7695 7697
7698 7699

Diag. Cht. No. 6157 (Insert)

7695 7697 7698 7699

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No.	Office No.
LR-11348	H-7695
LR-11548	H-7697
LR-11648	H-7698
LR-11748	H-7699

LOCALITY

State Washington

General locality Franklin D. Roosevelt Lake

Locality Bissell Flats to Marcus

1948-'49

CHIEF OF PARTY

J.T.Jarman

LIBRARY & ARCHIVES

DATE 8 May 1950

B-1870-1 (1)

MAR 2 7 1950

Form 537
(Ed. June 1946)

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 7695

Field No. LR 11348

State Washington

General locality ~~Lake Roosevelt~~ Franklin D. Roosevelt Lake

Locality Colville River to Marcus, ~~Wash.~~

Scale 1/10 000 Date of survey Sept. & Oct. 1948 {May-1949

Instructions dated 20 June 1947

Vessel Field Party

Chief of party J.T.Jarman

Surveyed by Glenn W. Moore, Hal A. Marchant, J.T.Jarman

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

Fathograms scaled by Floyd E. Gerken, Harry Lantzy

Fathograms checked by L.E.Evart, Henry Aanenson

Protracted by Burnett Smith

Soundings penciled by Burnett Smith

Soundings in ~~fathoms~~ feet at ~~MLW MLLW~~ a) 1288.575 ft. MSL USC&GS, or 1290 Ft. USBR datum of 1937

REMARKS: 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 698019

APR 6 1950

6157 (insert)

Form 537
(Ed. June 1946)

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 7697 1948-49

Field No. LR 11548

State Washington

General locality Franklin D. Roosevelt Lake ~~Lake Roosevelt~~

Locality ~~Shell Rock Light to Colville River~~ Vicinity of ~~French~~ Point Rocks

Scale 1/ 10 000 Date of survey October 1948 & May 1949

Instructions dated 20 June 1947

Vessel Field Party

Chief of party J.T.Jarman

Surveyed by Hal A. Marchant, J.T.Jarman

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

Fathograms scaled by Floyd E. Gerken, Harry Lantzy.

Fathograms checked by Henry Aanenson, L.E.Evart

Protracted by Harvey C. Parsons

Soundings penciled by Harvey C. Parsons

Soundings in ~~fathoms~~ feet at ~~MLW~~ ~~MLLW~~ a) 1290 Ft. USBR Datum of 1937, or 1288.575 MSL USC&GS

REMARKS: 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 693019

MAY 8 1950

Form 537
(Ed. June 1946)

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 7698

Field No. LR 11648

State Washington

General locality Franklin D. Roosevelt Lake

Locality Bissell Flats to Daisy, ~~Wash.~~

Scale 1/ 10 000 Date of survey Oct.-Nov., 1948 & May 1949

Instructions dated June 20, 1947

Vessel Field party.

Chief of party J.T.Jarman

Surveyed by Glenn W. Moore and Hal. A. Marchant.

Soundings taken by fathometer, graphic recorder, ~~[illegible]~~ graphic recorder

Fathograms scaled by Floyd E. Gerkens and L.E.Evarts.

Fathograms checked by Henry Aanenson and H. Lantzy

Protracted by Christine N. Hillman

Soundings penciled by Christine N. Hillman

Soundings in ~~[illegible]~~ feet at ~~[illegible]~~ a) 1288.575 ft. above MSL USC&GS? or 1290. ft. USBR datum of 1937

REMARKS: 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 693019

MAY 8 1950

Form 537
(Ed. June 1946)

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 7699

Field No. LR 11748

State Washington

General locality Franklin D. Roosevelt Lake ~~Quillayascut~~

Locality Daisy, ~~Wash.~~, to vicinity of ~~Quillayascut~~ Creek ~~Shelly Rock #1 Light.~~

Scale 1/ 10 000 Date of survey Oct.-Nov., 1948 & May 1949

Instructions dated June 20, 1947

Vessel Field party

Chief of party J.T.Jarman

Surveyed by Hal A. Marchant, C. Lind. Glenn W. Moore.

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

Fathograms scaled by Floyd E. Gerkens and H. Lantzy.

