7692

Diag. Cht. No. 6157 (Insert)

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. LR-11048 *Office No.* H-7692

LOCALITY

State Washington

General locality Franklin D. Roosevelt

Locality Vicinity of China Bend

194 8-'49

CHIEF OF PARTY

J.T.Jarman

LIBRARY & ARCHIVES

DATE 7 Dec. 1949

B-1870-1 (1)

7692

DEC 7 1949

Form 537
(Ed. Nov. 1941)

REG. NO. H-7692

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

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

REGISTER No. H 7692

Field No. LR 11048

State Washington

General locality Franklin D. Roosevelt Lake

Locality Vicinity of China Bend ~~Bossburg to Marble-Stevens County.~~

Scale 1/10 000 Date of survey Aug-Sept. 1948, April-May 1949

Instructions dated 20 June 1947 Proj.CS 332.

Vessel Launch 98 & LCVP

Chief of party J.T.Jarman

Surveyed by G.W.Moore, Hal A. Marchant

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

Protracted by James R. Wheeler

Soundings penciled by James R. Wheeler

Soundings in ~~fathoms~~ feet at ~~MLW~~ MLLW a/ 1290 feet USBR 1937 Independent datum: or 1288.575 feet MSL

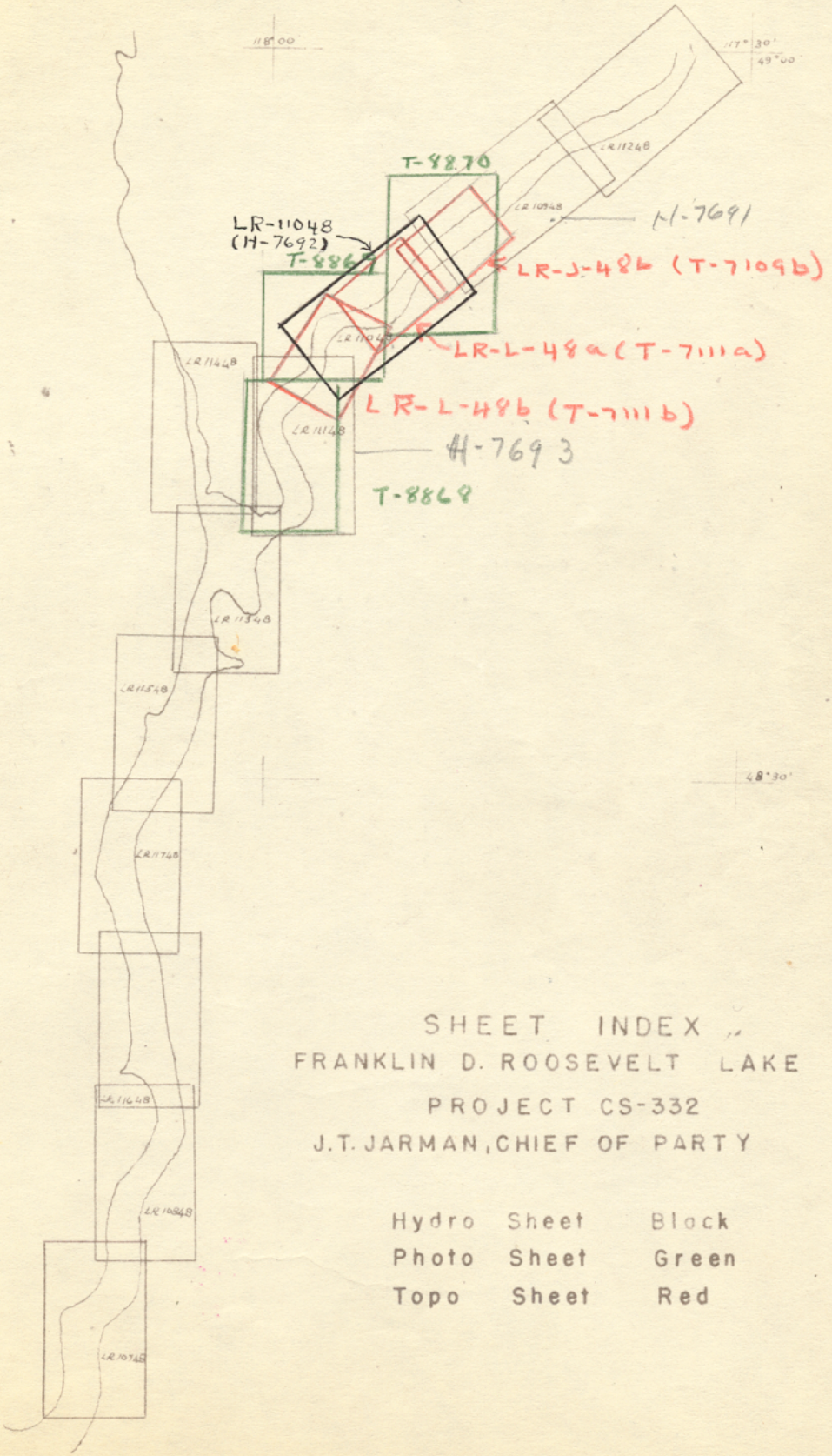
REMARKS: Fathograms scanned by Floyd E. Gerken & Henry A.Anenson

Fathograms checked by Louis E. Evart, Jr.

a/ Soundings in feet at lake level datum of 1288.6 ft. above mean sea level (or 1290 Ft. USBR, 1937). Elevations are in feet above lake level datum.

