

7121

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Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

7121

Field No. WE - 0511.6

Office No. 7001

LOCALITY

State Oregon

General locality Columbia River

Locality North Portland Harbor

1946

CHIEF OF PARTY

L. C. Wilder

H. F. Garber (Acting)

LIBRARY & ARCHIVES

DATE

MAY 27 1947

7121

MAY 27 1947

Form 537
(Ed. Nov. 1941)

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

REG. NO. 11121

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

REGISTER NO. H-7121

Field No. WE 05146

State Oregon

General locality Columbia River

Locality North Portland Harbor

Scale 1:5,000 Date of survey February, 1946

Instructions dated November 28, 1945

Vessel WESTDAHL

Chief of party L. C. Wilder & E. H. Bernstein

Surveyed by H. F. Garber

Soundings taken by fathometer, graphic recorder, ~~hand lead, etc.~~

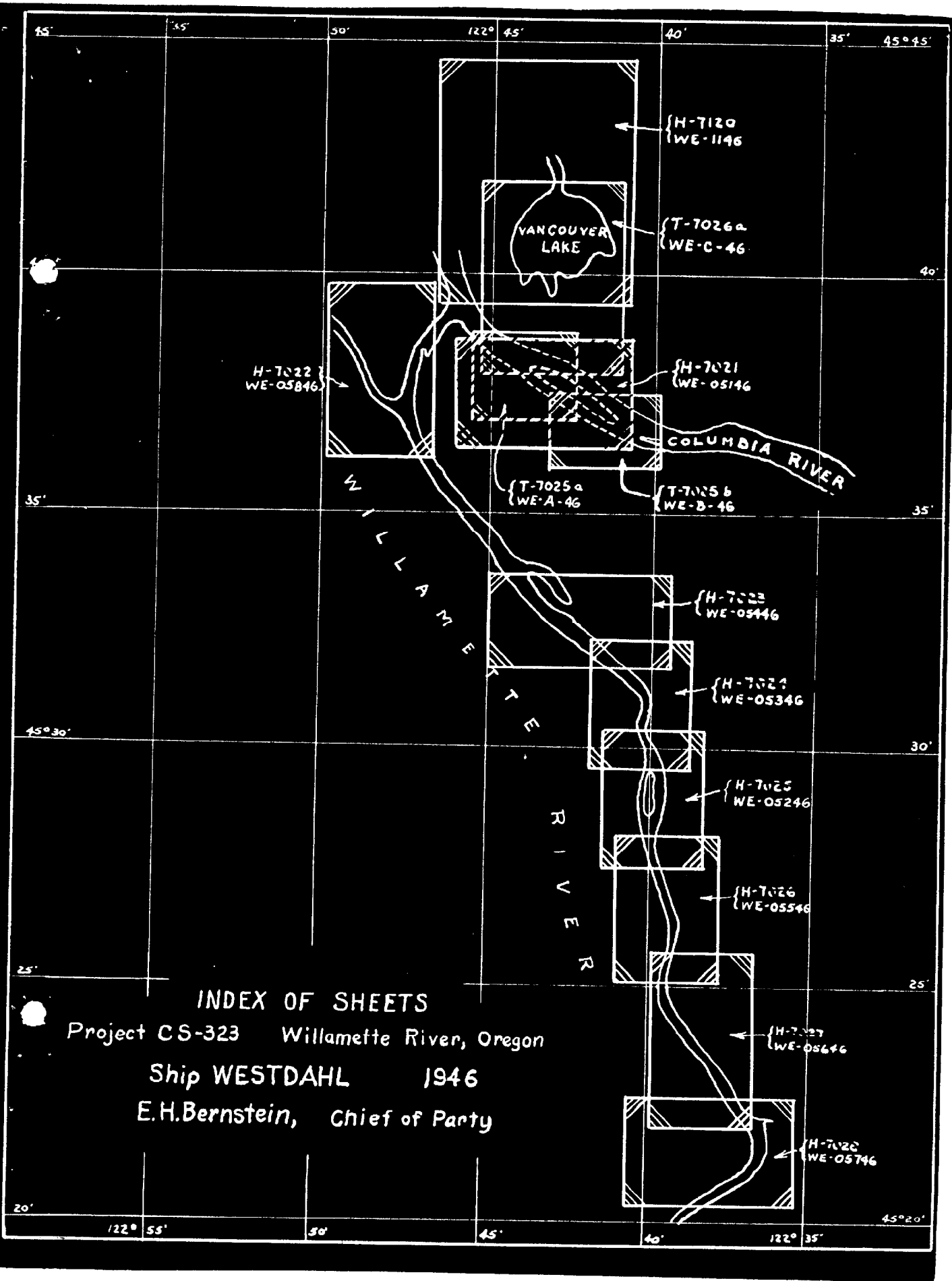
Protracted by H. C. Parsons

Soundings penciled by H. C. Parsons

Soundings in ~~fathoms~~ feet at ~~MLW MLLW~~ Columbia Low Water Datum

REMARKS:

Processed in the Seattle Processing Office



INDEX OF SHEETS

Project CS-323 Willamette River, Oregon

Ship WESTDAHL 1946

E.H. Bernstein, Chief of Party

Descriptive Report to accompany

Sheet WE - 051145
H-7021 7121

February 1946

Scale 1:5,000

Ship WESTDAHL

H. F. Garber,
Acting Comdg. Officer

Project:

This survey was made in accordance with paragraph 19 of Instructions dated 28 November, 1945, Project CS-323. Paragraph 19 calls for any additional work needed in the Portland area. This work was approved by the Washington Office.

The work was requested by the U. S. Engineers and the Maritime Commission as it is contemplated on laying up surplus craft in this area.

Survey Limits and Dates:

The area covers North Portland Harbor from its northern entrance to 0.2 miles south of the Interstate Bridge.

The entire area is covered by Sheet H-6333, 1938, Scale 1:10,000.

The sounding was done between 13 February and 19, 1946.

Vessel and Equipment:

All the sounding was done with a 36 foot landing barge (LCPR) operating from the Ship WESTDAHL at anchor in North Portland Harbor.

The 808 Depth Recorder was not functioning properly due to a leaky cable and nearly all the sounding was done with the handlead. The depth recorder was used for fifty minutes on 15 February, 1946.

Tide Station:

A tide gage was maintained at N.P. & S. Pt & S. R. R. bridge at North Portland Harbor. The Columbia Low River Datum as determined by the U. S. Engineers was used.

Smooth Sheet:

The smooth sheet was not made at the time of this report. While the field work was done on two boat sheets WE-05146 A & B, it is contemplated on plotting the work on one smooth sheet. Only one descriptive report is submitted.

Control Stations:

The triangulation used for control was established by W. M. Scaife in 1938.

Topographic Stations were located by the planetable on aluminum (T-7025a and T-7025b) mounted sheets Nos. A & B, WE 1946. Standard planetable methods were used for location.

One hydrographic signal, HAT, was located by sextant angle, Vol. 1, Page 7.

Shoreline & Topography:

The shoreline and topography was not delineated as the Portland Photogrametric Party is mapping this area. Shoreline for the smooth sheet will be obtained from Air Photo Sheet No. 8673, 1946, R. A. Earle, Chief of Party. See correspondence in back of this report

The shoreline appearing on the boat sheet was transferred and enlarged from Sheet H-6333, 1938, and is subject to error through enlargement.

The low water line could not be delineated as the shores were fouled with snags, debris, log rafts and piling. The Harbor is principally used for the moorage of log rafts with numerous dolphins and piling to secure the rafts. It was impossible to sound considerable areas along the shore on account of log storage.

Soundings:

The depths were measured in feet with the hand lead which was verified twice daily. Fifty minutes of sounding was done with the 808 depth recorder on 15 February 1946. The range of soundings was from 18 to 30 feet.

The results of the bar check is as follows:

Bar Depth	Fath. Reading
Feet	Feet
10.0	19.7
15.0	14.8
20.0	20.0

Inasmuch the soundings were obtained through a narrow range with a zero correction at twenty feet, a zero fathometer correction was applied to this short period.

Control of Hydrography:

All positions were controlled by three-point sextant fixes.

Adequacy of Survey:

The survey is adequate for the area covered, except as mentioned above where log rafts prevented inshore coverage.

No junctures are made with contemporary sheets.

Crosslines:

Ten percent of crosslines were run and no discrepancies noted.