Fathograms checked by Henry Aanenson and L.E.Evarts

Protracted by Clifford C. Cummings

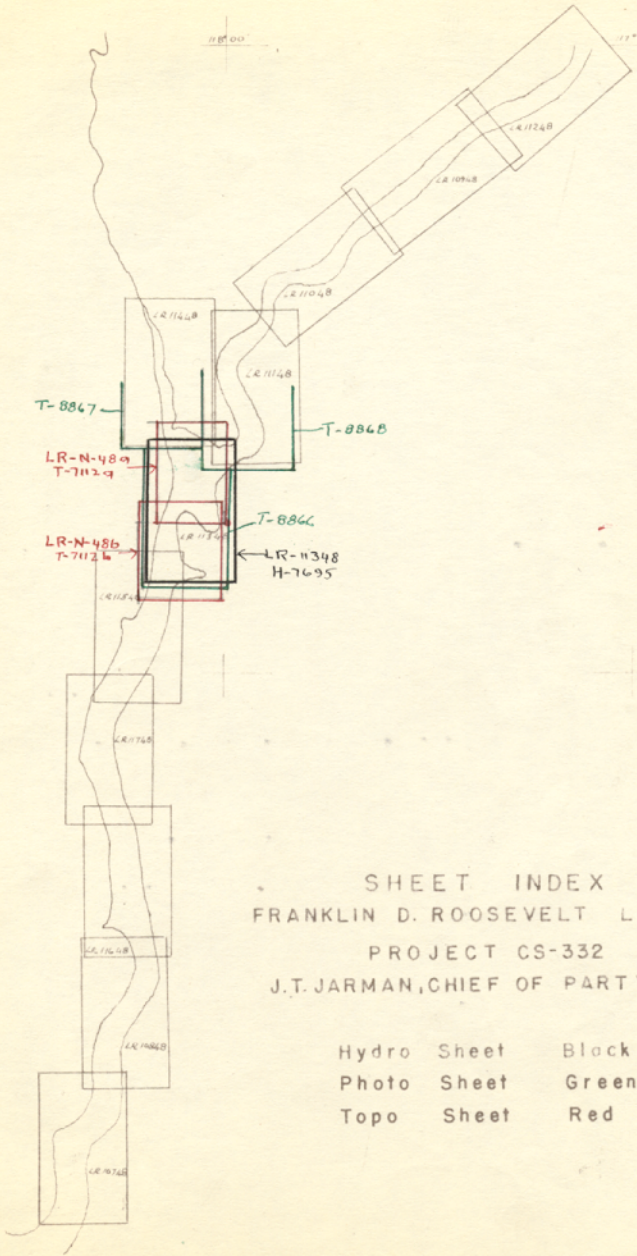
Soundings penciled by Clifford C. Cummings

Soundings in ~~XXXXXX~~ feet at ~~MEAN XXXX LOW WATER~~ a) 1288.575 Ft. above MSL USC&GS, or 1290. Ft. USBR datum of 1937.

REMARKS:

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 608019



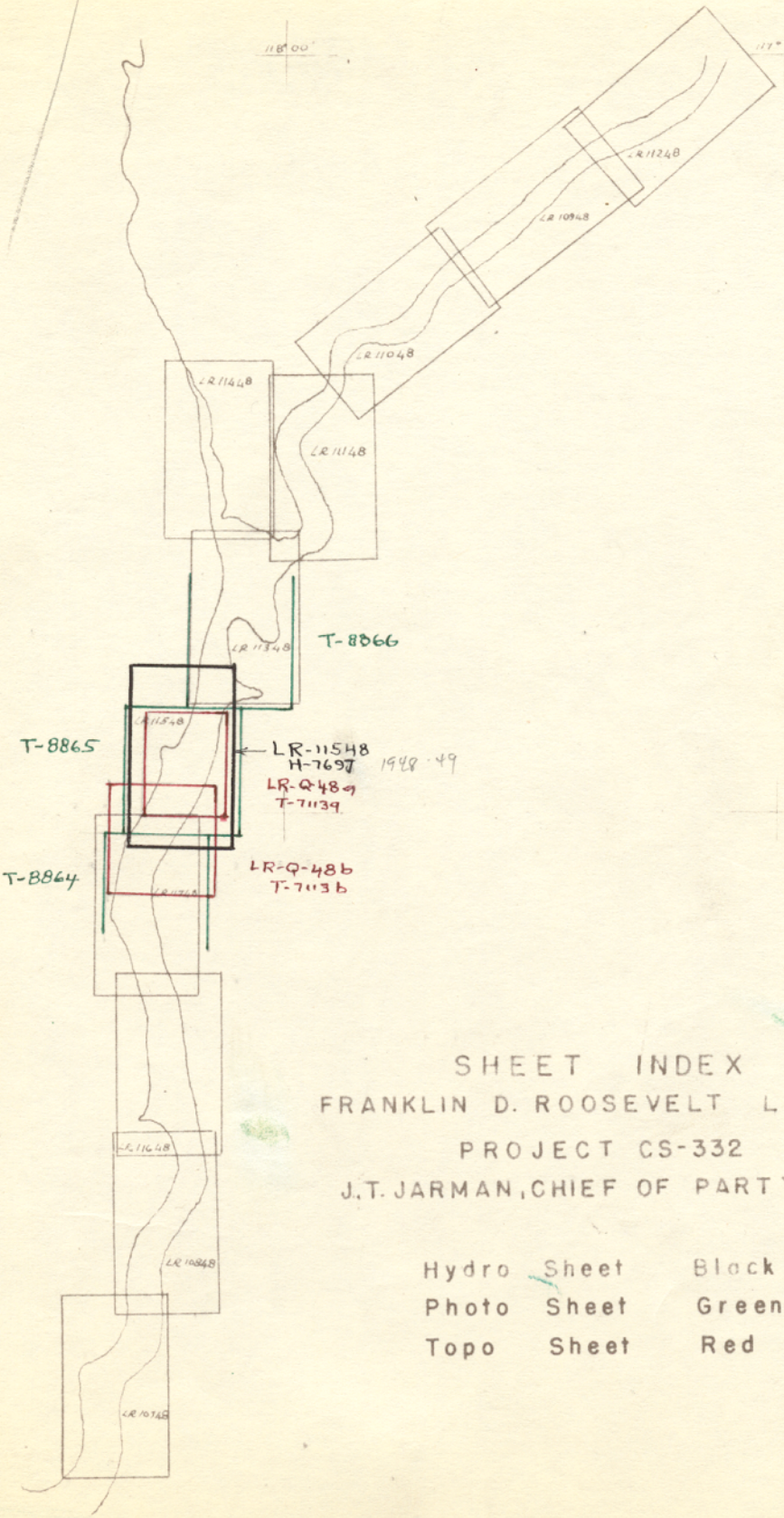
SHEET INDEX

FRANKLIN D. ROOSEVELT LAKE

PROJECT CS-332

J.T. JARMAN, CHIEF OF PARTY

Hydro	Sheet	Black
Photo	Sheet	Green
Topo	Sheet	Red



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PROJECT CS-332

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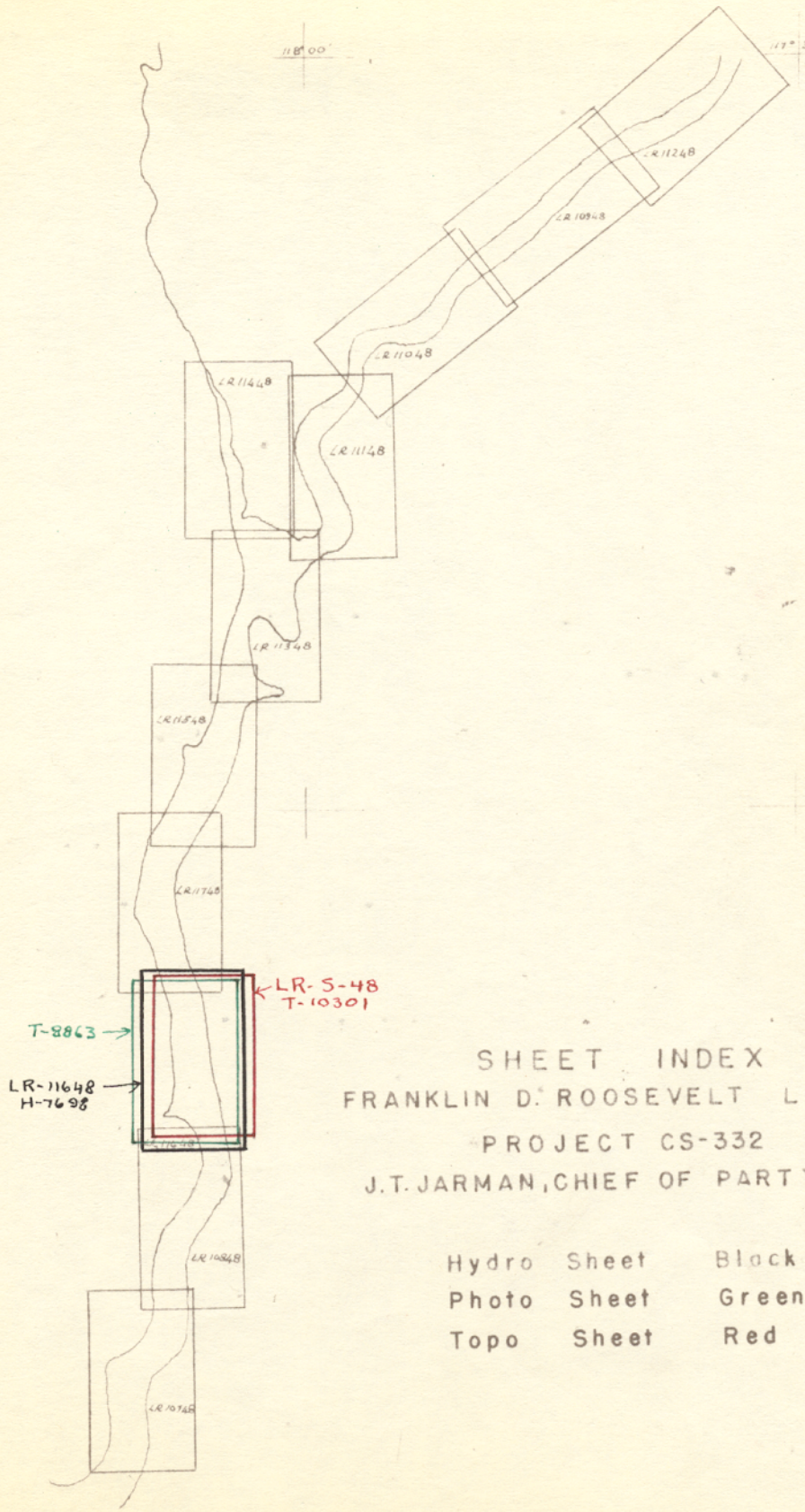