U. S. GOVERNMENT PRINTING OFFICE 428975

T-8868 (1946-47)
T-8869 (1946-47)
T-8870 (1946-47)



SHEET INDEX

FRANKLIN D. ROOSEVELT LAKE

PROJECT CS-332

J.T. JARMAN, CHIEF OF PARTY

Hydro	Sheet	Block
Photo	Sheet	Green
Topo	Sheet	Red

Descriptive Report
To Accompany
Hydrographic Survey H-7692, Field No. LR-11048

A. INSTRUCTIONS

1. The hydrographic survey of Franklin D. Roosevelt Lake has been designated Project CS-332. This is in accordance with original INSTRUCTIONS, No. 22/MEK FP-Jarman dated 20 June 1947.

B. SURVEY LIMITS AND DATES

1. Sheet H-7692 LR-11048 extends from Bossburg (south of sheet), Washington to Marble, Washington; work began on the sheet on August 26, 1948, and the sheet was completed on September 17, 1948. Both this sheet and sheet LR-11148 H-7693 (1948-49) were sounded simultaneously during the foregoing period.

2. An index map has been prepared for each sheet to show the limits and field numbers of contemporary planimetric shoreline surveys and control sheets; the index map applicable to sheet LR-11048 H-7692 is attached to this report.

C. VESSELS AND EQUIPMENT

1. A navy type landing craft, vehicle and personnel, hereinafter referred to as launch LCVP was used for hydrographic surveying on this project. It was leased and a boat operator was furnished by the owner, for $590.00 per month. The launch gave satisfactory results. The turning radius of the launch at sounding speed was approximately 25 meters. A squat and settlement test on the launch gave negligible results. The launch used an outboard fish set at 2 feet.

2. A gasoline powered launch, desiginated Launch No. 98, was furnished the party by the USC&GS Ship SURVEYOR. It used an inboard fish set at 1.5 feet below the surface; turning radius was 20 meters.

3. A large houseboat (camp barge type) which served as a base of operations, provided the necessary living accomodations and storage space for supplies such as instruments and other important equipment. Fuel, generating equipment, and battery chargers were maintained on a small auxilliary barge. Signal building supplies and heavier items of a nature that would not be harmed by the weather were stored on a large open barge which was generally kept ahead of the main operations.

4. This sheet was accomplished by the launch 98 operating from the dormitory barge which was moored in the vicinity of Bossburg, Washington. An 808 type depth recorder equipped with a fresh water tachometer was used for two partial days. An NK-7 type depth recorder equipped with a salt water tachometer was used for the remainder of the sounding period during the 1948 season.

5. The LCVP was used for developement and feeling operations for several days during the 1949 season. It used an NK-7 type depth recorder equipped with a salt water tachometer.

6. Temperatures and salinities were obtained by sounding machine and calibrated sheave on the LCVP which was operating in the Northport, Washington area. These observations were supplemented by temperature and salinity observations obtained with a lead line on the launch 98.

D. TIDE AND CURRENT STATIONS

1. During the 1948 season, Bossburg staff No. 1 was maintained on this sheet. It was located near the dormitory barge at Lat. 48° 47.3', Long. 118° 00', and was read several times daily by the cook. This staff was used to reduce all soundings obtained on the sheet during the 1948 season. There were two other tide stations in operation during the period the hydrography was in progress. They were located as follows:

Lower Little Dalles staff	Lat. 48° 51.98'	Not on H-7692
	Long. 117° 52.65'	
Kettle Falls Gage and Staff	Lat. 48° 36.9'	
	Long. 118° 07.2'	

Results from these stations were compared with the values obtained at Bossburg staff No. 1.

2. During the 1949 season, Bossburg staff No. 2 was established and maintained in the same general location as Bossburg staff No. 1. The Lower Little Dalles staff mentioned above was also maintained. Soundings obtained from April 23, 1949 through April 24, 1949 were reduced by the Lower Little Dalles staff. Soundings obtained after April 24, 1949 were reduced by Bossburg staff No. 2.

3. No currents were observed on this sheet. During the spring flood season, currents of 1 to 3 knots may be expected. This current will be at maximum strength at the northern limits of the sheet and diminish in intensity at the southern limits, the strength depending on the distance south of the Little Dalles. After the passing of the spring runoff, there will be practically no current experienced on this sheet. At the time sounding operations began on the sheet, a gradient of 0.2 foot existed, but it had disappeared by the time sounding operations were completed.

E. SMOOTH SHEET

1. The smooth sheet has not been plotted. It is expected that remarks under this heading will be inserted in the final descriptive report by the Processing Office. See Proc. Off. Notes.

F. CONTROL STATIONS

1. Horizontal control for this project is second and third order

triangulation executed by the USBR from 1934 to 1940. For a complete treatment of the main source of the horizontal control refer to the special "Report on Boundary Reservoir Points, Project Ph-2(45) previously submitted to the Washington Office. Filed in Lib.-Acc. No. G-7380

2. The foregoing control was supplemented by photo-hydro and topographic stations established by the photogrammetric party on Project Ph-2(45). The registry numbers of the planimetric, or shoreline survey sheets common to this sheet are T-8869 and T-8870 of 1946 47.

3. Additional hydrographic stations were established by planetable methods to replace several photogrammetric points which were marked doubtful, or could not be identified. In some instances, the photogrammetric points were situated so that they were not visible over a wide portion of the lake. Such stations were supplemented by establishing new stations. The locations of these additional stations are shown on control sheets LR-J-48b and LR-L-48 a&b. Graphic control sheets were subsequently destroyed. (D.R. for graphic control/surveys filed with H-7694.)

4. The graphic control sheets which accompany the hydrography give the final accepted locations for the hydrographic control; where discrepancies exist, if any, the control sheet location should be accepted. Locations of photo-hydro stations from shoreline survey sheets which were accepted have been shown on the graphic control sheets with green circles. Locations of additional signals plus the locations of photo-hydro stations found to be in error have been shown by red circles. With very few exceptions, the photo-hydro stations accepted for hydrographic control were checked with a planetable.