Comparison with Previous Surveys:

Comparison was made with Sheet H-6333, 1938. In general the soundings are in good agreement. However as this is a changeable area, the following discrepancies were noted:

1. The 12 foot soundings at Lat. $45^{\circ} 37'.95$, Long. $122^{\circ} 44'.05$ and Lat. $45^{\circ} 37'.68$, Long. $122^{\circ} 43'.60$ on Sheet No. H-6333 falls among 15's on the present survey with a close spacing of lines. As the channel is subject to scouring action, it is recommended the old sounding be deleted.
2. The 4 foot shoal at Lat. $45^{\circ} 36'.80$, Long. $122^{\circ} 41'.80$, Sheet H-6333 has apparently shifted about one hundred meters WSW where a $3\frac{1}{2}$ foot shoal was found on the present survey. This shoal lies in the channel for vessels passing through the draw of the N. P. & S. P. & S. Ry. bridge. A further comparison should be made when the smooth sheet is plotted.

Comparison with Chart 6155:

As the area on Chart 6155 is based on the survey of Sheet H-6338³, 1938, the discrepancies noted in the preceding paragraph are the same as appearing on the chart.

The three wrecks shown on the southern side are well up on the shore and are no menace to navigation and of little consequence.

Dangers and Shoals:

The $3\frac{1}{2}$ foot shoal Lat. $45^{\circ} 36' 7''$, Long. $122^{\circ} 41' 85''$ constitute a danger for vessels passing through the draw of the railroad bridge.

Coast Pilot Information:

Other than tugs shifting log rafts, the area has but little traffic and the present Coast Pilot information is sufficient.

Aids to Navigation:

There are no aids to navigation within the area of the sheet.

The Geographic Names and Landmarks for Charts are being submitted by the Portland Photogrametric Party for the entire Portland area. 814

Submitted by,

H. F. Garber

H. F. Garber,
Lt. Comdr., USCGS
Acting Chief of Party.

STATISTICS

SHEET WE-05146

7121

Volumes	Day Letter	Date	No. of H.L. Sdgs.	No. of Pos.	Stat. Miles of Sdgs.
Vol. 1	a	2-13-46	501	106 H.L.	922 H.L.
Vol. 1	b	2-14-46	486	110 H.L.	8.5 H.L.
Vol. 1	c	2-15-46	471	30 Fath. 114 H.L.	2.5 Fath. 7.0 H.L.
Vol. 1	d	2-16-46	464	96 H.L.	7.8 H.L.
Vol. 1	e	2-18-46	218	43 H.L.	2.4 H.L.
Vol. 2	e	2-18-46	608	135 H.L.	7.2 H.L.
Vol. 2	f	2-19-46	378	91 H.L.	5.5 H.L.
TOTAL			3126	695 H.L. 30 Fath.	47.6 H.L. 2.5 Fath.

Area, square statute miles - - - - -0.8

Tidal Sheet to Accompany

Sheet WE - 05146

7121

Tide reducers were obtained from tide station located at North Portland Harbor, Columbia River, Lat. $45^{\circ} 36'53$, Long. $122^{\circ} 42'08$.

Plane of reference was the Columbia Low Water Datum as determined by the U. S. Engineers.

On sheet H-7021(b) reducers were applied to soundings directly as read on the tide gage. On sheet H-7021(a) reducers from the staff were corrected for hydraulic slope of the tide datum, the sheet being considered in two mile zones distant approximately one mile and two miles downstream from the tide gage.

Approval Sheet

Hydrographic Sheet No. WE - 05146

H-7021 **7121**

The boat sheet, sounding record, and fathograms have been examined and approved by me.

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

H. F. Garber
H. F. Garber,
Lieut. Comdr., USC&GS
Acting Commanding Officer

H-7121

WE 05146

North Portland Harbor, Oregon

Seattle Processing Office Notes

The projection is hand made on Whatman paper. (1946) Topographic signals are from T-7025 a & b. The shoreline is from T-8673 and T-8674. As the signals did not check very closely with the piles and dolphins of the photo topo compilation, these features were omitted from the smooth sheet. Due to errors in planimetric work - see attached letters

The log rafts have been sketched on the smooth sheet as on the boat sheet to account for the areas not sounded. ✓

The controlling depth through this channel is 9 feet on the bar 200 - 300 meters east of the draw span in the S.P. & S. Ry. Bridge. ✓

Other matters have been discussed in the report by the field party. ✓

Respectfully submitted,

Edgar E. Smith
Edgar E. Smith
Cartographic Engineer
Seattle Processing Office

Copy

Murray
839

Addition to the Review of T-8673

Comparison with H-7121, 1:5,000, 1946.

