6332 6334
6333 6335

Diag. Cht. No. 6154

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC 6332 6333

Field No 22, 23, 24, & 25 Office No. H-6334 6335

LOCALITY

State OREGON

General locality COLUMBIA RIVER & WILLAMETTE RIVER

Locality DUCK CLUB TO VANCOUVER, WASH.
MOUTH WILLAMETTE TO SELLWOOD BR.

194/38

CHIEF OF PARTY

W. M. Scaife

LIBRARY & ARCHIVES

DATE April 11, 1939

B-1870-1 (1)

6334
6332
6333

Form 537

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. 22

REGISTER NO. 6332 H6332

State OREGON - WASHINGTON

General locality Columbia River

Locality ~~Duck Club Is~~ Bachelor Island to Reeder Pt

Scale 1-10000 Date of survey August-Sept-Nov 19 38

Vessel Party No. 9, Columbia River

Chief of Party W. M. Scaife

Surveyed by Clifton J. Wagner

Protracted by Clifton J. Wagner

Soundings penciled by Clifton J. Wagner

Soundings in ~~fathoms~~ feet

Plane of reference Adopted Low Water Plane (1929)

Subdivision of wire dragged areas by ---

Inked by H.F. Stegman

Verified by H.F. Stegman

Instructions dated February 26, 19 35

Remarks:

U. S. GOVERNMENT PRINTING OFFICE

Form 537
Ed. Sept., 1929

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. 23

REGISTER NO. 6333 H6333

State OREGON - WASHINGTON

General locality Columbia River

Locality Reeder Pt to Vancouver, ~~Wash.~~

Scale 1-10,000 Date of survey September, Oct. Nov 19 38

Vessel Party No. 9, Columbia River

Chief of Party W. M. Scaife

Surveyed by Clifton J. Wagner

Protracted by Clifton J. Wagner

Soundings penciled by Clifton J. Wagner

Soundings in ~~fathoms~~ feet

Plane of reference Adopted Low Water Plane (1929)

Subdivision of wire dragged areas by

Inked by L. S. STRAW

Verified by L.S.S.

Instructions dated February 26, 1935

Remarks:

U. S. GOVERNMENT PRINTING OFFICE: 1929

Form 537
Ed. Sept., 1929

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. 24

REGISTER NO. 6334 H6334

State OREGON

General locality Willamette River

Locality Kelley Pt to Swan Island

Scale 1-10,000 Date of survey Sept., Oct., Nov, 1938

Vessel Party No 9, Columbia River

Chief of Party W. M. Scaife

Surveyed by Clifton J. Wagner

Protracted by Clifton J. Wagner

Soundings penciled by Clifton J. Wagner

Soundings in ~~fathoms~~ feet

Plane of reference Adopted Low Water Plane (1929)

Subdivision of wire dragged areas by

Inked by L.S.Straw

Verified by L.S.S.

Instructions dated ~~February 26~~ March 2nd, 1935

Remarks:

U. S. GOVERNMENT PRINTING OFFICE: 1929

Form 537
Ed. Sept., 1929

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. 25

REGISTER NO. 6335 H6335

State OREGON

General locality Willamette River

Locality Swan Island to Sellwood Bridge

Scale 1-5,000 1-10,000 insert Date of survey Oct., Nov., , 19 38

Vessel Party No 9, Columbia River

Chief of Party W. M. Scaife

Surveyed by Clifton J. Wagner

Protracted by Clifton J. Wagner

Soundings penciled by Clifton J. Wagner

Soundings in ~~fathoms~~ feet

Plane of reference Adppted Low Water Plane (1929)

Subdivision of wire dragged areas by

Inked by Harold W. Murray

Verified by do

Instructions dated February 26, , 19 35

Remarks:

U. S. GOVERNMENT PRINTING OFFICE: 1929

DESCRIPTIVE REPORT

to accompany Hydrographic Sheets

H-6332, H-6333, H-6334, H-6335

Scale 1-10000
1-5000

Instructions dated: February 26, 1935. Party No. 9, Columbia River
W. M. Scaife, H.&G. Engr.
Chief of Party.

AREA, LIMITS, etc.:

The hydrography of the four sheets, H-6332 to H-6335, inclusive, is a survey of the Columbia River from the Duck Club, limits of 1937 hydrography, to the eastern limits of Chart 6155, Ryan Point, the Willamette River from its mouth to the Sellwood Bridge, Portland, Oregon, and the Multnomah Channel from limits of 1937 hydrography to the south end of the channel. Junction was made with H-6247 OW21, (Field No.) 1937.

SURVEY METHODS:

Standard survey methods were used. All soundings were taken with a 10 pound hand lead, using the bronze centered tiller rope for the leadlines. The leadlines were compared with a measured base frequently and corrections entered to the nearest half foot.

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. In a few cases time was not available to transfer previous soundings and in these cases, the tracings of the soundings were compared with the boat sheets at frequent intervals, while hydrography was in progress.

The Bars, Henrici, Willow and Morgan require surveying about twice each year. It is evident that a rigid agreement between surveys cannot be expected. If such 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 are fully appreciated, but it is not believed that such difficulties would be ameliorated by the most complete and thorough survey possible, as the compiler would be confronted with at least one later Engineer Sheet to harmonize with the survey. Since this survey these bars have been surveyed by the U.S.Engineers and a general comparison will be made with the one for Willow Bar, as time is not abailable for reducing this survey to scale of our sheets, but

as the other were pre-dredging surveys, they were not furnished this party.

The channel in the Columbia River from the mouth of the H-6333 Willamette River to Vancouver was dredged last season, dredging being in progress during this survey. The channel depths will not check those obtained by the U.S.Engineer Survey, which is in progress about this time, March 15, 1939, due to many of the soundings obtained by this party being in portions of the channel that was subsequently dredged. Part 3 of Review. H-6334

In the area upstream of the Interstate Bridge, over the H-6333 Columbia River, this survey was made more complete as dredging operations were not projected for this area in the near future. The proposed channel was covered by closely spaced lines, the remainder by widely spaced lines.

In the Willamette River, the U.S.Engineers usually cover the H-6334-H-6335 entire width of the river with each survey, and attempts were made to carry this party's survey closer to the banks, which succeeded only a few times, as log rafts, snags, or piling usually prevented the launch from approaching the bank closer than the Engineer Survey. About three sounding lines were run along each bank of the river, which gave an overlap of at least two lines with the U.S.Engineer Survey.

Due to there being no projected survey of the Willamette River H-6335 from the vicinity of the Oceanic Terminals to the Sellwood Bridge, this area was covered with lines less than 50 meters spacing, with closer development of the area between the Ross Island and Sellwood Bridges. H-6335

In the area between the channel surveys of the U.S.Engineers of Henrici Bar and Willow Bar, this survey covered the entire width of the river. In this area, engineer surveys are infrequent as depths are generally greater than bar channel depths and relatively unchanging. H-6332

The following applicable notes are copied from Descriptive Report for 1937 Hydrographic Sheets:

"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."

Attempt was made 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 during the season, an average of one for about every two and one-half miles of river. Whenever possible, these were corrected by levels with either U.S.Engineer Bench Marks or First Order leveling, or both.

GENERAL:

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

The hourly heights for all tides, for the times during which hydrography was accomplished, have been scaled and plotted on cross section paper. Both the tabulated heights and the curves will be submitted with the sheets.

It is nearly impossible for the topographer to delineate the plane of reference curve, due to the fact that the river seldom reaches this stage. For this reason, the hydrographic party attempted to locate this line. It may be assumed in all cases when the inshore soundings do not reduce to zero, or nearly so, that snags, log rafts, and the like prevented a closer approach to the shore. In the case of portions of the river where deep water extends close to the bank, it was considered better to obtain depths at a distance of about 5 meters from the bank line and not get depths that would reduce to zero. At times, depths of over 35 feet would be obtained on one side of the launch while the bank line, was only about 3 meters to the other side. The plane of reference curve was sketched on the boat sheet while sounding along shores where the soundings did not reduce to zero, and some notes were entered in the soundings volumes, though much of the curve was sketched without notes being entered in the volumes.

Depth curves were not plotted in congested areas where their inclusion might hinder the verification of the sheets. Most of the curves shown on the boat sheets were drawn in the field, but all were completed to agree with the Director's letter of October 27, 1937, relative to this subject.

Cross lines were run 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 1938 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:

No new geographic names are recommended. It is recommended that the following names be deleted from the charts for the reasons stated:

Name	Chart	Position	Remarks:
McIntyre Landing	6154	45° 42'-122° 47'	No landing.
Jewett Landing	6154	45 41 122 47	No landing.
Blue Rock Landing	6154	45 40 122 45	No landing.
Fales Landing	6154	45 46 122 45	No landing.

The above were referred to in Descriptive Report for Topographic Sheet T-6572, 1937.

LANDMARKS FOR CHARTS:

A duplicate copy of landmarks for charts, form 567, for the area surveyed, is submitted with this report.

The remainder of this report deals with the individual sheets.

Respectfully submitted:

Clifton J. Wagner
Jr. H. & G. Engineer

Approved and forwarded:

W. M. Scaife
H. & G. Engineer
Chief of Party.

SHEET H-6332 (1938)

The hydrography of Sheet H-6332 is a survey of the river from ~~Buck Club~~ Bachelor Island to Reeder Point, along the main ship channel and a portion of Multnomah Channel. It joins ~~survey of Sheet~~ H-6247 ow21, 1937, at the north, and Sheet H-6333 at the south with satisfactory junctions.

SHORELINE & SIGNALS:

The shorelines and topographic signals originate with Topographic Sheet T-6617a, (1938) 6570 a & b, (1937) 6571a & b, 1937 along the Columbia River, and Triangulation is from 1937-1938 triangulation schemes of this party.

DANGERS:

There are no dangers in the area covered by this sheet.

ANCHORAGES:

There are no regularly designated anchorages in this area.

CHANNELS:

Main ship channel -

As the main ship channel was not completely surveyed, no discussion of the minimum depth will be made.

Multnomah channel -

Used by tow boats, both of stern wheel and screw propellor types, and as a storage for log rafts. In the section covered by this sheet, the controlling depth is 10 feet--on the west side of Watts Island, the controlling depth is 10 feet, and on the east side the controlling depth is 8 feet.

BOTTOM:

Predominately sand and mud.

DISCREPANCIES:

During the process of protracting the sheet all changes in angles and objects were noted in the sounding volumes, and each change was carefully investigated by referring to the Boat Sheet and by plotting the time and course. The 44 ft. sounding, Lat. 45° 45'.1, Long. 122° 45'.5; position 95-96L, appears one fathom too shoal, as it gives crossing difference of 6 feet. Reject 44 ft. Sounding. Falls in depths of 51 feet on previous and subsequent U.S. Engineers surveys.

The crossings were usually within a foot, and the shoaler sounding is plotted where space permitted but one sounding.

COMPARISON WITH PREVIOUS SURVEYS:

U. S. Engineers' Survey of February 4, 1938, B-11-7/36: (RP 31527)

1). A comparison of the soundings of the above U.S.Engineers' Survey and this survey shows that shoaling ~~is~~ on the east side of the channel has occurred in Lat. 45°49'.4, Long. 122° 47'.6, differences of as much as 6 feet being noted, and deepening in Lat. 45°49'.2, Long. 122° 47'.7, differences as much as 6 feet being noted. From the above points to a line east of Henrici crossing 2 Light, the agreement is within 2 feet, most agreeing within 1 feet. Superseded by RP 32764 (1939) & RP 32763 (1939)

From a point about 150 meters east of Henrici Crossing 2Light to a point about 300 meters west of Bachelor Dike 21 Light, the southwest side of the channel shows almost uniform shoaling of 2 to 4 feet. The northeast side of the channel compares very well except at a point about 200 meters northwest of Bachelor Dike 21 Light where U.S.Engineer soundings of 52, 52, and 45, fall on soundings by this survey of 47, 44, and 48 respectively.

U. S. Engineers' Survey of January ~~9~~ 7, 1936, (29304) B-11-7/32, for cross lines only,--Channel survey under above covers the area in the channel: Superseded by RP 32763 (1939) & 32764 (1939)

2). In the area to the north of Bachelor Island North Base 1937, the sand flat has extended north since the U.S.Engineers' Survey, and much of the area covered by the U.S.Engineers' Survey is now bare at low water. The area to the west of this sand spit almost to the main ship channel is shoaler on this survey than shown on the U.S.Engineers' Survey.

In Lat. 45° 48'.4, Long. 122° 47'.4 the U.S.Engineer line is considerably shoaler than the soundings obtained on this survey and the difference is doubtless due to scouring. This scouring extends from above point to Henrici Crossing 3 Light.

From Henrici Crossing 3 Light to Dike 20.4, the two surveys agree satisfactorily. Some of the inshore soundings of the U.S.Engineers' Survey are deeper than obtained on this survey, but it is doubtless due to misplacement of U.S.Engineers soundings, as the depth changes abruptly on leaving the bank line.

In the area to southeast of Henrici Crossing 2 Light to limits of U.S.Engineers' Survey on southwest side of the channel the two surveys are in agreement. Difference of 2 feet being uncommon, except near the edge of the channel for a distance of about a mile southeast of Henrici Crossing 2 Light, as noted in comparison with 1). above.

3). No U.S.Engineers' Surveys in the area between Lat. 45° 47'.1 and Lat. 45° 45'.4 along River, this area being sounded completely by this party. BR 15943 (1932) but superseded by B.P. 32765 (1939) and H-5332 (1939) see par. 6a of Review.

4). Comparison with U.S.Engineers' Survey, February 7, 1938, (31528) B-11-5/36:

The soundings of U.S.Engineers about 150 meters east of triangulation station WILLOW (C.&G.S.) 1937, are about 8 feet shoaler than obtained by this survey, and the difference is probably due to the misplaced position of the 12, 11, 14, and 15 soundings of the U.S.Engineers.

The cross lines of the U.S.Engineer's Survey agree well except the soundings around the ends, most of which appear to be misplaced in position.

In the area to the west and south of Willow Bar 5 Beacon considerable shoaling has occurred.

In the main ship channel, the two surveys agree well, except on the east side of the channel in Lat. 45° 43'.3, Long. 122° 45'.8, and Lat. 45° 43'.8, Long. 122° 45'.6, where shoaling occurs, depth of 28 feet was obtained in these areas by this party. The two 34 foot soundings shown on the U.S.Engineers' Survey in Lat. 45° 42'.6, 122° 46'.1 were not verified, and the U.S.Engineers' Survey of Mar. 7, 1939 (32620) ~~did not~~ obtain ~~these depths~~ (edge of channel). 39 ft.

5). The U.S.Engineers' Survey of March 7, 1939, (BP 32620) obtained a 28 ft. in the area of the latter 28 ft. noted above, but the first one was ~~not~~ obtained by ~~the~~ 3 ft earlier U.S.Engineers' Survey, as their sounding lines by this spot are spaced about 50 meters and the 28 ft. on this party's survey lies between these sounding lines. No other comparison is made as time is not available to reduce this sheet to scale.

6). No previous surveys of Multnomah Channel are on hand. Soundings on chart from H.R. Doc. 976 (1919) filed in this office (Washington)

COMPARISON WITH THE PUBLISHED CHART:

Chart 6154, published September, 1937, date of last plate correction - 9-30-37. The following soundings on Chart 6154 were not verified, the depth obtained by this survey in this vicinity being stated:

Position. Latitude	Longitude	Chart	present	Remarks
45° 49.2'	122° 47.4'	8		Inside plane reference curve
45 49.1	122 47.5	13	6	

45°	49.1'	122°	47.4'	7	Between 0 & 3
	49.0		47.6	28	14
	48.8		47.5	16	10
	48.8		47.3	14	4
	48.7		47.0	9	5
	48.6		47.5	14	17
	48.5		47.7	60	53
	48.5		47.3	11	14
	48.3		47.3	19	27
	48.2		47.2	26	33
	48.1		47.5	20	17
	48.1		47.3	36	32
	48.0		47.4	16	13
	48.0		47.2	38	32
	47.8		46.9	40	36
	47.7		46.7	28	30
	47.7		46.6	5	2
	47.6		46.7	33	35
	45.9		45.6	43	34
	45.9		45.8	29	32
	45.6		45.5	34	37
	45.1		45.7	34	23
	44.6		45.8	2	5
	44.5		45.9	2	4
	44.1		45.6	23	29
	44.1		45.8	8	17
	44.0		45.7	21	28
	43.9		45.4	35	23
	43.9		45.7	25	34
	43.9		46.1	4	Inside ref. plane curve
	43.7		45.5	24	29
	43.8		45.6	36	28
	43.6		45.6	38	29
	43.5		45.4	11	18
	43.5		45.6	19	28
	43.5		45.9	55	36
	43.6		45.4	16	21 Inside ref. plane curve
	43.5		46.1	2	
	43.4		46.1	6	Inside ref. plane curve

The following soundings were obtained which are less than the indicated charted depths in their vicinity:

32 feet	45° 45.9' in Lat.	122° 45.6' in Long.
32	45.7	45.6
28	43.8	45.6
28	43.4	45.75

The latter two soundings are on the edge of the main ship channel and though they narrow the effective width of the channel do not effect the project depth.

