

6242

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

DESCRIPTIVE REPORT

Υδρογραφική } Sheet No. OW-16
Hydrographic }

State Oregon-Washington

LOCALITY

Columbia River

Cathlamet to Cooper Point

1937

CHIEF OF PARTY

Robert W. Knox

6242

6242

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

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-16

REGISTER NO. 6242

State OREGON * WASHINGTON

General locality Columbia River

Locality Cathlamet to Cooper Point

Scale 1:10,000 Date of survey Aug. 12 - Nov. 12, 19 37

Vessel chartered launch 29J295

Chief of Party Robert W. Knox

Surveyed by R W K

Protracted by T. A. Renton

Soundings penciled by C. J. Wagner

Soundings in ~~fathoms~~ feet

Plane of reference Columbia River datum

Subdivision of wire dragged areas by

Inked by W.A. Bruder

Verified by W.A. Bruder

Instructions dated February 26, 1935, 19

Remarks:

DESCRIPTIVE REPORT

TO ACCOMPANY HYDROGRAPHIC SHEETS

H-6242 H-6243 H-6244 H-6245 H-6246 H-6247
OW-16, OW-17, OW-18, OW-19, OW-20 & OW-21

Scale 1:10,000

COLUMBIA RIVER

OREGON - WASHINGTON

CATHLAMET TO BACHELOR I.

1937

Instructions dated Feb. 26, 1935

Robert W. Knox, H. & G. Eng'r,
Chief of Party.

AREA, LIMITS, ETC: The hydrography of the six sheets OW-16 to OW-21, inclusive, is a survey of the Columbia River, and important sloughs, from Cathlamet to a point about one mile south of the downstream end of Bachelor Island. Junction was made with survey register No. H-6182 in the vicinities of Cathlamet and Bugby Hole. ✓

SURVEY METHODS: Standard survey methods were used. All soundings were taken with a 12-pound hand lead, both the bronze and stainless steel centered tiller rope being used. The method of preparing the lines and the relative value of the two types has been the subject of a separate report. ✓

In preparing the boat sheets, the outer two channel lines, generally, from the latest U. S. Engineers survey, as well as representative soundings from cross lines on their bank-to-bank surveys, were transferred to the sheets. ✓

The bars between Cathlamet and Bachelor Island require surveying at intervals varying from four times a year to every three or four years. In the former cases it is evident that a rigid agreement between surveys of as little as a month apart could not be expected. If the bars were to be completely surveyed such work would be obsolete before the smooth sheets were plotted. The problems confronting the cartographer in reconciling surveys of different organizations and periods are fully appreciated, but it is not believed such difficulties would be ameliorated by the most complete and thorough survey possible, as the compiler would be confronted with two or three later Engineer sheets to harmonize with the survey. ✓

The last two seasons this party has attempted to occupy sufficient tide stations so as to reduce the soundings, without the difficulties and uncertainties of resorting to interpolation of tide curves, to as nearly a true plane as possible. Sixteen tide stations were occupied last season, an average of one for about every two and a half miles of river. The Engineers use but one tide station per survey. ✓

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Their datum is maintained by spiking successive staffs one over the other, seldom checking the elevation of the zero of the staff with the bench marks. In the leveling of eleven U. S. Engineer staffs last season, the average error was found to be about 0.15 feet, with a maximum (occurring twice) of 0.4 feet. ✓ 30

The U. S. Engineers employ the same general method of sounding as the Survey, using, however, two leadsmen, sounding alternately at ten second intervals, generally. Fixes are taken, it is said, every forty seconds. A small boat is used in the shoal areas, but the fixes are not plotted during the actual work. This information, as well as that concerning the tides, is provided simply to assist the cartographer in evaluating the surveys. ✓

It has been the policy of the party, for the reasons stated above, to space the sounding lines close together, about 35 or 40 meters, along the junction with the U. S. Engineers channel lines, overlapping the latter at least one line. With the satisfying knowledge that the party's soundings are as nearly correct, both in depth and positions, as it is possible to make them, and having a high regard for the Engineers hydrography, it is believed any failure to agree can rightfully be laid to a changing or lumpy bottom. As this policy, in substance, has been stated before without contradiction, it is assumed to meet the approval of the office. ✓

The above discussion does not apply to the deeper, relatively unchanging portions of the channels which the Engineers infrequently or sketchily survey; they were completely sounded out. ✓

GENERAL: It is believed the District Engineer, Portland, Oregon, would be sympathetic to any suggestion from this Bureau as to additional beyond their routine work which might be needed in the future to reconcile this party's present hydrography with succeeding Engineers surveys. ✓ surveys 22

An effort was made to apply the U. S. Engineer names to all stations, located either by triangulation or topography, common to the two surveys, the further to assist the cartographers in applying their soundings to the charts. ✓

The hourly heights for all tides between the hours of 7:00 A. M. and 6:00 P. M. have been scaled and plotted on cross section paper. Both the tabulated heights and the curves will be submitted with the hydrographic sheets. ✓

It is nearly impossible for the topographer to delineate the low water line due to the fact that the river seldom reaches the mean low water stage. For this reason a determined effort was made to obtain it in the course of the hydrography. It may be assumed in all cases where the inshore soundings do not reduce to zero, or nearly so, that snags, log rafts and the like prevented a closer approach to the beach. ✓

Depth curves were not plotted on the smooth sheets in congested areas where their inclusion might hinder the verification of the sheets. It has been the habit of the party to sketch in the depth curves on the boat sheets as soon as the soundings have been plotted; consequently most of the sheets had depth curves drawn on them before receipt of the Director's letter of October 27, 1937, relative to this subject. The remaining boat sheets were completed as per instructions contained in this letter.

Cross lines were run only in areas where there was no overlapping of the regular system of lines, it being assumed such overlapping constitutes a sufficient check on the soundings.

