

7637

Diag. Cht. No. 6154 (Insert)

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. HO-05348 Office No. H-7637

LOCALITY

State OREGON

General locality WILLAMETTE RIVER

Locality BOONES FERRY TO BUCHMANS LANDING

194 8

CHIEF OF PARTY

W. H. Bainbridge

LIBRARY & ARCHIVES

DATE Oct. 26, 1950

7637

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-7637

Field No. HO-05346

State Oregon

General locality Willamette River

Locality Boones Ferry to Buchmans Landing
~~Buchmans Landing, Ore. to Oregon Electric Railroad Bridge S. of Wilsonville, Oregon.~~

Scale 1:5000 Date of survey 12 Apr. 1948 - 30 Apr. 1948

Instructions dated 28 Nov. 1945

Vessel Ship HODGSON

Chief of party W. H. Bainbridge

Surveyed by R. M. Stone and H. J. Healy

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

Fathograms scaled by Ship's complement

Fathograms checked by E. Altizer (Radio Tech.)

Protracted by G. W. Bergford

Soundings penciled by Clarence E. Pederson

Soundings in ~~fathoms~~ feet at ~~XXXXXXXXXX~~ Willamette River Datum
which is locally 50.2 ft. above Mean Sea Level.

REMARKS:

122°-45'

122°-40'