Dredging operations have deposited sand along the beach in various places which affects the area to be sanded in the Chart. North of Bachelor Island North Base 1937, the sanded area should be increased to agree with the Plane of Reference curve as drawn on this survey.

South of Willow Bar dike the area of sand along the shoreline has been increased. North of the above dike the slough behind the island has been blocked off by sand, the entrances being bare at low water. For this reason more hydrography than the single skiff line was omitted.

Multnomah Channel section of Sheet:

Due to distortion of the slough, the comparison with the chart was made by fitting the shoreline as well as possible. The following limiting depths are shoaler than indicated by the charted soundings:

The 15 and 20 ft. edge charted just south of Watts Island, are in depths obtained by this survey of 11 ft. in each case.

The next sounding charted, south, is a 25, and this survey obtained limiting depth of 20 ft. and the next one is a 42, in limiting depth of 25 ft.

In a few cases greater depths were obtained than charted, but it was not deemed necessary to list these.

STATISTICS

Sheet H-6332

Date 1938	Day Letter	Statute Miles of Soundings	Number of Soundings	Number of Positions	
Aug. 22	a	6.2	388	74	
23	b	5.6	217	48	
24	c	18.3	787	165	
25	d	10.1	384	94	
26	e	15.0	620	135	
29	f	16.3	824	174	
30	g	16.4	732	148	
31	h	10.3	458	109	
Sept. 1	j	12.8	566	130	
2	k	17.3	732	160	
6	l	10.3	467	113	
9	m	4.9	214	56	
12	n	4.6	235	58	
13	p	3.0	170	17	skiff.
		2.0	131	27	
Nov. 8	q	13.7	737	120	
9	r	16.8	850	140	
10	s	16.0	786	132	
11	t	6.6	289	54	
TOTALS: -		206.2	9587	1954	

LIST OF SIGNALS - SHEET H-6332

TRIANGULATION:

Cruz 1937
6=6 Tree 2 1937
HR-Henrici Landing Rear Range lt 1937
2=Henrici Crossing 2 lt 1937
1=Henrici Crossing 1 lt 1937
22.5=Dike 22.5 dol 1937
Phi=Dike22.4 dolphin W. end 1937
21=Bachelor Dike 21 lt 1937
20.4=Dike 21.4 dolphin W. end 1937
Ups=Lyons Barn, upstream ventilator 1937
Off=Office 1937
Wash=Washington Tree USE 1937
Nab 1937
3=Willow Bar 3 lt 1937
5=Willow Bar 5 Bn 1937
7=Dike 17.2 dol W. end 1937
Silt 1937
Glo=Reeder Pt lt 1937

Club=Duck Club Lt 1937
Ox=Old Front USE 1937
HF=Henrici Landing Front Range lt 1937
NB=Bachelor I. North Base 1937
Dd=Dike 22.6 dol. 1937
Wow=Willow 2 USE 1912
Trap=Fishtrap 1937
E=E USE 1912
20.8=Dike 20.8 dolphin W. end 1937
Flit=Fales lt 1937
Riv=Smith barn, river cupola 1937
Clay Tree USE (gone now)
Eat 1937
WR=Willow Bar Rear Range Lt 1937
Tan=Knapp Ldg. Tank,pole 1937
Peel 1937
Bow USE 1937
Will=Willow Bar Dike lt 1937

Al=Al USE 1937
Ric=Henrici USE***
Dos 1937
SB=Bachelor I. South Base 1937
Cro=Henrici Crossing 3 lt 1937
Lor=Bachelor Pt lt'37
21.2=Dike 21.2 dolphin W. end 1937
20.6=Dike 20.6 dolphin W. end 1937
Fal=Fales 1937
Pt=Willow Pt 1937
Xtra=Extra 1937
Nap=Knapp Pt lt 1937
WF=Willow Bar Front Range Lt 1937
W7=$W7_3$ USE 1937
Guy=1937
Lil=Littler 1937

------ MULTNOMAH CHANNEL----

Rose 1938
Clark 1938
Watts 1938
Johnson 1938
Boom 1938
Adam 1938

TOPOGRAPHIC SIGNALS:

From Topo. Sheet No. 6570b 1937
Over Bach

From Topo. Sheet No. 6571 a&b 1937

Pod	Bark	Bill	Den	Tom	Car	Gap
Ric-Henrici-USE		Tree USE	Mill-Windmill USE		Dig	Sam
Nan	22.4	Jim	Beta	Gam	Scow	Box
Gun	Eno	Pos	Dead-Dead Willow dol. USE			Plus(1+100)
Yen	Wig	Ld-Lower Dol. USE		Gras=Grassy Dol. USE		Bun
Mid-Middle Dol. USE		Wait-Waites Dol. USE		Tall-Tall Dol. USE		Slim
Rid-Ridge Dol. USE		Ax	Boy	Gate	Hog	Cad
Nag	Ina	Don	Joy	Kill	Fun	Plan
Tip	Sod	Liz	Mac	Now	Stem	On
Doc	Bloc	Gag	Mu-Middle USE		Deer	Rud
Keg	Pan	Lay	Quiz	Tum	Do-Dol 3 USE	
Dol-Dol 5 USE		Dol 7-Dol 7 USE		Wad	Nail	Vox
Unit	Tag					

From Topo. Sheet 6572 1937
Bug Tie

LIST OF SIGNALS- Sheet H-6332 (continued)

MULTNOMAH CHANNEL

From Topo. Sheet 6617 a & b

Zed	Help	Bus	Ben	Stake	Gag
Co	Last	Slu	38	Clay	36
Snag	34	32	30	28	26
24	22	20	18	Gans	Spar
Tree	23	Goo	Barn	Pil	Stem
Bow	Lt	16	Floy	Peet	Ro
Mar	Una	Crow	Cone	Mud	Sow
Raw	Si	Bob	Cry	Miss	Ray
Gable	Mill	Yel	Sid	Tri	Bun
CW	End	Tar	Eta	Bun	17
Chi	Grey	High	Set	Post	Hip
Float	See	Tug	5	By	Fat
Hugo	Tues	Ana	Ox	Nor	Naga
Fin	Nipa	Nab	Move	Clo	Sc
Snow	Bent	Dec	Gar	Nov	Sept
Stack	Oct	Car	Jan	Gabl	Nub
Fend	Back	Wire	Ds	Log	Dump
Foo	Fig	New	Oh	Lad	Dal
Aug	July	June	Pole	May	Ap
Haw	Feb				

From Topo. Sheet No. 6571b 1937

Pump	Skip	Hank	Rag	E	Jo
Set					

HYDROGRAPHIC SIGNALS, located by sextant fixes and recorded in the sounding volumes:

Gan

SHEET H-6333(1938)

The hydrography of Sheet H-6333 is a survey of the Columbia River from Reeder Point to the eastern limits of Chart 6155, a survey of North Portland Harbor, and a portion (central) of Multnomah Channel.

It joins survey H-6332 (1938) on the north, H-6334 (1938) at mouth of Willamette River and Multnomah Channel on the south, satisfactorily.

SHORELINE & SIGNALS:

The shoreline and topographic signals along the Columbia from Reeder Point to south of Willamette River originate with topographic Sheet 6572, (1938) and from mouth of Willamette to eastern limits originate with topographic Sheet 6620, (1938) and along Multnomah Channel from topographic sheets 6617a & b (1938), T6618a (1938).

The triangulation is from the 1937 and 1938 triangulation schemes of this party, supplemented by 3rd order traverse by 29th Engineers in 1938, along Multnomah Channel.

DANGERS:

There is a 3½ foot sounding in Lat. 45° 41.8', Long. 122° 46.06', and probably is a sunken barge loaded with rock. Outside this spot there are no dangers except for shoal areas outside the main ship channel.

ANCHORAGES:

There are no designated anchorages in the area covered by this survey.

CHANNELS:

1). The main ship channel was not completely surveyed, but from U.S.Engineers' Survey, B-12-4/49, January 3, 1938, (3/32-39) the controlling depth in the main ship channel from Reeder Point to the mouth of the Willamette River, was 34 feet. The latest U.S.Engineers' Survey has not been furnished this party, as it was a pre-dredging survey, and the sheets have not been completed. Superseded by B.P. 32619- Dec. 1938, Jan 35 Mar 16-18 1939)

2). The channel from the mouth of the Willamette River to Vancouver, Washington was dredged during the past season, and the U.S. Engineers' Survey of the channel since the dredging has not been furnished this party, as the sheets have not been completed.

3). North Portland Harbor, the controlling depth from the west end to the highway bridge, Long. 122° 40.8' is 9 feet, and from here to the east end of survey is 7 feet.

In Multnomah Channel, in area covered by this survey, the controlling depth is 16 feet. Lat. 45°42.4'.

Discrepancies -

The changes in the angles and objects in the record books were made only after comparison with the Boat Sheet and a consideration of the time and course run, in order to arrive at the best possible position of fixes which were obviously recorded in error. The cross lines generally checked within one foot.

The soundings 35-36u day were taken after dredging while 141L was before dredging and only the former sounding shown on sheet.

COMPARISON WITH PREVIOUS SURVEYS:

1). U.S.Engineers' Survey of February 7, 1938 (B.P. 31528) B-11-5/36.
The two 34 ft. soundings noted in report for Sheet H-6332, were not verified, 40 ft. being obtained in the vicinity on this sheet. and 39 ft. on B.P. 32620 (Mar. 7-17-20, 1939) There appears to be shoaling of about 2 feet on the east side of the channel.

The other soundings check well except the turn at the east end of south line, which shows deeper water by 3 to 5 feet at east end, than shown on this party's survey.

2). U.S.Engineers' Survey of January 3, 1938 (B.P. 31529) B-12-4/49. Superseded by B.P. 32619 and B.P. 32618
Main ship channel: The eastern side of the main ship channel, east of Reeder Point Light has shoaled from 3 to 4 feet.

(32 ft on B.P. 32619 - Dec 27, 1938 - Jan 3-5 - Mar 16-18 1939)
A 28 ft. sounding was obtained by this party on the edge of the main channel in Lat. 45° 41.7', Long. 122° 46.4', between depths of 36 and 38 on the U.S.Engineers' Survey.

Along the west side of the channel the two surveys agree well, but along the east side the survey of the U.S.Engineers generally show deeper water than obtained by this survey, due to shoaling along the edge of the channel.

The cross lines check very well, difference of as much as 2 feet being uncommon, ~~except in Lat. 45° 40.8', Long. 122° 46.5'. This party obtained soundings of 22, 23, and 24, while the U.S. Engineers' Survey shows 34 and 35 feet in this area.~~ B.P. 31529 does not show 34 and 35 foot depths.

3). Comparison with U.S.Engineers' Survey, B-13-3/85, December 30, 1937: (B.P. 31530)

In the area covered by the above survey, dredging operations were in progress during the past field season. Comparison along the

channel will be difficult as same of this party's soundings are in dredged portions of the channel and same are in advance of the dredge. The overlap was made to the usual amount so as to be sure there would be no gap between the U.S.Engineers' Survey that was made recently and soundings along the channel in the undredged portion. In general, this party's soundings are somewhat shoaler than shown in the U.S.Engineers' Survey, but since the dredging has been completed and the U.S.Engineers have just recently finished a survey of this area, a detailed comparison does not seem justified.

Superseded by B.P. 32618 (Jan 4-5 Mar 8-16, 1939) in part.

In the area to either side of the channel the two surveys check only in areas that are relatively unchanging and in other areas scows and deposition has changed the depth; along the shoreline the sand has been scoured out to change the plane of reference curve and dredging operations accomplish the same result.

4). Comparison of U.S.Engineers' Survey of North Portland Harbor, B-13-3/77A, November 21, 1935: (B.P. 29264)

superseded by present Survey.

In the shoal area to southwest of Mathews Point Light this party obtained a least depth of 7 feet instead of the 6 ft. shown on the U.S.Engineers' Survey.

The two surveys compare well, except for some shoal spots which were developed by this party, which spots have probably shoaled since the U.S.Engineers' Survey.

A least depth of 12 feet was obtained by this party near the center of the Harbor, in Lat. 45° 37.7', Long. 122° 43.7'.

A depth of 8 ft. was obtained by this party about 100 meters NE of topographic station Q.

A least depth of 4 ft. was obtained in Lat. 45° 36.8', Long. 122° 41.8'.

In the area dredged December 16 to 19, 1935, in the vicinity of the S.P.&S. Ry. Bridge, shoaling has occurred, depths of 8 to 9 ft. occurring where dredging was done to 13 feet.

In the area to east of the Railway bridge, the U.S.Engineers' Survey shows only cross lines and the comparison is difficult due to the narrowness of the channel, but generally the agreement is satisfactory.

In the area east of the Interstate Highway Bridge, on the Columbia River, the above U.S.Engineers' Survey shows cross lines extending a short distance north of the south bank of the river and except that the plane of reference curve is now north of where shown

on the U.S.Engineers' Survey, the agreement is fair.

5). No U.S.Engineers' Survey of the portion of Multnomah Channel shown on this sheet is available. *Soundings on chart from H.R. Doc. No. 976 (829) filed in this Office (Washington).*

COMPARISON WITH PUBLISHED CHART:

Chart 6154.

The 30 ft. charted in Lat. 45° 42.3, Long. 122° 46.1, falls in edge of channel, and this party obtained 33 ft. near here. The 3½ ft. spot in Lat. 45°41.8', Long. 122° 46.1' was verified.

Location		Depth		
Latitude	Longitude	Chart	This Survey	Remarks
45° 42.2'	122° 46.0'	30	26	
41.9	45.9	8		Between 10-12 on adj. Lns.
41.6	45.9	3	0	
41.5	45.9	5		Between 2-4 on adj. lines
41.3	45.9	4	2	
40.6	46.5	25	45	(25 ft. sounding apparently charted too far off shore)
40.5	46.1	16	20	
40.3	46.1	20	22	
40.2	46.0	24	17	
40.1	46.0	24	20	
40.1	45.6	3		Near one sdg. line with 7'
39.9	45.6	3	0	
39.7	45.5	3		Inside plane ref. curve
39.7	45.4	3	-1	
39.1	45.7	23	32	

Multnomah Channel:

45° 42.1	122° 52	16	21
41.8	52	18	27
40.8	52	28	21
40.6	52	20	30
40.2	51.6	34	23
39.4	50.6	15	25
38.8	49.5	31	19
38.6	49.4	30	20

Chart 6155: *10/27/37*

In the shoal area to SW of Mathews Point Light, in center of River, the 6 ft. sounding was not verified, but 7 ft. was obtained to NW of the 6 ft. charted spot and the shoal area determined by close spaced lines.