The Superintendent of Lighthouses, 17th District, Portland, Oregon, has been notified of all discrepancies found in the 1937 Light List relative to permanent aids to navigation in the area surveyed last season, and a copy of such discrepancies was sent to the Director.

GEOGRAPHIC NAMES: Geographic names are as they appear in pencil on the smooth sheets. For a more complete discussion of such names, reference is made to the report of the topographic sheets of this area. *✓ GHE 4/1/38*

It is recommended that the following names be deleted from the charts for the reasons stated:

Name	Chart No.	Position φ λ	Remarks
Ankeny Landing	6152	46° 10', 123° 25	Nothing remains to suggest this name <i>deleted from chart</i>
Waterford	6152	46 09 123 16	Present settlement consists of one dilapidated dwelling. " "
Cleveland Landing	6153	46 10 123 05	No landing
La Du	6153	46 08 122 59	Nothing remains of this feature <i>changed to La Du Light (GNS)</i>
Bourne Landing	6153	46 05 122 57	Probably refers to Dubois and Kettering Lumber Co. wharf <i>deleted</i>
Dobelbower	6153	46 05 122 55	Nothing remains to suggest this feature <i>Name of Light (Not deleted)</i>
Backus Dock	6153	46 04 122 54	Dock gone <i>deleted</i>
Enterprise Ldg	6153	46 01 122 53	No landing, name unknown in vicinity <i>deleted</i>
Neer City	6153	46 02 122 53	Nothing to suggest this feature. <i>deleted</i>
McBride	6153	45 ⁵ 44 122 49	As above <i>deleted</i>
Charlton	6153	45 59 122 52	Nothing in vicinity but small open R.R. way station. <i>deleted</i>
Hunter	6153	45 59 122 52	Nothing to suggest this feature. <i>deleted</i>

Name	Chart No.	Position	Remarks
Caples Landing	6153	45° 54' ^φ 122° 48' ^λ	Landing gone; small settlement in nearby slough known locally as Caples

Landing deleted only

note: Neer City, McBride and Charlton are mentioned in the Rand McNally index, and Charlton is shown on their large scale map

Funds have been limited during the last two seasons, and the party has been forced to get along with as few men as possible; the hydrographic party consisted of an officer and four men; one topographic party, an officer and two men; the other, an officer and three men. While this situation in no way effected the quality of the work, and probably the quantity but little, it precluded the hire of a draftsman. The employment of an experienced draftsman would permit the smooth sheets to be transmitted to Washington from three to five months sooner than otherwise.

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LANDMARKS FOR CHARTS: A duplicate copy of landmarks for charts for the area surveyed, on form 567, is submitted with this report.

The remainder of this report deals with the individual sheets.

Respectfully submitted:

Robert W. Knox
Robert W. Knox,
H. & G. Eng'r.

H-6242
SHEET OW-16

Surveyed by R. W. Knox.

H-6242

The hydrography of sheet OW-16 is a survey of the river from Cathlamet and Bugby Hole to Cooper Point, including the main ship channel, Cathlamet Channel, Westport Slough to Kerry and the west portion of Wallace Slough. It joins survey H-6182 on the east and sheet OW-17, of the current field season, on the west. _{west} _{H-6243} _{east}

DANGERS: There are no dangers in the area covered by this survey.

ANCHORAGES: There are no regularly designated anchorages in this area, but ships have been observed to anchor in the vicinities of the Westport and Pancake bars while awaiting clear weather.

CHANNELS: 1) Main ship channel - As the main ship channel was not completely surveyed, no discussion will be made of the minimum depth.

2) Cathlamet Channel - Used by small river steamers and tow boats. Ten feet may safely be carried through this channel, although by skillful navigating a maximum of 15 feet may be attained.

3) Westport Slough - Large vessels engaged in both foreign and domestic trade lift lumber at Westport, but the slough from the mill eastward is used exclusively for log raft storage. Twenty-six feet may be carried to the Westport Lumber Company pier, and about 8 feet to Kerry.

4) Wallace Island Slough - Used by cannery tenders and small craft fishermen. Four or five feet may be carried through the slough.

BOTTOM: Predominately hard sand and hard mud.

DISCREPANCIES: During the process of protracting the sheet, all changes in signals and angles were noted in the volumes, and fully explained. In the plotting of the soundings and review of the sheet but one discrepancy was noted.

1) In $\phi 46^{\circ} 10.1'$, $\lambda 123^{\circ} 24.7'$, a difference of 3 feet exists in the crossing involving positions 24a and 37a. Slight displacement.

COMPARISION WITH PREVIOUS SURVEYS:

1) USE survey of April 27, 1937, B-6-27/31, and USE survey of Wauna Bar of August 6, 1937 (no register number on the advance print furnished this party): A comparision of the soundings outside the channel between the former Engineer survey and the present one shows an agreement within about 2 feet, generally, although a few differences up to 5 feet are noted, and in one place, about 230 meters W by N of θ Ale ($\phi 46^{\circ} 09.7'$, $\lambda 123^{\circ} 23.3'$), this party obtained depths about 10 feet less than the Engineers, and in another, about 210 meters SSE of θ Hot ($\phi 46^{\circ} 08.9'$, $\lambda 123^{\circ} 22.3'$). the Engineers survey shows three 38 foot soundings falling in depths of 30 and 31 feet on the present survey.

A comparision with the channel lines of the USE survey

B.P. 30536
August survey not in office file. B.P. 31518 of March 1938 covers the same area.

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SHEET OW-16

of August 6th, made a few weeks earlier than OW-16, shows the soundings to be in good agreement, no great differences being observed, although many differences in the order of 1 and 2 feet were noted.

