continued

o)	45° 52.9 ^{3.0} '	122° 47.2'	12 ✓	8 ✓	Displacement. Present survey O.K.
p)	52.6	47.8 ⁷	2 ✓	6 ✓	
q)	52.1	47.0	13 ✓	17 ✓	
r)	52.0	47.0	46 ✓	38 ✓	
s)	51.3	47.2	39 ✓	32 ✓	
t)	51.4	47.4 ³	17 ✓	14 ✓	
u)	51.6 ¹⁵	47.1 ⁵	71 ✓	60 ✓	
v)	51.1	47.1	8	11	

2) Multnomah Channel - In poor agreement with the present survey, considerable shoaling having taken place:

	φ	λ	depths		remarks
			charted	present	
a)	45° 50.3'	122° 48.3	8 ✓	12 ⁹ ✓	Chart 9.
b)	50.2	48.6	18 ✓	11 ✓	
c)	50.0	48.6 ⁵	4 ✓	10 ✓	18 and 4 are from 1:40,000 scale U.S.E. D.D. 17894 of 1919. The soundings were obtained
d)	48.4	49.4	38 ✓	34 ✓	
f)	48.3	49.1 ✓	34 ✓	27 ✓	Charted depths are from H-1711 (1886).
g)	48.2	48.7	48 ✓	42 ⁴⁴ ✓	
h)	48.2	48.4	52 ✓	40 ⁴⁷ ✓	
i)	48.1	48.2	44 ✓	38 ✓	

3) Lake River - In good agreement with the present survey, except for the 21 foot sounding charted in φ 45° 50.2', λ 122° 46.2', where 16 feet was obtained, and the four soundings up the river from 0 Pow where the depths obtained were 1 foot less than those charted.

4) Bachelor Island Slough - In very poor agreement with the present survey, extensive shoaling having taken place. ~~The upper entrance of the slough is now bare at low water.~~

SHEET OW-21 (H-6247) STATISTICS

Date	Day letter	Volume	Number of soundings	Number of positions	Statute miles of sounding	Boat
1937						
Oct						
19	a	1	127	31	3.0	sea-sled
20	b	1	709	177	18.6	
21	c	1	665	174	16.3	
22	d	1&2	401	108	10.0	
26	e	2	513	104	10.8	
27	f	2	799	192	17.0	
28	g	2	608	102	16.0	
29	h	3	639	109	10.5	
Nov						
1	j	3	517	127	10.4	
3	A	4	720	135	17.1	29J295
4	B	4	705	146	16.5	
5	C	4	510	135	14.4	
8	D	5	202	48	4.7	
9	E	5	664	171	15.4	
11	k	6	-	9	-	sea-sled
12	l	6	331	83	6.9	
15	m	6	298	75	6.4	
16	n	6	363	102	6.6	
17	p	6	536	142	12.3	
18	q	6	146	40	2.9	
totals			9,453	2,209	215.8	

Area = 9.3 square statute miles.

200

TIDE NOTE FOR HYDROGRAPHIC SHEET

March 15, 1938.

Division of Hydrography and Topography:

✓ Division of Charts: Attention: Mr. E. P. Ellis

Plane of reference
~~Tide Reducers are~~ approved in
volumes of sounding records for

HYDROGRAPHIC SHEET 6247

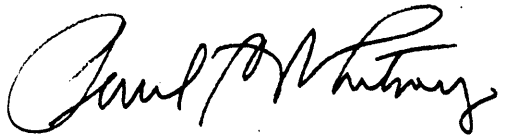
Locality Burke I to Bachelor I., Columbia River

Chief of Party: H. W. Knox in 1937
Plane of reference is Columbia River Datum, reading
0.0 ft. on tide staff at Columbia City
23.7 ft. below B.M. 1
-0.2 ft. on tide staff at Warrior Rock
20.3 ft. below B.M. "Warrior" (U. S. E.)
-0.2 ft. on tide staff at Multnomah Channel
27.4 ft. below B.M. 1

Height of mean high water above plane of reference is approximately 4 ft.

Condition of records satisfactory except as noted below:

Tide reducers entered in whole feet. Reducers to nearest 1/2 foot can be furnished if needed.



Chief, Division of Tides and Currents.

