

7796

Diag. Cht. No. 6154 (Insert)

Form 504

U. S. COAST AND GEODETIC SURVEY  
DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. HQ-05149 Office No. H-7796

LOCALITY

State OREGON

General locality WILLAMETTE RIVER

Locality WILSONVILLE TO BUTTEVILLE

194 9

CHIEF OF PARTY

H. J. Healy

LIBRARY & ARCHIVES

DATE July 11, 1950

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7796

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-7796

Field No. HO-05149

State Oregon

General locality Willamette River

Locality Wilsonville, Oregon to Butteville, Oregon

Scale 1:5000 Date of survey 18 Mar. 1949 - 11 Apr. 1949

Instructions dated 28 Nov. 1945

Vessel Ship HODGSON

Chief of party H. J. Healy

Surveyed by R. M. Stone and J. O. Boyer

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

Fathograms scaled by Ship's complement

Fathograms checked by Ship's complement

Protracted by John C. Couch

Soundings penciled by John C. Couch

Soundings in ~~xxxxxx~~ feet at ~~xxxx~~ ~~xxxx~~ Willamette River Datum,  
*which is locally 50.3 ft. above Mean Sea Level*

REMARKS:

# DESCRIPTIVE REPORT

to accompany

Hydrographic Survey (Field No. HO-05149)

Willamette River

Wilsonville, Oregon to Butteville, Oregon

Scale 1:5000

Mar. - April 1949

Ship HODGSON

Henry J. Healy  
Chief of Party

## A. 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.

## B. Survey Limits and Dates:

This survey constitutes a new basic hydrographic survey of the Willamette River from Wilsonville, (latitude  $45^{\circ}17.6$ , longitude  $122^{\circ}46.5$ ) to Butteville (latitude  $45^{\circ}15.9$ , longitude  $122^{\circ}50.6$ ), Oregon. A junction with sheet H-7637<sup>(1948)</sup> is made at Wilsonville.

Hydrography was begun 18 March 1949 and ended 11 April 1949.

C. Vessel and Equipment:

Hydrography was accomplished with Launch No. 141, a 36-foot landing barge (LCPR).

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

Soundings in areas occupied by log rafts were obtained by a log walking party with a lead line.

The launch operated from a small beat moorage located on the south shore near the Wilsonville ferry. Party personnel rode by truck from Portland to Wilsonville each day.

D. Tide and Current Stations:

See discussion under Tide Note attached to this report.  
No current stations were observed.

E. Smooth Sheet:

The smooth sheet <sup>was</sup> ~~will~~ be prepared by the Seattle Processing Office.

F. Control Stations:

Hydrographic signals were located by photogrammetric methods on sheets T-8809 and T-8810 in 1947 by R. A. Earle, Chief of Party. Additional hydrographic signals were located by means of sextant angles. *The positions of several topo. signals were revised from hydro. information.*

G. Shoreline and Topography:

The boat sheet complete with shoreline and photo-hydro signals was prepared in the Washington Office from air photo compilations.

H. Soundings:

Soundings were obtained with an 808-A portable depth recorder No. 77.

Hand lead soundings were obtained by walking logs in areas containing log rafts.

Fathometer corrections were obtained by taking two bar checks a day.

Lead line corrections were determined.

I. Control of Hydrography:

All hydrography was controlled by 3-point fixes taken with sextants to shore objects.

J. Adequacy of Survey:

The survey is complete and adequate and should supersede all prior surveys.

(1948)  
The junction with sheet H-7637 is satisfactory.

K. Crosslines:

Eight percent of crosslines were run.  
The crossings were satisfactory.

L. Comparison with Prior Surveys:

No prior surveys have been made in this area.

M. Comparison with Chart:

There are no existing navigational charts for this area.

N. Dangers and Shoals:

Shoal soundings 1.5 feet at latitude  $45^{\circ}17'23''$  longitude  $122^{\circ}47'83''$  and 7.4 feet at latitude  $45^{\circ}17'35''$  longitude  $122^{\circ}47'65''$  were found. These shoals were investigated and the least depths obtained by drifting over the area a number of times with the fathometer going constantly.

A shoal sounding of 5.5 feet at latitude  $45^{\circ}17'15''$  longitude  $122^{\circ}48'05''$  was obtained on "d" day. This area was investigated by the method described above at a later date and no such shoal sounding was obtained. It is believed that the shoal sounding came from a submerged snag that has since drifted away. *Shoal traces on films on d-day and later date*

5 1/2 ft.  
plotted on  
S/S. Field  
investiga-  
tion re-  
quested.  
JCEP  
of Review.

O. Coast Pilot Information:

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

This portion of the Willamette should be navigated by steering generally a mid-channel course.

Submerged logs are a constant danger to navigation.

P. Aids to Navigation:

No aids to navigation are maintained in this area.

Q. Landmarks for Charts and Geographic Names:

Data relative to landmarks for charts and geographic names were submitted by the U. S. C. & G. S. Photogrammetric Office in 1947.