In Westport Slough the agreement with the present survey is excellent. B.P. 30981

2) USE survey of August 9, 1937, B-6-24/12, of Westport Bar, is in good agreement with the present survey, a sounding for sounding agreement being note, generally. However, the soundings falling on line 621 to 72 1, running east and west about 100 meters north of the Westport Bar dikes appear to be from 2 to 4 feet shoal. Apparently this line should be moved slightly north. In the area SSE of dike 66.0 (ϕ 46° 08.6', λ 123° 17.7') a few differences with a maximum of 5 feet were noted. Junction satisfactory

3) Cape Horn to Cooper Point; the depths are in poor agreement with the USE survey (identify lost) of this portion of the channel, changes as much as 12 feet being noted. The greater depths have both deepened and shoaled, while the area from Wallace Island to the middle of the river has shoaled from 6 to 15 feet.

CHART 6152, issue of May, 1937.

1) Main ship channel: With some few exceptions, the more important of which are noted below, the chart is in good agreement with the present survey.

ϕ	λ	depths		remarks
		charted	present	
a) 46° 10.2'	123° 24.5'	4 ft	19 ft	} Off NW end of small islet Charted depths are from B.P. 29383 of Feb. 1936. Later B.P.s 30526 of April 1937 and 31518 of March 1938 are substantially the same. Chart from later B.P.s.
		14 ✓	22 ✓	
		27 ✓	32 ✓	
		24 ✓	30 ✓	
b) 46 09.5	123 24.05	27	34	} unsurveyed portion of channel.
c) 46 09.3	123 23.65	15	26	15 is from an early B.P. Later B.P.s verify present survey.
d) 46 08.9	123 19.7	21 ✓	12 ✓	} The area south of the east end of Puget Island has shoaled
		8 ✓	2 ✓	
		3 ✓	-1 ✓	
e) 46 08.9	123 18.4			} Sanded area has shifted about 100 m south, likewise a 29, about 200 m east and on the other side of the jetty now falls in about 18 feet.
f) 46 09.15	123 08.3	63 ✓		
g)				} Between 2 lines of 16's & 17's and 41's & 42's. Present survey accepted
				} Area west and north of Wallace Island has changed considerably, shoaling as much as 20 feet being noted.
h) 46 08.9	123 16.05	31 ✓	50 ✓	} Charted depths are from B.P. 17372 of 1919. Wide changes have occurred. Present survey adequately covers this area.
i) 46 09.1	123 15.9	58 ✓	39-43 ✓	
j) 46 09.1	123 15.65	42 ✓	52 ✓	
		38 ✓	50 ✓	
				} About 200 m NE of j±)

SHEET OW-16, continued

2) Cathlamet Channel is in poor agreement with the present survey; while many depths check excellently, others have shoaled as much as 15 feet. ✓

Ø	λ	depths		remarks
		charted	present	
a) 46° 11.8'	123° 22.85'	35ft		Falls between two rather widely spaced lines of 52 and 67 foot depths. <small>Charted depth 45 is from B.P. 17373 of 1919. Wide changes evident. Present survey accepted.</small>
b) 46	11.75 123	22.95	28 11ft	ditto (a)
c) 46	11.1 123	21.9	20 33	ditto (a)
d) 46	11.25 123	21.7	26 13	ditto (a)
e) 46	10.95 123	21.6	37 ⁴ 29	ditto (a)
f) 46	10.1 123	20.3	29 12	ditto (a)
g) 46	9.75 123	19.6	35 14	ditto (a)

3) Westport Slough: Difficult to compare, as the depths change rapidly from one side of the narrow bank to the other. However, the chart is in good agreement with the present survey, with the following exceptions: ✓

Ø	λ	depths		remarks
		charted	present	
a) 46° 08.7'	123° 22.95	20 ²⁸	31 [✓]	The charted 20 ²⁸ falls on entrance range. ✓
b) 46	08.55 123	22.9	22 ²⁵ 28 [✓]	This depth is now near the project depth for the slough to Westport
c) 46	08.2 123	21.75	24 [✓] 19 [✓]	
d) 46	08.05 123	21.5	19 [✓] 13 [✓]	
e)				From 0 0-61 the slough has shoaled an average of about 6 feet. ✓

4) Wallace Slough: Extensive changes exist between the chart and the present survey: ✓

Ø	λ	depths		remarks
		charted	present	
a) 46° 08.25'	123° 17.1'	17 [✓]	3 [✓]	} Charted depths are from B.P. 17372 of 1919. Extensive changes have occurred. Present survey adequately covers the area.
b) 46	08.15 123	16.9	8 [✓] dry [✓]	
c) 46	08.20 123	16.25	16 [✓] 7 [✓]	
d) 46	08.1 123	15.85	sand 4-6 [✓]	

Welcome Slough: The shore line, shown on the smooth sheet in pencil, was enlarged from the air-photo compilation of the 29th Engineers, U. S. Army, a copy of which accompanies the smooth sheet. This slough is used only by gill net fishermen. Not received.

This compilation was not received
 -0- *SPZ*

SHEET OW-16 (H-G242) STATISTICS

Date	Day letter	Volume	Number of soundings	Number of positions	Statute miles of sounding	Boat
Aug						
12	a	1	780	185	21.6	29J295
13	b	1	763	173	23.1	
16	c	1	381	85	12.2	
17	d	2	859	194	27.0	
18	e	2	866	195	26.8	
19	f	2&3	881	186	23.9	
20	g	3	845	193	25.0	
23	h	3	622	137	16.6	
24	j	4	840	186	20.4	
25	k	4	804	190	22.1	
26	l	4	345	74	9.3	
27	m	5	129	32	3.4	
30	n	5	376	93	9.2	
Sept						
1	p	5	568	145	15.1	
Nov						
11	q	6	352	68	9.9	
12	r	6	659	159	13.2	
totals			10079	2287	278.8	

Area = 11.1 square statute miles

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. **H6242**

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

Number of positions on sheet 2287
Number of positions checked 200
Number of positions revised 1
Number of soundings recorded 10079
Number of soundings revised 250
Number of signals erroneously plotted or transferred 0

Date:

Verification by *Wallace A. Bruders*

Time: 131^h 30^m

Review by *J.A. Mc Cormick*

Time: ~~34~~³⁶ hrs.