Location		Depth		Remarks:
Latitude	Longitude	Chart	This Survey	
45° 38.8'	122° 44.3'	36	34	
38.5	43.6	11	15	
38.5	43.9	20	26	
38.7	44.4	12	15	
38.6	44.3	11	14	
38.5	44.2	11	15	
38.5	43.1	6	10	
38.4	43.0	8	11	
38.3	42.8	14	17	
38.3	42.7	12	15	
38.4	42.7	13	. . . .	Inside plane ref. curve,
38.2	42.2	17	. . . .	just inshore of 27.
38.1	42.3	21	. . .	between 24-27.
38.1	42.6	23	30	
38.1	42.9	19	27	
38.3	43.0	22	27	
38.2	43.1	22	29	
38.3	43.4	29	25	
38.4	44.0	9	14	
38.6	44.8	21	16	
38.6	44.8	13	19	
38.1	42.1	17		Between 20-27 on lines.
38.05	42.2	24	26	
38.0	42.0	25	27	
37.8	42.1	13	19	
37.6	42.1	24	31	
37.6	41.7	16	24	
37.5	41.7	22		Between 18-11.
37.5	41.1	27	34	
37.5	41.2	21	32	
37.3	41.5	14		Between 9-14.
37.3	41.3	7	1	
37.3	41.5	3	0	
37.3	40.9	31	40	
37.2	40.4	33	29	
37.5	41.9	9		Above present h. water line.
37.2	40.8	28	12	
37.2	41.0	21		Between 6-12.
37.0	40.7	3		Between 10-12.
36.9	40.5	3		Between 12-16.
37.0	40.4	5		Between 11-12.
37.1	39.6	24	18	
~~37.0~~	~~39.1~~	~~22~~	~~16~~	
36.9	39.9	~~18~~ 15	16	
36.9	39.~~8~~7	16	12	

(Soundings above this line are from blueprints (surveys by U.S.E.) which have been superseded by later blueprints on the chart.)

45° 36.8'		122° 39.7'	12	17	
36.8		39.8	12		Between 16-18.
36.5		38.8	8	20	
36.5		38.8	9	19	
36.6		38.5	28	14	
36.7		38.6	33	24	

In the area to the Northwest, west, east, and southeast depth changes are general. Some of the charted soundings fall in areas that are now above the plane of reference. The charted soundings to west of Dike A (at 45°36.3 Long 122°37.3) were not checked as the entrance to this area is now bare at low water. The channel charted to the east and southeast of Dike A was not sounded as the entrance east of Dol A has depth of less than ½ foot at low water.

In the area of North Portland Harbor east of the bridge connecting Tomahawk Island to the mainland, almost all charted depths are erroneous. It is recommended that a selection of soundings be charted to indicate a depth of 7 feet through this part of the Harbor. (6' in Lat. 45°36.1 Long. 122°38.6')

In the vicinity of the 3 & 4 ft. soundings, charted in Lat. 45° 36.3', Long. 122° 40.5', the depth is 7 feet, but as charted the depth is 4 feet.

The following charted soundings are noted with depths obtained by this survey:

Location		Depth		
Latitude	Longitude	Charted	This Survey	Remarks:
45° 36.8'	122° 41.8'	9		Near 4' shoal.
36.8	41.9	7		Near two 5' soundings.
37.3	42.9	6	11	
37.5	43.3	12	16	
37.7	43.7	18		Near 12' shoal.
36.8	42.0	6	8	

STATISTICS

Sheet H-6333

Date 1938	Day Letter	Statute Miles of Soundings	Number of Soundings	Number of Positions
Sept. 8	a	1.5	68	17
9	b	4.0	137	32
12	c	12.3	532	109
13	d	4.0	215	36
15	e	8.7	400	83
16	f	13.0	685	153
19	g	14.2	875	188
20	h	18.3	979	189
21	j	18.9	963	179
23	k	17.2	885	182
26	l	18.3	874	148
27	m	16.3	796	130
28	n	18.6	955	164
29	p	18.4	753	139
30	q	16.7	746	146
Oct. 3	r	13.6	707	126
4	s	6.1	364	68
6	t	2.5	203	44
17	u	5.1	268	49
Nov. 11	v	5.7	283	53
14	w	15.4	872	136
15	x	7.8	451	64
TOTALS: -		256.6	13011	2435

LIST OF SIGNALS- SHEET No. H-6333

TRIANGULATION - 1937

Glo = Reeder Pt Lt
Chin=Hutchinson 2 USE
Dan=Dance
LR=Morgan Bar Lower Rear Range Lt
Dot=Dike 14.3 dol E end
Bar=Morgan Bar Front Range Lt
M1=Morgan Bar Dike 1 Bn
Gray=Dormer gable pale gray house
M2=Morgan Bar Dike 2 Lt
Say=Sauvie USE 1927
Coon=Coon I Fr Range Lt
Silt
Ann=Dike 14.9 dol E. end
Hay=Hays USE 1927
LF=Morgan Bar Lower Front Range Lt
Eva=Dike 14.1 dol E end
Flag=Morgan Ldg. flagpole
Hew=Hewlett Dike Lt
M3=Morgan Bar Dike 3 Bn
M5=Morgan Bar Dike 5 Lt
Dred=Dredge
Apt
M4=Morgan Bar Dike 4 Lt
Fu=Four 2 USE 1912
Bow=Bow USE
Bet=Dike 14.7 dol E end
Goat
Coy=Dike 14.5 dol E end
MR=Morgan Bar Rear Range Lt
Fay=Dike 13.7 dol E end
Let=Hewlett Pt
Hawk
Hat=Front Gable Hathaway House USE
Gdad=Dike 13.1 dol E end
Nil=Coon I Rea r Range Lt
River=Willamette River Lt

TRIANGULATION - 1938

Matt=Matt USE
Bird-Dolphin, offshore
~~XXX~~ 1 of 2
Oat =Dike dol V 1.8
Ort=Ort USE
Hayden 2
Flee=Dike Dol V 2.5
Pep
Lazy=Vancouver Lower Rear Range Lt
~~Ramp-Dike dol V 0.3~~
Rok
Swift
MULTNOMAH CHANNEL--
~~XXX~~ Sig=Adam 1938
Palmer USE
Skin=Dike dol V 2.2
Ran=Willamette River Entrance Lt
Pacific
Kelley ~~XXX~~
Old Rear USE
Sap=Dike dol V 2.3
Benson
Keno=Dike Dol V 1.5
S P & S USE
State
Bug
Ham
Ban=Ben 1938
Bent=Dike dol V 2.6
North
Tank=Columbia River Paper Co Tank
Bank USE
Melt=Vancouver Lower Front Range Lt
~~Veto-Dike dol V 1.1~~
~~Mast-Dike dol V 0.7~~
Net=Nettle
Jant
KGW=KGW Radio Mast
Tres=Dan 1938

TOPOGRAPHIC SIGNALS:

From Topo. Sheet No. 6572b 1937

Quiz

From Topo. Sheet No. 6572 1937

Bug	Lip	Lad	Peak	Tie	Rod
Jig	Sq	Try=Hays Tree USE		Key	Spot
Gos	Pump	Fish	Bare	Tin=LO Tree	USE

From Topo, Sheet No. 6620

~~Seem~~	Salt	Chop	Blot	Coy	Fend
Bell=Mooring Dol.USE		Base	Back	Ark	Sofa
Term No.2 flagstaff		Beg	Bid	Mare=Vee	Pack
Boot	Runt	Xtra	Yen	Band	Barb

Sk	Zee	Blow	Date	~~Den~~	~~Hop~~
Deal	Tan	Uno	Claw	Gala	Rage
Dol USE	Shaw	Veto=Dike dol V 1.1 USE		Mast=Dike dol V 0.7 USE	
Ramp=Dike dol V 0.3 USE		Vancouver Front Range Lt		Vancouver Rear Range Lt	
By	Over	Beer	Nake	Sg	Nag
Dip	A=Dol A USE	Babe=Dol B Wash. USE		Easy=Dol B Ore. USE	
Bait=Dol C USE		Edge=Dol D USE		Ryan=Ryan Pt Lt	
Army	Rik	Glut	Grab	6	5
Drip	Iron	3	Doze	2	Len
Brig	Ken	Feb	May	Stay	July
June	Crow	Line	Leap	Bone	Beat
Buts	Sept	Oct	Cow	SW	Dt
Bs	Age	CLP	Ben	Bag	Sin
Cat	Rob	X	Quo	Pop	Oaf
Nat	Man	Ride	Jan	Ike	Hat
Gat	H	Q	Aim	Fat	Br
Eat	Hank	Dam	Load	Bud	Rum
Sma	Cloth	Sock	Step	White	Shell
Sign	Hors	Cry	Stub	Cab	Lie
Haw	Sea	Sco	Bay	Ape	Crete
Club=Club Dol USE		Co-Ed			

From Topo. Sheet No. 6618 a 1938

Scow	Math=Mathew Pt Lt	Rip	Tea	Ate
Lower Dol USE	Ruby	Meek	Drop	Upper Dol USE
Hunt	Mice	Den	Hop	Fen	8 Tree USE
Moor	Old	Tom	Twin	Po	Wire

MULTNOMAH CHANNEL: From Topo. Sheet No 6617 a & b 1938

Aug	July	June	Pole	May	Ap
Ma w	Feb	Bun	Ate	Hoss	Moo
Rrx	Tank	Doe	Cos	Us	Car
Gar	Sept	Stack	Oct	Car	Jan
Wed	Black	Zag	Trunk	Toll	Dry
Sin	Dub	Quiz	Mine	Gol	13'
Ida	Cable	Gag	Swega	Flo	Ene
Die	Can	Box	Fin	Fu	Trey
Duck	Ace	Nona	True	Tar	Lone
Ham	Rag	Pry	Qrs	Oil	Tuv
Nut	Bloc	Hose	Leg	Kid	Jug
Jet	Fer	Slip	Diam	Gasp	G7
G6	G5	Vert	Noir	Bark	Neat
Smok	Ant	Bank	Nail	Dust	

HYDROGRAPHIC SIGNALS: located by sextant fixes, recorded in the sounding volumes:

Jag (Nome) Page 63 Vol. 7 (20w)

Dolphin Page 19 Vol 8 (13cw)

Pum=Pump house Pier Page 49 Vol. 1. (16 c)

SHEET H-6334 (1938)

AREA, etc.:

The hydrography of Sheet H-6334, is a survey of the Willamette River from its ~~confluence~~ confluence with Columbia River to the upper end of Swan Island, the south end of Multnomah Channel, and Columbia Slough, (on Air Phota Mosaics).

It joins H-6333 on its north limits, including Multnomah Channel, and H-6335 on its south limits, satisfactorily

SHORELINE & SIGNALS:

The shoreline and signals (topographic) originate with topographic Sheets, T-6618 a & b, and T-6617 b.

The triangulation is from the 1938 scheme of this party and the 1935 scheme of Lieutenant Charles Pierce.

DANGERS:

There are no dangers in area covered by this survey.

ANCHORAGES:

There are no designated anchorages in area covered by this survey.

CHANNELS:

The main ship channel was not covered by this survey.

The controlling depth in Multnomah Channel from its south end to limits of this sheet is 26 feet.

In Swan Island Basin the controlling depth is 27 feet, in area outside of stored log rafts.

DISCREPANCIES:

The changes in the angles and objects in the sounding records were made only after reference to the Boat Sheet and consideration of course and time to arrive at the best possible position of the fixes that were obviously in error.

COMPARISON WITH PREVIOUS SURVEYS:

1) U.S.Engineers' Survey, B-14-2/19, May 21, 1935, (BA28847) Multnomah Channel, south end:

This survey and soundings by this party check very well, differences of as much as two feet being uncommon. The only large difference being four feet, occurring once, the U.S.Engineers' Survey shows a 24 foot sounding 100 meters WSW of Multnomah Channel 3 Light (North Dolphin(USE) while this party's survey shows 28 feet in this vicinity. This is a project for dredging in Multnomah Channel in the area covered by the U.S.Engineers' Survey and this may be done in the near future. superseded by BP.33243 (1939)

2) U.S.Engineer Survey, (B.P. 31529) B-12-4/49 January 3, 1938: Superseded by BR32618(1939)

The soundings on Sheet H-6334 are from 1 to 2 ~~but~~ feet shoaler than shown on U.S.Engineer Survey.

3) U.S.Engineer Survey, (B.P. 32617(1938)) B-15-1/59 "A", July 8,9,11, 1938 and August 15, 1938. This party's survey and this U.S.Engineer Survey compare very well, differences of a foot being noted frequently, with a maximum difference of 2 feet. As this survey of the U.S. Engineers was made only a short time before this party sounded in the area, No attempt was made to sound in the center of the channel, where the U.S.Engineer Survey shows 34 feet depths. An attempt was made to split some of the wider U.S.Engineer lines along the sides of their survey. superseded by BR32884 (Dec 20.1938)

4) U.S.Engineer Survey, (BP.30401) B-15-1/59 6 "A" "B", March 23, 1937:

This area was not covered by the U.S.Engineer Survey in July, 1938, as it is an area relatively unchanging and surveying is done in this area at less frequent intervals. This U.S.Engineer Survey and the survey by this party are in agreement, differences seldom exceeding one to two feet. In the area in Lat. 45° 34', Long. 122° 44', there appears to have been shoaling, depths of about 4 ft. less than shown on U.S.Engineer Survey being obtained by this party. In Lat. 45° 34.1', Long. 122° 43.8', shoaling about 2 feet is noted. superseded by H-6334 & BR32885 (Dec.1.1938).

5). U.S.Engineer Survey, (BR 32616) B-15-1/59 "B", July 2, 1938:

The two surveys are in agreement, differences seldom exceeding 1 foot and none exceeding 2 feet were noted, except in the area at south end of this Sheet. In this area dredging operations were in progress, and it is believed that this party's soundings were taken after the dredge had completed its project on the southwest side of the channel. In the area covered by this sheet, little dredging had been accomplished on the northeast side of the channel at time of survey. In the vicinity of the two U.S.Engineer lines about 300 to 325 meters northeast of triangulation station 44 (USE), the soundings do not check with those taken by this party, and is due to dredging of this area. superseded by H-6334 & BR32885 (Dec.1.1938).

COMPARISON WITH THE PUBLISHED CHART:

Comparison with chart 6155, published October, 1937, last plate correction 10-27-37:

In general the chart soundings agree within one to two feet with those obtained by this survey. The following are noted as exceeding two feet:

Location		Depth		
Latitude	Longitude	Chart	This Survey	Remarks:
45° 38.9'	122° 46.1'	36	33	
38.7	46.7	37	34	
38.6	46.4	40	36	
38.5	46.4	5	2	
38.5	46.3	3	0	
38.4	46.5	6	2	
38.4	46.6	8	4	
38.3	46.7	8	4	
38.2	46.8	8	3	
38.0	47.2	19	9	
37.9	47.2	20	10	
37.9	47.3	33	24	
37.9	47.3	26	22	
37.8	47.4	36	32	
37.6	47.4	36	31	
35.2	46.0	47	42	
34.2	44.9	44	41	
34.2	43.4	45	40	
33.5	43.0	38	33	
34.0	44.0	33	29	
33.4	43.0	33	22	

(New print dated Apr. 28. 1939)

The 30 charted in Lat. 45° 35.8', Long. 122° 46.7', was not verified. This sounding ~~appears to~~ originates from U.S.Engineer Survey B-15-1/56 "B" March 9, 1937 but is slightly out of position. The U.S.Engineer Survey of July, 1938, B-15-1/59 "A" obtained 31 ft. about 30 meters west of charted position of above 30 ft. sounding.

Area dredged. see B.P. 32884 (Dec 20, 1938)

In Swan Island basin, log rafts prevented a full coverage of the basin, and while this survey obtained shoaler depths, generally, than charted, these depths may occur in the area covered by the log rafts. Inasmuch as the area now used as log raft storage will usually be covered by rafts and navigation limited to the area actually covered by the soundings of this party's survey, it is recommended that selection of soundings to be charted be made from this survey.

In the shoal area in Lat. 45° 33.2', Long. 122° 42.3', this party generally obtained shoaler depths than charted.

Dredged This area also covered by B.P. 32885 (Dec. 1. 1938)

In Multnomah Channel the agreement is satisfactory. The two buoys, N2 and N4 are now in positions different from the charted positions.

COLUMBIA SLOUGH:

The hydrography of Columbia Slough consisted of a mid-channel line from its confluence with the Willamette River, eastward to beyond the limit of soundings shown on chart 6155, with an additional line in two places where it appeared that deeper water might be obtained along one bank.

Filed as Bps 33564 Ltr. 33562

This hydrography was executed on uncontrolled Air-Photo Mosaics furnished by the District Engineer, Corps of Engineers, Portland, Oregon, the position determinations being made by beam bearings on identifiable objects in the air-photographs and mid-channel. These positions are shown on the mosaics in white ink and the soundings plotted in white ink.