Photo-hydro stations in green are of same accuracy as red topo stations.

G. SHORELINE AND TOPOGRAPHY

1. The planimetry shoreline was transferred to the boat sheet from ozalid prints furnished by the Portland Photogrammetric Office. Topographic stations were transferred to the boat sheets from applicable graphic control sheets. During the course of the hydrographic survey, some discrepancies were detected and corrected in the shoreline location. The corrected shoreline is shown in red ink on control sheets, LR-J-48b, and LR-L-48 a&b; the discussion of these discrepancies will be found in the descriptive report accompanying the control sheets. (Corrections to shoreline shown in red on H-7692.)

H. SOUNDINGS

1. An NK-7 type portable depth recorder was used on this sheet except for 2 days when an 808 type portable depth recorder was used.

2. The general procedure was as follows: In the case of the launch 98, the oscillator depth was maintained at 1.5 feet. The initial of the fathometer was adjusted to read 1.5 feet when the fathometer was operating in feet. This initial adjustment was not changed when the machine was operating in fathoms, and under such conditions, the initial in fathoms was found to average 1.23 fathoms for an 808 type fathometer, and 0.81 fathoms for an NK-7 type fathometer. The error in the initial reading in fathoms was absorbed in the velocity correction curve. Instructions were given to take three bar checks daily. The fathograms were scanned

for variations from the standard initial in feet and fathoms, and such variations were applied in the record books as an index correction. The bar checks and vertical cast comparisons were used to obtain a check on the computed velocity corrections, but the computed velocity corrections were actually used for correcting the soundings.

3. During the winter months between the 1948 and the 1949 seasons, a study was made of the bar check data. It was found that a fairly constant residual existed after velocity corrections had been applied to the bar check soundings. Since the residuals were so nearly constant for the various depths of the bar checks, it was indicated that it was an initial correction. When the above was discovered, the fathograms had already scanned and initial corrections entered as described in paragraph 2 above. Therefore, the average residual for each days bar check was determined and applied algebraically to the scanned initial. See "Cahier of Bar Check Residuals" to be submitted with the 1948 season's data. Cahier of Bar Ck Resid. filed with H-7681.

4. Procedure discussed in paragraph 2 above was varied during the short 1949 season when the LCVP was used for sounding operations. In general, the procedure outlined in paragraph 2, sub-head "H" of the Descriptive Report for sheets LR-10147 (1947) and LR-10247 (1947) was followed. On days when soundings were to be obtained in both feet and fathoms, the initial was set in feet to a known bar check depth; when the depth unit of fathoms only was to be used, the initial was set in fathoms to a known bar check depth. It was expected that this procedure would eliminate the bar check residuals discussed in paragraph 3 above.

5. The boat sheet covered by this report is plotted in feet since the majority of the soundings were obtained in that unit; The Washington office has specified that the depth unit for smooth plotting will be feet.

I. CONTROL OF HYDROGRAPHY

1. The control of the sounding launch was entirely on board the sounding vessel using the standard three point fix method of position finding. A few exceptions occur in coves and bights where the method outlined in paragraph 3352 of the Hydrographic Manual was used. The latter cases have been covered in the position data column of the records.

2. It should be noted that the records of the launch 98 contain a large number of recorded soundings at the ends of lines with the abbreviation "TC" opposite them. (TC means time and course) These soundings should be saved and plotted, using the established time and spacing of the line to forward plot them; otherwise, there will be a gap between the end of the line and the beach. The launch 98 is low powered, V-bottom boat which could not safely run lines at full speed all the way into the beach. Therefore, the fix was obtained at a safe distance offshore, but the vessel continued on course without slackening speed and sheered off from the beach at the last possible moment. The LCVP used this procedure in only a few instances.

J. ADEQUACY OF SURVEY

1. It is believed that this sheet is complete; junctions with contemporary sheets at either end appear to be satisfactory. The crossings are good and depth curves can be completely drawn.

K. CROSSLINES

1. Crosslines obtained on this sheet exceed the minimum 8% specified in the Instructions. The crosslines check the normal system of developement within the limits specified by the Hydrographic Manual.

L. COMPARISON WITH PRIOR SURVEYS

1. Prior surveys of this type do not exist in the area.

M. COMPARISON WITH CHART

1. There is no existing chart of Franklin D. Roosevelt Lake.

N. DANGERS AND SHOALS

1. The principal navigational dangers discovered on this sheet are listed below:

(a). Pinnacle rock, Lat. 48° 46.45', Long. 118° 01.1'; least depth of 11 feet, position 55d and 56d (blue day letter).

(b). There is a 19 foot sounding shown on the boat sheet at Lat. 48° 46.5', Long. 118° 00.8'; this sounding does not exist. The area was thoroughly investigated with both fathometer and leadline on May 4, 1949. The depths obtained agreed with the surrounding boat sheet soundings, and were in the general depth range of 90 feet. Unfortunately, Mr. Marchant, the hydrographer who made the investigation did not record any of the soundings obtained; he merely stated in the record that he had investigated a 19 foot sounding for 20 minutes and found that it did not exist. Through an oversight, the records and fathograms were shipped to the Processing office before they were investigated for a possible cause of this discrepancy. It is requested that they be examined by the processing office. Possibly, this sounding is 91 feet rather than 19 feet.

(c). Pinnacle rock, Lat. 48° 46.2', Long. 118° 00.55'; least depth 36 feet, position 53d (blue day letter).

(d). Submerged rock, Lat. 48° 46.2', Long. 118° 00.45'; least depth 2 1/2 feet, position 51d (blue day letter).