HYDROGRAPHIC SURVEY NO. H-6242

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 _____

16
Nov. 12, 1937

Remarks

Decisions

1		see T-6523
2		" "
3		see T-6524
4		" "
5		see T-6523
6		" "
7		" "
8		USGB decision
9		" "
10		
11		see T-6523
12		
13		see T-6523
14	Not necessary to be inked on this sheet	" "
15		
16		
17		
18		
19	For Title Only }	USGB decision
20		"
21		"
22		"
23		
24		
25		
26		
27		

GEOGRAPHIC NAMES

Survey No. **H6242**

Name on Survey	On Chart No. 6152		On previous survey		On U. S. quadrangle Maps		From local information		By other maps B.P. (J.S.F.D.)		P. O. Guide or Map		Rand McNally Atlas		U. S. Light List	
	A	B	C	D	E	F	G	H	K							
✓ Cathlamet	✓															1
✓ Cathlamet Channel	✓															2
✓ Cape Horn	✓															3
✓ Cooper Point	GNS															4
✓ Puget Island	✓															5
✓ Welcome Slough	✓															6
✓ Westport Slough	✓															7
✓ Wallace Island	✓															8
✓ Wallace Slough	✓															9
see above Westport Slough																10
✓ Westport	✓															11
✓ Kerry									✓	✓						12
✓ Wauna Chan.	✓															13
Pancake Point	✓							B.P. 19417								14
✓ Pancake Point Bar	✓							B.P. 19417				Pancake Bar				15
✓ Westport Bar	✓							B.P. 20981					✓			16
✓ Wauna Bar								B.P. 29383								17
Coffee Island								B.P. 29383								18
Columbia River	✓															19
Washington	✓															20
Oregon	✓															21
✓ Bugby Hole	✓															22
																23
																24
																25
																26
																27

Names underlined in this report
by JDE on 4/1/38

APPROVAL OF CHIEF OF PARTY.

Hydrographic sheets OW-16 to OW-21, inclusive, and accompanying records, have been inspected and approved by me. The field work of sheets OW-16 to OW-20, inclusive, was done under my direct supervision, that of OW-21, under my occasional supervision. The office work was done under my direct supervision. No additional work is considered necessary, with the exception of possibly continuing surveys further into Scappoose Bay. No recommendation will be made, however, as the area should be investigated by next season's party before a decision should be reached.



Robert W. Knox,
H. & G. Eng'r,
Chief of Party.

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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
6 volumes of sounding records for

HYDROGRAPHIC SHEET 6242

Locality Cathlamet to Cooper Point, Columbia River

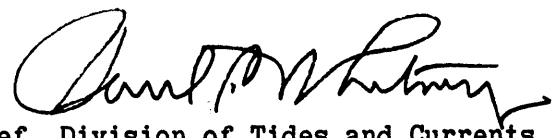
Chief of Party: Robert W. Knox in 1937
Plane of reference is Columbia River Datum

- 4.3 ft. on tide staff at Buggy Hole
- 7.3 ft. below B.M. 1
- 0.0 ft. on tide staff at Cathlamet
- 34.6 ft. below B.M. 1
- 0.0 ft. on tide staff at Westport
- 17.4 ft. below B.M. 1
- 0.0 ft. on tide staff at Cape Horn
- 9.7 ft. below B.M. 1

Height of mean high water above plane of reference is approximately 6 feet.

Condition of records satisfactory except as noted below:

Tide reducers entered to nearest 1/2 foot only when leadline corrections are also entered to nearest 1/2 foot. Other reducers can be furnished to nearest 1/2 foot if needed.



Chief, Division of Tides and Currents.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

TO BE CHARTED }
~~TO BE DELETED~~ } STRIKE OUT ONE

Astoria, Oregon

February 19, 1938

I recommend that the following objects which have ~~(been inspected)~~ been inspected from seaward to determine their value as landmarks, be charted on ~~(deleted from)~~ the charts indicated.
The positions given have been checked after listing.

Robert W. Knox
Chief of Party.

GENERAL LOCALITY	COLUMBIA RIVER	POSITION		DATUM	METHOD OF LOCATION	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
		LATITUDE	LONGITUDE							
NAME AND DESCRIPTION		° ' "	° ' "	D. M. METERS	D. P. METERS					
STACKS, white concrete										
(Weyerhaeuser Lumber Co. southwest Stack, 1934)		46 07	122 58	889.2	743.2	NA1927	Triang.			6153
(Inner Stack USE)		46 07	122 58	910	727	"	Repo.			"
STACK, white concrete										
(Longview Fiber Co. Stack; white concrete 1934)		46 06	122 55	327.4	282.5	"	Triang.			"
STACKS, white concrete										
(Long-Bell Lumber Co. Stack, wh. concrete, NE one of 2 1934)		46 06	122 56	452.0	510.2	"	"			"
(Long-Bell Lumber Co. Stack, wh. concrete, SW one of 2 1934)		46 06	122 56	418.1	528.3	"	"			"
TANK (ELEVATED)										
(Weyerhaeuser Lumber Co. Tank elevated, silver NW one 1934)		46 07	122 58	1561.1	872.7	"	"			"
TANK (ELEVATED)										
(Weyerhaeuser Lumber Co., Tank, elevated, silver SE one 1934)		46 07	122 58	649.4	318.4	"	"			"

This form shall be prepared in accordance with 1934 Field Memorandum, "LANDMARKS FOR CHARTS." The data should be considered for the charts of the area and not by individual field survey sheets. Information under each column heading should be given.