(1946) A comparison of the manuscript T-8673 with ⁽¹⁹⁴⁶⁾ H-7121 showed differences between the planetable location of dolphins as shown on the hydrographic sheet and the photogrammetric location of the same dolphins on the manuscript of from 3 to 15 meters.

Investigation during the review showed these differences to be almost entirely due to errors on the photogrammetric manuscript. The radial plot was well controlled and accurate, but most of the dolphins were apparently detailed without first locating an adequate number of detail points. These have been relocated by intersection, holding to the main radial plot points, and the corrected positions are shown in red on the manuscript.

careless sketching of detail

All the dolphins on the manuscript ⁽¹⁹⁴⁶⁾ now agree with the planetable locations shown on H-7121 with the exception of two, which differ by about 8 meters. Careful location of these two by radial intersection fails to agree with the planetable locations. These two dolphins are noted with red arrows and red circles on an ozalid furnished the hydrographic review section. This ozalid print has been made from the corrected manuscript T-8673 and is furnished for correction of piling and other details to H-7121.

from T-7025 (1946)

addition

Reviewed by:

Reviewed under direction of:

K. N. Maki
Photogrammetrist

[Signature]

S. V. Griffith
Chief, Review Section

APPROVED BY:

Technical Assistant to the
Chief, Div. of Photogrammetry

Chief, Nautical Chart Br.
Division of Charts

Chief, Div. of Photogrammetry

Chief, Div. of Coastal
Surveys

9 June 1947

TO: Lt. Comdr. Robert A. Earle
U. S. Coast and Geodetic Survey
c/o Swan Island Postal Station
Portland 18, Oregon

Subject: Errors in location of dolphins on T-8673

Enclosed is a copy of an ⁽¹⁹⁴⁶⁾ addition to the Washington Office review report for T-8673, together with an ozalid print of the corrected manuscript which shows in red the extent of errors in location on the original manuscript of some of the dolphins in the Columbia River.

These objects were not originally located on the manuscript as stations for hydrographic control and thus the compiler was not under obligation to cut all of them in and show them as topographic stations. However, they are prominent details which should have been detailed with almost the same accuracy; whereas they were detailed considerably in error. Presumably, this error was caused by having too few detail points to control the delineation.

This is a good example of the fact that no matter how accurate the radial plot may be, the basic accuracy of the plot will be lost if the delineation of details is not carefully and conscientiously carried out. Please call this to the attention of the employee responsible for T-8673 and to other employees in your office.

Encls. Edmund L. Jones
Assistant Chief, Div. of Photogrammetry

Murray

H-7021

North Portland Harbor

Geographic Names

Hayden I.

North Portland Harbor

GEOGRAPHIC NAMES

Survey No. **11121**

Name on Survey	Source											
	A	B	C	D	E	F	G	H	K			
<u>Columbia River</u>											USGB	1
<u>North Portland Har</u>											USGB	2
												3
<u>Hayden Island</u>											USGB	4
<u>Interstate Bridge</u>												5
												6
												7
												8
												9
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by L. Heck on 7/16/47

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. **17121**

Records accompanying survey:

Boat sheets ...²...; sounding vols. ...²...; wire drag vols.;
 bomb vols.; graphic recorder rolls ...¹...;
 special reports, etc.

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

Number of positions on sheet	.....	725
Number of positions checked	.....	51
Number of positions revised	.....	1
Number of soundings revised (refers to depth only)	.....	10
Number of soundings erroneously spaced	.....	1
Number of signals erroneously plotted or transferred	.....	0
Topographic details	Time	6 hrs
Junctions	Time	0
Verification of soundings from graphic record	Time	15 MIN

Verification by R. K. DE LAWDER Total time 52 hrs. Date 6-30-47.

Reviewed by J. F. Jordan Time 27.... Date 7-8-47.

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-7121

FIELD NO. WE-05146

Oregon, Columbia River, North Portland Harbor
Surveyed in February 1946 Scale 1:5,000
Project No. CS-323

Soundings:

Control:

Leadline
808-Fathometer

Sextant fixes on shore
signals

Chief of Party - L. C. Wilder and E. H. Bernstein
Surveyed by - H. F. Garber
Protracted by - H. C. Parsons
Soundings plotted by - H. C. Parsons
Verified and inked by - R. K. DeLawder
Reviewed by - G. F. Jordan, July 8, 1947
Inspected by - H. W. Murray

1. Shoreline and Signals

The control for this survey is adequately discussed in the Descriptive Report.

The shoreline, bridges and other topographic detail are from map manuscripts T-8673 and T-8674 which had been reviewed and corrected prior to this review.