Air-Photographs numbers 390 to 398 inclusive, which have already been transmitted, cover the area of the mosaics. The control was not plotted in these pictures, but was plotted in the river strip, which overlaps these pictures and may be transferred to the above ~~points~~ prints. The following control points may be plotted in the pictures indicated:

No. 390 - ABEL, 1938, Willamette River Entrance 1 Light, 1938, Post Office Bar Lower Light, 1938, and Multnomah Channel Entrance Light, 1938.

No. 393 - ROK 1938.

No. 394 - ROK 1938; SWIFT 1938; HAM 1938; BUG 1938.

No. 395 - SWIFT 1938; HAM 1938; BUG 1938; JANT 1938.

No. 396 - HAM 1938; JANT 1938; BLACK TANK (Topographic Sheet No. T-6620).

No. 397 - BLACK TANK (Topographic Sheet No. T-6620); YACHT 1938.

No. 398 - Same as No. 397.

Numerous sloughs join Columbia Slough but are not navigable due to snags, etc. and to being blocked by trestles. Notes are entered in white ink on the Mosaics regarding these places. Columbia Slough, itself, is blocked at its confluence with the Columbia River by a bulkhead with tide gate.

A plain tide staff was established at the point where the S.P.&S. Railway bridge crosses the slough and read at 15 minute intervals during the time hydrography was in progress. This staff was connected with two first order Bench Marks.

STATISTICS

Sheet H-6334

Date 1938	Day Letter	Statute Miles Of Soundings	Number of Soundings	Number of Positions	
Oct. 6	a	8.0	528	99	
7	b	12.3	688	123	
Sept. 13	bb	0.6	39	10	
Oct. 10	c	17.4	860	157	
11	d	14.7	643	113	
12	e	10.0	433	93	
13	f	10.1	572	29	(Col. Slough)
	f	2.1	99	17	
14	g	15.8	777	191	
17	h	7.4	359	89	
18	j	14.6	662	141	
19	k	10.8	539	132	
Nov. 15	l	9.9	507	91	
16	m	2.1	91	21	
TOTALS: -		135.8	6797	1306	

LIST OF SIGNALS - Sheet H-6334

TRIANGULATION - 1937

Fu=Four 2 USE 1912 Dred=Dredge River=Willamette River Lt

TRIANGULATION - 1938 (unless dated)

Ran=Willamette River Entrance Lt
Mult=Multnomah Channel Entrance Lt
KPK=KPK Radio Mast
Burn=Clark & Wilson Burner Tank elev wood brown
Tank=Portland Mfg. Co tank, elev
37 USE
~~Bist---~~
39_2 USE
Stan-Standard Oil Co dock, flagpole
9=Dol 9
6=Dol 6
3=Dol 3
Lower=Swan I Lower Lt
Fr. Rn. Meas. Mile d/s end
Be=Swan I Aviation Beacon
UP=Portland, Union Pacific R.R. Co, elevated black tank 1935
Ocean=Portland, Oceanic Terminals, tank 1935
Dock=Union Pacific R.R.Co., dock, flagstaff
Gasco=Gas Co Stack
Water Tank
Rust = Roles & Shingle Stack USE
~~RB=Multnomah Channel Rear Beacon & Rea r USE &~~ Tag 1938
FB=Multnomah Channel Range Front Beacon & Front USE & Panel 1938

9U=(9 USE
Bar=Post Office Bar Lower Lt
West=West Oregon Tall stack
Sun=South Derrick, Sunset Oil Co
Rik=Derrick USE Moor.
Bird=Lt. std. d/s end of R.R. Bridge crib
Owl= Lt. std. u/s end of R.R. Bridge crib
38_2 USE
Shell=Shell oil co dock, flagpole
8=Dol 8
5=Dol 5
2=Dol 2
Swan=Swan I Middle Lt
Stat=Fr. Rn. Meas. Mile, statute
Naut=Fr. Rn. Meas. Mile, Nautical
Wax

Gill=Gillihan Lt
Cain=Cain
Met=Willamette River Entrance 1 Lt
Term=Terminal 4, Black tank
Apex=Portland Woolen Mills apex, pump house
Con=Concrete stack
Union-Union Oil Co Dock, flagpole
7=Dol 7
4=Dol 4
1=Dol 1
Lum=Johnson & Tall Stack USE

TOPOGRAPHIC SIGNALS:

From Topo. Sheet No. 6617b 1938

RB=Multnomah Channel Rear Beacon & Rear USE					Dust	Nail
Mas USE	Cargo	Stow	Nix	Barb	Lee USE	Juc
old	Bank	Ant	Smok	Neat	Bark	Fin
Bur-Burner USE		Fu	Trey	Duck	Ace	Zero
Six=Dolphin 6 USE		Five=Dolphin 5 USE		Four=Dolphin 4 USE		~~Do~~
Three=Dolphin 3 USE		Two=Dolphin 2 USE		~~Dolphin USE~~		
~~Multnomah Channel Front Beacon & Front USE~~						

From Topo. Sheet No. 6618a & b 1938

Tin=TO Tree(USE)		Scow	Drop	Upper Dol(USE)		Meek
Ruby	Ate	Lower Dol(USE)		Tea	Moor	Rip
Old	Tom	Po	Wire	End	Col-Columbia	Dol USE
Dol 7	Dol 6	Cent	Dol 5	13 Tree USE		Dol 4
15 Tree USE	Aim	Dolm3	Dol 2	Dol 1	Bet USE	Out
Sc=Hope USE Dike USE		Pud	Up=Post Office Bar Upper Lt			Ride
Bea=Multnomah Channel Entrance Guide Beacon					Brig	Damp
Han	Chop	Cross	Prom	Pier	B1	B2

B3	B4	Slip	B5	B6	B7	B8
B9	Hay	Par	Bass	Fish	Carp	Ship
Out	In	Back	Base	29x29Trrr	29-29 Tree USE	
Rage	Mat	Bid	Bone	Jump	Mm	July
Tt	Amp	Meek	Beg	Rig	Barb	Dry
Yrd	Blst	Saw	Cc	Twist	Row	War
Tall	Sept	Nov	Oct	Tri	Feb	Bo
Load	June	Mar	Lad	Pole	Nob	Pp
Qq	Dec	Two	One	Bot	Pipe	Pump
Flag	Rad	Pebl	Drr	Usr	Unr	Ramp
Tex	Co	Nome	Ark	Bell	Over	Easy
Cable	Edge	Jan	Ruby	Rum	Aug	Volt
Pack	Band	Beer	Lint-Linnton Dol USE			Jj
Set	Fel	Rich	Non	Grab	Blow	Lay
Yel	Store	Beat	Drug	Ner	Cor	Date
Hank	Glut	Babe	Rage	Take	Tide-South Dolphin USE	
Hus	One-dolphin 1 USE		Ma-Multnomah Channel 3 Lt & North dolphinUSE			
Bo	Stum	Strip	Xray	Ynez	Jud	Gaw
Front-Post Office Bar Front Range Lt				Rear-Post Office Bar Rear Range Lt		
U/S Gable river barn		Nab	Ice	Post	War	8 Tree USE
Fen						

HYDROGRAPHIC SIGNALS, located by sextant fix, recorded in the sounding volumes:

Pol-Post Office Bar 3 Lt

AREA, etc.:

Sheet H-6335, with insert, comprises a survey of the Willamette River from the Oceanic Terminals to the Sellwood Bridge. It joins H-6334 in the vicinity of the Oceanic Terminals, with satisfactory junctions.

SHORELINE & SIGNALS:

The shoreline and topographic signals originate with Topographic Sheets T-6619 a & b. The triangulation stations are from the 1935 and 1938 triangulation schemes.

DANGERS:

There are no dangers in the area covered by the main sheet. On the insert is shown development of the large rocky area in Lat. 45° 28.7', Long. 122° 40.0', with minimum depth of 1 foot at adopted low water plane. In Lat. 45° 29.2', Long. 122° 40.2', there is a rocky area with minimum depth of 3 feet. The west side of the Willamette River from Lat. 45° 29.5' to Lat. 45° 29.0', contains many rocky shoal spots. In Lat. 45° 28.4', Long. 122° 40.0', there is a large rock reef that is bare about 4 feet at adopted low water plane.

ANCHORAGES:

There are no designated anchorages in the area covered by this survey.

CHANNELS:

In the main ship channel from Oceanic Terminals to Hawthorne Bridge depths of 35 feet are usual, with occasional depths of 34 feet being obtained. From the Hawthorne Bridge to the Ross Island Bridge the limiting depth is 20 feet. From the Ross Island Bridge to the Sellwood bridge the limiting depth is 12* feet, using channel to east of rocky area in Lat. 45° 28.7, Long. 122° 40.0', and using channel to west of this rocky area the same limiting depth is found, both channels being narrow and used to approximately the same extent by tow-boats, and other craft.

* 14 feet with local knowledge

The channel to the east of the above mentionned rocky area was dredged about four years ago, which information was given by a workman on the dredge which is dredging sand and gravel for a sand and gravel company. Noted in Sdg Rec., pos. 41e

From Ross Island Bridge to the Ross Island Sand & Gravel Co. operations at northwest end of Hardtack Island, the limiting depth is 6 feet to the channel between Topographic signals HARD and STAY

and 5 ft. thru this channel. The 6 ft. limiting depth holds in the channel along the east side of Hardtack Island to topographic signal* BEER. From BEER south to the main part of the River, the channel is used by small boats, and the south end is bare at adopted low water plane. * 6' may be carried to limits of channel on SW.

BOTTOM:

Predominately mud and sand, with rocks and sand on the insert. Much of the mud is soft and sticky.

DISCREPANCIES:

All changes in angles and objects in the sounding records were made only after reference to the Boat Sheet and consideration of course and time to arrive at the most logical location of positions which were obviously in error.

A line was sounded between positions 1a and 4a before dredging as subsequent lines to either side give greater depths and the crossline 39-40k differs by 3 feet. This area superseded by Bp.32885(Dec.1938) which shows final extent of dredging.

NOTE: Due to congestion of souundings on the insert, some of the positions and soundings are plotted on an overlay which accompanies the sheet. Important soundings applied to smooth sheet and overlay destroyed.

COMPARISON WITH PREVIOUS SURVEYS:

1) U.S.Engineer Survey, B-15-1/59B July 2, 1938: Bp 32616 See Rev., Par. 6a (4)

The two surveys are in good agreement except in vicinity of Oceanic Terminals where dredging operations increased the depth since the U.S.Engineers' Survey was made.

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2) The Port of Portland, Broadway Bridge to Eastern & Western Lumber Company, February 26, 1937: Bp 32615 See Rev., par. 6a (3)

The two surveys are in good agreement. Most of the difference being only one foot. In Lat. 45° 32'30", Long. 122° 41'45", the two 33 ft. soundings of the Port of Portland were not verified, 35 feet being obtained in this area.

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3) The Port of Portland, Hawthorne Bridge to McCormick Terminal, Section No. 2, October 5, 1937: Bp 31575 charted. See Rev., par. 6a (1)

The two surveys are in good agreement. Most of the differences being only one foot.

4) The Port of Portland, Ross Island Bridge to Hawthorne Bridge, October 5, 1937: Bp. 31574 See Rev., par. 6a(1)

The two surveys are in good agreement; most of the differences being only one foot. In the area just south of the east end of the Hawthorne Bridge and in Lat. 45° 30'15", Long. 122 40'00" shoaler water was obtained by this party.

---

5) U.S.Engineer Survey, Portland to Eugene, Sheet No. 2 of 52 sheets, July 1, 1932: Contains soundings from Bp 23358(1928) Bp. 32610 See Rev., par. 6a(2)

Due to length of time between the two surveys a detailed comparison does not seem justified. However, a comparison of the shoals will be made.

The rock, with depth of 3 ft. in Lat. 45° 29.27', Long. 122° 40.2' was not located on U.S.Engineer Survey. The rock with depth of 3 feet in Lat. 45° 29.1', Long. 122° 40.2' is indicated on the U.S.Engineer Survey with depth of 5 feet. *Noted as rocky in sdg rec

One of the 1 ft. soundings obtained Lat. 45 28.7', Long. 122 40.0' located on the U.S. Engineer Survey and the other 2 one foot soundings were indicated, but depth of 3 feet obtained. In the area to NW of these soundings the new channel has changed the depths as shown in the U.S. Engineer Survey. Few soundings were taken in the channel east of Ross and Hardtack Islands by the US Engineer survey, and a comparison indicates considerable shoaling.

COMPARISON WITH THE PUBLISHED CHART: (Insert)

Chart published October 1937, last plate correction 10-27-37:

The charted soundings check those obtained by this party only occasionally. Due to narrowness of channels difficulty is experienced in comparing the two, as a slight displacement of the charted soundings would give better agreement at times. The following shoal spots are indicated and noted when not appearing in chart:

	Latitude	Longitude	
3 feet	45° 29.2'	122° 40.2'	Not charted.
3 feet	29.1	40.2	Not charted.
1 foot	28.7	40.0	Charted, but there are really two spots about 75 meters apart.

The 2 foot sounding charted in Lat. 45° 28.1, Long. 122° 40' was searched for with closely spaced lines and drift leading over the area but no indication of this spot was found. Depths from 18 to 26 feet were obtained in the area. Disproved, see discussion, pages 24c and 24f

BP, 23358 Rev. par. 6a (1)(a).

(MAIN PART OF SHEET)

The soundings on chart are in agreement with this survey, except the following:

Location		Depth		
Latitude	Longitude	Chart	This Survey	Remarks:
45° 32.95	122° 41.7	38	36	
33.1	42.1	29*		*These soundings in area dredged in fall of 1938.
33.0	42.05	28*	36	
32.8	41.7	33	36.	.(33 ft. depth obtained
32.7	41.4	33	35	50 m. west of this postn.)
32.6	41.4	34	36	
32.6	41.3	38	35	
32.5	41.3	33	36	
32.4	41.3	36	34	
32.3	41.1	26	34	
32.25	40.9	34	36	
32.2	40.9	19 **		** Unable to sound by dock face as ships moored in these places, a minimum depth of 30 ft. obtained alongside when upstream and downstream of these places.
32.1	40.7	26 **		
32.0	40.6	35	31	
31.4	39.9	43	52	
31.4	39.9	57	52	
31.5	40.0	40	28.	.(28 ft. sounding checks
31.25	40.1	58	52	Port of Portland survey,
30.9	40.1	36	23	sounding lines about
30.8	40.2	22	27	20 meters spacing here.)
30.8	40.3	49	38	
30.7	40.3	36	34	
30.7	40.2	16	18	
30.5	40.2	23	16	
30.55	40.05	24	28	
30.45	40.15	23	14	
30.4	40.1	22	12-17	
30.35	40.15	26	16	
30.3	40.1	19	9	

45°	30.25'	122°	40.1'	16	10
	30.25		40.0	15	7
	30.2		40.0	28	23
	20.15		40.0	24	15
	30.1		39.7	5*	7

Seven feet obtained on both this sheet and insert. *5 ft. not obtained. This*5 ft. is near a bridge pier.

* This is a 15 foot s'd'g.