LANDMARKS FOR CHARTS

TO BE CHARTED }
~~TO BE OBSOLETE~~ } STRIKE OUT ONE

Astoria, Oregon

February 19, 1938

I recommend that the following objects which have (~~never~~ ^{now}) been inspected from seaward to determine their value as landmarks, be charted on (~~deleted~~ ^{new}) the charts indicated.
The positions given have been checked after listing.

Robert W. Knox

Chief of Party.

GENERAL LOCALITY COLUMBIA RIVER	NAME AND DESCRIPTION	POSITION		DATUM	METHOD OF LOCATION	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
		LATITUDE ° ' " D. M. METERS	LONGITUDE ° ' " D. P. METERS							
	TANK (ELEVATED) (Long-Bell Lumber Co. Northwest Tank 1931)	46 06	1531.9 122 56	1927	Triang.	1931				6153
	TANK (ELEVATED) (Long-Bell Lumber Co. Northeast Tank 1931)	46 06	838.9 122 55	"	"	1931				"
	STACK black, metal									
	(Prescott Lbr. Co. stack 1937)	46 03	310.7 122 53	"	"	1937				"
	TANK (ELEVATED)									
	(Prescott Lbr. Co. tank 1937)	46 03	376.2 122 53	"	"	1937				"
	SCHOOL									
	(Kalama High School flagstaff 1937)	46 00	901.1 122 50	"	"	1937				"
	TWIN STACKS black, metal									
	(Taller of 2 stacks 1937)	46 00	616.9 122 50	"	"	1937				"

This form shall be prepared in accordance with 1934 Field Memorandum, "LANDMARKS FOR CHARTS." The data should be considered for the charts of the area and not by individual field survey sheets. Information under each column heading should be given.

LANDMARKS FOR CHARTS

TO BE CHARTED }
~~TO BE RE-CHARTED~~ } STRIKE OUT ONE

Astoria, Oregon

February 19, 1938

I recommend that the following objects which have been inspected from seaward to determine their value as landmarks, be charted on (~~deleted from~~) the charts indicated.
The positions given have been checked after listing.

Robert W. Knox

Chief of Party.

GENERAL LOCALITY	NAME AND DESCRIPTION	POSITION			DATUM	METHOD OF LOCATION	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
		LATITUDE	LONGITUDE	D. M. METERS							
COLUMBIA RIVER											
	C. H. CUPOLA, now chartered as C. H. DOME, recommended change. (Columbia County Courthouse Cupola, Flagstaff 1937)	45 51	122 47	1495.3	NA1927	Triang.	1937				6153
	TANK (St. Helens Tank 1937)	45 51	122 47	1113.8	"	"	1937				6154
	STACK (Riv.)(River Stack of 3)	45 51	122 47	1137	"	Topo.	1937				"
	STACK white concrete, St. Helens Pulp & Paper Co. (St. Helens Fall Stack 1937)	45 50	122 48	1602.7	"	Triang.	1937				6154
	STACK, white concrete (Pirter Stack 1937)	45 50	122 48	727.3	"	"	1937				"

This form shall be prepared in accordance with 1934 Field Memorandum, "LANDMARKS FOR CHARTS." The data should be considered for the charts of the area and not by individual field survey sheets. Information under each column heading should be given.

DEPARTMENT OF COMMERCE
 U. S. COAST AND GEODETIC SURVEY

TO BE CHARTED }
 TO BE ~~DELETED~~ } STRIKE OUT ONE

LANDMARKS FOR CHARTS

Astoria, Oregon, Feb. 16, 1938

I recommend that the following objects which have (~~examined~~) been inspected from seaward to determine their value as landmarks, be charted on (~~the chart~~) the charts indicated. (**Permanent Aids to Navigation**)
 The positions given have been checked after listing.

Robert W. Knox

Chief of Party.

GENERAL LOCALITY	NAME AND DESCRIPTION	POSITION				METHOD OF LOCATION	DATE OF LOCATION	CHARTS AFFECTED		
		LATITUDE ° ' " D. M. METERS	LONGITUDE ° ' " D. P. METERS	DATUM	HARBOR CHART			INSHORE CHART	OFFSHORE CHART	
COLUMBIA RIVER	Comitia River Entrance Light (679 yards 21' true from Mainbar Day Light)	46 05 1983	122 55 07	MA 1927	Barbours	1937				6153

This form shall be prepared in accordance with 1934 Field Memorandum, "LANDMARKS FOR CHARTS." The data should be considered for the charts of the area and not by individual field survey sheets. Information under each column heading should be given.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

TO BE CHARTED }
~~TO BE CHARTED~~ } STRIKE OUT ONE

Astoria, Oregon

February 1, 1938

I recommend that the following objects which have (~~been~~) been inspected from seaward to determine their value as landmarks, be charted on (~~the~~) the charts indicated.
The positions given have been checked after listing.

Robert W. Knox

Chief of Party

GENERAL LOCALITY	NAME AND DESCRIPTION	POSITION		DATUM	METHOD OF LOCATION	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
		LATITUDE ° ' "	LONGITUDE ° ' "							
	Longview Front Range Light	46 07	122 59	886	NA 1927	Tape	1937			6153
	Longview Rear Range Light	46 07	693	122 59	886	"	"			"
	(352 meters-385 yards, 119°3/4 true from preceding)									

This form shall be prepared in accordance with 1934 Field Memorandum, "LANDMARKS FOR CHARTS." The data should be considered for the charts of the area and not by individual field survey sheets. Information under each column heading should be given.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

~~TO BE CHARTED~~ } STRIKE OUT ONE
Astoria, Oregon

February 9, 1934

I recommend that the following objects which have ~~(removed)~~ been inspected from seaward to determine their value as landmarks, be ~~removed~~ (deleted from) the charts indicated.
The positions given have been checked after listing.

Robert W. Knox

Chief of Party.