Z. Tabulation of applicable data:

1. Leveling record books; sent to Seattle Processing Office.
2. Tide record books; sent to Seattle Processing Office.
3. Print, U. S. Engineers, Low Water Profile, Mouth of Willamette to Newburg, Oregon, 1929 Datum, 1940 Low Water; sent to Seattle Processing Office 3/21/49.
4. Graph of daily bar checks; sent to Seattle Processing Office.
5. Graph of daily tides; sent to Seattle Processing Office.

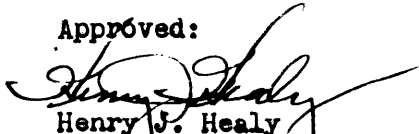
Respectfully submitted,



John O. Boyer  
Lieut. (jg) USC&GS

Jr. H. & G. Engr.

Approved:



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

Abstracts of River Level Corrections

Hydrographic Sheet HO-05149

(To be entered in Tide Reducer Column in hydro record books)

Date	Time	Wilsonville	Time	Butteville
		(Zone 1)		(Zone 2)
3/18/49	0900 - 1100	11.4	0900 - 1100	11.6
	1101 - 1500	11.6	1101 - 1500	11.8
3/21/49	0900 - 1030	13.0	all day	13.6
	1031 - 1500	13.2		
3/22/49	all day	13.4	all day	13.8
3/24/49	0900 - 0930	12.4	0900 - 1330	12.6
	0931 - 1340	12.2	1331 - 1500	12.4
	1341 - 1500	12.0		
3/29/49	0900 - 1200	10.6	all day	10.6
	1201 - 1500	10.4		
3/30/49	all day	10.0	0900 - 1200	10.2
			1201 - 1500	10.0
4/11/49	all day	08.8	all day	08.8

APPROVAL SHEET

Hydrographic Survey Field No. (HO-05149)

Willamette River

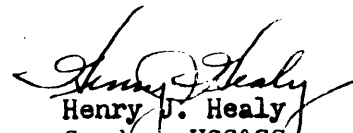
Wilsonville, Oregon to Butteville, Oregon

Project CS - 323

The records for this hydrographic sheet have<sup>ve</sup> been examined and found to be complete.

The smooth sheet has not been plotted at the time of writing this report.

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

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



## TIDE NOTE

to accompany

Hydrographic Survey Field No. HO-05149

Willamette River Project C5-323

Wilsonville, Oregon to Butteville, Oregon

1949

The datum of the Willamette River has been determined by the Corps of Engineers, Portland, Oregon. This datum (or river gradient) is shown on a profile drawing titled "Low Water Profile, Mouth of Willamette to Newburg, 1929 Datum, 1940 low water". A copy of this profile was sent to the Seattle Processing Office with the records for Hydrographic Survey Sheets H-7635, H-7636, and H-7637 of 1948

Filed in tube  
H-7813.

Tide staffs installed by the U.S.G.S. at Wilsonville and Butteville were used to determine the height of the water surface above the river datum for this survey. Each tide staff was connected to two bench marks using a Wye level.

The height of the water surface above the river datum was 0.1 to 0.4 feet greater at Butteville than at Wilsonville. It is recommended that the sheet be divided into two zones, using the staff at Wilsonville to control the eastern half of the sheet and the staff at Butteville to control the western half.

Station	Latitude	Longitude	Staff reading corresponding to River Datum
Wilsonville	45°17.5	122°46.4	49.95 ft.
Butteville	45°15.8	122°50.6	6.38 Ft.

STATISTICS

for

HYDROGRAPHIC SURVEY, (HO-05149)

Project CS-323                      Year 1949  
 Willamette River                  Ship HODGSON

<u>Vol. No.</u>	<u>Day Letter</u>	<u>Date</u>	<u>No. of Pos.</u>	<u>No. of H.L. Soundings</u>	<u>Launch No.</u>	<u>Stat. Miles of Sounding</u>
1	a	3/18/49	53	---	141	7.7
1	b	3/21/49	117	---	141	9.3
1,2	c	3/22/49	106	---	141	9.4
2	d	3/29/49	63	---	141	5.6
2	e	3/30/49	64	5	141	3.7
2,4	f	4/11/49	50	---	141	2.6
Total for Launch No. 141 - - - -				453	5	38.3
3	a	3/24/49	34	140	Log Walking	1.5
3	b	3/30/49	7	30	Log Walking	0.5
Total for Log Walking - - - - -				41	170	2.0
Total (Sheet HO-05149) - - - - -				494	175	40.3
Total area of hydrography - - - - - 0.5 sq. statute miles						

Ho 05149

Willamette River, Ore.

List of geographic names  
penciled on smooth sheet.

Willamette River

Oregon

Butteville

Wilsonville

Ho 05149

Willamette River.

Processing Office Notes.

Smooth sheet. The smooth sheet projection was made by hand on Whatman paper. Topographic signals are from photogrammetric sheets T 8809 and T 8810. A BAP was plotted for datum purposes from a GP on Page 891 of the adjusted triangulation for Oregon. <sup>of 1947</sup>

Hydro signals. Many cuts were found to be inconsistent, possibly due to differences in levels on relatively short lines. Three point fixes at the signals were preferred over cuts. Signals were located in the order shown by numbers in the sounding record. Photogrammetric signals were held.