STATISTICS

Sheet H-6335

Date 1938	Day Letter	Statute Miles of Soundings	Number of Soundings	Number of Positions
Oct. 1	a	5.5	206	35
19	b	2.2	133	37
20	c	11.8	672	149
21	d	2.5	203	40
24	e	13.0	678	145
25	f	13.8	928	156
26	g	7.6	583	102
27	h	12.1	641	129
28	j	11.7	599	112
31	k	4.7	275	54
Nov. 1	l	8.3	441	108
2	m	0.3	36	10
TOTALS: -		93.5	5395	1077

LIST OF SIGNALS- Sheet H-6335

TRIANGULATION; 1938 (1935 where dated)

Pup=Portland, Union Pacific R. R. Co eleveted back tank 1935 & Olympic
Dock=Union Pacific R. R. Co. dock, flagstaff Tank USE
Ocean=Portland, Oceanic Terminals, tank 1935 & Elrod Tank USE
U=Up 1938 Star 1938 Kerr 1938
Up=Portland, Union Pacific Railroad Co stack 1935 &(OWR & N)Stack USE
Blue=Portland, Crown Mills, blue tank 1935
PRL=Portland, PRL & P, white concrete stack 1935 & PGE Stack USE
Eastern & Western Lumber Co tank = Mill Tank USE
State=Quaker California Eastern States Lines tank &
Alber=Portland, Albers Bros. Milling Co., tank 1935
Clock=Portland, Union Depot Clock Tower 1935
Land=Portland, Union Pacific Railroad Co., tank 1935
Steel 1938 Oily 1938 Gene 1938
Failing 1938 Sell 1938 Fulton 1938
Dam 1938
N= Multnomah Lumber & Box Co., N stack of 2
Vert=Burner, vertical sides
OYC=Oregon Yacht Club, cupola, flagstaff
Oak=Oaks Park, offshore dolphin
East side mill and Lumber Co., & Oregon Door Co., N stack of 5
Tank=East Side Mill and Lumber Co., & Oregon Door Co., tank
~~Lt~~ Lt= Sellwood Bridge, Lt pole over west pier

TOPOGRAPHIC SIGNALS:

From Topo. Sheet No. 6619 a & b 1938

Hank	Flo	Beat	Army	Bait	Rail	Bun
Gra	Earn	Jump	Sand	Santa	Barb	Block
Base	Sig	Giff	Ruby	WU	Beer	Ride
Bone	Chi	Min	Ter	Ohm	Carp	Beg
M	N	Bell	Grab	Bid	Damp	Meek
Rage	Back	Lum				
Moo	Nor	Sou	Ride	Map	Grab	Day
Bent=North Pacific Dock Lt			Err	Boot	X	Pow
Eagle	Jest	Sta	Sin	Flood	Ruin	Rum
Dim	Fen	Chu	Lo	Broad	Way	Bri
Wall	Blow	Ramp	Sea	Walk	Band	Haw
Thor	Tec	Mac	Hot	Tar	Glut	May
Chop	Babe	Bird	Mat	Tam	Date	Iron
Insert--------		Mat	Date	Iron	Line	Damp
X	B	T	~~P~~	Blow	Pill	Bulk
Bell	Bur	Band	Bid	Beg	Edge	Vis
Reef	Fend	Pipe	Jest	Neck	Jen	Tow
Rage	Dat	Toe	Earn	Pack	Carp	Chop
Ruby	Lone	Bole	Tree	Con	Flag	Stay
Hose	Pie	Bird	Ape	Mut	Pow	Bent
C	Ax	Hard	Gun	Anc	Roc	Hole
New	Mite	Par	Nu	Un	Sew	Ark
Cross	Chew	Tack	Moor	Age	Over	Cab
Drop	Hank	Beat	Beer	Army	Base	Glut
Meek	Rum	Tower	Boot	Hunt	Hah	

HYDROGRAPHIC SIGNAL: Pro

H6335

NOTE TO ACCOMPANY TOPOGRAPHIC SHEET No. 6619 a & b and

HYDROGRAPHIC SHEET No. 6335

Bp. 32616

The following signals appear on the US Engineer survey sheet B-15-1/59 "B" July 2, 1938, and on the above sheets of this party. They are listed on this note instead of on the sheets as the US Engineers will probably use a copy of this party's sheets for future surveys, and use the names as given thereon.

C & G Survey Name	U S Engineer Name
Portland, Oceanic Terminals tank 1935	Elrod Tank
Portland, Union Pacific R.R.Co., elevated blk tank	Olympic Tank
Portland, PRL & P white concrete stack 1935	PGE Stack
Eastern & Western Lumber Co tank 1938	Mill Tank
Portland, Union Pacific Railroad Co., stack 1935	O W R & N Stack
Portland, Crown Mills, black tank 1935	Crown Tank
Portland, Albers Bros. Milling Co., tank 1935	Albers Tank
Portland, Union Depot Clock Tower 1935	same as C & G Survey
Portland, Union Pacific R. R. Co., tank	U P Tank
Portland, Stettler Co., tank 1935	Stettler Tank
Hirsch-Weiss Co., tank	same
Base (topographic)	Cable Cross
Sig "	Semaphore

The following USE signals ~~xxxxxx~~ were not recovered:
Upper Corner Mun. Dock
SP & S Dock
Burner
Yellow Tank - There in no tank in the vicinity shown on USE sheet.
Dock
Lukenbach Tank, not located, only one direction obtained in the trian. while it was believed that several directions were taken.
The signal shown as D/S West Lift probably refers to the Steel Bridge, and if so, is out of position.

The signal shown as Willamette Iron and Steel Stack is plotted in the position of the Quaker California Eastern States Lines tank 1938, and the Willamette Iron and Steel Co is now in lat. 45° 32.7', long. 122° 41.7'.

APPROVAL BY CHIEF OF PARTY

Sheets H-6332, H-6333, H-6334 and H-6335 have been inspected and approved by me. The field work was done under my occasional supervision. The office work was done under my direct supervision. No additional work is considered necessary.

In the 1937 Descriptive Report for Hydrography, the possibility of continuing surveys into Scappoose Bay was noted. This Bay, which connects with Multnomah Channel near its north end, was not surveyed during the past field season, as the time and expense consumed would have been out of proportion to its importance. This is a shallow lagoon and used only for the storage of log rafts. It is believed that an outline of the bay sufficiently accurate for charting may be obtained from the controlled mosaic of the Warren Quadrangle (NW section), which is on file at the Washington Office of this Bureau.

H-6335
Rec'd., par. 6a(1)(a)

Reference is made to Director's letter No. 83-AEC, dated March 27, 1939, subject: "2 foot sounding on Chart 6155". Bp. 23358 (1928) The following notes are submitted in regard to this rock, charted in Latitude 45° 28.1', Longitude 122° 40'.

Bp. 32610

This rock does not appear on the 1932 survey of the U. S. Engineers, which was their last survey made in this area. Inquiry was made at the U. S. Engineer Office, and a statement was made by the engineer familiar with the locality that the 1928 sounding Bp. 23358 was obtained on a rock*, and that this rock should still be in existence, as there was no record of its having been removed by blasting. No explanation could be made as to why the rock was omitted on the 1932 survey. The original sounding records of the 1928 survey were not preserved. *not accompanied by bottom characteristic on Bp. 23358.

The locality of the two foot sounding was thoroughly developed by Lieutenant Wagner during the course of the 1938 survey, as shown on the hydrographic sheet and attached overlay, and in the records. The usual drifting and feeling over the area were done at that time.

On April 6, Lieutenant Wagner and the writer dragged and drifted over the area with a 20 foot length of pipe suspended horizontally under a skiff at a depth of 24 feet, with elevation of water surface 7.4 to 7.1 ft. above adopted low water plane. This made the depth of the pipe drag 16 to 17 feet below adopted low water plane. No rock or shoal was found. See sounding record and overlay for a record of this investigation. n day, Vol. 4, p. 27

Inquiry was made among tug boat captains and dredge masters who have lived and worked in the vicinity for many years; furthermore, a boat rental place within a quarter mile of the position in question has rented boats for many years to fishermen trolling for salmon in the immediate vicinity. None of these persons knew of the existence of the rock, and no records could be found of a boat striking such a rock or of fishing lines becoming fouled on the same. Hundreds of fishermen have trolled over the area.

Dredging operations by private concerns obtaining gravel have been carried on in this part of the river for many years. No record is available as to the exact places where such dredging has been done. The general opinion among those familiar with the locality is that the 2 foot sounding was obtained on a pile of gravel and small boulders left by some private dredger, but removed by another dredger some years ago.

It is felt that non-existence of the rock has been definitely proven, and it is therefore recommended that it be removed from the chart.

W. M. Scaife
H & G Engineer
Chief of Party.

Form 567
Rev. March 1935

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

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

Portland, Oregon — March 25, 1939

I recommend that the following objects which have ~~(have not)~~ been inspected from seaward to determine their value as landmarks, be charted on (~~REVISED~~) the charts indicated. (Permanent Aids to Navigation, Willamette River and Multnomah Channel)

The positions given have been checked after listing.

W. M. Seaife — *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							
Unlighted Beacons -											
Multnomah Channel Range Front Bcn.	45 37	555.2	122 48	624.4	MA1927	triang.	1938				6154
↖ (Panel 1938)											
Multnomah Channel Range Rear Bcn.	37	567	48	750	"	topo.	"				"
											6154
Multnomah Channel Entrance	37	56	47	134	"	"	"				6155
Guide Beacon											
* Traverse station 29th Engineers.											

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.

U. S. GOVERNMENT PRINTING OFFICE

Form 567
Rev. March 1935

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

TO BE CHARTED } STRIKE OUT ONE
[illegible] }

Portland, Oregon — March 23, 193 9

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. (Permanent Aids to Navigation, Willamette River and Multnomah Channel.)

The positions given have been checked after listing.

W. M. Seaife — *Chief of Party.*

GENERAL LOCALITY / NAME AND DESCRIPTION	POSITION LATITUDE ° '	LATITUDE D. M. METERS	LONGITUDE ° '	LONGITUDE D. P. METERS	DATUM	METHOD OF LOCATION	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
Post Office Bar Upper	45 37	168	122 47	255	NA 1927	topo.	1938				6154 6155
St. Johns Railway Bridge (Fog signals)	See HORNS on Form 567 for regular landmarks, transmitted with these forms.										
Swan Island Lower	33	1778.9	45	658.5	NA 1927	triang.	1938				6154 6155.
Swan Island Middle	33	1097.6	42	1136.0	"	"	"				"
* North Pacific Dock	38	1611	41	1046	"	topo.	"				"
Multnomah Channel 3	37	427	48	112	"	"	"				6154
Multnomah Channel 1	37	1177	48	1106	"	"	"				"
* This light is on floating drydock for small craft.											

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.

U. S. GOVERNMENT PRINTING OFFICE

Form 567
Rev. March 1935

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

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

Portland, Oregon — March 25, 193 9

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

W. H. Seaife *Chief of Party.*

GENERAL LOCALITY: COLUMBIA RIVER NAME AND DESCRIPTION	POSITION LATITUDE ° '	LAT. D. M. METERS	LONGITUDE ° '	LONG. D. P. METERS	DATUM	METHOD OF LOCATION	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
RYAN POINT	45 36	1281	122 58	757	NAD27	topo.	1936				6154 6155
YACHT CLUB UPPER DIKE	36	855	58	35	"	"	"				"
Willamette River Entrance	39	973.5	46	2.9	"	triang.	"				"
WILLAMETTE RIVER ENTRANCE "1"	38	1135.6	46	369.8	"	"	"				"
Gilliham	38	1006.2	46	890.4	"	"	"				"
Post Office Bar 3 (destroyed and replaced by the following.											
Post Office Bar 3	38	352	47	50	"	sextant fix	"				"
Post Office Bar Lower	38	381.7	47	471.9	"	triang.	"				"
Post Office Bar Front (destroyed) and replaced by the following.					"	"	"				"
Post Office Bar Front	37	1469	47	725	"	topo.	"				"
*Post Office Bar Rear	37	1692	47	775	"	"	"				"
* 228 yards 345 3/4° true from preceding.											
Multnomah Channel Entrance	37	285.1	47	790.1	"	triang.	"				"

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.

U. S. GOVERNMENT PRINTING OFFICE

Form 567
Rev. March 1935

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

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

Portland, Oregon — March 23, 1939

I recommend that the following objects which have (~~not~~) been inspected from seaward to determine their value as landmarks, be charted on (~~the accompanying sketch~~) the charts indicated.

The positions given have been checked after listing.

W. M. Scaife — *Chief of Party.*

GENERAL LOCALITY: COLUMBIA RIVER (We. River-Mult. Channel)	POSITION					METHOD OF LOCATION	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
NAME AND DESCRIPTION	LATITUDE ° '	LATITUDE D. M. METERS	LONGITUDE ° '	LONGITUDE D. P. METERS	DATUM						
TANK, ELEVATED (Terminal No. 4, black tank elev. 1938)	45 36	489.2	122 46	302.5	MA 1927	triang.	1938	X	X		6154 6155
CUPOLA or BELFRY* (St. Johns Fire & Police Station Cupola, flagstaff 1938)	35	655.7	45	358.8	"	"	"	X	X		"
WATER TOWER (water tower, St. Johns, 1938)	35	367.1	45	0.5	"	"	"	X	X		"
STACK (Gas Company Stack 1938)	34	1380.8	45	840.7	"	"	"	X	X		"
STACK, CONCRETE (concrete stack 1938)	34	910.8	43	1187.4	"	"	"	X	X		"
AERO (Swan Island Aviation Beacon) (1938)	33	1476.9	42	983.4	"	"	"	X	X		"
TANK, ELEVATED (Quaker, California Eastern States Lines Tank 1938)	32	628.8	41	406.3	"	"	"				"

*The name BELFRY should be charted for this feature if BELFRY is an acceptable term

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.

U. S. GOVERNMENT PRINTING OFFICE

Form 567
Rev. March 1935

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

TO BE CHARTED ~~[illegible]~~ } STRIKE OUT ONE

Portland, Oregon March 23, 1939

I recommend that the following objects which have ~~[illegible]~~ been inspected from seaward to determine their value as landmarks, be charted on ~~[illegible]~~ the charts indicated.

The positions given have been checked after listing.

W. M. Seaife *Chief of Party.*

GENERAL LOCALITY: COLUMBIA RIVER (No. River-Mult. Channel) / NAME AND DESCRIPTION	POSITION LATITUDE ° '	LATITUDE D. M. METERS	LONGITUDE ° '	LONGITUDE D. P. METERS	DATUM	METHOD OF LOCATION	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
TOWER, transmission tower. (Topographic signal LINZ, Sheet No. 6619b)	45 29	1703	122 39	1897	NA1927	topo.	1938				6155
TOWER, transmission tower. (Topographic signal POW, Sheet No. 6619b)	29	1455	39	693	"	"	"				"
RADIO MAST (KEJJ Radio Mast 1938)	28	801.7	39	738.4	"	triang.	1938				"
TANK, ELEVATED (East Side Mill & Lumber Co. and Oregon Door Co., tank-1938)	27	1668.2	39	791.5	"	"	"				"
HORN	34	1208	44	1064							6154 6155
HORN	34	1091	44	928							"
BURNER, (Clark & Wilson Lumber Co. Burner-1938)	35	1591.8	46	1073.0	"	triang.	"				"

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.

U. S. GOVERNMENT PRINTING OFFICE

Form 567
Rev. March 1935

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

TO BE CHARTED / [redacted] } STRIKE OUT ONE

Portland, Oregon — March 25, 1939

I recommend that the following objects which have ([redacted]) been inspected from seaward to determine their value as landmarks, be charted on ([redacted]) the charts indicated.

The positions given have been checked after listing.

W. M. Scaife — *Chief of Party.*

GENERAL LOCALITY: COLUMBIA RIVER (We. River-Mult. Channel)	POSITION					METHOD OF LOCATION	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
NAME AND DESCRIPTION	LATITUDE ° '	LATITUDE D. M. METERS	LONGITUDE ° '	LONGITUDE D. P. METERS	DATUM						
CLOCK TOWER	45 31	1377.9	122 40	685.2	NA 1927	triang.	1935				6155 6154
(Portland Union Depot Clock Tower-1935) (charted as TOWER)											
TANK, ELEVATED	32	346.9	40	590.6	"	"	"				"
(Portland, Crown Mills, blue tank, 1935)											
U. P. TANK, ELEVATED	31	1389.7	40	411.9	"	"	"				"
(Union Pacific painted on tank in large letters--Portland, Union Pacific Railroad Co. tank 1935)											
STACK, NORTH OF TWO	29	1008.8	40	174.6	"	"	1938				6155
(Multnomah Lumber & Box Co. N. stack of 2-1938)											
TOWER	29	1574	39	987	"	topo.	"				"
(transmission line tower, N end of Rose Island--Topo. signal TOE, Sheet No. 6619 b)											

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.

U. S. GOVERNMENT PRINTING OFFICE

Form 567
Rev. March 1935

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

TO BE CHARTED } STRIKE OUT ONE

Portland, Oregon March 23, 1939

I recommend that the following objects which have been inspected from seaward to determine their value as landmarks, be charted on the charts indicated.

The positions given have been checked after listing.