GENERAL LOCALITY Columbia River	NAME AND DESCRIPTION	POSITION		DATUM	METHOD OF LOCATION	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
		LATITUDE ° ' "	LONGITUDE ° ' "							
	TANK - (gone)	46 08.0	122 59.5							6153
	TANK - (gone)	46 07.8	122 59.4							6153
	STACK - "	46 07.8	122 59.4							6153
	STACK - "	46 01.6	122 51.0							6153
	SPIRE - "	46 01.0	122 52.4							6153
	STACKS - "	46 01.4	122 51.7							6153
	STACK - (Inconspicuous)	46 01.2	122 51.4							6153
	C H STAR "	46 00.7	122 50.6							6153
	STACK (gone)	45 59.9	122 50.8							6153
	TANK "	45 59.7	122 52.1							6153
	BAR "	45 49.1	122 51.4							6153
	CHY (Inconspicuous or gone)	45 58.9 ^{9.0}	122 49.9							6153
	TREES (gone)	45 57.9	122 48.7							6153

This form shall be prepared in accordance with 1934 Field Memorandum, "LANDMARKS FOR CHARTS." The data should be considered for the charts of the area and not by individual field survey sheets. Information under each column heading should be given.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

~~TO BE DELETED~~ } STRIKE OUT ONE
Astoria, Oregon

February 9, 1938

I recommend that the following objects which have (~~been~~) been inspected from seaward to determine their value as landmarks, be ~~removed~~ (~~deleted from~~) the charts indicated.
The positions given have been checked after listing.

Pub.

Robert W. Knox

Chief of Party.

GENERAL LOCALITY	Columbia River	POSITION				METHOD OF LOCATION	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
		LATITUDE		LONGITUDE							
		°	'	°	'						
	HO BARK CHY (gone)	45	51.3 ⁴	122	48.8					6153	
	TANK (gone)	45	51.1	122	48.7					6153	
	BADDERO (gone or inconspicuous)	45	51.7	122	48.4					6153 6/53	
	STACK (gone)	45	51.4	122	47.5					6154	
	TANK "	45	51.2	122	47.7 ⁵					6154	
	TANK "	45	51.1	122	47.7 ⁶					6154	

This form shall be prepared in accordance with 1934 Field Memorandum, "LANDMARKS FOR CHARTS." The data should be considered for the charts of the area and not by individual field survey sheets. Information under each column heading should be given.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

~~TO BE CHARTED~~ } STRIKE OUT ONE
~~TO BE DELETED~~

Astoria, Oregon

February 21, 1936

I recommend that the following objects which have ~~(been)~~ been inspected from seaward to determine their value as landmarks, be ~~charted~~ (deleted from) the charts indicated.
The positions given have been checked after listing.

Robert W. Knox

Chief of Party.

GENERAL LOCALITY	NAME AND DESCRIPTION	POSITION				DATUM	METHOD OF LOCATION	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
		LATITUDE	LONGITUDE	D. M. METERS	D. P. METERS							
COLUMBIA RIVER												
	TANK, not visible from River	45 44.4	122 46.4	**	**	**	**				6154	
	YEL. HO. S. CHY, inconspicuous	45 44.3	122 46.4	**	**	**	**				"	
	BEERRY, inconspicuous	45 43.1	122 46.2	**	**	**	**				"	
	TANK, inconspicuous	45 42.7	122 46.3	**	**	**	**				"	
	POWER, inconspicuous	45 44.2	122 45.1	**	**	**	**				"	
	MINDRILL, gone	45 40.2	122 45.6	**	**	**	**				"	
	S. H. BEERRY, inconspicuous	45 40.0	122 45.4	**	**	**	**				"	

This form shall be prepared in accordance with 1934 Field Memorandum, "LANDMARKS FOR CHARTS." The data should be considered for the charts of the area and not by individual field survey sheets. Information under each column heading should be given.

MEMORANDUM

IMMEDIATE ATTENTION

SURVEY
DESCRIPTIVE REPORT

~~PHOTOGRAPHIC~~
~~RECORDS~~

No. H-6242 to H-6247

~~No. 1~~

received Feb. 26, 1938
registered Mar. 5, 1938
verified
reviewed
approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

ROUTE		Initial	Attention called to
20			
22	✓	<i>DDP</i>	<i>Pages 1, 2, 3, 4 and 33.</i>
24			
25	✓	<i>DDP</i>	<i>Pages 5, 10, 14, 19, 24 and 28.</i>
26			
30	✓	<i>McJug</i>	<i>Pages 1 and 2</i>
40			
62			
63			
82			
83			
88			
90			

RETURN TO

82	T. B. Reed
----	------------

✓

Chief of Party: Rbt. W. Knox

Surveyed by Rbt. W. Knox

Protracted by: T. A. Renton

Soundings plotted by C. J. Wagner

Verified & inked by: W. A. Bruder

1. The records conform to the requirements of the General Instructions, with the following omissions:
 - a. The heading by compass was omitted throughout every volume. Several questionable positions and soundings could have been better determined if the compass headings were available.
2. The usual depth curves can be completely drawn. As per descriptive report, it has been assumed that all holidays inshore were due to snags, log rafts and the like, preventing a closer approach to the beach.
3. The field plotting was complete to the extent prescribed in the Hydrographic Manual.
4. The office draftsman did not have to do over any part of the drafting done by the field party, except to revise his pencilled curves to a more exact interpretation, giving weight to each sounding, before inking.
5. The junctions with contemporary adjacent sheets are satisfactory.

6. Remarks

The field plotter did not follow the instructions for plotting minus and $\frac{1}{2}$ foot soundings as given in the Field Record Rules (pamphlet of Oct 1, 1934). The following corrections were constantly made by the verifier:

Plot	$+\frac{1}{2}$	as	$+\frac{1}{2}$	and not	0	
	$-\frac{1}{2}$	as	0	"	"	-1
	$-1\frac{1}{2}$	"	-1	"	"	-2
	$-2\frac{1}{2}$	"	-2	"	"	-3
	etc.					