2. Bottom Configuration and Depth Curves

The river bottom covered by this survey is irregular and changeable.

The bottom is adequately delineated by the usual depth curves except along the shore where hydrography was prevented by log booms and other obstructions. The 12- and 18-ft. curves in these areas have been partially completed by the addition of soundings from H-6333 (1938) in the areas of more stable bottom.

3. Sounding Line Crossings

The agreement of soundings at crosslines is very good.

4. Junctions with Adjoining Surveys

No adjoining surveys are proposed on the present project. Adjacent charted hydrography on the west is in fair agreement. On the east, the agreement is poor because of the changeable bottom.

5. Comparison with Recent Surveys

H-6333 (1938) scale 1:10,000

This survey covers the entire area of the present survey. The agreement of depths varies from good to very poor. The disagreements result from changeable bottom. An example of this condition is in the vicinity of lat. $45^{\circ} 36.55'$, long. $122^{\circ} 40.95'$, where prior 1-ft. depths fall in present 6-to 10-ft. depths. Another example is in the vicinity of lat. $45^{\circ} 37.25'$, long. $122^{\circ} 42.85'$, where prior 14-to 18-ft. depths are now superseded by 11-and 12-ft. depths. Such differences occur in small areas throughout the survey. (See Par. 2, above).

Within the area of the present survey, H-6333 (1938) is now entirely superseded.

6. Comparison with Chart 6155 (Print date of March 17, 1947)

a. Hydrography

Charted hydrography west of the bridge in long. $122^{\circ} 40.8'$ originates with the aforementioned survey H-6333 (1938) and needs no further consideration. East of the bridge, charted hydrography from a survey in 1941 by the U. S. Engineers (bp. 35712) superseded H-6333 and is in turn superseded by the present survey.

b. Aids to Navigation

No aids to navigation are charted within the area of the present survey.

7. Condition of the Survey

a. The Descriptive Report and sounding records are complete and comprehensive.

- b. The smooth plotting was very good.

The Processing Office notes mentioned that offlying dolphins used as signals and located by planetable on T-7025a (1946) failed to confirm the planimetric locations on T-8673. A rechecking of the planimetric data in this office revealed discrepancies in position of from 3 to 15 meters. The revised planimetric plotting is now in excellent agreement with the planetable locations.

- c. The 11-ft. sounding at lat. $45^{\circ} 36' 27.5''$, long. $122^{\circ} 40' 49.5''$ appears questionable. This handlead sounding, obtained on a line passing under the bridge, was probably on a submerged part of a pier. The next sounding on line (31 ft.) was check-marked in the records. Neither the sounding volume nor the boat sheet make note of the bridge or piers.

- d. Discrepancies exist in the vertical clearances of bridges as listed in the "Bridge Book" and as shown on the smooth sheet (from map manuscripts T-8673 and T-8674). The following data on the highway bridge at lat. $45^{\circ} 37' 27''$, long. $122^{\circ} 40' 50''$, and the railroad bridge at lat. $45^{\circ} 37' 52''$, long. $122^{\circ} 42' 05''$ are to be noted:

	<u>Bridge Book</u>	<u>Smooth Sheet</u>	<u>Difference</u>
<u>Highway Bridge</u>			
(1) Vert. Cl.	34 ft.	29 ft.	5 ft.
(2) Hor. Cl.	100 ft.	100 ft.	
<u>Railroad Bridge</u>			
(3) Vert. Cl.	39.25 ft.	40 ft.	
(4) Hor. Cl.	125 ft.	125 ft.	

this refers to plane 5' above MLW, hence these agree PVE 1/6/54

No data on bridges ^{were} ~~was~~ submitted with the present survey nor was the clearance of the overhead cable on the west side of the aforementioned highway bridge mentioned. (See Par. 3836 of H. M.).

8. Compliance with Project Instructions

The survey adequately complies with the project instructions.

9. Additional Field Work

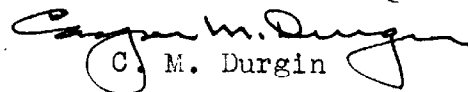
This is an excellent basic survey and no additional field work is required.

Examined and approved:



I. E. Rittenburg

Chief, Nautical Chart Branch



C. M. Durgin

Chief, Division of Charts



K. G. Crosby

Chief, Section of Hydrography



C. K. Green

Chief, Division of Coastal Surveys