GEOGRAPHIC NAMES

Survey No. **H6247**

Name on Survey	Source											
	A	B	C	D	E	F	G	H	K			
✓ <u>Deer Island</u>	✓											1
✓ <u>Burke Island</u>	✓											2
✓ <u>Columbia City</u>	✓											3
✓ <u>St. Helens</u>	✓											4
✓ <u>Warrior Point</u>	✓											5
✓ <u>Austin Point</u>	✓											6
✓ <u>Lewis River</u>	✓											7
✓ <u>Warrior Rock</u>	✓					B.P. 22832	✓					8
✓ <u>Scappoose Bay</u>	✓											9
✓ <u>Lake River</u>	✓											10
✓ <u>Multnomah Channel</u>	✓											11
✓ <u>Ridgefield</u>	✓											12
✓ <u>Bachelor Island</u>	✓											13
✓ <u>Bachelor Island Slough</u>	✓											14
<u>st. Helens Bar</u>	✓											15
✓ <u>Bachelor Point</u>	✓											16
<u>Columbia River</u>	✓											17
Warrior Rock Reef										✓		18
												19
												20
												21
												22
												23
												24
												25
												26
												27

Finance understood in _____ ed approved
 by gje on 4/4/38

Remarks

Decisions

1		see T-6569
2		USGB decision
3		see T-6570
4		"
5		USGB decision
6		"
7		"
8	Note: Rock on Sauvie Island at Lat. 45°-50.9 Long. 122-47.2	"
9		see T-6570
10		"
11		USGB decision
12		see T-6570
13		USGB decision
14		see T-6570
15	shows as a dry island - Name of light sufficient for this sheet.	USGB decision
16		see T-6570
17	For Title Only	USGB decision
18	Name not necessary for charting - marked by buoy Location Lat: 45-50.7; Long 122-47.35	
19		
20		
21		
22		
23		
24		
25		
26		
27		
M 234		

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. **H6247**

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

Number of positions on sheet 2209
Number of positions checked 75
Number of positions revised 0
Number of soundings recorded 9,453
Number of soundings revised 60
Number of signals erroneously plotted or transferred 0

Date:

Verification by *Wallace A. Bunder*

Time: 106 hrs 0 min.

Review by *J. A. Mc Cormick* 7/26/38

Time: 20 hrs.

HYDROGRAPHIC SURVEY NO. H-6247

Smooth Sheet Yes

Boat Sheet Yes

Sounding Records 6 Vols. _____

Descriptive Report Yes

Title Sheet Yes

List of Signals Vol. #1

Landmarks for Charts (Form 567) Yes

Statistics Yes

Approved by Chief of Party Yes

Recoverable Station Cards (Form 524) None

Special Chart for Lighthouse Service None
(Circular Nov. 30, 1933)

Remarks HYDROGRAPHY

Total Pages 20

Last Date Nov. 18, 1937

Report on H-6247
chief of party Robert W. Knox
Protracted by C.R.R.
Verified & inked by W.A. Bruder

Surveyed in Oct. & Nov. 1937
Surveyed by C.J. Wagner & C.R. Reed
Soundings plotted by C.J.W.

1. The records conform very well to the requirements of the General Instructions with the following exceptions

- The day letters in volumes 4 & 5 should have been lower case as per smooth sheet.
- Abbreviations (standard) should be used in order to save time. The most used that were spelled out are "S" (see 80 & 826 shows "Sand Bot" & "S.B.")

"sft"

"M"

"hrd"

"rky"

etc.

Not criticised
in review.

2. The usual depth curves could be drawn except where the hydrography was cut off by numerous log rafts, or purposely skipped because of overlapping monthly engineers surveys.

The boat sheet was unusually helpful in plotting the low water line.

3. The field plotting was complete to the extent prescribed in the Hydrographic Manual.

4. The office draftsmen did not have to do over any part of the drafting done by the field party.

5. The junctions with the contemporary adjacent sheets satisfactory. There is only one to date and this is on the north (H-6247).
6246

6. Remarks

There are two suspicious soundings in $\phi 45^{\circ} 50.6'$
 $\lambda 122^{\circ} 46.9'$

a) "4" plots between 49h & 50h

b) "5" plots on 49h^{52h}

A thorough investigation resulted in the decision to leave them as they plot as they are critical soundings (on the side of safety)

Note that three different sets of methods were used for numbering some of the signals. For instance the signal "Five" spoken might be:

"Five" $\phi 45^{\circ} 49.6'$
 $\lambda 122^{\circ} 48.6'$

"V" $\phi 45^{\circ} 49.9'$
 $\lambda 122^{\circ} 45.7'$

"5" $\phi 45^{\circ} 51.6'$
 $\lambda 122^{\circ} 47.5'$

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 6247 (1937) FIELD NO. OW-21

Burke Island to Bachelor Island, Columbia River, Oregon - Washington
Surveyed in October - November 1937, Scale 1:10,000
Instructions dated February 26, 1935 (R. W. Knox)

Hand Lead Soundings.

3 Point fixes on shore signals.

Chief of Party - R. W. Knox.
Surveyed by - C. J. Wagner and C. R. Reed.
Protracted by - C. R. Reed.
Soundings plotted by - C. J. Wagner.
Verified and inked by - W. A. Bruder.