(e). The boat sheet shows a 9 foot sounding at Lat. 48° 47.05', Long. 118° 00.25'. Considerable time was consumed in investigating this area in May 1949; the least depth obtained was 12 feet (see position 42d, blue day letter). A possible explanation is the fact that a heavy growth of marine grass and weeds grows in this area during the summer and fall months. The grass dies during the winter months and does not again grow until the water temperatures rise with the summer

heat. Lt. Comdr. Moore noted such a condition on several other shoals on this sheet.

(f). Sand and gravel bar, Lat. 48° 47.31', Long. 118° 00.28'; Least depth 9 feet, position 7g (red day letter). The fathometer obtained a least depth of 6 feet on this shoal. Lt. Comdr. Moore investigated it thoroughly for 1 hour with a lead line, and states that a thick growth of grass existed on the bottom through which the fathometer sound wave was apparently unable to pass.

(g). Submerged bank at China Bend, Lat. 48° 49.35', Long. 117° 55.88'; least depth 1 foot, position 1f (red day letter). This bank is approximately 0.3 mile long and 0.2 mile wide; bottom is sand, gravel and mud. Many years ago, this area was the scene of considerable placer mining by Chinese which accounts for the name CHINA BEND. The main channel passes to the east of the bank, but small boats drawing less than 10 feet may safely pass close to the shore on the west side.

2. There are listed below several rocks and shoals located near the shoreline which are a danger to small boats.

(a). Rock, Lat. 48° 46.22', Long. 118° 01.32'; least depth 1 foot, position 11a (red day letter); approximately 15 meters offshore.

(b). Sand bar, Lat. 48° 47.6', Long. 118° 00.15'; least depth 1.0 feet, position 24g (red). The bottom was plainly visible in this area.

(c). Sand and mud bar, Lat. 48° 47.65', Long. 118° 00.25'; least depth 7.8 feet, position 24g (red). Boat sheet shows 5 feet here, but a 15 minute search with the hand lead indicated that the fathometer obtained this sounding off the top of a heavy mat of submerged weeds.

(d). Five rocks about 20 meters offshore, Lat. 48° 49.25', Long. 117° 58.85' were found with the following least depths:

2 feet	position	24e	(red)
Bares 1/2 foot	"	25e	(red)
2 feet	"	26e	(red)
Bares 3 feet	"	27e	(red)
3 feet	"	28e	(red)

(e). Rock, Lat. 48° 49.12', Long. 117° 59.19'; least depth 2 feet, position 73e (red). This rock is about 10 meters offshore.

O.COAST PILOT INFORMATION

1. For a complete discussion of Coast Pilot Information, refer to "Coast Pilot Report, Franklin D. Roosevelt Lake, Project Ph-2(45)" which has already been submitted to the Washington office. Filed in coast pilot sect.

2. In general, navigators should steer mid channel courses on this sheet. Between Lat. 48° 47' and Lat. 48° 48', they should hold to the left side of the lake to avoid an offlying gravel bar with a least depth of 8 feet. At China Bend, the navigator should

hold to the right, or east side of the lake to avoid CHINA BAR, an extensive shoal in Lat. 48° 49.3', Long. 117° 55.9' with a least depth of 1 foot.

3. No appreciable current was noted during the course of the hydrographic survey. It is possible that as much as 3 knots may be present during the maximum spring runoff of each year.

4. The best anchorage on this sheet is in the cove at Lat. 48° 47.25', Long. 118° 00.1'. The average depth is over 20 feet with good holding ground. It is well protected from wind, sea, and current from all directions except the west. There is a shoal which partially blocks the entrance to the west. It has a tendency to break up any seas from that direction. Entrance should be made by staying close to the south side and avoiding the shoal mentioned above. Two other possible anchorages are listed as follows:

Lat. 48° 47.0' Long. 118° 00.25	Good holding ground in 10 feet with some protection from the current.
Lat. 48° 47.5½' Long. 118° 00.1½'	Good holding ground in 20 to 25 foot depths; some protection from the current.

P. AIDS TO NAVIGATION

1. There are no fixed aids, or floating aids to navigation within the limits of this sheet.

Q. LANDMARKS FOR CHARTS

1. Landmarks for charts have been reported on form 567, project Ph-2(45). A copy of this form is attached to this report, and two additional objects are recommended as follows:

see form 567 in Hydrog Rpt.

TANK, Railroad, water, black	Lat. 48° 48'	(933.9) ± 919.5 meters
	Long. 117° 56'	(79.0) ± 1145.4 meters
LOOKOUT HOUSE, Swede Pass	Lat. 48° 47'	(20.9) ± 1832.5 meters
	Long. 117° 56'	(895.2) ± 329.2' meters

Project Ph-2(45) lists the latter object as an Aeronautical Aid, but it was noticed during the hydrographic survey that Swede Pass Lookout House is also visible over a long stretch of the lake.

Geographic Names

1. For a complete treatment of Geographic Names, refer to "Special Report, Geographic Names, Sheets T-8860 to T-8872 inclusive, Project Ph-2(45)" previously submitted to the Washington Office.

Filed in Geo. Name Sect.

2. No additional names were obtained by the hydrographic party. However, it is suggested that the extensive shoal at China Bend,

Lat. 48° 49.3', Long. 117° 56.0', could well be named CHINA BAR.

S. Silted Areas

1. No silted areas were detected from an inspection of the fathograms.

T. BY-PRODUCT INFORMATION

1. In addition to providing a basic hydrographic survey of Franklin D. Roosevelt Lake, the party has attempted to obtain sufficient information by hydrographic methods from which the Bureau of Reclamation can delineate 1o foot bottom contours. Therefore, the survey is somewhat more detailed than would ordinarilly be the case.