SKETCH GAGE STATIONS AND BENCH MARKS

SCALE 1:62,500 PROJECT GS-323

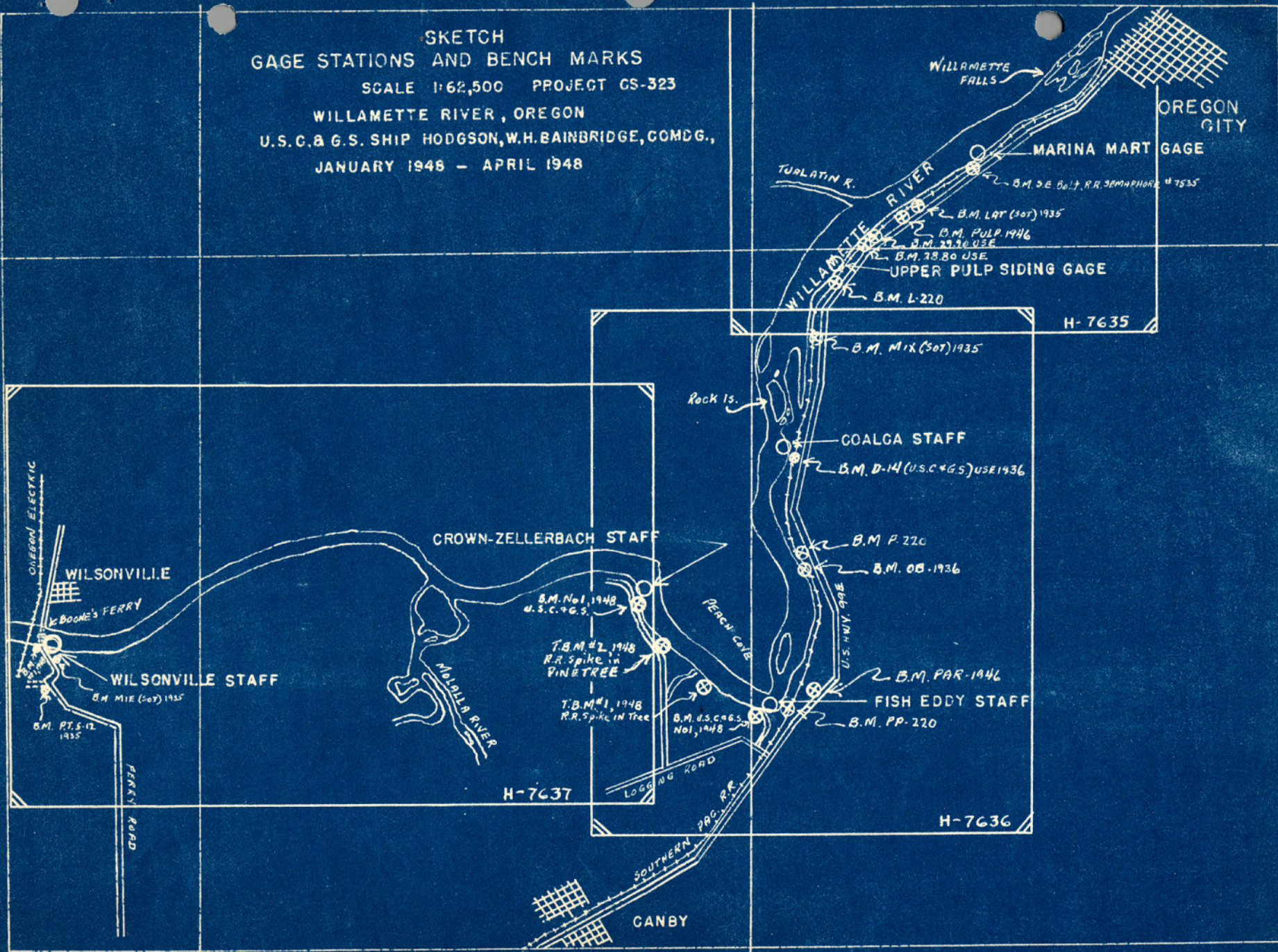
WILLAMETTE RIVER, OREGON

U.S.C. & G.S. SHIP HODGSON, W.H. BAINBRIDGE, COMDG.,

JANUARY 1948 - APRIL 1948

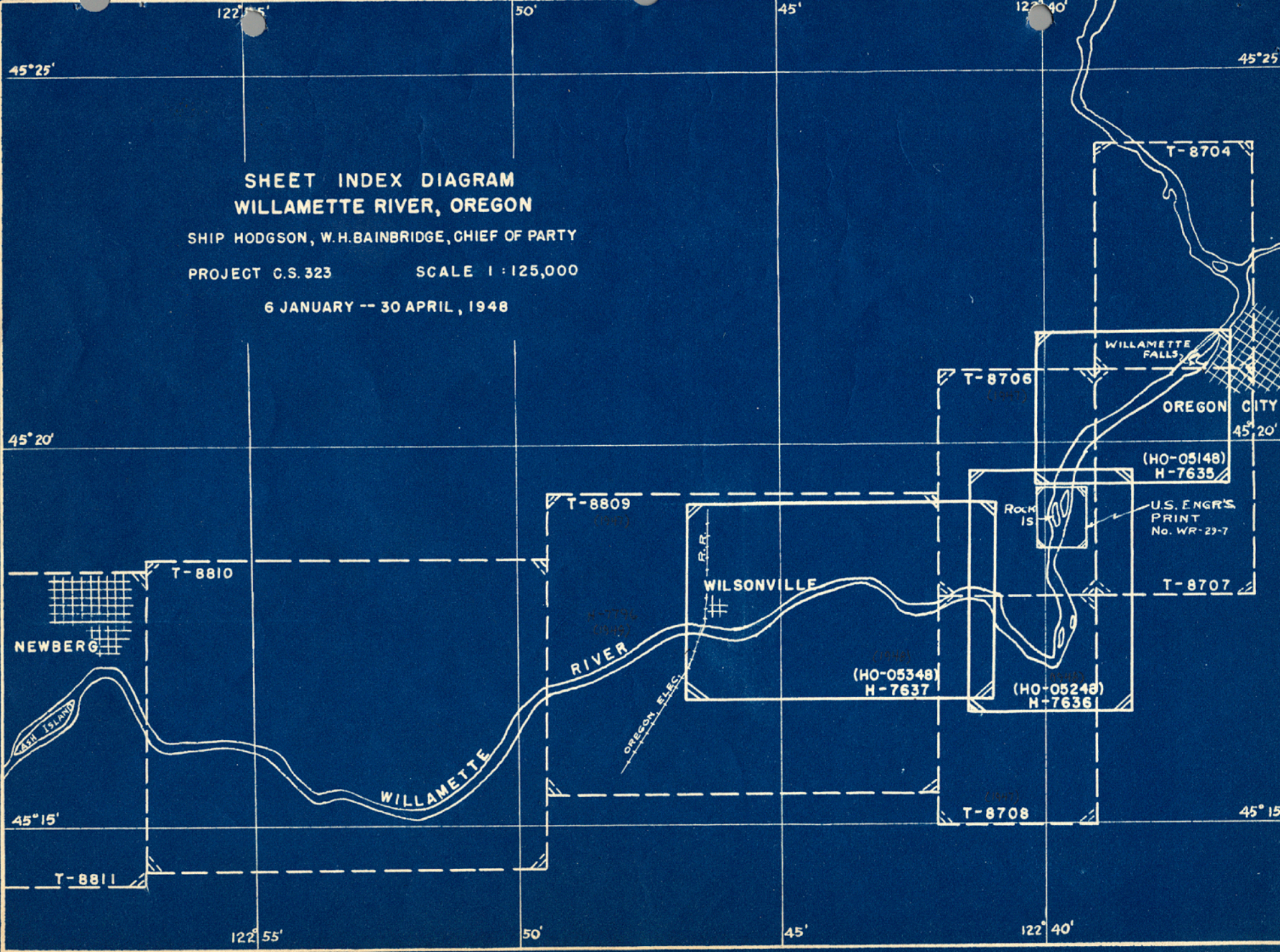
45°-20'

45°-20'



122°-45'

122°-40'



DESCRIPTIVE REPORT

to accompany

Hydrographic Survey No. H-7635, (HO-05148)
No. H-7636, (HO-05248)
No. H-7637, (HO-05348)

Willamette River

Oregon City, Ore. to Vicinity South of Wilsonville, Ore.

Scale 1:5000
Jan. - April 1948

Ship HODGSON
W. H. Bainbridge
Chief of Party

PROJECT:

Project No. CS-323.

The hydrographic survey was made in accordance with the following instructions:

1. Original Instructions, 22/MEK, 1995-WE-1, dated 28 November 1945.
2. Supplemental Instructions, 22/MEK, S-2-HO, dated 12 October 1948.
3. Related letters:
 - (a) From Director to Commanding Officer, Ship WESTDAHL and Lt. Comdr. R. A. Earle dated 26 February 1946, 70 Lmh. Subject: Surveys in the vicinity of Portland, Oregon.
 - (b) From Director to Commanding Officer, Ship HODGSON, 22/MEK, S-1-WE, dated 17 April 1946. Subject: Field Work, Project CS-323.
 - (c) From Director to Lt. Comdr. R. A. Earle, 711-rs, dated 24 October 1947. Subject: Preparation of boat sheets and smooth sheets for Willamette River hydrography.
 - (d) From Director to Commanding Officer, Ship HODGSON, 711-rs, dated 24 November 1947. Subject: Recovery and use of photo-hydro stations.
 - (e) From Director to Commanding Officer, Ship HODGSON, 22/MEK, S-1-HO, dated 6 February 1948. Subject: Hydrography, Willamette River.

(f) From Director to Commanding Officer, Ship HODGSON, 22/
MEK, S-1-HO, dated 16 April 1948. Subject: Field work.

These instructions cover new basic hydrographic surveys of the Willamette River from Oregon City, Oregon to the vicinity of Ash Island, south of Newburg, Oregon.

SURVEY LIMITS AND DATES:

This survey constitutes a new basic hydrographic survey of the Willamette River from Willamette Falls at Oregon City, Oregon to the Oregon Electric Railroad Bridge just south of Wilsonville, Oregon. (Refer to "Sheet Index Diagram" appended to this report.)

Data pertaining to each hydrographic sheet is as follows:

Reg.No.	Field No.	Field Work		Surveyed by	Area Surveyed
		Began	Ended		
H-7635	HO-05148	1/19/48	2/10/48	R. M. Stone	Willamette Falls to D/S end of Rock Island
H-7636	HO-05248	3/9/48	4/30/48	H. J. Healy A.M.Legako	D/S end of Rock Island to Old Canby Ferry Landing (Buchmans Landing)
<u>H-7637</u>	HO-05348	4/12/48	4/30/48	H. J. Healy R. M. Stone	Old Canby Ferry Landing to Oregon-Electric-Railroad Bridge.

On Hydrographic Sheet H-7636, (HO-05248), the section of the Willamette in the vicinity of the Rock Island area between Latitudes 45° 18!70 and 45° 19!50, was surveyed by the Corps of Engineers at Portland, Oregon, during December 1947 on a scale of 1:2000. (Refer to U. S. E. Print No. WR-29-7, dated December 1947, titled "Rock Island Survey, Willamette River, Oregon"). A copy of this print is made a part of the field records. Authority has been granted to substitute the hydrographic survey executed by the Corps of Engineers for the identical area on Hydrographic Sheet H-7636, -)Refer to Director's letter, 22 MEK, S-1-HO, dated 6 February 1948).