Othe subjects have been covered in the report of the field party.

  
Edgar E. Smith.  
Cart. Engr

6/29/50

RHC

## TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography~~

18 July 1950

Division of Charts: R. H. Carstens

Plane of reference approved in  
4 volumes of sounding records for

HYDROGRAPHIC SHEET 7796

Locality Wilsonville to Butteville, Columbia River, Oregon

Chief of Party: H. J. Healey in 1949  
Plane of reference is Willamette River datum, reading  
50.0 ft. on tide staff at Boones Ferry (Wilsonville)  
33.6 ft. below B. M. MIC SOT (1935)

0.4 ft. on tide staff at Butteville  
52.2 ft. below B. M. PTS 60 (1913)

Condition of records satisfactory except as noted below:

*E. C. McKay*  
*Section*  
Chief, ~~Division of Tides and Currents.~~

# GEOGRAPHIC NAMES

Survey No. H-7796

Name on Survey	Source											
	A	B	C	D	E	F	G	H	K			
<u>Oregon</u>											USGB	1
<u>Willamette River</u>											"	2
<u>Wilsonville</u>												3
<u>Butteville</u>												4
												5
												6
												7
												8
												9
												10
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												M 234

Names underlined in red  
are approved. 7-14-50.  
L. Heck

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-7796 .....

Records accompanying survey:

Boat sheets <sup>1</sup>.....; sounding vols. <sup>4</sup>.....; wire drag vols. ....;  
bomb vols. ....; graphic recorder rolls <sup>2 envel.</sup>.....;  
special reports, etc. ....  
.....

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

Number of positions on sheet	.....	494
Number of positions checked	.....	18
Number of positions revised	.....	5
Number of soundings revised (refers to depth only)	.....	8
Number of soundings erroneously spaced	.....	
Number of signals erroneously plotted or transferred	.....	
Topographic details	Time	..... 8
Junctions	Time	..... 6
Verification of soundings from graphic record	Time	..... 4

Verification by..... *J. V. Evans III*..... Total time *53 hrs.* Date *23 Jan. 1951*

Reviewed by..... *Lu Zeske*..... Time *11*.... Date *2-9-51*

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-7796

FIELD NO. HO-05149

Oregon, Willamette River, Wilsonville to Butteville  
Surveyed in March - April, 1949                      Scale 1:5,000  
Project No. CS-323

Soundings:

Control:

808 Fathometer  
Leadline

Sextant fixes on shore signals

Chief of Party - H. J. Healy  
Surveyed by - R. M. Stone and J. O. Boyer  
Protracted by - J. C. Couch  
Soundings plotted by - J. C. Couch  
Verified and inked by - L. V. Evans  
Reviewed by - I. M. Zeskind, 9 February 1951  
Inspected by - R. H. Carstens

1. Shoreline and Signals

The shoreline of the present survey originates with air-photographic surveys T-8809 and T-8810 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 drawn.

The bottom is very irregular and drops abruptly from shore to depths of 12 to 18 ft. Shoals, bars and numerous channel deeps contribute to the bottom irregularity. Depths along the axis of the natural channel range from 21 ft. to 60 ft.



4. Junctions with Contemporary Surveys

Adequate junctions were effected with H-7637 (1948) on the east and with H-7813 (1950) on the southwest.

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 sounding records and Descriptive Report are complete and comprehensive.
- b. The smooth plotting was accurately done.
- c. Shoals noted in paragraph 9 below were not adequately developed.
- d. No description of station GAS in lat.  $45^{\circ} 46.24'$ , long.  $122^{\circ} 50.08'$  could be found in the records. This is probably a temporary station.

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 a very good survey; however, further investigation of the following critical soundings are recommended:

- a. The 12-ft. sounding in lat.  $45^{\circ} 17.13'$ , long.  $122^{\circ} 48.10'$  and the 15-ft. sounding in lat.  $45^{\circ} 16.24'$ , long.  $122^{\circ} 50.20'$  are undeveloped shoal indications. Determination of the least depths in these areas should be accomplished. The hydrographer notes that the 12 may be on a snag.
- b. The 5½-ft. sounding in lat.  $45^{\circ} 17.17'$ , long.  $122^{\circ} 48.04'$ , should be substantiated or disproved by further development of the area in which this sounding falls. The hydrographer states in paragraph N of the Descriptive Report that this sounding was probably obtained on a snag which subsequently drifted away. A 17-ft. sounding close by obtained 13 days after the 5½ ft. sounding indicated the feature may still exist.

Examined and approved:

*H. R. Edmonston*

H. R. Edmonston  
Chief, Nautical Chart Branch

*Robert W. Knox*

R. W. Knox  
Chief, Division of Charts

*L. S. Hubbard*

L. S. Hubbard  
Chief, Section of Hydrography

*W. M. Scaife*

W. M. Scaife  
Chief, Division of Coastal Surveys