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FRANKLIN D. ROOSEVELT LAKE

PROJECT CS-332

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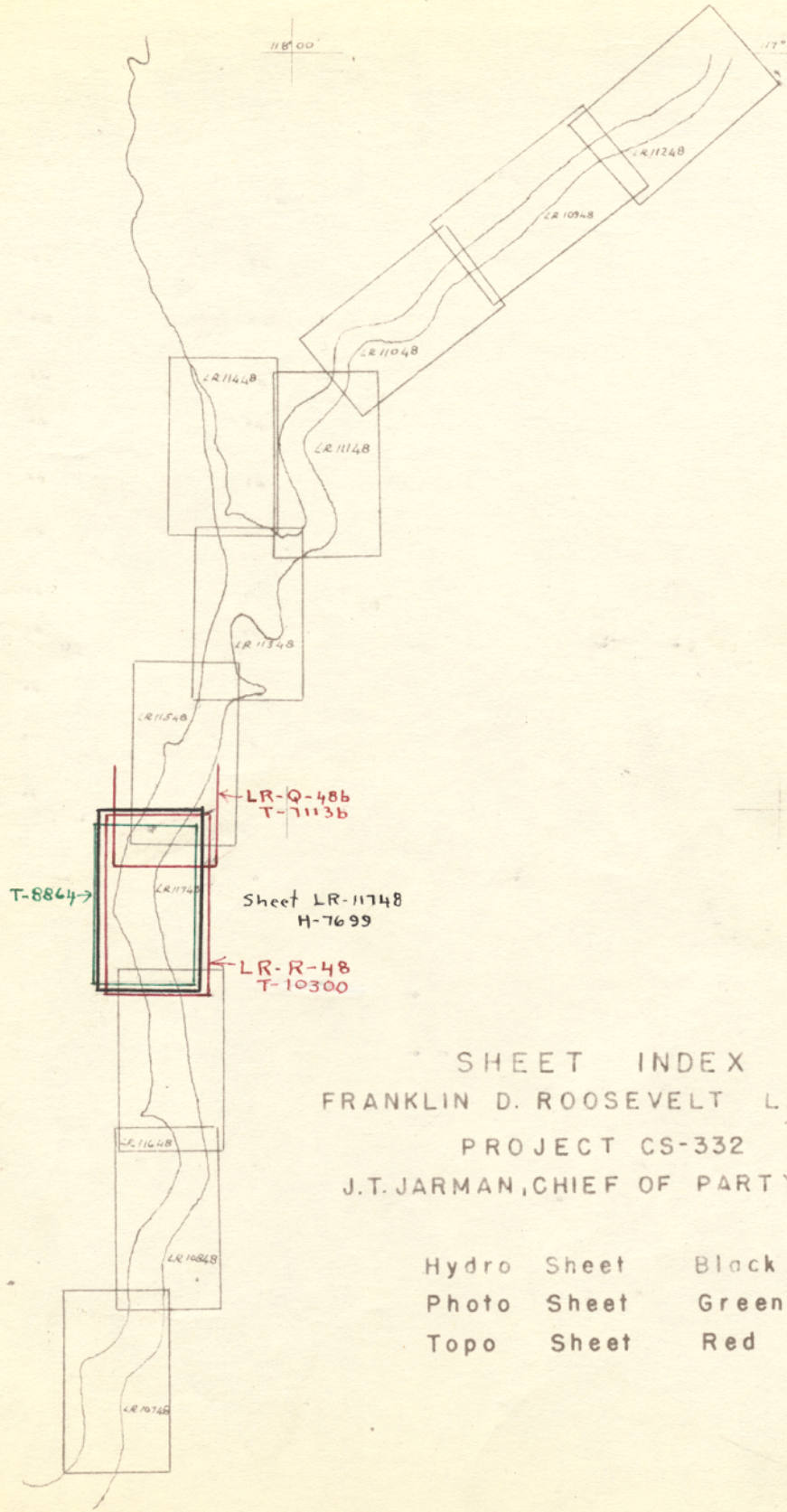

SHEET INDEX

FRANKLIN D. ROOSEVELT LAKE

PROJECT CS-332

J.T. JARMAN, CHIEF OF PARTY

Hydro	Sheet	Black
Photo	Sheet	Green
Topo	Sheet	Red

DESCRIPTIVE REPORT
To Accompany

Hydrographic Survey H-7695, Field No. LR-11348
Hydrographic Survey H-7697, Field No. LR-11548
Hydrographic Survey H-7698, Field No. LR-11648
Hydrographic Survey H-7699, Field No. LR-11748

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. These surveys are on the main body of Franklin D. Roosevelt Lake extending from Bissell Flats to Marcus, Washington, a distance of 38 miles.

Sheet H-7695, Field No. LR-11348, extends from the Colville River to Marcus, Washington; work began on the sheet September 20, 1948, and the sheet was completed on October 28, 1948.

Sheet H-7697, Field No. LR-11548, extends from Shell Rock 41 Light to the Colville River; work began on October 11, 1948, and the sheet was completed on October 28, 1948.

Sheet H-7698, Field No. LR-11648, extends from Bissell Flats to Daisy, Washington; work began on October 13, 1948, and the sheet was completed on November 5, 1948.

Sheet H-7699, Field No. LR-11748, extends from Daisy, Washington to Shell Rock 41 Light; work began on October 21, 1948, and the sheet was completed on November 5, 1948.

2. All of the foregoing sheets received some attention during a short season in the Spring of 1949 which consisted, in general, of development and feeling operations over shoal areas.

C. VESSELS AND EQUIPMENT

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

2. A gasoline powered sounding launch, designated 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 accommodations and storage space for supplies such as instruments and other necessary equipment. Fuel, generating equipment, and battery chargers were maintained on a small auxiliary barge. Signal building supplies and heavier items of such nature that would not be damaged by the weather were stored on a large open barge which was generally kept ahead of the main operations.