On Hydrographic Sheet H-7635, (HO-05148), the section of the river between parallel 45° 21!0 and the Willamette Falls was surveyed by the Corps of Engineers during the year 1945 on a scale of 1 inch = 100 feet. (Refer

Not applicable to H 7637

OP 47262
to U. S. E. Print No. WL-13-1, dated Sept. 1939, Dec. 1945, Apr. 1945 and Sept. 1945, titled - "Willamette Falls & Vicinity". A copy of this print is made a part of the field records.

It is noted that the soundings on the U. S. E. survey are related to mean sea level. The datum of Hydrographic Sheet H-7635 in vicinity of Willamette Falls is 49.94 feet above mean sea level, (taken from the Low Water Profile), hence, all soundings will have to be corrected accordingly.

VESSELS AND EQUIPMENT:

Hydrography was accomplished with Launch No. 141, a 36 foot landing barge, (L.C.P.R.).

808-A type depth recorder No. 77 was used throughout the survey.

In areas occupied by log rafts, hand lead soundings were required, which were obtained by a log walking party using lead line; lines Nos. 2 and 4.

The launch operated from the small boat moorage at "Marina Mart", 2.0 miles south of Oregon City at Lat. $45^{\circ} 20'4''$, Long. $122^{\circ} 38'3''$ during the time hydrography was done on Sheets H-7635 and H-7636. When work was started on Sheet H-7637, the launch operated from a small boat house located on the south shore of the Willamette near the Boones Ferry ~~landing~~, at Lat. $45^{\circ} 17'5''$, Long. $122^{\circ} 46'5''$.

The squat and settlement of Launch No. 141 was accurately determined on 11 October 1946 and found to be negligible. No change has taken place in the construction of the launch since that time.

A copy of the observations for squat and settlement is attached to this report on Page 18.

Corrections to the fathometer soundings were obtained from tables prepared from the data furnished by the three daily bar tests. These tests extended to a depth of 50 feet and were made for the various scale settings of the fathometer: (Refer to "Velocity Correction Abstract" appended to this report, - pages 25 -- 29 incl).

TIDES AND CURRENT STATIONS:

(See discussion under Tide Note attached, pages 19-24 incl.)

No current stations were occupied during the time of this survey.

SMOOTH SHEET:

The projection for the smooth sheet was not made by the field party.

Refer to the report from the Processing Office on this survey.

CONTROL STATIONS:

The area is covered by second order triangulation surveyed by C. A. George, Chief of Party, Year 1946.

Hydrographic signals were located by photogrammetric methods by R. A. Earle, Chief of Party, Year 1946 & 1947, - in conjunction with following

surveys:

** not applicable to H-7637*

Sheet No.	Scale	Title	Project No.	Date of Survey
T-8704	1:8,000	Oregon City, Clackamas County, Oregon	CS-322	Jan. 1946
T-8707	1:8,000	Mt. Pleasant, Clackamas County, Oregon	CS-322	Jan. 1946
T-8706	1:8,000	Willamette, Clackamas County, Oregon	CS-322	Jan. 1946 ⁷ (1947)
T-8708	1:8,000	Canby, Clackamas County, Oregon	CS-322	Jan. 1946 ⁷ (1947)
T-8809	1:10,000	Willamette River, Oregon	PH-13(46)	May 1947

Additional hydrographic signals were located by means of sextant angles.

Refer to "List of Stations" appended to this report, pages 13-17 incl.

To correlate the U. S. E. Survey of the Rock Island area, (Print No. *Sp 44685* WR-29-7, December 1947), with that of the U.S.C.&G.S. survey on Hydrographic Sheet H-7636, (HO-05248), theodolite observations were made on the following U. S. E. control points in order to locate these stations on the hydrographic sheet.

U.S.E. Triangulation Station 128

U.S.E. Triangulation Station 137A

Rock Island Upper Light, (to determine location of triangulation station 132).

Not applicable to H-7637

The theodolite observations were recorded in Hydro Volume 1, page 16 of Hydrographic Sheet No. H-7636.

A round of sextant angles were observed at triangulation stations 128, 137A and hydrographic signal SPOT. The results were recorded in Hydrographic Vol. 1, pages 4 & 5.

Rock Island Upper Light and Rock Island Lower Light appear on both U. S. E. Print No. WR-29-7 and Hydrographic Sheet H-7636.

A U. S. E. Print of "Upper Willamette River Triangulation, Canemah to Coalca, Scale 1:5,000", No. WR-04-10/5 is made a part of the field records.

To correlate the U. S. E. survey of "Willamette Falls and Vicinity" to Hydrographic Sheet H-7635, control points appearing on both U. S. E. Print No. WL-13-1 and U.S.C.&G.S. Print No. T-8704 are used. Air photo control points, Nos. 37, 43 & 44 appear on both surveys.

The boat sheets for hydrography complete with shoreline and photo-hydro signals were prepared in the Washington Office on a scale of 1:5000. Refer to Director's letter to Lt. Comdr. R. A. Earle, dated 24 October 1947, Reference 711-rs.

SHORELINE AND TOPOGRAPHY:

The shoreline of the Willamette River appearing in ink on the boat sheet was transferred from air photo compilation prints at the time the sheets were prepared in the Washington Office.

Information pertaining to the air-photo surveys is listed under paragraph heading "Control Stations".

SOUNDINGS:

Hydrography was done with the use of depth recorder No. 77 mounted in Launch No. 141.

Numerous hand lead soundings were taken over shoal areas and in areas containing log rafts.

Bottom specimens were obtained at frequent intervals.

Not applicable to H-7637

Velocity corrections derived from the mean of the daily bar checks, and the reducers pertaining to the difference between the Willamette River Datum and the elevation of the river surface, have been entered and checked in all hydrographic records in increments of two-tenths of a foot.

→ An abstract of bar check comparisons and velocity corrections is attached to this report, - pages ~~24-29~~ ~~incl~~

Lead line corrections have been entered and checked in all hydrographic records.

→ An abstract of River Level Corrections, for ~~each~~ hydrographic sheet #7637 is appended to this report, ~~pages 22-24~~ ~~incl~~.

CONTROL OF HYDROGRAPHY:

All horizontal control was done by the three point fix method.

ADEQUACY OF SURVEY:

The survey is complete and should supersede all prior surveys for charting.