V. REFERENCES

1. The following listed reports will be of help and interest in connection with this survey:

Descriptive Report to accompaby Hydrographic Survey Nos. H-7681 and H-7682, Field Nos. LR-10147 and LR-10247.
Descriptive Report to Accomapny Hydrographic Survey Nos. H-7684, H-7685, and H-7686.
Descriptive Report to Accomapany Hydrographic Survey Nos. H-7691 and H-7694.
Coast Pilot Report, Franklin D. Roosevelt Lake, Project Ph-2(45). Filed in C.P. Sect
Special Report, Investigation of Geographic Names, Sheets 8860 through 8872, Project Ph-2(45). Filed in Geo. Name Sect.
Special Report on Reservoir Boundary points (Control), Project Ph-2(45). H-7388
Descriptive Report, Planimetric Air Photographic Shoreline, T-8866 to T-8869.
Season's Report, Project CS-332, Franklin D. Roosevelt Lake, 1947. } Filed in Library under J.T. Norman
Season's Report, Project CS-332, Franklin D. Roosevelt Lake, 1948. }
Season's Report, Project CS-332, Franklin D. Roosevelt Lake, 1949.
Water Surface Elevations (Tides), Season 1948, Project CS-332. } Filed in Div. of Tides
Water Surface Elevations (Tides), Season 1949, Project CS-332. }
Cahier " Copies od Correspondence and Related Information Applicable to Project CS-332, Lake Roosevelt. Acc. No S-2722 H-7681
Cahier "Bar Check Residual Study". Filed with H-7681

X. TABULATION OF APPLICABLE DATA

1. The following data ~~is~~ are being submitted for this sheet:

Sounding Volumes (Form 275)	5 vol.
Fathograms	7 rolls
Boat sheet (LR-11048)	1 ea.
Control sheets (LR-J-48b, LR-L-48 a&b)	3 ea.
Velocity Correction computations, 16 Aug. to 22 Nov. 1948	1 cahier
Descriptive Report (Hydrography)	
Descriptive Report (Topography)	

Temperature & salinity measurements filed with H-7681

2. The following work has been accomplished on the records and data of this sheet:

All fathograms have been scaled and checked.
Velocity corrections have been entered in the records and checked.
Tide reducers have been entered in the records and checked.
Fathogram index corrections have been entered in the records and checked.
Soundings have been reduced and checked in volumes 1 through 4.
Soundings have been reduced in volume 5 but not checked.

There remains to be accomplished the following work on the records and data of this sheet:

Check reduced soundings, volume no 5.
Plot the smooth sheet.

W. REMARKS

1. The vertical clearance of the power line shown on sheet T-8869, (1946-47) Lat. 48° 46.4'; Long. 118° 00.95' was measured and found to be 86.5 feet above the datum plane of 1290 feet, USBR 1937 Independent datum. This value does not agee with the clearance shown on T-8869 which was 96.7 feet. The hydrographic party obtained their measurement by wiggling a wye level set up on the south side of the lake until it was level with the catenary of the power line and then running levels down to the lake water level. The wire crossing the lake is small and the span is long; undoubtedly, a change in temperature will considerably alter the catenary of the wire. Possibly the latter viewpoint will explain the discrepancy between the hydrographic and topographic determination.

2. This report is prepared from notes submitted by Lt. Comdr. Glenn W. Moore.

Respectfully submitted,

J.T. Jarman

J.T. Jarman, Chief of Party

Encls.:

Statistics
Hydrographic Title Sheets
List of hydrographic signals
Landmark for Charts
Index sheet
Abstract of velocity corrections.
Abstract of tide reducers
Approval sheet.

Sheet LR-11048
Bar Check Residuals
(To be applied algebraically to scanned Index Corrections)

7-186
(July 1935)

Date	Bar Check Residuals Feet	Fms.	Path.	Launch	Remarks
Aug. 26	-0.5	0.0	NK-7 163	98	
Sept. 1	-0.3	0.0	808-122	98	
2	-0.2	0.0	122	98	
3	-0.3	0.0	NK-7 163	98	
7	-0.2	0.0	163	98	
13	-0.4	0.0	163	98	

TIDE REDUCERS
Sheet H-7692, Field No. LR-11048
Season 1948

Date	Feet	Fms.
Aug 26	0.0	0.0
Sept. 1	∠ 0.2	0.0
2	∠ 0.2	0.0
3	0.0	0.0
7	∠ 0.2	0.0
13	∠ 0.3	∠ 0.1
17	∠ 0.2	0.0

Reducers from Bossburg staff No. 1 the entire period.

(Refer to Water Surface Elevations (Tides), Season 1948)

Season 1949 Tide Reducers
Sheet LR 11048

April 23 and 24 (Refer to Lower Little Dalles Staff)

April 23		
	0800 to 1200	+ 6.2
	1200 to 1700	+ 6.0
April 24		
	0800 to 1500	+ 5.8
	1500 to 1700	+ 5.6

April 25, 26 and 27; also May 4 (Refer to Bossburg Staff No. 2)

April 25		
	All day	+ 5.8
April 26		
	All day	+ 5.8
April 27		
	All day	+ 5.7
May 4		
	All day	+ 4.8

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

POST-OFFICE ADDRESS: Box 337, Coulee Dam, Wash.

TELEGRAPH ADDRESS:

EXPRESS ADDRESS:

August 26, 1949

To: The Director
U.S. Coast and Geodetic Survey
Washington, D.C.

Subject: Approval Letter.

Data and records belonging to hydrographic sheet H-7692, Field Number LR-11048 have been inspected and are approved.