4. Portable depth recorders of the NK-7 type operating in feet were used on these sheets except for two days when an 808 type recorder was used.

5. A lead line was used for feeling over shoals and obtaining least depths on submerged rocks.

6. A hand sounding machine and calibrated sheave mounted on the LCVP was used for comparisons in deep water and for obtaining deep water temperatures and salinities. The bulk of the temperatures and salinities used on these three sheets were obtained by the LCVP. When possible, the launch 98 obtained supplemental temperature and salinity observations, using a leadline to support the apparatus.

D. TIDE AND CURRENT STATIONS

1. Tidal notes for the four sheets under discussion are attached to this report. Paragraphs 1, 2, 3, 5 and 6 under this same heading, Descriptive Report to accompany sheet LR-10147 and LR-10247, apply to these sheets also. (H-7681) (H-7682)

2. Soundings on all four of these sheets which were obtained during the 1948 Season have been reduced by data from the Kettle Falls tide gage.

3. Soundings obtained during the short 1949 Season were reduced as follows:

H-7695, Field No. LR-11348; reduced by data from the Kettle Falls staff.

Soundings on the remaining three sheets were reduced by data from the USBR gage at Grand Coulee Dam. The latter gage was in continuous operation throughout the duration of the project, and is the reference station for all gages and staffs where pool characteristics exist.

4. No current was noticed during the course of the hydrography. It is probable that a current of approximately 1 knot will be present on sheet H-7695, Field No. LR-11348, during the Spring flood season which occurs in May, June and July of each year. During such periods, the strength of the current will diminish as the distance south of Kettle Falls

increases, and it will not be noticeable on sheet H-7698, Field No. LR-11648, the southernmost of the sheets under discussion.

E. SMOOTH SHEETS

1. The smooth sheets have not been plotted. It is expected that remarks under this heading will be inserted in the final descriptive report by the Processing Office. S/S plotted by Seattle Process. Office. See "Notes" by Proc. Off. in this D.R.

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 Control Points, Project Ph-2(45)" previously submitted to the Washington Office. Acc. No. 9.7380

2. The foregoing control was supplemented by photo-hydro and topographic stations established by the Photogrammetric personnel. Project Ph-2(45). The registry number of shoreline survey sheet common to sheet H-7695 is T-8866; that common to sheet H-7697 is T-8865; that common to H-7698 is T-8863; that common to sheet H-7699 is T-8864. of 1946-47

3. Additional hydrographic stations were established by plane-table methods to replace several photogrammetric points which were marked doubtful, or could not be identified. In some instances, the photogrammetric points were so situated that they were not visible over a wide portion of the lake. Such stations were supplemented by establishing new stations. The locations of these new additional stations are shown on graphic control topographic sheets. The control sheet common to H-7695 is ~~T-7112~~ a & b; that common to H-7697 is ~~T-7113 a & b~~; that common to H-7698 is ~~T-10301~~; that common to H-7699 is ~~T-10300~~. LR-Q-48 a & b, LR-S-48

Graphic Cont. surveys were applied to Hydro. surveys and then were [illegible]

4. An index map has been prepared for each sheet to show the limits and field numbers of contemporary planimetric shoreline surveys and control sheets; they are attached to this report.

5. 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 locations should be accepted. Location of photo-hydro stations from the shoreline survey sheets which were accepted have been shown on the graphic control sheet with green circles. Locations of additional signals plus the locations of photo-hydro stations found to be in error have been shown with red circles. The majority of the photo-hydro stations used for hydrographic control were checked with a plane-table. Since the USBR third order control points are listed in plane coordinates, all three sheets show the Washington North State plane coordinate grid system.

G. SHORELINE AND TOPOGRAPHY

1. The planimetry shoreline was transferred to the boat sheets from ozalid prints of applicable shoreline survey sheets. 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 the control sheets, (~~T-7112a~~ and ~~T-7113a~~); the discussion of these discrepancies will be found in the Descriptive Report to Accompany Control Sheets ~~T-7112~~ a & b, ~~T-7113~~ a & b, ~~T-10300~~ and ~~T-10301~~.

H. SOUNDINGS

1. Except for two days in 1948 when an 808 type portable depth recorder was used, all soundings on these sheets were obtained with NK-7 type fathometers operating in feet.

2. The general procedure was as follows: In the case of the LCVP, the oscillator depth was maintained at 2 feet. The initial of the fathometer was adjusted to read 2 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 be 1.7 fathoms (average). 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 of 2 feet in feet and 1.7 fathoms in fathoms, and such variations were applied in the record books as an index correction. The bar checks and vertical comparisons were used to obtain a check on the computed velocity corrections, but the computed velocity corrections were actually used for correcting the soundings. In the case of the launch 98, the initial was adjusted to read 1.5 feet when the machine was operating in feet; otherwise, the procedure was the same for this launch as the LCVP. The average fathom initial on launch 98 was 0.81 fathoms for NK-7 type fathometer, and 1.23 fathoms for 808 type fathometer.

3. Procedure during the short 1949 Season was varied from that discussed in the foregoing paragraph. In general, the procedure outlined in Paragraph 2, sub-head "H" of Descriptive Report for sheets ~~LR-10147~~ and ~~LR-10247~~ was followed. The initial was set in feet to a known bar check depth, and was not changed when operating in fathoms. It was expected that this procedure would eliminate the "Bar Check Residual" discussed in the next paragraph. The LCVP was the only sounding launch engaged with hydrography during this period.