The junctions between the hydrographic sheets and the Corps of Engineers surveys (Print Nos. ^{Bp. 44685} WR-29-7 and ^{Bp. 47262} WL-13-1) are satisfactory.

CROSSLINES:

Eight per cent of crosslines were run.

No discrepancies were noted in the crosslines.

COMPARISON WITH CHART:

There are no existing navigational charts of this portion of the Willamette River.

COMPARISON WITH PRIOR SURVEYS:

There have been no prior hydrographic surveys made by the U. S. Coast and Geodetic Survey in this area.

The comparison made with the following U. S. Engineer's Survey prints was in fair agreement: *(No comparison was made by Reviewer.)*

"Willamette River, Portland to Eugene, Oregon", Scale 1:5000

- Print No. 5 of 52, Revised to June 1940
- Print No. 6 of 52, Revised to Oct. 1932
- Print No. 7 of 52, Revised to July 1937
- Print No. 8 of 52, dated - - - July 1932
- Print No. 9 of 52, dated - - - July 1932

COAST PILOT INFORMATION:

All traffic through this area consists of small pleasure boats and small tugs used only in moving log rafts.

This portion of the Willamette should be navigated by steering generally a mid-channel course, except in the Rock Island area where the narrow channel is indicated by buoys.

AIDS TO NAVIGATION:

Data pertaining to floating aids to navigation is as follows:

Type of Buoy	Located on		Longitude	Depth at Buoy	Located by		
	Sheet No.	Latitude			Vol.	Pg.	Pos.
Rock I. Chan Buoy No. 2, 4th Cl. Spar	H-7635	45° 19' (82.3) 1770.0	121° 39' (1015.2) 291.3	4.0 ft.	1	19	1b
Rock I. Chan. Buoy No. 3, 3rd. Cl. Sp. can	H-7635	45° 19' (282.1) 1570.2	121° 39' (905.6) 401.0	8.0 ft.	1	19	2b
Rock I. Chan. Buoy No. 5, 3rd. Cl. sp. can	H-7635	45° 19' (343.8) 1508.5	121° 39' (881.1) 425.5	3.0 ft.	1	19	3b
Rock I. Chan. Buoy No. 7, 3rd. Cl. spar can	H-7636	45° 19' (997.1) 855.2	121° 39' (439.9) 866.6	11.0 ft.	3	60	6h
Rock I. Chan. Buoy No. 9, 3rd Cl. spar can	H-7636	45° 19' (1130.1) 722.2	121° 39' (411.7) 894.6	11.0 ft.	3	59	5h
Rock I. Chan. Buoy No. 12, 4th Cl. spar	H-7636	45° 19' (1331.1) 521.2	121° 39' (282.9) 1023.7	-1.0 ft.	3	59	4h
Rock I. Chan. Buoy No. 14, 3rd. cl. spar nun	H-7636	45° 18' (549.1) 1303.2	121° 39' (246.8) 1059.8	8.6 ft.	3	57	7lg

Sheet page

Not applicable to H-7637

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Data pertaining to non-floating aids to navigation is as follows:

Description	Located on Sheet No.	Latitude	Longitude	Located by Air Photo Comp.
Willamette Falls Light	H-7635	45°21' (1672.9) 178.4	122°37' (927.9) 378.1	T-8704
Rock Island Lower Light Stand (No light fixture)	H-7636	45°19' (1673.7) 178.6	122°39' (188.8) 1118.1	T-8706
Rock Island Upper Light Stand (No light fixture)	H-7636	45°18' (321.3) 1531.0	122°39' (208.3) 1098.7	T-8706

Not applicable to H-7637

All of the above information on buoys and non-floating aids was submitted to the Washington Office by W. H. Bainbridge, Comdr., USC&GS, in the form of a letter, dated 8 February 1949, Subject: "Aids to Navigation, Chart 6171".

There are no ranges maintained for navigation within the limits of this survey.

The vertical clearance of the Oregon Electric Railroad Bridge located just south of Wilsonville, Oregon, was determined and recorded in hydrographic volume 3, page 56 for Hydrographic Sheet H-7637. Additional information in regards to this bridge is as follows:

Determined by	Vert. Clearance	Horiz. Clearance	
The Hydrographic Survey	* 77.5	-----	Vert. Clear. on 5/5 = 75.0 ft.
The Air Photo Field Survey	75.0	192.0	
Publication of "List of Bridges over Navigable Waters of U.S.", 1936 edition	75	192	

*shoreline datum = 3.0
 water datum = 2.0
 difference = 2.0*

A submerged telephone cable crossing was located on Sheet H-7637 (HO-05348) at Lat. 45° 17' 8⁰, Long. 122° 44' 19⁵.

The Electric Low Power Line as shown on Air Photo Compilation Print No. T-8708 at Lat. 45° 18' 0, Long. 122° 41' 45 is no longer in place. (Refer to note in Hydro Volume No. 3, Page 61 for sheet H-7637). *Power line not shown on H-7637*

In regards to vertical clearances of existing power lines and ferry cables within the limits of this survey, refer to Vol. 3, Page 56 for Sheet H-7637.

An overhead cable, erected during the summer of 1948, was located at Lat. $45^{\circ} 17:8^9$, Long. $122^{\circ} 44:95^v$ on 15 March 1949. The results were originally recorded in Vol. 1, Pages 7 & 8 for Sheet HO-05149, and transferred to Vol. 3, Pages 64 & 65 for Sheet H-7637 (HO-05348). The vertical clearance of this cable is 101 feet above the river datum. The cable is part of a river gaging station maintained by the U. S. Geological Survey.
(99 ft above shoreline datum.)

LANDMARKS FOR CHARTS:

Data relative to landmarks for charts ^{were} prepared and submitted by the U. S. C. & G. S. Photogrammetric Office, R. A. Earle, Chief of Party, during 1946 and 1947.

GEOGRAPHIC NAMES:

There are no additional names other than those submitted by the Photogrammetric Office and what are shown on the air-photo compilation prints.