A 2 foot sounding plots a questionably far distance in mid. channel of Westport Slough, but was this inked as recorded in view of the fact it was on a very strong fix. Lat $46^{\circ} 07.3'$ Long. $123^{\circ} 20.9'$ Pos. 389 vol 5 p. 48 sounding accepted.

The field plotter has pencilled the word "dry" in the back water of Puget Island, lat. $46^{\circ} 09.5'$ long. $123^{\circ} 20.5'$. After consulting the air photo section, the plane table sheet, and the boat sheet, the verifier concluded to omit the word as the area was most probably dry only at low water.

Considerable disagreement was noticed in the names of the signals on the various sheets. Their disagreements are shown in tabular form on the next page of this report. No revision was made unless stated in the remarks column.

VOL. I INDEX BOAT SHEET	SMOOTH SHEET	SOUNDING RECORDS	PLANE TABLE (T.6523 sub)	LAT.	LONG.	REMARKS & REVISIONS
Are	Are	Arc	Are	Are	46° 10.5' 123° 24.8'	Changed Smooth Sh. to Are ✓
Inc	Inc	Inc	—	Inc	09.1 22.1	" " " " Inc, also index ✓
Eat	Fat	Eat	—	Fat	09.1 22.1	" " " " Fat " ✓ "
J(USE) 1917	J	J(USE)	J	J(USE) 1917	09.1 17.5	" " " " J(USE) 1917 ✓
Hydro 579 →	Durn	Dern	Durn	Durn	09.1 21.0	" " " " & Index to Durn ✓
	Bak	Bak	Bac	Bak	08.2 22.8	" Sound Records to Bak ✓
	Cur	cure	Cur	Cure	08.2 17.4	changed Smooth Sh. to Cure, also index ✓
	Fin	Fin	Fin	Gun	11.5 23.2	Topo changed to agree. No change
	Bord	Bord	Bord	Nob	08.5 22.5	Ditto
	Nob	Nob	Nob	Bord		
	Bum	Bum	Bum	Bum	10.6 21.6	" ?
	Yol	Yol	Yol	Yol	09.1 17.2	" ?
	Non	Non	Non	Ed	08.1 16.8	" ?

Mr. Jones said his
he would change sheet if
plane table says are identical
reviewer positions are signals
and no mistakable
are near. W.A.B.
5-20-98

Signal MOI at Lat 46° 08.1' Long 123° 15.4' is spelt
MOI on H-6243. No change was made by the verifier.

Welcome blough ϕ 46° 10.5' λ 123° 24' was left in
pencil, since the verifier could not find the air-photo compilation
of the 29th Engineers, U.S. Army, although the descriptive report, p. 7,
clearly states it accompanies the smooth sheet. A thorough search
by Mr. Storm, Mr. Supps, and the verifier resulted in the decision of
Capt. Ellis it was not received in the office.

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 6242 (1937) FIELD NO. OW-16

Cathlamet to Cooper Point, Columbia River, Oregon - Washington
Surveyed in August - 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 - R. W. Knox.
Protracted by - T. A. Renton.
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. No entries were made in the columns for compass headings in the sounding records. If ranges were steered, that fact should have been stated.
- b. Several of the names assigned to topographic signals did not correspond with the names on the topographic sheets. The necessary changes were made in the office.
- c. The copy of the U. S. Army air photographic map of Welcome Slough (lat. $46^{\circ} 10.5'$, long. $123^{\circ} 24.0'$) noted in the descriptive report, page 7, as having been forwarded to the office, has not been received. The shoreline and soundings in this Slough were inadvertently removed from the sheet and since the shoreline, which was the basis for location of the soundings, is not available the soundings have not been shown on the sheet.

The Descriptive Report is complete and satisfactorily covers all items of importance.

2. Compliance with Instructions for the Project.

The survey satisfies the instructions for the project except as noted below:

- a. The spacing of sounding lines is too wide over the uneven bottom on the Puget Island side of Cathlamet Channel. Particular attention is called to the 14 foot depths surrounded by 19 to 31 feet in lat. $46^{\circ} 10.7'$, long. $123^{\circ} 21.4'$.
- b. Areas discussed in paragraphs 8a(1), (2), and (3), this review, should have been more closely developed.

- c. The development on this survey of the 17 foot sounding in lat. $46^{\circ} 12.05'$, long. $123^{\circ} 23.5'$, on H-6182 (1936) should have been more extensive (see par. 6a, this review).
- d. The special chart of the area 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-6523a and b (1936), T-6524 (1936) and T-6573a & b (1937).
- b. Hydrographic signals originate with the present survey, the fixes used in location being recorded and indexed in the sounding volumes.

4. Sounding Line Crossings.

Sounding line crossings are satisfactory.

5. Depth Curves.

The usual depth curves may be satisfactorily drawn.

6. Junctions with Contemporary Surveys.

- a. The junction with H-6182 (1936) in Wauna Channel is very good. Some differences are noted in the overlap of the two surveys in Cathlamet Channel but these are probably due to natural changes in the year intervening between the surveys. The disproof of a 17 foot depth, believed to be erroneous, in lat. $46^{\circ} 12.05'$, long. $123^{\circ} 23.5'$, on H-6182 (see par. 10d, review of that survey), approximately 300 meters outside the main overlap, was the objective of a detached development on the present survey. The development should have been more extensive, but in view of the fact that the controlling depth in Cathlamet Channel is between 10 and 15 feet, further investigation is not considered warranted, and the 17 should be disregarded in future charting. Soundings from H-6182 have been inked in the main overlap in Cathlamet Channel, but not in the detached development where differences similar to those noted above would necessitate the removal of half the soundings shown in that area on the present survey. The overlapping area should be charted from the characteristic soundings (excluding the 17 on H-6182) of both surveys.
- b. The junction with H-6243 (1937) on the east is satisfactory.