4. 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 check, it was indicated that it was an initial correction. When the above was discovered, the fathograms had already been scanned and initial corrections entered as described in Paragraph 2 above. Therefore, the average residual for all of each days bar checks was determined and applied algebraically to the scanned initial. See "Cahier of Bar Check Residuals" to be submitted with the 1948 Season's data.

5. The boats sheets covered by this report have been 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. The datum plane to be used for the smooth plotted sheets is 1290 feet, USBR 1937 Independent Datum, or 1288.575 feet above mean sea level. This is the normal lake level, and the maximum height to which the lake surface rises.

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 by notes in the position data column of the sounding 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 on 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 a 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 from the shore, 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 all four of these sheets are complete. Boat sheet junctions between these sheets and contemporary sheets appear to be satisfactory; depth curves can be completely drawn.

K. CROSSLINES

1. Crosslines obtained on these sheets exceed the minimum 8% specified in the instructions. The crosslines check the normal system of development 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. There are no serious dangers to navigation on any of these sheets. The dangers that do exist are inshore and will be listed by sheets

in a following paragraph. The original channel of the Columbia River within the limits of these sheets now has submerged flats and beaches on either side where a number of submerged sand hillocks shoaler than the surrounding bottom were detected during the course of the hydrography. Since provision was made in the construction of Grand Coulee Dam for lowering the surface of Lake Roosevelt as much as 80 feet below the normal level of 1288.6 feet above mean sea level, some of these hillocks may become a menace to navigation during periods of appreciable draw-downs. Therefore, all of these hillocks have been developed, or felt over with a lead line. According to Mr. J. K. Muterer of Daisy, Washington, who owns a store at the site of topographic station BAG, these beaches contained drifting sand dunes before they were covered by the lake. These high points are self-evident on the boat sheet, and being numerous, they will not be listed in this report.

2. Inshore dangers to navigation and pertinent information are listed below by sheets:

1948-49
Sheet H-7695, Field No. LR-11348

The sand hillocks discussed in Paragraph 1, this same heading, appear on this sheet in the area known locally as Marcus Flats. Other dangers are listed below.

(a) Bench or flat with least depth of ~~8~~ 6 feet; Lat. 48° 34.8~~5~~1', Long. 118° 07.~~1~~28'; bottom, sand; position 29m and 30m, red day letter.

(b) Rocky area with least depth of 37 feet; Lat. 48° 37.~~1~~69', Long. 118° 06.~~8~~88'; bottom, rocky; position 178b, blue day letter.

(c) Rocky area with least depth of ~~3~~9 feet; Lat. 48° 37.~~78~~81', Long. 118° 06.~~8~~76'; bottom, rocky; position 181b, blue day letter.

(d) Rocky area with least depth of 35 feet; Lat. 48° 37.95', Long. 118° 06.65'; bottom, rocky; position 39f and 43f, blue day letter.

(e) Rocky area with least depth of 24 feet; Lat. 48° 38.~~1~~08', Long. 118° 06.6~~1~~4'; bottom, very rocky; position 43m and 63m, red day letter.

(f) Items b, c, d, and e are in the area which was known as Kettle Falls before the lake existed. It is an extremely rough and uneven rocky bottom. Great caution must be exercised when navigating this particular area during periods of appreciable draw-downs below the normal lake level.

(g) Rocky area with least depth of ~~14~~ 15 feet; Lat. 48° 38.8~~4~~, Long. 118° 06.5~~4~~'; bottom, very rocky; position 27a, blue day letter. (A 14 ft. sdg falls ~3 meters S.W.

(h) Shoal area with least depth of 16 feet; Lat. 48° ~~39.0~~38.99', Long. 118° 06.~~58~~46'; bottom, mud; position 74p, red day letter. Note that the hydrographer states that the shoaler fathometer soundings in this area are from the tops of heavy weed growth. (See note on boat sheet.) These weeds are a thick marine growth which were noted from Bossburg to Kettle Falls. The ~~fathograms~~ indicates irregular bottom with pinnacles. Several ~~edges~~ of pinnacles have been retained.

16 ft sdg not pl. Had Falls between 3 & 4 ft. fath. sdgs. which are considered OK

grow at the height of the summer season and die during the winter months. When feeling over such area with a lead line, the weeds can be felt through the lead line.

(i) Shoal area; least depth with hand lead was 14 feet; shoaler soundings on the boat sheet are from the top of weed growth; Lat. 48° 39.1', Long. 118° 06.45'; position 125e, red day letter.

(j) Rocky shoal area with least depth of 5 feet; Lat. 48° 39.25', Long. 118° 06.43'; this shoal is an underwater extension of the adjacent land formation; position 10f, blue day letter.

(k) Gravel bar with least depth of 1/2 foot; Lat. 48° 34.75', Long. 118° 06.80'; bottom gravel; position 85h, red day letter.

Sheet H-7697, Field No. LR-11548

Sand hillocks discussed in Paragraph 1, this same heading, appear on an extensive flat whose center is at approximate Lat. 48° 30.8', Long. 118° 09.7'.

Other listed dangers follow.