STATISTICS

for

HYDROGRAPHIC SURVEY, (HO*05348), H-7637

Project CS-323
Willamette River

Year 1948
Ship HODGSON

Vol. No.	Day Letter	DATE	No. of Positions	No. of H.L. Soundings	Stat. Mi. Soundings	Launch No.
1	a	4/12/48	48		4.6	141
1	b	4/13/48	130		11.6	141
2	c	4/19/48	141		11.7	141
2&3	d	4/27/48	158		12.1	141
3	e	4/28/48	126	8	6.9	141
3	f	4/29/48	85	11	2.9	141
3	g	4/30/48	27	3	1.3	141
Total for Launch No. 141			715	22	51.1	
4	a	4/16/48	56	227	2.5	Log "alking
4	b	4/20/48	53	218	2.7	Log "alking
4	c	4/21/48	44	131	1.2	Log "alking
4	d	4/22/48	59	172	1.5	Log "alking
4	e	4/23/48	53	227	2.8	Log "alking
Total for Log Walking - - -			265	975	10.7	
Total for Sheet H-7637 - - -			980	997	61.8	
Total area for Hydrography - - 0.6 sq. stat. miles.						

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LIST OF STATIONS ON SHEET H-7637, HO-05348)

Name used in
Hydrographic
Survey

Sheet 1 of 2

ANE	T-8706, Sig. No. 46 & Hydro Vol. 1, Page 3
ARM	T-8708, Sig. No. 25
AZO	T-8706, Sig. No. 45
BIT	Hydro Vol. 1, Page 9
BOX	T-8708, Sig. No. 24
BUM	Hydro Vol. 1, Pages 3 & 8
CAT	T-8708, Sig. No. 22
COD	T-8708, Sig. No. 23
COT	Hydro Vol. 2, Page 7
CUR	Hydro Vol. 1, Page 8
DAN	Hydro Vol. 1, Page 7
DEB	Hydro Vol. 1, Page 7
DOL	Hydro Vol. 2, Page 5
DOT	Hydro Vol. 1, Page 8
DUB	Hydro Vol. 1, Page 9
EAT	Hydro Vol. 1, Page 8
END	Hydro Vol. 1, Page 7
FIR	T-8809, Sig. No. 0903
FOG	Hydro Vol. 2, Page 5
FOX	Hydro Vol. 1, Pages 3 & 8
GAB	T-8809, Sig. No. 0923
GAG	Hydro Vol. 1, Page 8
GAL	Hydro Vol. 2, Page 5
GME	T-8809, Sig. No. 0922
GET	Hydro Vol. 2, Page 6
HAW	T-8809, Sig. No. 0920
HER	Hydro Vol. 2, Page 7
HIT	T-8809, Sig. No. 0901
HOP	T-8809, Sig. No. 0916
ICE	Hydro Vol. 2, Page 7
JAK	Hydro Vol. 2, Page 10
JIM	Hydro Vol. 1, Page 4
KID	Hydro Vol. 1, Page 5
KING	T-8809, Sig. No. 0904 (KING, 1947)
KRUSE TRME 1946 - T-8809	
LAD	Hydro Vol. 2, Page 7
LEN	Hydro Vol. 1, Page 6
LIT	Hydro Vol. 2, Page 8
LOG	Hydro Vol. 1, Page 4 & Vol. 2, Page 8
MANE	T-8809, Sig. No. 0908, & Hydro Vol. 1, Page 7
MAY	Hydro Vol. 1, Page 6
MID	T-8809, Sig. No. 0921
NAN	Hydro Vol. 1, Page 5
NEW	Hydro Vol. 1, Pages 5, 6 & 7
NOT	T-8809, Sig. No. 0919, & Hydro Vol. 2, Page 5
OAK	Hydro Vol. 1, Page 3
PAT	Hydro Vol. 1, Page 6
PEG	Hydro Vol. 1, Page 9
PIG	Hydro Vol. 2, Page 6
RAT	Hydro Vol. 1, Page 3
RED	T-8809, Sig. No. 0909,

LIST OF STATIONS ON SHEET H-7637, (HO-05348) (Cont.)

Sheet 2 of 2

Name used in
Hydrographic
Survey

RUM	Hydro Vol. 2, Page 6
SILO	T-8809 (RED SILO, 1947)
SIN	T-8809, Sig. No. 0917 & Hydro Vol. 1, Pages 3 & 4
SOW	Hydro Vol. 1, Pages 4 & 6
TAN	T-8809, Sig. No. 0910
TID	T-8809, Sig. No. 0919A, & Hydro Vol. 2, Pg. 8
TIN	T-8809, Sig. No. 0914, & Hydro Vol. 1, Pg. 5
TOP	T-8809, Sig. No. 0915
USE	T-8809, Sig. No. 0924
VAN	T-8809, Sig. No. 0913
WAT	T-8809, Sig. No. 0912
WET	Hydro Vol. 1, Page 9
WIL	T-8809, Sig. No. 0902
YEL	T-8809, Sig. No. 0907
WRONG	Hydro. Vol. 1 pages 4 & 5

11 October 1946

OBSERVATIONS FOR SQUAT
Launch No. 141

Willamette River, Vicinity of Hawthorne Bridge, Portland, Oregon.

Weather: Calm

River: Calm

Launch Fuel tanks approximately half full.

Observations taken with Wye Level set up on east shore of river -
time 09:00 a.m.

Observations taken with launch idle, running slow speed (as used when
sounding downstream), running about 2/3 speed (as used when sounding up
stream).

	<u>Idle</u>	<u>Slow Speed</u>		<u>Mean</u>	<u>Squat</u>	<u>Fast Speed</u>		<u>Mean</u>	<u>Squat</u>
		Going Away	Approach			Going Away	Approach		
1st Obs.	1.27 Obs.	1.30	1.32	1.31	0.04	1.35	1.38	1.36	0.09
2nd Obs.	4.87	4.92	4.88	4.90	0.03	5.03	5.04	5.04	0.17
3rd Obs.	4.67	4.70	4.72	4.71	0.04	4.82	4.79	4.80	0.13
				MEAN	0.04		MEAN	0.13	

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TIDE NOTE
 to accompany
 Hydrographic Survey, (HO-05148), H-7635
 (HO-05248), H-7636
 (HO-05348), H-7637

Willamette River Project CS-323

Oregon City, Oreg. to Vicinity South of
 Wilsonville, Oregon.

Year 1948

The datum of the Willamette River from Oregon City to Newburg, Oregon has been determined by the Corps of Engineers, Portland, Oregon. This datum (or river gradient) is shown on a profile drawing under the title of "Low Water Profile, Mouth of Willamette to Newburg, 1929 Datum, 1940 low water", a copy of which is made a part of the field records.