W. M. Scaife *Chief of Party.*

GENERAL LOCALITY: COLUMBIA RIVER (No. River-Mult. Channel)	POSITION					METHOD OF LOCATION	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
NAME AND DESCRIPTION	LATITUDE		LONGITUDE		DATUM						
	° '	D. M. METERS	° '	D. P. METERS							
TANK, ELEVATED	45 33	604.4	122 41	1008.7	NA 1927	Triang.	1935				6155 6154
(Portland, Union Pacific R. R. Co. elevated black tank-1935, above charted as TANK).											
TANK, ELEVATED	32	1667.9	42	178.0	"	"	"				"
(Portland, Oceanic Terminals) (Tank-1935)											
STACK, CONCRETE	32	957.7	41	849.9	"	"	"				"
(Portland P.R.L.& P. white concrete stack-1935)											
U. P. STACK,(square, brick, Union Pacific painted on stack in large letters.--Portland, Union Pacific Railroad Co. stack-1935)	32	1111.6	40	1005.4	"	"	"				"

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.

U. S. GOVERNMENT PRINTING OFFICE

Form 567
Rev. March 1935

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

TO BE CHARTED / TO BE DELETED } STRIKE OUT ONE

Portland, Oregon March 23, 1939

I recommend that the following objects which have (~~not~~) been inspected from seaward to determine their value as landmarks, be charted on (~~delete~~) the charts indicated.

The positions given have been checked after listing.

W. M. Seaife *Chief of Party.*

GENERAL LOCALITY: COLUMBIA RIVER (We. River-Mult. Channel) / NAME AND DESCRIPTION	POSITION LATITUDE ° '	LATITUDE D. M. METERS	LONGITUDE ° '	LONGITUDE D. P. METERS	DATUM	METHOD OF LOCATION	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
STACK, TALLER OF TWO (West Oregon Tall Stack a/c 1938)	45 36	1097.6	122 47	467.9	NA1927	triang.	1938				6154 6155
RADIO MAST (KGW Radio Tower 1938)	36	146.9	41	190.0	"	"	"				"
RADIO MAST (KOIN Radio Tower 1938)	30	1730.3	45	1817.5	"	"	"				"
TANK, NORTH OF TWO (Clark & Wilson north oil tank 1938)	44	768.7	50	407.4	"	"	"				6154
TANK (Swift & Co. tank 1938)	36	1290.4	41	1170.6	"	"	"				6154 6155

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.

U. S. GOVERNMENT PRINTING OFFICE

Form 567
Rev. March 1935

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

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

Portland, Oregon, March 23, 1939

I recommend that the following objects which have (~~been~~) 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.

W. M. Seaife, *Chief of Party.*

GENERAL LOCALITY: COLUMBIA RIVER — NAME AND DESCRIPTION	POSITION: LATITUDE ° '	LATITUDE D. M. METERS	LONGITUDE ° '	LONGITUDE D. P. METERS	DATUM	METHOD OF LOCATION	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
TANK (inconspicuous or gone)	45 44.4		122 46.4		NA 1927						6154
YEL. HO. S. CHY. (inconspicuous or gone)	44.2		46.4		"						6154
BELFRY (inconspicuous or gone)	43.1		46.2		"						6154
TANK (inconspicuous)	42.7		46.3		"						6154
WINDMILL (inconspicuous or gone)	40.2		45.6		"						6154
S.H. BELFRY (inconspic. or gone)	40.0		45.4		"						6154
TANK (inconspicuous)	39.8		49.6		"						6154
TANK (inconspicuous)	39.6		49.5		"						6154
WH. TANK (inconspicuous)	38.8		46.8		"						6155 6154
DOLPHIN (Gone- Many dolphins in this area.)	38.3		45.5		"						6155 6154
CHY. (inconspicuous or gone)	37.1		42.9		"						6154
SCHOOL (gone)	35.4		46.3		"						6155 6154
DOLPHIN (Many dolphins in this area, see topo. sheet)	35.8		45.8		"						6155 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.

U. S. GOVERNMENT PRINTING OFFICE

Form 567
Rev. March 1935

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

TO BE CHARTED / [illegible] } STRIKE OUT ONE

Portland, Oregon, March 25, 1939

I recommend that the following objects which have (~~have not~~) been inspected from seaward to determine their value as landmarks, be charted on (~~do not appear on the charts listed below~~) the charts indicated.

The positions given have been checked after listing.

W. M. Seaife, *Chief of Party.*

GENERAL LOCALITY: COLUMBIA RIVER

NAME AND DESCRIPTION	POSITION					METHOD OF LOCATION	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
	LATITUDE		LONGITUDE		DATUM						
	° ′	D. M. METERS	° ′	D. P. METERS							
OLD LIGHTHOUSE, recommend charting of outline as located on Topo. Sheet No. 6615a-1936, with name as above.	45 39.1		122 45.8		NA 1929	topo.	1936				6154 6155
STACK; Johnson 1936.	37	1741.5	49	267.5	"	triang.	"				6154
Tall Stack (USE) (LUM) * Traverse station 29th Engineers.											
GRAIN ELEVATOR, chart outline of building from air photograph, position given is for PACIFIC, 1936.	37	1498.7	41	619.0	NA 1927	triang.	"				6154 6156
GRAIN ELEVATOR, chart outline of building. Position given is for triangulation station TERMINAL 1936.	36	631.4	46	554.9	"	triang.	"				"

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.

U. S. GOVERNMENT PRINTING OFFICE

Form 567
Rev. March 1935

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

TO BE CHARTED } STRIKE OUT ONE

Portland, Oregon March 23, 1939

I recommend that the following objects which have been inspected from seaward to determine their value as landmarks, be charted on the charts indicated. **(Permanent aids to Navigation, Columbia River)**

The positions given have been checked after listing.

W. M. Scaife *Chief of Party.*

GENERAL LOCALITY COLUMBIA RIVER NAME AND DESCRIPTION	POSITION LATITUDE ° ′	LATITUDE D. M. METERS	LONGITUDE ° ′	LONGITUDE D. P. METERS	DATUM	METHOD OF LOCATION	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
Aids to Navigation of the Columbia River from Duck Club Light to the mouth of the Willamette River, area covered by hydrography in 1938, were listed and transmitted at end of 1937 field season, Form 567 dated January 10, 1938.											
MATHEWS POINT (destroyed)and replaced by the following											
MATHEWS POINT	45 38	1882	122 44	895	NA 1927	topo.	1938				6154 6155
VANCOUVER LOWER FRONT	38	169.4	42	1170.8	"	triang	"				"
*VANCOUVER LOWER REAR	37	1625.3	42	595.8	"	"	"				"
*763 yards 124 3/4° true from preceding.											
VANCOUVER FRONT	37	1057	41	412	"	topo.	"				"
*VANCOUVER REAR	37	409	40	474	"	"	"				"
*1528 yards 117 3/4° true from preceding.											
TOMAHAWK ISLAND UPPER DIKE	36	630	38	1033	"	"	"				"
(BABE) Dolphin B, Wash. (USE) Position given is dolphin at end of Dike, while charted position is about 150 meters NE of this position.											

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.

U. S. GOVERNMENT PRINTING OFFICE

VERIFICATION REPORT ON

H-6332 (1938)

CONDITION OF RECORDS

The records are neat, and conform to the instructions of the Hydrographic Manual. The Descriptive Report is satisfactory.

SHORELINE AND SIGNALS

Shoreline (highwaterline) originates with the following topographic surveys:

T-6617a	1938
T-6570b	1937
T-6571 a&b	1937
T-6572	1937

Signals originate with the topo surveys listed above, with the exception of Hydro signal Gan (sextant fix location.), noted in the index of Vol. I.

As stated in the Descriptive Report, page 3 par. 6, the low water line was located by notes in the records and by lines sketched on the boatsheet, supplemented by soundings inside the zero curve.

DEPTH CURVES

Curves could be satisfactorily drawn.

JUNCTIONS WITH CONTEMPORARY SURVEYS

Satisfactory junctions were made with the following surveys:

H-6247 (1937) downstream (to the north), and in the Multnomah channel, and at the mouth of Bachelor Island Slough in ϕ - 45°-47.7', λ - 122°-46.4'

H-6333 (1938) upstream (to the south), and in the Multnomah channel in ϕ - 45°-42.5'

CROSSINGS

Sounding line crossings are satisfactory.

FIELD PLOTTING

Field plotting was quite satisfactory. Numerous errors in the records had been corrected by the smooth plotter. The verifier added the name of one signal and strengthened some of the dike and pile lines. Ranges located by fixes were inked by the verifier.

Respectfully submitted

Harold F. Stegman

Nov. 15, 1939

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. H6332

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

Number of positions on sheet	1954
Number of positions checked	30
Number of positions revised	3
Number of soundings recorded	9587
Number of soundings revised	57
Number of soundings erroneously spaced	7
Number of signals erroneously plotted or transferred	None

Date: 11/15/39

Verification by H.F. Stegman Time: 92¾ hrs

Review by [signature] Nov. 22, 1939 Time: 18 hours

2629

HYDROGRAPHIC SURVEY NO. H-6332

Smooth Sheet Yes

Boat Sheet Yes (Two)

Records; Sounding 6 Vols., Wire Drag ___ Vols., Bomb ___ Vols.

Descriptive Report Yes (Covers H-6332 to H-6335 inclusive)

Title Sheet Yes

List of Signals Yes (Vol.#1)

Landmarks for Charts (Form 567) Yes

Statistics Yes

Approved by Chief of Party Yes

Recoverable Station Cards (Form 524) ---

Special Chart for Lighthouse Service (Circular Nov.30, 1933) ~~None~~ see page 4, AP3 of D.R.

Hydrography: Total Days 18 ; Last Date Nov. 11, 1938

Remarks

2776

	Remarks	Decisions
1		458 227-228 U.S.G.B
2		" U.S.G.B
3		457 227-228
4		"
5		"
6		U.S.G.B
7		458 227-228 U.S.G.B
8		
9		457 227-228
10		" U.S.G.B
11		"
12		"
13		"
14	Reeder Pt (post light) U.S. G-B decision	"
15		"
16	For title	458 227-28
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		

M 234

GEOGRAPHIC NAMES

Survey No. H-6332

Name on Survey	On Chart No. A,	On previous survey No. B,	On U. S. quadrangle Maps C,	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
Bachelor I.										1
Henrici Landing										2
Henrici Bar										3
Bachelor I. Point										4
Gilbert River										5
Columbia River										6
XXXXXXXXXXXXXXX										7
Multnomah Channel										8
Watts Island										9
Sauvie Island										10
Willow Point										11
Johnson Landing										12
Willow Bar										13
Reeder Point										14
Chapman Landing										15
Duck Club										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27
										M 234 VR

Names uncorrected [illegible]

by L. Heck on 5/11/39

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO H6333

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

Number of positions on sheet	2435
Number of positions checked	10
Number of positions revised	0
Number of soundings recorded	13011
Number of soundings revised	8
Number of soundings erroneously spaced	0
Number of signals erroneously plotted or transferred	0

Date: Nov. 14 1939.

Verification by L S Strain Time: 96 hours

Review by L S Strain Nov 20/939 Time: 25 hours

HYDROGRAPHIC SURVEY NO. H-6333

Smooth Sheet Yes

Boat Sheet Yes

Records; Sounding 8 Vols., Wire Drag ___ Vols., Bomb ___ Vols.

Descriptive Report Under H-6332

Title Sheet Yes

List of Signals Yes (Vol.#1)

Landmarks for Charts (Form 567) Yes

Statistics Yes

Approved by Chief of Party Yes

Recoverable Station Cards (Form 524) ---

Special Chart for Lighthouse Service (Circular Nov.30, 1933) ~~None~~ See #3 page 4 of D.R.

Hydrography: Total Days 22 ; Last Date Nov. 15, 1938

Remarks

2776

	Remarks	Decisions
1	Reeder Pt (post light) U.S. G.B. decision	457 227-228
2		" U.S.G.B
3		456 227-228 U.S.G.B
4		"
5		U.S. G.B.
6		456 227-228 U.S.G.B
7		" U.S.G.B
8		458 227-228 U.S.G.B
9		456 227-228 U.S.G.B
10		" U.S.G.B
11		" U.S.G.B
12		"
13		" U.S.G.B
14		" U.S.G.B
15		" U.S.G.B
16	settlement	"
17		
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27		

M 234

GEOGRAPHIC NAMES

Survey No. H-6333

Name on Survey	On Chart No. A,	On previous survey No. B,	On U. S. quadrangle Maps C,	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
Reeder Point										1
Sauvie Island										2
Hewlett Point										3
Morgan Bar										4
Columbia River										5
Willamette River										6
Mathews Point										7
Multnomah Channel										8
Hayden Island										9
North Portland Harbor										10
Ryan Point										11
North Portland										12
Tomahawk Island										13
Belle Vue Pt.										14
Kelley Pt.										15
Rocky Point										16
N.P. & S.P. & S.Ry. Bridge										17
Interstate Bridge										18
			by L. Heck on 5/11/39							19
										20
										21
										22
										23
										24
										25
										26
										27

M 234 VR

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. H6334

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

Number of positions on sheet	1306
Number of positions checked	11
Number of positions revised	0
Number of soundings recorded	6797
Number of soundings revised	10
Number of soundings erroneously spaced	21
Number of signals erroneously plotted or transferred	0

Date: Oct 31. 1939

Verification by L. S. Straus Time: 45 hours.

Review by L. S. Straus 10/31/39 Time: 37 hours.

2629

HYDROGRAPHIC SURVEY NO. H-6334

Smooth Sheet Yes

Boat Sheet Yes

Records; Sounding 5 Vols., Wire Drag ___ Vols., Bomb ___ Vols.

Descriptive Report Under H-6332

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) ---

Special Chart for Lighthouse Service (Circular Nov.30, 1933) ~~None~~ see AP3 page 4 of D.R.

Hydrography: Total Days 13 ; Last Date Nov. 16, 1938

Remarks

2776

	Remarks	Decisions
1		U.S.G.B
2		456-227-228 U.S.G.B
3		456 227-228 U.S.G.B
4		"
5		457 227-228 U.S.G.B
6		458 227-228 U.S.G.B
7	St. Johns (town) is U.S.G.B. decision	455 226-227
8		455 226-227 U.S.G.B.
9		"
10		"
11		456 227-228 U.S.G.B
12		455 226-227 U.S.G.B
13		"
14		
15		
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22		
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24		
25		
26		
27		

GEOGRAPHIC NAMES

Survey No. H-6334

Name on Survey	On Chart No. A,	On previous survey No. B,	On U. S. quadrangle Maps C,	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
Columbia River										1
Kelley Point										2
Willamette River										3
Post Office Bar										4
Sauvie ~~River~~ Island										5
Multnomah Channel										6
St. Johns Bridge										7
Doane Point										8
Swan Island										9
Swan Island Basin										10
Linnton										11
Wauld Bluff										12
Portland Airport										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27
										M 234

Names underlined in red approved by E. H. Ecm on 5/11/39

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. H6335

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

Number of positions on sheet	1077
Number of positions checked	29
Number of positions revised	4
Number of soundings recorded	5395
Number of soundings revised	7
Number of soundings erroneously spaced	6
Number of signals erroneously plotted or transferred	✓

Date: Oct. 18, 1939

Verification by Harold W. Murray Time: 9½ hrs

Review by do Time: 27 "

2629

HYDROGRAPHIC SURVEY NO. H-6335

Smooth Sheet Yes

Boat Sheet Two

Records; Sounding 4 Vols., Wire Drag ___ Vols., Bomb ___ Vols.