(a) Shoal area with least depth of 3 feet; Lat. 48° 33.52', Long. 118° 08.82'; bottom, sand; position 29a to 32a, blue day letter.

(b) Shoal area with least depth of 7 feet; Lat. 48° 33.35', Long. 118° 08.6'; bottom, sand; position 42L to 44L, blue day letter.

(c) Shoal area with least depth of 36 feet; Lat. 48° 33.15', Long. 118° 08.75'; bottom, mud; position 48L, blue day letter.

(d) Shoal area with least depth of 18 feet; Lat. 48° 33.92', Long. 118° 07.13'; bottom, sand; position 1q and 2q, blue day letter.

(e) Shoal area with least depth of 3 feet; Lat. 48° 30.54', Long. 118° 09.58'; bottom, sand and mud; position 31m and 32m, blue day letter.

(f) Shoal area with least depth of 29 feet; Lat. 48° 29.21', Long. 118° 11.58'; bottom, sand; position 159n, blue day letter.

(g) Shoal area with least depth of 30 feet; Lat. 48° 29.84', Long. 118° 11.83'; bottom, sand; position 150n, blue day letter.

(h) It is recommended that vessels stay to the east of French Point Rocks; the bottom here is rocky and uneven and it is possible that the hydrographic party missed some of the underwater obstructions.

Sheet H-7698, Field No. LR-11748

The sand hillocks discussed in Paragraph 1, this same heading, appear on submerged benches along the east shore of this sheet. Other listed dangers follow.

(a) The area to the west of Barnaby Island although covered with water is extremely shoal; there are numerous sand banks of varying depths and all boats should stay clear.

(b) Shoal area with least depth of 7 feet; Lat. 48° 26.2', Long. 118° 12.8'; bottom, sand; position 27j to 29j, blue day letter.

Sheet H-7695, Field No. LR-11648

Other than the sand hillocks previously discussed in Paragraph 1, this same heading, there are no dangers on this sheet.

3. During the short 1949 Season, this party was engaged in developing and feeling over shoal areas with a leadline. It will be noted that often a hand lead sounding and a fathometer sounding on the same position do not exactly agree. This discrepancy was caused because the launch LCVP is not equipped with a sounding chair. The hand lead soundings were obtained from either the bow or the stern, and the fathometer fish is located amidships on the starboard side. An attempt was made to verify the fathometer sounding with the lead line when it was the shoaler of the two, but we were not always successful. Some of the spots were very small and elusive. In general, the leadline soundings are the shoalest recorded, but the practice was adopted of using the shoalest sounding obtained regardless of the source. We used the fathometer to find the shoal area and then attempted to get the least depth with the leadline. The discrepancies under discussion were never more than 1 or 2 feet.

O. COAST PILOT INFORMATION

1. For a complete discussion of Coast information refer to "Coast Pilot Report, Franklin D. Roosevelt Lake, Project Ph-2(45)" previously submitted to the Washington Office. Filed in Coast Pilot Sect.

2. In general, it is safe to navigate the entire area covered by these sheets provided precautions are observed when in the vicinity of the dangers listed under sub-head "N", this report. Caution is advised in approaching shoreline areas where the above water terrain abounds with rocks, rock outcrop and boulders. It is a safe assumption that these same formations exist under the water.

3. The numerous flats found on these sheets adjacent to either shoreline will provide a good anchorage provided the proper ground tackle is available. They do not provide protection from the wind. A list of the better anchorages on these sheets follows:

(a) H-7695 at Lat. 48° 34.35', Long. 118° 05.8', Colville River; depths, 30 to 40 feet; bottom, mud; protection, excellent.

(b) H-7695 at Lat. 48° 37.4', Long. 118° 04.8'; depths, 50 to 60 feet; bottom, mud; protection from all directions except the northwest.

(c) H-7695 at Lat. 48° 40.55', Long. 118° 06.6'; depths, 50 to 60 feet; bottom, mud; protection from north and west.

(d) H-7697, cove at Lat. 48° 32.2', Long. 118° 09.8'; depths, 20 to 60 feet; bottom, mud; protections, excellent.

(e) H-7697, Bight at Lat. 48° 29.6', Long. 118° 11.8'; depths, 30 to 40 feet; bottom, mud; protection from the north and west.

(f) H-7697, large bight at Lat. 48° 33.4', Long. 118° 08.9'; depths, 12 to 17 feet; bottom, mud and sand; protection excellent.

(g) H-7698, cove at Lat. 48° 27.2', Long. 118° 11.7'; depths, 10 to 20 feet; bottom, mud; protection, excellent.

(h) H-7698, area south of Barnaby Island at Lat. 48° 26.4', Long. 118° 13.0'; depths, 16 feet; bottom, sand; protection from north and west.

(g) H-7698, large bight at Lat. 48° 25.75', Long. 118° 11.4'; depths, 50 to 60 feet; bottom, sand and mud; protection from the north and east,

(i) H-7698; the numerous large coves and bights offer the best protected anchorages on this sheet.

P. AIDS TO NAVIGATION

1. Form 567 lists all aids to navigation, and is attached to this report. The aids listed are the same that the Photogrammetric Party, Project Ph-2(45) submitted, and have the same locations; the one exception is West Bissell Flats Day Beacon 35 which was moved slightly by the topographer, Project CS-332.