Very few remarks are included in the report concerning the feeling and development work accomplished during the 1949 Season. It will be noted in volume 5, 1949 work, that there is both a hand-lead and a fathometer sounding opposite a position when feeling operations were in progress. The hand-lead soundings are generally shoaler than the fathometer soundings. In a few cases, the fathometer sounding was shaler than the hand-lead sounding. A word of explanation follows:

The launch LCVP is not equipped with a sounding chair. The leadsman generally stands on the bow which is several yards distant from the location of the fathometer fish. It is recommended that the shoalest soundings recorded be accepted in the smooth plotting, regardless of whether they were obtained with the hand-lead, or the fathometer. In the cases where the fathometer sounding was shoaler than the hand-lead, some little time was consumed in trying to verify the fathometer sounding with the lead line, but in some cases, the area was apparently very small, and we were not able to maneuver the leadline over them.

J.T. Jarman

J.T. Jarman
Chief of Party

Form 567
April 1945

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

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

Coulee Dam, Wash. Aug. 26, 1949

I recommend that the following objects which have *(have not)* 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 by JTJ

J. T. Jarman

Chief of Party.

STATE / CHARTING NAME	DESCRIPTION	SIGNAL NAME	POSITION LATITUDE ° '	LATITUDE D.M. METERS	LONGITUDE ° '	LONGITUDE D.P. METERS	DATUM	METHOD OF LOCATION AND SURVEY No.	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
	LOOKOUT HOUSE, Swede Pass (H-7692) —		48 47	(20.9) 1832.5	117 56	(895.2) 329.2	NA 1927	Triangulation	1936				Area not charted
	TANK, R.R., water, black (H-7692)	Four	48 48	(933.9) 919.5	117 56	(79.0) 1145.4	"	Plane-table	1948				"

Note: Under sub-heading "Q" (Landmarks for Charts), this report, it was stated that a copy of form 567 as submitted with data for Project Ph-2(45) would be attached to this report. A close examination of the objects listed on the foregoing form revealed that the objects listed thereon do not fall within the limits of this sheet. Therefore, only those objects applicable to hydrographic sheet H-7692, Field No. LR-11048, have been listed.

This form shall be prepared in accordance with Hydrographic Manual, pages 800 to 804. Positions of charted landmarks and *nonfloating*

List of signals H-7692
Field No. LR-11048

Abe	Eat	New
Ace	Eel	Now
Ado	Ego	Oak
Aha	Elm	Odd
Alp	Era	Oil
Amy	Far	Old
Ann	Fat	Pal
Apt	Few	Papa
Arm	Fig	Par
Art	Fix	Pet
Ask	Fly	Pie
Ave	Fog	Quo
Bag	Four	Ram
Bat	Gag	Rat
Bed	Gal	Rex
Boa	Gas	Roy
Bob	Get	Sad
Born	Hand	Sal
Box	Hat	Sis
Bum	His	Ski
Bus	Hole	Sol
Cab	How	Sue
Cam	Ice	Tall
Can	Ivy	Tar
Car	Jap	Tom
Cod	Jar	Toy
Coo	Joe	Tri
Cop	Ked	Use
Cow	Ken	Vet
Cry	Lad	Via
Deb	Lay	Way
Dill	Leo	Wax
Dim	Mal	Why
Din	Mark	Win
Dog	Max	Yel
Done	Mid	Yes
Dot	Ned	Zig
		Zoo

Signals north of the line Max-Now (Lat. 48 50.9) are from T 7109; those south of the line are from T 7111. Triangulation of USBR is plotted from Lambert grid coordinates found in control data for photo Proj.PH-2(45), sheets T 8869 & T 8870.

T-7109 & T-7111 destroyed after checking transfer of information

1288.6

7689
90
91
7692
7694

98

H 7692 LR 11048

Lake Roosevelt, Washington.
Processing Office Notes.

Smooth sheet.

The projection and Lambert grid for Washington North were ruled on the machine in Washington. Datum is NA 1927. Red and green signals north of the line Max-Now (Lat.48 50.9) are from T 7109; signals south of that line are from T 7111. Tri.Sta.DENNY 1936 was placed on the sheet for datum reference only.Positions of the USBR triangulation points are plotted from grid coordinates found in the control data for topographic project PH-2(45), sheets T 8869 and T 8870. of 1946-47.

General

Soundings on grass covered bars were re-examined. Junctions with sheets upstream and down are good, but the overlap is scant.

Edgar E. Smith
Cart. Engr. 11/30/49

STATISTICS

H-7692 , Field No. LR-11048

Date	Vol. No.	Day Letter	HL Smd.	Position	Statute Miles
1948		Launch 98			
Aug. 26	1	a (red)	2	190	28.6
Sept. 1	1&2	b "	0	144	20.0
2	2	c "	2	178	30.9
3	2&3	d "	2	131	20.2
7	3	e "	5	126	18.5
13	3&4	f "	20	168	21.7
17	4	g "	93	26	0.9
1949		LCVP			
Apr. 23	5	a (blue)	4	5	0.0
24	5	b "	17	21	0.9
25	5	c "	2	38	3.5
26	5	d "	24	56	2.6
27	5	e "	0	61	6.0
May 4	5	f "	2	3	0.0
		Totals	173	1147	153.8

Area: Square Statute Miles- 3.5

H 7692 LR 11048

Lake Roosevelt, Washington.

List of geographic names
penciled on smooth sheet.

Franklin D. Roosevelt Lake

Washington

Stevens County

China Bend

China Bar (See Descriptive Report for sheet)

It is suggested that the report for geographic names for the topographic mapping Proj. PH-2(45) be examined for suitable names. The processing office does not have a copy of the report.