Filed with H-7813

The height of the water surface above the river datum was determined at the following locations along the river during the time hydrography was done:

Station	Latitude	Longitude	Staff Reading Corresponding to River Datum
Marina Mart Gage (2.0 miles S. of Oregon City, Oregon)	45° 20:46	122° 38:24	(-0.02) ft.
Upper Pulp Siding Gage (3.3 miles S. of Oregon City, Oregon)	45° 19:74	122° 39:35	(-1.25) ft.
Coaloe Staff	45° 18:64	122° 39:68	0.06 ft.
Wilson Staff (at Fish Eddy)	45° 17:04	122° 39:95	(-0.38) ft.
Crown-Zellerbach Staff (at Walnut Eddy)	45° 17:78	122° 41:04	(-2.03) ft.
Wilsonville Staff (at Boones Ferry south shore landing)	45° 17:51	122° 46:40	49.92 ft. (H-7637)

Refer to the drawing on the following page which shows the location of gages and staffs in respect to the hydrographic sheets.

Automatic recording gages, (ordinarily called tide gages), were established at Marina Mart and Upper Pulp Siding. Staff readings were obtained at the remaining locations during the period of hydrography.

Each hydrographic sheet was divided into zones in order that the river level corrections could be applied to all soundings in increments of 0.2 ft. All zones have been clearly indicated on the boat sheets.

An abstract of the river level corrections for ~~each~~ hydrographic sheet **H-7637** is attached to this report, - pages ~~22-24~~ **incl.**

H-7637

ABSTRACT OF RIVER LEVEL CORRECTIONS (SHEET HO-0534E)

(~~To be~~ entered in Tide Reducer Column in Hydro Record Books)

DATE	TIME	CROWN ZELLERBACH			WILSONVILLE
		A	B	C	D
4/12/48	all day	9.2	9.4	9.7	9.9
4/13/48	all day	9.0	9.2	9.5	9.8
4/16/48	0900 - 1230	8.8	9.0	9.1	9.2
	1231 - 1240	8.8	9.0	9.1	9.3
	1241 - 1312	8.8	9.0	9.2	9.3
	1313 - 1500	8.9	9.0	9.2	9.3
4/19/48	all day	11.0	11.2	11.4	11.6
4/20/48	0900 - 1125	10.6	10.8	11.1	11.3
	1126 - 1300	10.6	10.8	11.1	11.2
	1301 - 1500	10.6	10.8	11.0	11.2
4/21/48	0900 - 1000	10.2	10.4	10.6	10.8
	1001 - 1200	10.1	10.3	10.6	10.8
	1201 - 1500	10.1	10.3	10.5	10.7
4/22/48	all day	10.0	10.2	10.5	10.7
4/23/48	0900 - 1100	10.6	10.8	11.2	11.4
	1101 - 1130	10.6	10.9	11.2	11.4
	1131 - 1230	10.7	10.9	11.2	11.4
	1231 - 1300	10.7	10.9	11.2	11.5
	1301 - 1430	10.7	11.0	11.3	11.5
4/27/48	0900 - 1100	10.8	11.0	11.3	11.5
	1101 - 1130	10.7	11.0	11.3	11.5
	1131 - 1150	10.7	11.0	11.2	11.4
	1151 - 1500	10.7	10.9	11.2	11.4
4/28/48	0900 - 1100	10.9	10.3	10.5	10.7
	1101 - 1200	10.9	10.2	10.5	10.7
	1201 - 1310	9.9	10.2	10.5	10.7
	1311 - 1320	9.9	10.2	10.4	10.7
&	1321 - 1500	9.9	10.1	10.4	10.7
4/29/48	0900 - 1100	9.3	9.5	9.7	9.8
	1101 - 1130	9.3	9.4	9.6	9.8
	1131 - 1500	9.2	9.4	9.6	9.8
4/30/48	all day	8.9	9.0	9.1	9.2

Copy - Read.

FATHOMETER CORRECTIONS
SHEET H-7637

Feet									DAY	DATE
5.0	10.0	15.0	20.0	30.0	40.0A	50.0A	40.0B	50.0B		
+0.5	+0.3	+0.1	0.0	-0.6	-1.0	-1.5	-0.5R	-0.6	"a"	4/12/48
+0.7	+0.2	+0.2	+0.1	-0.6	-0.7		-0.3R			
+0.8	+0.2	+0.1	+0.2	-0.1	-0.5	-1.0	+0.4	+0.1		
+0.8	+0.3	+0.1	+0.2	+0.1	-0.5		+0.5		"b"	4/13/48
+0.8	+0.2	+0.1	+0.2	-0.1						
+0.5	+0.2	+0.2	+0.2	-0.1	-0.5	+0.5	+0.5	0.0		
+0.8	+0.5	+0.1	+0.2	-0.1	-0.7		+0.5		"c"	4/19/48
+0.5	+0.1	-0.1	-0.3	-0.4						
+0.6	+0.1	+0.1	-0.3							
-0.2R	-0.4R	-0.7R	-1.0R	-1.6R						
0.0R	-0.2R	+0.4R	-1.0R						"d"	4/27/48
+0.6	+0.3	+0.3	+0.4	+0.2						
+0.9	+0.5	+0.3	+0.2							
+0.3	-0.1R	0.0	-0.2	-0.7	-1.5	-2.0	0.0	-0.5		
+0.8	+0.5	+0.2	-0.1	-0.7	-1.4		-0.5R			
+0.5	+0.4	+0.2	+0.2	0.0	-1.0R	-1.0	0.0			
+0.5	+0.1	+0.1	-0.1	-0.5	-1.0		+0.3			
+0.6	+0.3	+0.1	+0.1	-0.2	-0.8	-1.3	+0.5	-0.1	"e"	4/28/48
+0.8	+0.4	+0.1	+0.1	-0.5	-0.8		+0.2			
+0.8	+0.4	+0.5	+0.4	+0.2	-0.5	-1.5	+0.5	-0.5		
+1.0	+0.8	+0.6	+0.2	+0.1	-0.7		+0.5			
+1.36	+6.0	+3.3	+1.9	-4.0	-10.6	-8.8	+3.7	-1.6	SUM	
+0.68	+0.32	+0.16	+0.10	-0.23	-0.81	-1.26	+0.34	-0.27	MEAN	
+0.7	+0.3	+0.2	+0.1	-0.9	-1.1		-0.3		"f"	4/29/48
+1.0	+0.4	+0.1	-0.1	-0.7	-1.8		-0.9			
0.0	-0.3	-0.2	-0.6	-1.2	-1.8	-2.5	-0.9	-1.3		
+0.5	+0.1	0.0	-0.8	-1.3	-1.8		-0.6			
0.0	+0.2	-0.4	-0.5	-1.1	-1.6	-2.0	-0.5	-1.3	"g"	4/30/48
+0.5	+0.2	-0.1	-0.4	-1.0	-1.7		-0.7			
+2.7	+0.9	-0.4	-2.5	-6.2	-9.8	-4.5	-3.9	-2.6	SUM	
+0.45	+0.15	-0.07	-0.42	-1.03	-1.63	-2.25	-0.65	-1.3	MEAN	

For "f" & "g" days use results for "a - e" days.