Descriptive Report Under H-6332

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) T****

Special Chart for Lighthouse Service ~~None~~ See HP 3 on page 4 of D.R.
(Circular Nov.30, 1933)

Hydrography: Total Days 12 ; Last Date Nov. 2, 1938

Remarks

2776

	Remarks	Decisions
1		456 226-228 U.S.G.B
2		455226
3		"
4		"
5		"
6		"
7		"
8		454226 U.S.G.B
9		454226 U.S.G.B
10		454226
11		
12		
13		
14		
15		
16		
17		
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27		

M 234

GEOGRAPHIC NAMES

Survey No. H-6335

Name on Survey	On Chart No. A,	On previous survey No. B,	On U. S. quadrangle Maps C,	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
Willamette River										1
Broadway Bridge										2
Burnside Bridge										3
Steel Bridge										4
Morrison Bridge										5
Hawthorne Bridge										6
Ross Island Bridge										7
Ross Island										8
Hardtack Island										9
Sellwood Bridge										10
Swan Island		applied on H-6334								11
		Names underlined in red approved by L. Heck on 6/6/39								12
										13
										14
										15
										16
										17
										18
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										21
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										26
										27

M 234 RR

FORM M-238

MEMORANDUM

IMMEDIATE ATTENTION

SURVEY
DESCRIPTIVE REPORT } No. H-6332, H-6333, H-6334, H-6335

~~PHOTOSTAT OF~~ ~~No.~~

received April 11, 1939
registered May 9, 1939
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			
24			
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30			
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62			
63			
82			
83			
88			
90			

RETURN TO:

82	T. B. Reed

✓ JBR

Lae

Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Rev. June 1937

TIDE NOTE FOR HYDROGRAPHIC SHEET

June 2, 1939

Division of Hydrography and Topography:

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

Plane of reference approved in
6 volumes of sounding records for

HYDROGRAPHIC SHEET 6332

Locality Bachelor Island to Reeder Point, Columbia River

Chief of Party: W. M. Scaife in 1938
Plane of reference is Columbia River Datum, reading
-0.1 ft. on tide staff at Henrici Landing
20.2 ft. below B. M. 1
-0.3 ft. on tide staff at Knapp Landing
20.6 ft. below "Thornes B.M."
-0.4 ft. on tide staff at Multnomah Channel, north end
27.6 ft. below B.M. 1
-0.2 ft. on tide staff Chapman Landing
27.5 ft. below B.M. triangulation station Clark
-0.2 ft. on tide staff at Rocky Point
31.3 ft. below B.M. A 30

Height of mean high water above plane of reference is approximately 3.5 ft.

Condition of records satisfactory except as noted below:

Acty Chief, Division of Tides and Currents.

U. S. GOVERNMENT PRINTING OFFICE 154327

Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Rev. June 1937

TIDE NOTE FOR HYDROGRAPHIC SHEET

June 6, 1939

Division of Hydrography and Topography:

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

Plane of reference approved in
8 volumes of sounding records for

HYDROGRAPHIC SHEET 6333

Locality Reeder Point to Vancouver, Columbia River

Chief of Party: W. M. Scaife in 1938
Plane of reference is Columbia River Datum, reading
-0.2ft. on tide staff at Morgan Landing
29.5ft. below B. M. 1
-0.4 ft. on tide staff at Kelley Pt.
39.7 ft. below B.M. "Kelley Pt."
-0.1 ft. on tide staff at Vancouver
47.7 ft. below B.M. 1
-0.4 ft. on tide staff at N. Portland
46.7 ft. below B.M. 1
-0.2 ft. on tide staff at Rooky Point
31.3 ft. below B.M. A 30
0.0 ft. on tide staff at Miller
40.0 ft. below "Mult. 1, 1938"

Height of mean high water above plane of reference is approximately 3.5 feet.
Condition of records satisfactory except as noted below:

Chief, Division of Tides and Currents.

U. S. GOVERNMENT PRINTING OFFICE 154337

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Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Rev. June 1937

TIDE NOTE FOR HYDROGRAPHIC SHEET

June 9, 1939.

Division of Hydrography and Topography:

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

Plane of reference approved in
5 volumes of sounding records for

HYDROGRAPHIC SHEET 6334

Locality Kelley Point to Swan Island, Willamette River

Chief of Party: W. M. Scaife in 1938
Plane of reference is Columbia River Datum, reading
1.0 ft. on tide staff at Columbia Slough
60.7 ft. below B. M. "C 32"
-0.4 ft. on tide staff at Kelley Point
39.7 ft. below B.M. "Kelley Pt."
-0.4 ft. on tide staff at Linnton
55.4 ft. below B.M. "Linnton"
-0.4 ft. on tide staff at Swan Island Basin
32.7 ft. below B.M. "Tex. 1, 1938"
0.0 ft. on tide staff at Miller
40.0 ft. below B.M. "Mult. 1, 1938"

Height of mean high water above plane of reference is approximately 3.5 feet.

Condition of records satisfactory except as noted below:

Acting Chief, Division of Tides and Currents.

U. S. GOVERNMENT PRINTING OFFICE 154337

Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Rev. June 1937

TIDE NOTE FOR HYDROGRAPHIC SHEET

June 9, 1939

Division of Hydrography and Topography:

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

Plane of reference approved in
5 volumes of sounding records for

HYDROGRAPHIC SHEET **6335**

Locality **Swan Island to Sellwood Bridge, Willamette River**

Chief of Party: **W. M. Scaife in 1938**
Plane of reference is **Columbia River Datum, reading**
-0.4 ft. on tide staff at Steel Bridge
29.0 ft. below B. M. "H. P. 1, 1938"
-0.3 ft. on tide staff at Sellwood Bridge
7.0 ft. below B.M. "Sellwood 1, 1938"

Height of mean high water above plane of reference is approximately 4.0 feet

Condition of records satisfactory except as noted below:

Ham

Acting Chief, Division of Tides and Currents.

U. S. GOVERNMENT PRINTING OFFICE 154327

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 6332 (1938) FIELD NO. 22

Bachelor Island to Reeder Point, Columbia River, Oregon-Washington.
Surveyed in Aug.-Sept.-Nov., 1938, Scale 1:10,000.
Instructions dated February 26, 1935 (R.W. Knox).

Hand Lead Soundings. 3 Point fixes on shore signals.

Chief of Party - W. M. Scaife
Surveyed by - C. J. Wagner
Protracted by - C. J. Wagner
Soundings plotted by - C. J. Wagner
Verified and inked by - H. F. Stegman

1. Shoreline and Signals.

The shoreline and signals are from T-6570b (1937), T-6571a and b (1937), T-6572 (1937) and T-6617a (1938). The angles for the location of hydrographic signal GAN are recorded on page 3 of Volume 1.

A short section of the shoreline of the Gilbert River is shown dashed and originates with T-1542 (1882) (Lat. 45°47.2', Long. 122°47.92')

2. Depth Curves.

The usual depth curves may be satisfactorily drawn.

3. Sounding Line Crossings.

A few ziz zag cross lines were run at wide intervals. The agreement of depths with the main system of lines is satisfactory.

4. Junctions with Contemporary Surveys.

The junctions with H-6247 (1937) on the north and east, and H-6333 (1938) on the south are satisfactory.

The junctions with later U. S. Engineers' surveys, blueprints 32763 (1939), 32764 (1939), 32765 (1939) and 32620 (1939), which for the most part embrace the main channel of the Columbia River, are satisfactory.

Where dredging operations have altered the depths subsequent to the present survey (H-6332-1938), the soundings from the U. S. Engineers' surveys should be used for charting.

5. Comparison with Prior Surveys.

a. H-1671 (1885), scale 1:10,000 and H-1711 (1886), scale 1:10,000.

Within the area of the present survey, these old surveys

taken together cover the Columbia River from Reeder Point to Bachelor Island. A small section of Multnomah Channel (called Willamette Slough on the old survey) Long. 122°48' between Latitudes 45°46.8' and 45°48.2' on H-1711 (1886) is common to the present survey. Natural changes and dredging operations subsequent to the old surveys make a detailed comparison of no cartographic value. All of the information on the old surveys has long since been superseded on the charts by numerous U. S. Engineers' surveys. The old surveys contain no information of value in current charting and should be disregarded.

6. Comparison with Chart 6154 (New Print dated Feb. 10, 1939).

a. Hydrography.

The soundings and charted information are from U. S. Engineers' surveys of 1919 to 1938. Every charted sounding in the common area was compared with the present survey and U. S. Engineers' surveys made at the same time or later, now in this office.

The section of the Columbia River between Lat. 45°45.5', and Lat. 45°46.6' is infrequently surveyed by the U. S. Engineers. As stated in the Descriptive Report the present survey covered the entire width of the river. The latest U. S. Engineers' survey blueprint 32765 (1939) is sparsely developed compared to H-6332 (1938). The depths are generally in fair agreement, however, attention is directed to the following: Two 32 foot soundings in Lat. 45°45.74', Long. 122°45.58' and Lat. 45°45.88', Long. 122°45.6' on H-6332 (1938) fall between lines in general depths of 34 and 36 feet on blueprint 32765 (1939). A 34 foot sounding from blueprint 32765 (1939) Lat. 45°45.64', Long. 122°45.65' falls in depths of 39 to 42 feet on H-6332 (1938).

Opposite Sales Light Lat. 45°46.55' the 18 foot curve on the west side of the river is located, on the present survey and on B.P. 32765 (1939), about 100 meters east of the charted position.

The present survey and the U. S. Engineers' Surveys, blueprints 32763 (1939), 32764 (1939), 32765 (1939) and 32620 (1939) should supersede all information prior to them.

b. Aids to Navigation.

Within the area of the present survey, no floating aids are charted. A red nun buoy (N2) was located opposite the mouth of Bachelor Island Slough Lat. 45°47.45', Long. 122°46.87' (page 66 volume 3 of the sounding records).

The charted ranges were checked by taking sextant fixes thereon, and are, including other fixed aids, in substantial agreement with the chart.

7. Condition of Survey.

a. The records are neat, legible and conform to the requirements of the Hydrographic Manual.

b. The field drafting was very good.

c. Log booms, piles and float houses prevented surveying the full width of Multnomah Channel between Lat. 45°43.5' and Lat. 45°45.2'.

Blank sections of the main channel of the Columbia River are adequately covered by current U. S. Engineers' surveys.

d. The Descriptive Report satisfactorily covers all items of importance.

8. Compliance with Instructions for the Project.

Satisfactory.

9. Additional Field Work Recommended.

None.

10. Superseded Prior Surveys.

H-1671 (1885) in part.
H-1711 (1886) " "

11. Reviewed by - Leo S. Straw, November 23, 1939.

12. Inspected by - H. R. Edmonston.

Examined and Approved:

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

K. T. Adams
Chief, Division of Charts.

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

G Rude
Chief, Division of H. & T.

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 6333 (1938) FIELD NO. 23.

Reeder Point to Vancouver, Columbia River, Oregon-Washington
Surveyed in Sept., Oct., Nov., 1938, Scale 1:10,000.
Instructions dated Feb. 26, 1935 (R. W. Knox).

Hand Lead Soundings. 3 Point fixes on shore signals.

Chief of Party - W. M. Scaife
Surveyed by - C. J. Wagner
Protracted by - C. J. Wagner
Soundings plotted by - C. J. Wagner
Verified and inked by - L. S. Straw

1. Shoreline and Signals.

The shoreline and signals are from T-6572 (1937), T-6620 (1938), T-6617a and b (1938) and T-6618a (1938). For hydrographic signals see bottom of page 15d of the Descriptive Report.

2. Depth Curves.

The usual depth curves may be satisfactorily drawn.

3. Sounding Line Crossings.

A zig-zag line crossing the Columbia River at intervals of 300 to 600 meters adequately checks the depths on the lines run parallel with the shore both on the U. S. Engineers' surveys and the present survey.

4. Junctions With Contemporary Surveys.

The junctions with H-6334 (1938) at the mouth of the Willamette River and in Multnomah Channel (Lat. 45°38.3'), and H-6332 (1938) at Reeder Point and Multnomah Channel (Lat. 45°42.5') are satisfactory.

No contemporary survey by this Bureau joins H-6333 (1938) at Ryan Point (Long. 122°38.6') since the limits of charts 6154 and 6155 was the eastern extent of this project in the Columbia River.

The junctions with later U. S. Engineers' surveys blue prints 32618 (Jan. 4-5, Mar. 8-16, 1939) and 32619 (Dec. 27, 1938, Jan. 3-5, Mar. 16-18, 1939) which for the most part embrace the main channel of the Columbia River, are satisfactory. Where dredging operations have altered the depths subsequent to the present survey (H-6333, 1938), the soundings from the U. S. Engineers' surveys should be used for charting.

5. Comparison with Prior Surveys.

a. H-1671 (1885), scale 1:10,000 and H-1673 (1885), scale 1:10,000.

Within the area of the present survey, these old surveys cover the Columbia River from the north end of Hayden Island to Reeder Point. Natural changes and dredging of the main channel subsequent to the old surveys make a detailed comparison of no cartographic value. All of the information on the old surveys has long since been superseded on the charts by numerous U. S. Engineers' surveys. The old surveys contain no information of value and should be disregarded.

b. H-2506 (1900), scale 1:10,000.

The present survey overlaps this old survey about a half mile at Ryan Point. A detailed comparison was not made, but a superficial examination shows that radical changes in depths and shoreline have taken place. The old survey has been superseded on the charts by numerous U. S. Engineers' surveys and contains no information of value. It should be disregarded.

c. H-4739 (1928), scale 1:5,000.

In Multnomah Channel the present survey overlaps H-4739 (1928) from Lat. 45°38.65' to its junction with H-6334 (1938). Soundings from H-4739 (1928) are shown on chart 6155 but not on chart 6154. The depths are in fair agreement with the present work, however, the present survey on a 1:10,000 scale is adequate to supersede H-4739 (1928), within the common area.

6. Comparison with Charts 6154 (New Print dated Feb. 10, 1939)
6155 (New Print dated Apr. 28, 1939)
6146 (New Print dated Jan. 3, 1939)

a. Hydrography.

A few soundings shown on chart 6155 in the Multnomah Channel approximate Lat. 45°38.45' originate with H-4739 (1928) and are discussed in paragraph 5c above. All other soundings and charted information are from U. S. Engineers' surveys of 1919 to 1938. Every charted sounding in the common area was compared with the present survey and U. S. Engineers' surveys made at the same time or later, now in this office.
> Also Bp. 45 (1899).
The present survey and the U. S. Engineers' surveys blueprints numbers 32618 (Jan. 4-5, Mar. 8-16, 1939) and 32619 (Dec. 27, 1938, Jan 3-5, Mar. 16-18, 1939) should supersede all information prior to them.

The dolphin charted in Lat. 45°38.3', long. 122°43.5' is no longer in existence and should be expunged from Chart 6154. (See page 11 of Descriptive Report T-6620). It has been removed from chart 6155.

b. Aids to Navigation.

The charted ranges were checked by taking sextant fixes thereon and are in substantial agreement with the chart.

The Tomahawk Island Upper Dike Light is charted about 90 meters NE X E 3/4E from its position on the end of the dike shown on the present survey. (See page 11 of Descriptive Report T-6620). For the tabulated locations of fixed aids to navigation consult chart letter 233 (1939). There are no floating aids to navigation within the limits of the present survey.

7. Condition of Survey.

a. The records are neat, legible and conform to the requirements of the Hydrographic Manual.

b. The field drafting was very good.

c. The unsurveyed portions of the present survey are adequately covered by later U. S. Engineers' surveys blueprints 32618 (Jan. 4-5, Mar. 8-16, 1939) and 32619 (Dec. 27, 1938, Jan. 3-5, Mar. 16-18, 1939). See top of page 12, of the Descriptive Report.

d. The descriptive report satisfactorily covers all items of importance.

8. Compliance with Instructions for the Project.

Satisfactory.

9. Additional Field Work Recommended.

None.

10. Superseded Prior Surveys.

H-1671 (1885)	in part.
H-1673 (1885)	" "
H-2506 (1900)	" "
H-4739 (1928)	" "

11. Reviewed by - Leo S. Straw, November 20, 1939.

12. Inspected by - H. R. Edmonston.

Examined & Approved:

Thos B Reed

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

K.T. Adams

Chief, Division of Charts.

Fred. L. Peacock

Chief, Section of Field Work.

G Rude

Chief, Division of H. & T.

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 6334 (1938) FIELD NO. 24.

Kelley Point to Swan Island, Willamette River, Oregon.
Surveyed in Sept. and Oct., 1938, Scale 1:10,000.
Instructions dated February 26, 1935 (R.W. Knox).

Hand Lead Soundings.

3 Point fixes on shore signals. Columbia Slough - positions spotted on air photographs.

Chief of Party - W. M. Scaife
Surveyed by - C. J. Wagner
Protracted by - C. J. Wagner
Soundings plotted by - C. J. Wagner
Verified and Inked by - L. S. Straw

1. Shoreline and Signals.

The shoreline and signals are from T-6617b (1938) T-6618a and b (1938). For Columbia Slough see page 19 of the Descriptive Report. The angles for the location of Hydrographic Signal POL are recorded on page 8 of volume 1 of the soundings records.

2. Depth Curves.

The usual depth curves may be satisfactorily drawn except where log rafts, moored ships or other obstructions prevented surveying along side of docks and close inshore.

3. Sounding Line Crossings.

A zig-zag line crossing the Willamette River at intervals of 300 to 500 meters adequately checks the depths on the lines run parallel with the shore both on the U.S. Engineers surveys and the present survey.