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Division of Hydrography and Topography:

Division of Charts:

Plane of reference approved in
volumes of sounding records for

HYDROGRAPHIC SHEET H-7692, Field No. LR-11048

Locality State of Washington
Franklin D. Roosevelt Lake
Bossburg, Wn. to Marble, Wn.
(1948 Season)

Chief of Party: J.T. Jarman
Plane of reference is 1288.575 feet above mean sea level.
15.396 ft. on tide staff at Bossburg No. 1 staff.
20.776 ft. below B. M. P-236
(1949 Season)

Plane of Reference is the same
9.722 ft on tide staff at Bossburg No. 2 staff
20.776 ft. below B.M. P-236

See
Water Surface Elevations (tides), Saeson 1948
Water Surface Elevations (tides), Season 1949

Condition of records satisfactory except as noted below:

Chief, Division of Tides and Currents.

U. S. GOVERNMENT PRINTING OFFICE 756675

RH C

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography:~~ 7 March 1950

Division of Charts: R. H. Carstens

Plane of reference approved in
5 volumes of sounding records for

HYDROGRAPHIC SHEET 7692

Locality Bossburg to Marble, Lake Roosevelt, Washington

Chief of Party: J. T. Jarman in 1948-49
Plane of reference is
~~ft. on tide staff at~~ 1290 feet (USBR 1937 Datum of Leveling)
~~ft. below B. M.~~ or 1288.6 feet (Sea-level datum of 1929)

-1.1 ft. on tide staff at Lower Little Dallas
74.8 ft. below B. M. CP-265

15.4 ft. on tide staff No. 1 at Bossburg
9.7 ft. on tide staff No. 2 " "
20.8 ft. below B. M. P-236

Condition of records satisfactory except as noted below:

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

U. S. GOVERNMENT PRINTING OFFICE 756675

GEOGRAPHIC NAMES

Survey No. H-7692

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		
Washington									USGB	1
Stevens County										2
Franklin D. Roosevelt Lake									USGB	3
Bossburg		(for tide and tide gauges: just downstream from this sheet								4
										5
Marble										6
Crown Creek										7
China Bend										8
China Bar										9
Flat Creek										10
Fifteenmile Creek										11
										12
										13
				Names underlined in red are approved 12-21-44: L. Heck						14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

M 234

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-7692

Records accompanying survey:

Boat sheets 1; sounding vols. 5; wire drag vols. .....;

bomb vols. .....; graphic recorder rolls 4 envel.

special reports, etc. .....

.....

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

Number of positions on sheet		1147
Number of positions checked		498
Number of positions revised		9
Number of soundings revised (refers to depth only)		22
Number of soundings erroneously spaced		58
Number of signals erroneously plotted or transferred		0
Topographic details	Time	3.2
Junctions	Time	0
Verification of soundings from graphic record	Time	.45

Verification by Roland E. Latta Total time 171 Date 28 March 1950

Reviewed by [signature] Time 21 Date 4/20/50

M-2232-1

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY REGISTRY NO. H-7692

FIELD NO. LR-11048

Washington, Franklin D. Roosevelt Lake, Vicinity of China Bend
Surveyed in Aug.-Sept. 1948, Apr.-May 1949 Scale 1:10,000
Project No. CS-332

Soundings:

808 Fathometer
Hand lead

Control:

Sextant fixes on shore signals

Chief of Party - J. T. Jarman
Surveyed by - G. W. Moore and H. A. Marchant
Protracted by - J. R. Wheeler
Soundings plotted by - J. R. Wheeler
Verified and inked by - R. E. Latta
Reviewed by - I. M. Zeskind, 20 April 1950
Inspected by - R. H. Carstens

1. Shoreline and Control

The shoreline for this survey originates with air-photographic surveys T-8869 and T-8870 of 1946-47. Shoreline revisions in red are from graphic control surveys LR-J-48b, LR-L-48a and LR-L-48b (field numbers) which were subsequently destroyed.

The origin of the control is adequately described in the Descriptive Report.

2. Sounding Line Crossings

Depths at crossings are in adequate agreement.

3. Depth Curves and Bottom Configuration

The usual depth curves are adequately delineated.

This is a survey of a portion of the Franklin D. Roosevelt Lake formed by the impoundment of the Columbia River upstream from the Grand Coulee Dam. The bottom is very irregular and in general slopes sharply from shore to depths of 40 to 210 ft. A number of pinnacle rocks and

reefs are found near shore. China Bar in lat. 48° 49.3', long. 117° 55.9', covered by a least depth of 1 ft. is the largest shoal in this portion of the lake.

4. Junctions with Contemporary Surveys

The junctions with H-7691 (1948-49) on the northeast and H-7693 (1948-49) on the southwest will be considered in the reviews of those surveys.

5. Comparison with Prior Surveys

No prior surveys of the area have been made by this Bureau.

6. Comparison with Charts

A. Hydrography

There are no charts of the area by this Bureau.

B. Aids to Navigation

There are no aids to navigation within the limits of the present survey.

7. Condition of Survey

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

b. The field plotting was accurately done.

8. Compliance with Project Instructions

The survey adequately complies with the Project Instructions.

9. Additional Field Work Recommended

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

Examined and approved:

H. R. Edmonston
Chief, Nautical Chart Branch

R. W. Knox
Chief, Division of Charts

L. S. Hubbard
Chief, Section of Hydrography

W. M. Scaife
Chief, Division of Coastal Surveys

C
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DEPARTMENT OF COMMERCE

U. S. Coast and Geodetic Survey

1500 Westlake Ave., North
Seattle, Wash.

March 9, 1950

To: Chief, Division of Coastal Surveys
U. S. Coast and Geodetic Survey
Washington, D. C.