BAR CHECKS

Sheet H-7137 -(a, b, c, d, e, f & g days)

A Scale	B Scale
0.0 to 7.0 = +0.6	to 40.5 = +0.4
7.1 to 10.5 = +0.4	40.6 to 44.0 = +0.2
10.6 to 20.0 = +0.2	44.1 to 47.0 = 0.0
20.1 to 26.5 = 0.0	47.1 to 50.5 = -0.2
26.6 to 31.3 = -0.2	50.6 to 54.0 = -0.4
31.4 to 35.0 = -0.4	54.1 to 57.0 = -0.6
35.1 to 38.2 = -0.6	57.1 to 60.0 = -0.8
38.3 to 41.4 = -0.8	60.1 to 63.0 = -1.0
41.5 to 45.5 = -1.0	63.1 to 67.0 = -1.2
45.6 to 51.0 = -1.2	67.1 to 70.0 = -1.4

✓ NBM

VELOCITY CORRECTION ABSTRACT:

Tabulations of the three daily bar checks for Launch No. 141 are shown on ~~the following~~ pages, - ^{24 &} 25 - 29 incl.

Velocity corrections were derived from the mean of the daily bar checks and are listed separately.

MISCELLANEOUS:

It will be noted that a small area at the west end of Hydrographic ^{Boat} Sheet H-7637 was surveyed on an insert. A standard size sheet, however, will obviate the necessity of this insert on the smooth plot. *Insert eliminated on 5/5.*

APPLICABLE DATA

	Date Forwarded to:	
	Washington D. C. Office	Seattle Processing Office
3 - Hydrographic Sheets, (HO-05148), H-7635 - - - - - (HO-05248), H-7636 (HO-05348), H-7637	7/20/48 8/21/48 10/12/48	3/21/49
4 - Volumes, Sounding Records, Form 275 (Sheet H-7635)	10/12/48	3/18/49
5 - Volumes, Sounding Records, Form 275 (Sheet H-7636)	8/21/48	3/18/49
4 - Volumes, Sounding Records, Form 275 (Sheet H-7637)		3/18/49
9 - Fathograms for Sheet H-7635 - - - - -	7/20/48	3/18/49
10- Fathograms for Sheet H-7636 - - - - -	8/21/48	3/18/49
7 - Fathograms for Sheet H-7637 - - - - -		3/18/49
1 - Progress Sketch, Hydrography - - - - -	(monthly)	
1 - Sketch, Sheet Layout - - - - -	1/ /48	
1 - Season's Report (Jan. - April, 1948) - - - - -	6/21/48	
5 - Prints, U.S. Engineers Survey, Scale 1:5,000 - - - - - "Willamette River, Portland to Eugene, Oregon" Sheet No. 5 of 52, Revised to June 1940 Sheet No. 6 of 52, Revised to Oct. 1932 Sheet No. 7 of 52, Revised to July 1937 Sheet No. 8 of 52, dated - - July 1932 Sheet No. 9 of 52, dated - - July 1932		3/21/49
1 - Print, U.S. Engineers Survey Scale 1 inch= 100 feet "Willamette Falls & Vicinity", Print No. WL-13-1, dated Sept. 1945 - - - - -	8/31/50	3/21/49
1 - Print, U.S. Engineers Survey, Scale 1:2000 "Willamette River, Rock Island Survey", Print No. WR-29-7, dated December 1947 - - - - -		3/21/49

313
14

Date Forwarded to:	
Washington	Seattle
D.C.	Processing
Office	Office

- 1 - Print, U.S. Engineer's Triangulation, "Willamette River, Canemah to Coalca, Oregon". - - -
Print No. WR-04-10/5
- 1 - Print, U. S. Engineers, "Low Water Profile, Mouth of Willamette to Newburg, Oregon, 1929 Datum, 1940 Low Water" - - - - -

Filed in 5/5 Tbc
H-7813.

3/21/49
3/21/49

Data used in determining difference between river datum

and elevation of the water surface:

3/18/49

Gage or Staff Locations	Report of Tide Sta. Form 681	Level Record Form 258	Marigrams	Record Staff Readings Form 277
Marina Mart	1	3	10	} 2
Upper Pulp Siding	1		5	
Coalca	1	1		
Wilson (Fish Eddy)	1	1		
Crown-Zellerbach	1	1		
Wilsonville (Boones Ferry)	1	1		

Respectfully submitted,

R. M. Stone
 R. M. Stone, Lieut., USC&GS
 H. & G. Engr.

Approved:

Henry J. Healy
 Henry J. Healy, Lt. Comdr., USC&GS
 Commanding Ship HODGSON

H 7637
Ho 05348

Willamette River
Oregon.

List of geographic names
penciled on smooth sheet.

Oregon

Willamette River

Wilsonville

Buchman's Landing

Boone's Ferry

APPROVAL SHEET

Hydrographic Survey No. H-7635, (HO-05148)
H-7636, (HO-05248)
H-7637, (HO-05348)

Willamette River


Oregon City to vicinity of S. of Wilsonville, Oregon

Project CS - 323

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

The smooth sheets have not been plotted at the time of writing this report.

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


Henry J. Healy,
Lt. Comdr., USCGS
Commanding Ship HODGSON

H 7637
Ho 05348

Willamette River
Oregon

Processing Office Notes.

Smooth sheet.

T-8706(1947)

The projection was made by hand on Whatman paper. The locations of the hydrographic signals depend on the photo topographic signals of T 8708 & T 8809. From a few of these red signals a number of blue signals were located by sextant positions and sextant cuts. This is not regarded as a rigid system of signals. It can be varied by the cuts preferred, or the sequence in which the signals are fixed. A great deal of time was put on the locations of the blue signals. It is believed that reasonable positions were obtained.

It is noted that sounding lines overlapped the shoreline in several places. There were minus soundings in about half the cases. The other half could be due to signal or shoreline location. *Soundings and shore-line in agreement on S/S.*

It is recommended that the use of the sextant for signal location be restricted to circumstances which do not permit a transit to be set up. Exception:- strong three point fixes at the point to be located, made on signals not depending on sextant angles.