7. Comparison with Prior Surveys.

- a.
- H-1335 (1875-6), 1:10,000; H-1336 (1876), 1:10,000.

The present survey falls entirely within the combined area of the above surveys. Natural and artificial changes in the common area have been extensive. Cathlamet Channel has shoaled considerably in some places, and deepened somewhat in others. Puget Island, has built out almost a mile at its most easterly point. Diking and dredging by the U. S. Engineers have caused many changes in Wauna Channel. The above surveys contain no information in the common area, which needs to be retained and should be superseded by the present survey in future charting.

8. Comparison with Chart 6152 (New Print dated Dec. 10, 1937).

- a.
- Hydrography.

Depths charted in the inner reaches of Westport Slough originate with surveys discussed in the foregoing paragraphs. All other depths charted within the area of the present survey are from various U. S. Engineers' surveys of 1919 to 1936. Every sounding charted in the area under consideration was compared with the present survey. Wide differences from the present survey are noted in Cathlamet Channel and Wallace Slough where the Engineers have made no surveys since 1919. Relatively minor differences exist in the main channel areas which are charted from blueprints of 1934 to 1936, but these are in general no more pronounced than the differences between successive blueprints. In some few instances, however, in the inshore areas depths charted from the later blueprints are materially shallower than those on the present survey. These cases are discussed below.

- (1) Charted depths of 4, 14, 24 and 27 feet in lat. $46^{\circ} 10.2'$ long. $123^{\circ} 24.6'$, originate with blueprint 29383 of 1936 and fall in depths of 18, 21, 31 and 35 feet respectively on the present survey. Lines on the present survey are spaced 100 meters apart and run axially with the shoal. Later blueprints (30536 of 1937 and 31518 of 1938) verify the delineation on blueprint 29383. The present survey has undoubtedly missed the shoalest depths and should be supplemented by the latest blueprints when charting this area.
- (2) The 22 foot depth charted in lat. $46^{\circ} 08.8'$, long. $123^{\circ} 20.8'$ originates with blueprint 29383 of 1936 and falls between lines in depths of 26 to 27 feet on the present survey. Sounding lines are widely spaced on the present survey and the shoal depth as confirmed by blueprints 30536 of 1937 and 31518 of 1938. The present survey should be supplemented by the latest blueprints in the charting of the area.

- (3) Charted depths of 2, 2 and 5 feet in lat. $46^{\circ} 09.2'$ long. $123^{\circ} 18.9'$, originate with blueprint 26475 of 1933 and fall in depths of 4, 6 and 9 feet respectively on the present survey. Blueprint 30981 of 1937 shows 6 feet in the position of the charted 5 and a least depth of 4 feet on the shoal. Changes have undoubtedly occurred in this area but the spacing of lines on the present survey is not sufficiently close to properly develop the extent of the shoal. Blueprint 26475 may be disregarded in future charting but the present survey should be supplemented by blueprint 30981 or later surveys.

U. S. Engineers' blueprint 29383 of 1936 and all others of prior number and date contain no information which needs to be retained and should be superseded in future charting by the present survey, supplemented wherever necessary by Engineers' surveys of 1937 and subsequent dates.

b. Aids to Navigation.

The charted positions of Westport Slough range lights in lat. $46^{\circ} 08.2'$, long. $123^{\circ} 22.8'$, originating with Lighthouse Notice to Mariners 9 of 1932, differ by approximately 70 meters from the 1936 topographic locations on the present survey. The post light in lat. $46^{\circ} 09.8'$, long. $123^{\circ} 24.9'$ has been removed subsequent to the survey (Lighthouse Notice to Mariners of 1938) and will be erased from the chart. The charted positions of all other fixed and floating aids in the area are in substantial agreement with the positions on the survey. The aids, as shown on the survey, adequately mark the features intended.

9. Field Plotting.

The field plotting was, in general, satisfactory. Many minus soundings were incorrectly penciled. For example, soundings of minus $1-1/2$ feet being shown as minus 2 feet instead of minus 1 foot as specified in par. 155 of the Hydrographic Manual.

10. Additional Field Work Recommended.

In view of the highly changeable nature of the area and the frequency with which the important portions of it are surveyed by the U. S. Engineers, additional field work is not considered advisable. Attention is called, however, to the deficiencies noted in paragraphs 1c, 2a, 6a and 8a(1),(2) and (3), this review.

11. Superseded Old Surveys.

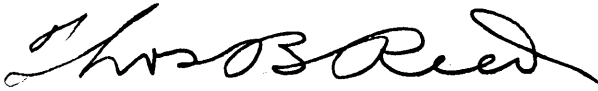
Within the area covered the present survey supersedes the following old surveys for charting purposes:

H-1335 (1875-6) in part
H-1336 (1876) in part.

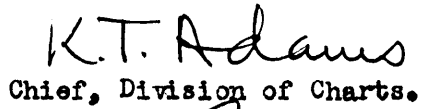
12. Reviewed by - J. A. McCormick, June 7, 1938.

Inspected by - E. P. Ellis.

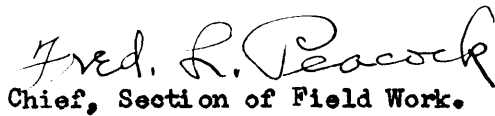
Examined and approved:



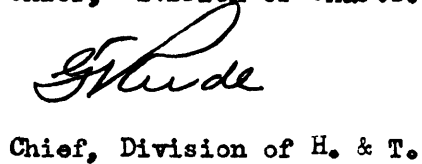
T. B. Reed,
Chief, Section of Field Records.



K.T. Adams
Chief, Division of Charts.



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



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

applied to drawing of chart 6152, Mar. 3, 1939 J.G.L.