1. Condition of Records.

The records are neat and legible and conform to the requirements of the Hydrographic Manual except as follows:

- a. Several signal names were repeated within the limits of the sheet (par. 12). Numerals used in several cases instead of short names are also undesirable.
- b. Upper case day letters used in volumes 4 and 5 of the sounding records do not correspond with lower case day letters on the smooth sheet.

The Descriptive Report satisfactorily covers all items of importance. General information concerning this area is contained in the descriptive report for H-6242 (1937).

2. Compliance with Instructions for the Project.

The survey satisfies the instructions for the project except that the special chart for use of the Lighthouse Service in locating aids was not furnished (Circular Nov. 30, 1933).

3. Shoreline and Signals.

- a. Shoreline and topographic signals originate with T-6570a and b (1937) and T-6571a (1937).
- b. Hydrographic signals originate with the present survey, the fixes used in their location being recorded in the sounding volumes.

4. Sounding Line Crossings.

Sounding line crossings are satisfactory.

5. Depth Curves.

Depth curves may be satisfactorily drawn.

6. Junctions with Contemporary Surveys.

- a. The junction on the north with H-6246 (1937) is satisfactory.
- b. The junction with the survey on the south will be considered in the review of that survey when the sheet is received from the field.
- c. The junction with U. S. Engineers' surveys in Lewis River is acceptable for charting purposes. The entrance to the river is shown on blueprint 31526 of 1938 and the inner reaches on blueprint 27630 to 27633 of 1934.

7. Comparison with Prior Surveys.

H-1524 (1881), 1:10,000; H-1711 (1886) 1:10,000.

The present work falls entirely within the combined area of the above surveys. Extensive natural and artificial changes in the common area make a detailed comparison of little value. The greater portion of the information on the old surveys has long since been superseded on the charts by the numerous U. S. Engineers' surveys of the area. The old surveys contain no information of value in current charting and need not be considered further in this review.

8. Comparison with Chart 6153 (New Print dated Sept. 27, 1937)
Chart 6154 (New Print dated Sept. 30, 1937)a. Hydrography.

Depths charted in the inner reaches of Multnomah Channel and in Bachelor Island Slough originate with surveys discussed in the foregoing paragraphs. All other charted depths are from U. S. Engineers' surveys of 1929 to Aug. 1937 (present survey, Oct. - Nov. 1937). Every sounding charted in the common area was compared with the present survey. Many differences were noted in addition to those listed in the descriptive report but this is to be expected in such a changeable area. In the investigation of the differences, consideration was given to the results of Engineers' surveys of January to March 1938 (blueprints 31525 to 31527). A detailed account of the findings would serve little purpose and it is considered sufficient to state that the 25 foot depth charted in lat. $45^{\circ} 51.2'$, long. $122^{\circ} 47.7'$, and the 14 foot depth charted in lat. $45^{\circ} 50.85'$, long. $122^{\circ} 47.8'$ are the only features from surveys of dates prior to that of the present one which need be retained. The 25 and 14 are from blueprint 28847 of 1935 and fall in depths of 27 and 15 feet respectively on the present survey. The only reason for their retention is that they are soundings to rock. The sunken rock charted

140 meters to the south of the 14 is an erroneous representation of a dolphin shown on the same blueprint (also on the present survey) and should be corrected. All other information in the common area is adequately covered by the present survey or Engineers' surveys of dates subsequent to it.

b. Aids to Navigation.

Positions on the present survey of the aero beacon in lat. $45^{\circ} 53.1'$, long. $122^{\circ} 46.8'$; buoy C1 in lat. $45^{\circ} 50.3'$, long. $122^{\circ} 48.3'$, and buoy N2 in lat. $45^{\circ} 50.2'$, long. $122^{\circ} 48.5'$, fall 140 meters southwest, 420 meters southwest and 80 meters west respectively of the charted positions. The survey and charts are in substantial agreement as to the positions of other aids in the area. The survey positions adequately mark the features intended and are the latest information available. They should therefore supersede for charting purposes.

9. Field Plotting.

The field plotting was satisfactory.

10. Additional Field Work Recommended.

No additional work is required.

11. Superseded Old Surveys.

H-1524 (1881) in part
H-1711 (1886) in part.


12. Reviewed by - J. A. McCormick, July 26, 1938.


Inspected by - E. P. Ellis.


Examined and approved:



T. B. Reed,
Chief, Section of Field Records.


K.T. Adams
Chief, Division of Charts.


Fred. L. Peacock
Chief, Section of Field Work.


G. H. Rude
Chief, Division of H. & T.

Applied to chart 6154 J.M.A. Sept. 24, 1938
applied to chart 6153. Sept. 27, 1938 G.H.S.