<u>Important soundings.</u>		<u>Plotted</u>		Depth Feet	Remarks.
ϕ	λ				
(1) 45 18.75 ¹⁴	122 43.37	4.4	4 1/2	Boulder	
(2) 17.92	42.90	7.7	7 1/2	Bar	
(3) 18.02	41.68	10.8 ⁶	10 1/2	Distinctly indicated hump on fathogram. <i>Add. develop. requested see TP9 of Review.</i>	
(4) 17.57	46.45	12.5	12		
(5) 17.98	41.5	3.5	3	Shelving shoal at Buchmans Landing.	

H-7636(1948)

In general this stretch of the river affords safe navigation in mid-stream for vessels likely to use these waters. It is recalled that there is a bar at ϕ 45 17.45 λ 122 40.65 which will pass vessels drawing three feet, and that you may be able to get thru with five feet, though this is not assured. With that in mind items Nos. 1, 5, and possibly No. 2 should be classed as dangers. The shoal sloping from the north bank at λ 122 42.5 should be emphasized also.

adequately curves delineate Shoal

Edgar E. Smith
Edgar E. Smith
Cart. Engr.

10/12/50

RHC

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~DIVISION OF HYDROGRAPHY AND TOPOGRAPHY~~

6 December 1950

Division of Charts: R. H. Carstens

Plane of reference approved in
4 volumes of sounding records for

HYDROGRAPHIC SHEET 7637

Locality Willamette River, Buchmans Landing to Oregon Elec. R.R. Bridge

Chief of Party: W. H. Bainbridge in 1948
Plane of reference is Willamette River Datum, reading
0.0 ft. on tide staff at Marina Mart
29.6 ft. below B. M. LAT (1935)

-1.2 ft. on tide staff at Upper Pulp Siding
29.6 ft. below B. M. LAT (1935)

0.1 ft. on tide staff at Coalco
39.8 ft. below B. M. D 14 (1903)

-0.4 ft. on tide staff at Fish Eddy (Wilson Tide Staff)
32.6 ft. below B. M. 1 (1948)

-2.0 ft. on tide staff at Crown Zellerbach Log Dump
30.3 ft. below B. M. 1 (1948)
~~Condition of records satisfactory except as noted below:~~

49.9 ft. on tide staff at Boones Ferry (Wilsonville Tide Staff)
33.7 ft. below B. M. MIE (1935)

E.C. McKay
Section

Chief, ~~Division of Tides and Currents.~~

GEOGRAPHIC NAMES

Survey No. H-7637

Name on Survey	A On Chart No.	B On previous survey No.	C On U. S. quadrangle Maps	D From local information	E On local Maps	F P. O. Guide or Map	G Rand McNally At.	H U. S. Light List	K
<u>Oregon</u>								USGS	1
<u>Willamette River</u>								"	2
<u>Buchmans Landing</u>									3
<u>Boones Ferry</u>									4
<u>Wilsonville</u>									5
<u>Molalla River</u>								USGB	6
									7
									8
									9
									10
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									23
									24
									25
									26
									27
									M 234

Names underlined in red are approved. 12-4-50 L. Heck

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. *H-7637*

Records accompanying survey:

Boat sheets *.1*...; sounding vols. *.4*...; wire drag vols.;
 bomb vols.; graphic recorder rolls *3* envel.
 special reports, etc.

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

Number of positions on sheet	.....	980
Number of positions checked	.....	9
Number of positions revised	.....	1
Number of soundings revised (refers to depth only)	.....	36
Number of soundings erroneously spaced	.....	40
Number of signals erroneously plotted or transferred	.....	none
Topographic details	Time	..... 4
Junctions	Time	..... 6
Verification of soundings from graphic record	Time	..... 15

Verification by *R.E. Elkins* Total time *99* Date *1-15-51*

Reviewed by *Wm. Jessup* Time *12* Date *1-26-51*

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-7637

FIELD NO. HO-05348

Oregon, Willamette River, Boones Ferry to Buchmans Landing
Surveyed in April, 1948 Scale 1:5,000
Project No. CS-323

Soundings:

Control:

808 Fathometer

Sextant fixes on shore signals

Chief of Party - W. H. Bainbridge
Surveyed by - R. M. Stone and H. J. Healy
Protracted by - G. W. Bergford
Soundings plotted by - C. E. Pederson
Verified and inked by - R. E. Elkins
Reviewed by - I. M. Zeskind, 26 January 1951
Inspected by - R. H. Carstens

1. Shoreline and Control

The shoreline originates with air-photographic surveys T-8706, T-8708 of 1946 and T-8809 of 1947.

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

2. Sounding Line Crossings

Depths at crossings are in good agreement.

3. Bottom Configuration and Depth Curves

The usual depth curves are adequately delineated.

The bottom is irregular and slopes sharply from the shore to the natural channel, except in several areas where shoals extend off from shore. Pinnacles, shoals and channel deeps contribute to the bottom irregularity. Depths along the axis of the natural channel range from 17 to 66 ft.

4. Junctions with Contemporary Surveys

Adequate junctions were effected with H-7636 (1948) on the east and with H-7796 (1949) on the west.

5. Comparison with Prior Surveys

There are no prior surveys of the area by this Bureau.

6. Comparison with Chart

There are no charts of the area by this Bureau.

7. Condition of Survey


- a. The field plotting was accurately done.
- b. The sounding records and Descriptive Report are complete and comprehensive.
- c. The shoal covered by $10\frac{1}{2}$ ft. in lat. $45^{\circ} 18.02'$, long. $122^{\circ} 41.68'$, was not adequately developed.


8. Compliance with Project Instructions


The survey adequately complies with the Project Instructions, except as noted in 7c above.

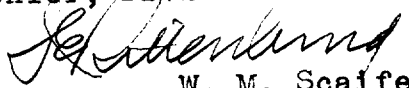
9. Additional Field Work Recommended

This is an excellent survey, except for the development of the $10\frac{1}{2}$ ft. shoal mentioned in paragraph 7c above. Additional development should be accomplished to determine the least depth on this shoal.


H. R. Edmonston
Chief, Nautical Chart Branch


L. S. Hubbard
Chief, Section of Hydrography

Examined and approved:

R. W. Knox
Chief, Division of Charts


W. M. Scaife
Chief, Division of Coastal Surveys