4. Junctions with Contemporary Surveys.

The junctions with H-6333 (1938) on the north at Kelley Point and H-6335 (1938) on the south below Swan Island (Portland Airport) are satisfactory.

The junctions with contemporary and later U.S. Engineers' surveys, blueprints 32618 (1939) and 32884 (Dec. 20, 1938), 33243 (Sept. 18-19, 1939) and 32885 (Dec. 1, 1938), which for the most part embrace the main channels of the waterways are satisfactory.

5. Comparison with Prior Surveys.

a. H-1672 (1885), scale 1:10,000 and H-1673 (1885), scale 1:10,000.

Except for about a mile of Multnomah Channel, called

Willamette Slough on H-1673 (1885), the present work falls within the combined area of the above surveys. Extensive artificial and natural changes in the common area make a detailed comparison of no cartographic value. All of the information on the old surveys has long since been superseded on the charts by the numerous U.S. Engineers' surveys of the area. The old surveys contain no information of value in current charting and should be disregarded.

b. H-4739 (1928) scale 1:5,000.

This survey extends from Lat. 45°36.9' in the Willamette River to Lat. 45°38.65' in Multnomah Channel. Only a few soundings in Multnomah Channel in approximate Lat. 45°38.3', Long. 122°49.25' and four snags in approximate Lat. 45°37.03', Long. 122°47.55', just south of the confluence of the Multnomah Channel with the Willamette River are shown on the present chart.

The soundings mentioned above are in good agreement with the present work, however, a selection of soundings from the present survey should supersede them; the rest of the soundings from the 1928 survey have been superseded on the charts by several subsequent U.S. Engineers' surveys.

The snags were located on H-4739 (1928) with a sweep set at an effective depth of 12 feet and their exact location determined by sextant fixes. The general depths in this vicinity have not changed materially as shown by numerous succeeding U.S. Engineers' surveys and the present survey. No mention of these snags was made either in the Descriptive Report or the sounding volumes, they probably still exist and should be retained on the charts.

6. Comparison with Chart 6154 (New Print dated Feb. 10, 1939). 6155 (New Print dated Apr. 28, 1939)

a. Hydrography.

A few soundings charted in the Multnomah Channel and the snags in approximate Lat. 45°37.03', Long. 122°47.55' originate with H-4739 (1928) and are discussed in paragraph 5b above. All other soundings and charted information are from U.S. Engineers' surveys of 1927 to 1938. Every charted sounding in the common area was compared with the present survey and U.S. Engineers' surveys made at the same time or later, now in this office. The present survey and the U.S. Engineers' surveys, blueprints numbers 32618 (1939), 32884 (Dec. 20, 1938), 33243 (Sept. 18-19, 1939) and 32885 (Dec. 1, 1938) should supersede all information prior to them. Blueprint 33243

(Sept. 18-19, 1939) scale 1:5,000 covers most of the area in Multnomah Channel included by the present survey. The depths are in good agreement. Soundings from the present survey may be selected to fill in any areas not covered by the U.S. Engineers' survey.

b. Aids to Navigation.

The buoys N4 and N2 in Multnomah Channel, are located by the present survey 20 and 100 meters from their charted position. It is noted that the location by the U.S. Engineers, B.P. 33243 (Sept. 18-19, 1939) is in substantial agreement with that of the present survey. The buoys satisfactorily mark the features intended.

The charted ranges were checked by taking a fix in the Willamette River below Multnomah Channel and by taking a fix in the Multnomah Channel. The charted range in the Willamette River checks the location by the present survey. The dashed line representing the range for Multnomah Channel should be shifted northward slightly on the chart to agree with the present survey. All other fixed aids to navigation on the present survey are in agreement with the chart.

7. Condition of Survey.

a. The records are neat and legible and conform to the requirements of the Hydrographic Manual.

b. The Descriptive Report satisfactorily covers all items of importance.

c. The field drafting was very good.

d. The channel of the Willamette River was not covered by the present survey since it was being surveyed by the U. S. Engineers the same season. Other blank areas are due to log rafts which prevented surveying in the following places: The Swan Island Basin, north of St. Johns Bridge and the north shore of Multnomah Channel.

e. U.S. Engineers surveys, blueprints 32885 (Dec. 1, 1938), 32884 (Dec. 20, 1938) and 32618 (1939) show deeper water due to dredging subsequent to the present survey in Lat. 45°33.3', Long. 122°42.1'; Lat. 45°35.85', Long. 122°46.7' (Vicinity of charted 30 foot sounding) and Lat. 45°39.4', Long. 122°45.85' (Mouth of Willamette River). The soundings from the Engineers surveys in these areas should supersede those of the present survey.

f. The soundings in Columbia Slough were plotted with white ink on uncontrolled mosaics which have been filed as blueprint No. 33564 to 33566 in this office. The shoreline

as shown on these mosaics is in good agreement with the chart and consequently the soundings may be spotted with sufficient accuracy for charting purposes. The soundings vary from 3 to 4 feet either shoaler or deeper than the soundings on Chart 6155 and should supersede them. The controlling depth in Columbia Slough from the Willamette River to the limit of Chart 6155 is 4 feet.

8. Compliance with Instructions for the Project.

Satisfactory.

9. Additional Field Work Recommended.

None.

10. Superseded Prior Surveys.

H-1672 (1885) in part.
H-1673 (1885) " "
H-4739 (1928) " "

11. Note to Compiler.

A measured statute mile and a measured nautical mile are on shown on Swan Island, Lat. 45°33.4' to Lat. 45°34.0'.

12. Reviewed by - Leo S. Straw, October 31, 1939.

13. Inspected by - H. R. Edmonston.

Examined and Approved:

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

K. T. Adams
Chief, Division of Charts.

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

Chief, Division of H. & T.

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 6335 (1938) FIELD NO. 25

Swan Island to Sellwood Bridge, Willamette River, Oregon
Surveyed in Oct.-Nov., 1938, Scale 1:5,000 and 1:10,000
Instructions dated Feb. 26, 1935

Hand Lead Soundings. 3 Point fixes on shore signals.

Chief of Party - W. M. Scaife.
Surveyed by - Clifton J. Wagner.
Protracted by - Clifton J. Wagner.
Soundings plotted by - Clifton J. Wagner.
Verified and inked by - Harold W. Murray.

1. Shoreline and Signals.

The shoreline and topographic signals originate with planetable surveys: T-6618b, T-6619a, and T-6619b of 1938. Hydrographic signal PRO on Ross Island originates with cuts recorded in the sounding records.

2. Sounding Line Crossings.

Agreement of sounding line crossings is satisfactory. The 3 foot discrepancy in line 39 to 40 k in lat. 45° 32.84', long. 122° 41.70' is due to the fact that the line was run after this area was dredged. (See paragraph 6 a (5).)

3. Depth Curves.

Within the limits of the survey, the usual depth curves may be satisfactorily drawn. Anchored log booms, vessels and other obstructions prevented the hydrographer from surveying as close to shore as desirable in some areas. The low water line was transferred from the boat sheet. (See D. R., page 3, last paragraph.)

4. Junctions with Contemporary Surveys.

a. The junction on the north with H-6334 (1938) is satisfactory. The unsurveyed area that is not covered by either survey is adequately covered by contemporary Engineers' survey Bp. 32885 (Dec., 1938) discussed in paragraph 6 a (5) of this review.

b. There are no surveys made by this Bureau to the southward of the present survey limits.

5. Comparison with Prior Surveys.

H-1672 (1885), 1:10,000.

This survey covers the present survey in the area northward of Ross Island. Considerable changes, many artificial, in the bottom and in shore details are noted and a detailed comparison will serve no useful cartographic purpose. The outstanding differences noted are to the northward of lat. 45° 32'. Formerly, the main river channel here ran close to the east bank with a controlling depth of 20 feet in the vicinity of lat. 45° 33'. The channel extended northwestward and formed Swan Island. The middle and western portion of the river in lat. 45° 33' was covered by a broad bar with depths ranging from 1 to 11 feet. The present survey, however, shows Swan Island connected to the mainland with the former main river channel here completely filled in. The main course of the river has been deflected to the south and southwestward of Swan Island where the present survey depths of 30 to 39 feet show that a tremendous amount of bottom material has been removed by natural or artificial means. Within the area covered, the present survey should supersede this survey.

6. Comparison with Chart 6155 (New print dated April 28, 1939).

a. Hydrography.

(1) Hydrography shown on the chart originates with Engineers' blueprints Nos. 23358 (1928), 26484 (1933), 30430 and 30431 of 1937, 31574 and 31575 of 1937, and 32610 (1932). General agreement is within 1 to 2 feet except that in some areas of small extent the present survey depths vary 2 to 16 feet deeper in some cases and 1 to 12 feet shoaler in others. Additional comparative details are noted in the D. R., pages 22 to 24 inclusive.

The charted hydrography in the vicinity of Ross Island originating with Bp. 23358 (1928), scale 1:5,000, is characterized by very irregular bottom. The dispositions of the more important charted shoal soundings not confirmed by the present survey are as follows:

(a) 2 foot sounding; lat. 45° 28.15', long. 122° 40.0'. This sounding falls in depths of 27 feet on the present survey and is reported to be on a rock. The sounding as plotted, however, does not have a bottom characteristic. The shoaling is also supported by a 12 foot sounding 55 m. WSW and a 16 45 m. ENE obtained on the same line. This indicates that the feature is at least over 100 m. in extent and should be easily verified if existing.

This sounding is discussed in considerable detail in the D. R., pages 24 e and 24 f and is considered disproved. The facts presented therein by the Chief of Party are exhaustive and conclusive and need not be repeated here.

(b) 4 foot sounding; lat. 45° 28.50', long. 122° 39.86'. This sounding falls in depths of 21 feet on the present survey. The 4 foot shoaling is supported by a 10.8 foot sounding 40 m. to the westward and also a 13.5 about 70 m. westward obtained on the same line, which soundings also fall in considerably deeper depths on the present survey. The disagreement of these soundings together with other soundings obtained on the same line when compared with the present survey depths indicate that the Engineers' line is either too shoal or displaced to the westward. These soundings should be disregarded.

(c) 3 foot sounding; lat. 45° 28.63', long. 122° 39.97'. This sounding falls in depths of about 18 feet on the present survey and is just eastward of a broad detached shoal area enclosed by the 6 foot curve. Another Engineers' survey, Bp. 32610 of 1932 also shows depths of 10 and 14 feet over the 3 foot spot. A general note on this survey, however, states that the soundings were obtained after dredging although the precise limit of the dredge work is not clearly indicated. A note in the sounding records, pos. 41 e of the present survey, also states that dredging

was accomplished in this vicinity about 3 years ago. It is concluded from the above that this shoal area has either been dredged out or else the line of soundings is displaced to the eastward and should therefore be disregarded.

(d) 1 foot sounding; lat. 45° 28.66', long. 122° 40.05'. This sounding falls on a shoal area in depths of 3 feet on the present survey. The present survey, however, shows three 1 foot soundings about 50 m. to the northward. These three soundings are sufficient for charting purposes in this area.

(e) 5 foot sounding; lat. 45° 28.81', long. 122° 40.08'. This sounding was obtained on line between a 9 foot sounding on the east and a 22 foot sounding on the west and falls in depths of 19 feet on the present survey. The 5 also falls in depths of about 20 feet on Bp. 32610 of 1932. The two dredging operation notes noted in paragraph (c) above also apply to this area and it is therefore concluded that the shoal has been dredged and should be disregarded.

(f) 4 and 5 foot soundings; lat. 45° 29.1', long. 122° 40.2'. These soundings, actually 4.7 and 4.8 feet respectively, fall close to 5 foot spots on the present survey. The present survey information is sufficient for charting.

(g) 3 foot sounding; lat. 45° 29.1', long. 122° 40.1'. This sounding falls between two sounding lines spaced 40 m. apart and in depths of about 10 feet on the present survey. It is at the northern tip of a shoal area marked by a buoy (not charted). The 3 also falls in depths of about 10 feet on Bp. 32610 of 1932. A note in the sounding records, pos. 16 n, states that a 15 minute search with the lead line failed to confirm the existence of the shoal. The present survey information is sufficient for charting.

(h) 4 foot sounding; lat. 45° 28.95', long. 122° 39.25'. This sounding, actually 4.5 feet, falls in depths of 7 feet on the present survey. Because of the small bank delineated by the 6 foot curve just westward it is possible that this depth can exist. The present survey, however, shows a 4 foot depth 50 m. southwestward and another 55 m. northeastward which are sufficient for charting.

The present survey executed at a later date should supersede the above Engineers' information in charting.

(2) Bp. 32610, scale 1:5,000, covers the insert in the vicinity of Ross Island. This survey contains the same soundings shown on Bp. 23358 (1928) discussed in the above paragraphs except in the area of the westerly channel between lat. 45° 28.2' and lat. 45° 29.3', where considerable soundings subsequent to dredging operations are shown. The blueprint, however, has not been applied to the chart except for a small area in the vicinity of Sellwood Bridge. Agreement of depths is good in many areas but the present survey depths vary 1 to 6 feet shoaler in some cases and 1 to 17 feet deeper in others. The excessive deepening is attributed to dredging for gravel. The present survey should supersede this survey.

(3) Bps. 32613 (1936), 32614 (Jan. 1937), and 32615 (Feb. 1937) cover a small portion of the present survey in lat. 45° 32'. These blueprints have later office registry numbers but are actually superseded by Bps. 30430 (Mar. 1937) and 30401 (Mar. 1937) discussed in the foregoing paragraphs.

(4) Bp. 32616 (July 1938) covers the present survey in the area northward of lat. 45° 32.5'. Agreement of depths is very good. This blueprint should be superseded by the present survey. (See following paragraph.)

(5) Bp. 32885 (Dec. 1938), scale 1:5,000, is subsequent to the present survey and covers the area northward of lat. 45° 31.9'. Soundings between lat. 45° 31.9' and lat. 45° 32.8', however, are copied from the unverified present

survey and should be superseded. Soundings northward of lat. 45° 32.8' are subsequent to the present survey. These soundings were taken after dredging operations and show that practically the entire area has been deepened to depths of 34 to 44 feet. This information should supersede the present survey in this area.

b. Controlling depths.

A charted note states that in Willamette River above Portland, the controlling depth at low water to Oregon City is 8 feet as of June 1938. The present survey within the area covered shows a controlling depth of 12 to 14 feet in the vicinity of Ross Island and is subsequent to this information. A controlling depth of 29 feet, however, may be carried upstream to the vicinity of Ross Island bridge.

c. Aids to Navigation.

The charted fixed light in lat. 45° 32.9', long 122° 41.8' agrees closely with the present survey location.

In the vicinity of the westerly channel at Ross Island, the present survey shows two buoys, one in lat. 45° 29.1' and another in lat. 45° 28.5'; and a light on Sellwood Bridge in lat. 45° 27.9' which are not charted.

The aids mentioned above satisfactorily mark the features intended. However, on the west side of Ross Island, the buoy in lat. 45° 29.1' could be shifted north about 100 m. to mark the tip of the shoal area here. The north side of the shoal area in lat. 45° 28.7' could also be marked by a buoy.

7. Condition of Survey.

a. The sounding records are neat and legible.

b. The descriptive report is comprehensive and satisfactorily covers all matters of importance.

c. The field plotting is satisfactory.

8. Compliance with Instructions for the Project.

The plan, character and extent of the survey satisfy the instructions for the project.

9. Additional Field Work Recommended.

This is an excellent survey and no additional field work is necessary.

When the vicinity of Ross Island is resurveyed by this Bureau, the advisability of using a scale of 1:5,000 instead of 1:10,000 should be considered. The bottom here is very irregular and somewhat of a changeable character because portions of the bottom are composed of sand and gravel which is dredged for commercial building purposes.

10. Superseded surveys.

H-1672 (1885) in part.

11. Reviewed by - Harold W. Murray, October 23, 1939.

12. Inspected by - H. R. Edmonston.

Examined and approved:

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

K. T. Adams
Chief, Division of Charts.

Chief, Section of Field Work.

Chief, Division of H. & T.

applied to drawing of chart 6154 (except where superseded by later U.S.E. Blueprints) Dec. 1939-Jan 9. 1940 J.S.L.

applied to drawing of chart 6155, Feb. 1940 J.S.L.