Via: The Director
U. S. Coast and Geodetic Survey
Washington, D. C.

Subject: Comments, Project CS-332, Lake Roosevelt

In view of the fact that the Lake Roosevelt Hydrographic sheets are about plotted and will soon be ready for verification, the following comments are considered appropriate. Some of the remarks that follow have been included in the descriptive report, but it is believed that this letter should be made a part of all the descriptive reports for a better understanding of the problems confronting the party.

CONTROL

1. The control which was already in place was executed by the Bureau of Reclamation from 1934 to 1942. The second order scheme placed on the higher elevations on either side of the lake is apparently good triangulation. It is listed in both geographic coordinates and plane coordinates.

2. The USBR third order control was listed in plane coordinates only. A local plane coordinate system with triangulation station ALPHA as origin was used from Grand Coulee Dam to the mouth of the Spokane river. On the Spokane river and north of its mouth, the Washington North State Grid coordinates were used. The third order control consists of intersection stations, three point fixes observed on second-order stations with a fourth object observed as a check, and three point fixes with a azimuth check observed from one of the stations in the fix. The third order points used by the party were called CPs by the USBR, and furnished most of the control for graphic signal location. In the opinion of the Chief of Party, the latter control was not absolutely relative.

Comments, Project CS-332, Lake Roosevelt
J. T. Jarman, Chief of Party

When using an aluminum backed topographic sheet, the plotted positions of all visible CPs could not always be checked exactly with the alidade from a planetable setup with the board oriented on another CP. However, the error was generally very small and we were able to obtain intersection of cuts by keeping the orientation in the general direction of the cuts. In some areas, the error was not noticeable, and in others, it could be detected. The USBR stated that some of the difficulty might be due to slides and shifting of earth masses adjacent to the lake which is possible. It was also determined that it was common USBR practice to observe a three point fix from a "near point" which was tied to the monument by a distance and direction. The "near point" was not marked except by stake and the distance was sometimes as much as 200 yards. Apparently, the term, "near point", means an eccentric observation for the three point fix. It is just possible that the eccentric distance and direction in such cases was carelessly measured. It is also my understanding that the CP stations in certain areas were not marked until well after the observations had been completed which may have produced errors in station location. The foregoing facts are enumerated as a possible explanation for the discrepancies noted; in the opinion of the Chief of Party the third order triangulation is adequate as it now exists for the control of hydrography on the lake.

3. The map manuscripts produced by Project Ph-2(45) used both second order stations and third order CPs as control. The results obtained on shoreline location and photo-hydro station location were excellent. In general, the graphic control party made a practice of checking the locations of the photo-hydro stations as furnished by Project Ph-2(45). Approximately 75% of those checked were exact in location; about 20% of those checked were located within the limits of the photogrammetric specifications which stated that no point on the map manuscript was to be out of position more than 0.5 millimeter. This would be a maximum error of 5 meters on a scale of 1:10,000, and some of the stations approaching the maximum error were relocated by the graphic control party and shown with red circles on the control sheets. The remaining 5% of the photo-hydro stations checked by the graphic control party were relocated and shown with red circles on the control sheets.

PERSONNEL

1. With the exception of the commissioned officers, the personnel employed during the project were inexperienced. A number of Filipino Cadets were assigned to the party for training. These men all had an engineering background and some of them were familiar with C&GS methods. They were a decided assistance in the completion of the project, but with the exception of Messers. Ventura and Abrogar, they should

not have been placed in charge of a hydrographic launch without an experienced officer being aboard. However, exigencies encountered caused some of these Cadets to be placed in charge of a hydrographic launch for limited periods. We also had a bright young man on the party by the name of Charles Lind who was rated an hydrographer observer by Lt. Comdr. Moore. Late in the 1948 Season, sickness among key personnel caused Lt. Comdr. Moore to place Mr. Lind in charge of a hydrographic launch before he had acquired a full rounded experience.

2. Sheets LR-10648 and LR-11148 were plotted at Coulee Dam, Washington by Filipino Cadets. These men were relatively inexperienced and several errors were detected and corrected when the sheets were inspected. It is believed that the sheets are now acceptable, but it is suggested that the verifier give them a close scrutiny.

3. The foregoing facts are mentioned for the benefit of the verifier; it is believed that any discrepancies which resulted have been eliminated during the smooth plot.

SEASON OF 1949

1. During the 1948 Season, the project area was covered by hydrography, but there were a number of unfinished details when weather terminated the season sooner than expected. These details including a few poorly located signals, a number of undeveloped areas, and a failure to feel over some shoals with the leadline were undertaken during the short 1949 season. Sheets between the Little Dalles and Gifford, Washington received detailed attention; other 1948 sheets received minor attention.

2. Several draftsman in the Seattle Processing Office have pointed out that leadline soundings obtained in 1949 are sometimes slightly deeper than the corresponding fathometer sounding. The LCVP was the launch used for feeling operations in 1949. The fathometer fish was located amidships, and it was necessary to obtain leadline soundings from the bow of the launch, a distance of approximately 15 feet from the fathometer fish. The general procedure was to use the fathometer to find the shoal, and after the launch was approximately over it, both fathometer and leadline soundings were obtained. Because the shoals were generally of limited extent with a very irregular bottom and both time and money were short in 1949, no attempt was made to verify fathometer soundings which were no more than 1 foot shoaler than the corresponding leadline sounding, the policy being to show the shoaler of the two soundings obtained.

Respectfully submitted,

/s/ J. T. Jarman
Chief of Party

NAUTICAL CHARTS BRANCH

SURVEY NO. H-7692

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
8/8/52	6169	J.C. McGann	~~Before~~ After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review

M-2168-1

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.