Q. LANDMARKS FOR CHARTS

1. Data relative to landmarks for charts are shown on Form 567 which was submitted with Project Ph-2(45). A copy of the form is attached to this report.

R. GEOGRAPHIC NAMES

1. For a complete treatment of Geographic Names, refer to "Special Report, Geographic Names, sheets 8849 to 8859, Project Ph-2(45)" previously submitted to the Washington Office. No additional information was obtained by the topographic and hydrographic units, Project CS-332.

Filed in Geo. Name Sect.

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, this party has attempted to obtain sufficient information by hydrographic methods from which the Bureau of Reclamation can delineate 10 foot bottom contours. Therefore, the survey is somewhat more detailed than would ordinarily be the case.

U. MISCELLANEOUS

1. On sheet H-7695 most of the work was accomplished by the launch No. 98. This vessel was inactive for a period of 1 week due to engine trouble and a bent shaft.

2. The bulk of the sounding on these sheets was accomplished with an NK-7 type portable depth recorder. On sheet H-7695, fathometer NK-7 163 gave some trouble because of a loose stylus head. The small bearing screws which hold the needle sheath kept working loose. The trouble was remedied one Sunday by burring the treads on these tiny screws, wrapping them with fine thread and then reassembling them. Finally, sealing wax was placed over the heads of the screws. This procedure remedied the trouble for the remainder of the season.

3. Work on sheet H-7699 was retarded during the latter part of October and early November because of adverse weather.

V. REFERENCES

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

Descriptive Report to Accompany Hydrographic Survey Nos. H-7681 and H-7682, Field Nos. LR-10147 and LR-10247.
Coast Pilot Report, Franklin D. Roosevelt Lake, Project Ph-2(45). C.P. Sect
Special Report, Investigation of Geographic Names, Sheets 8849 to 8859, Project Ph-2(45). Geo. Name Sect.
Special Report on Reservoir Boundary Control Points, Project Ph-2(45). Acc. No. G-738
Field Inspection Report, Area of the Third Radial Plot, Project Ph-2(45).
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 of Correspondence and Related Information Applicable to Project CS-332, Lake Roosevelt". Filed with H-7681
Cahier "Bar Check Residual Study". "
Report of Preliminary Investigation of Lake Roosevelt by John C. Ellerbe dated 27 September 1945. Filed with H-7681

X. TABULATION OF APPLICABLE DATA

1. The following data is being submitted for sheet LR-11348: H-7695

Sounding Volumes (Form 275)	9 vol.
Fathograms	12 rolls
Boat Sheet LR-11348 H-7695 1948-49	1 ea.
Control Sheet LR-N-48 a & b	1 ea.
Descriptive Report (combined for 4 sheets)	

2. The following data is being submitted for sheet H-7697 LR-11548:

Sounding Volumes (Form 275)	7 vol.
Fathograms	6 rolls
Boat Sheet LR-11548 H-7697 1948-49	1 ea.
Control Sheet LR-Q-48 a & b	1 ea.
Descriptive Report (Combined for 4 sheets)	

3. The following data is being submitted for sheet H-7699 LR-11748:

Sounding Volumes (Form 275)	8 vol.
Fathograms	6 rolls
Boat Sheet LR-11748 H-7699 1948-49	1 ea.
Control Sheet LR-R-48	1 ea.
Descriptive Report (combined for 4 sheets)	

4. The following data is being submitted for sheet H-7698 LR-11648:

Sounding Volumes	7 vol.
Fathograms	7 rolls
Boat Sheet LR-11648 H-7698 1948-48	1 ea.
Control Sheet LR-S-48	1 ea.
Descriptive Report (combined for 4 sheets)	

5. The following data applies to all sheets covered by this report:

Velocity Corrections 16 Aug. to 22 Nov., 1948 (Filed with H-7681)	1 cahier
Velocity Corrections, 1949 Season (Filed with H-7681)	1 cahier
Water Surface Elevations (Tides), 1948 Season (Filed with H-7681)	1 cahier
Water Surface Elevations (Tides), 1949 Season (Filed with H-7681)	1 cahier
Cahier of Bar Check Residuals Filed With H-7681	1 cahier
Tide data and marigrams for all gages	
Level Records for all tide stations	
Recovery Notes, triangulation	
Bench Mark Descriptions and Recovery Notes	

6. The following work has been accomplished on the records and data of these sheets:

All fathograms have been scaled and checked.
Velocity corrections have been entered and checked.
Tide reducers have been entered and checked.
Fathogram index corrections have been entered and checked.
Sounding have been reduced in Vol. 1, sheet LR-11348, but not checked.

There remains to be accomplished the following work on the records and data of these sheets:

H-7695 1948-49
Sheet LR-11348; Check reduced soundings, volume No. 1; reduce and check soundings, all other volumes; plot smooth sheet.

H-7697 H-7697 1948-49
Sheet LR-11548: Reduce and check soundings, all volumes; plot smooth sheet.

H-7699 H 7699- 1948-49
Sheet LR-11748: Reduce and check soundings, all volumes; plot smooth sheet.

H-7698 H 7698 1948-49
Sheet LR-11648: Reduce and check soundings, all volumes; plot smooth sheet.

REMARKS

1. This report has been compiled from notes submitted by Lt. Comdr. Moore and Mr. Hal A. Marchant.

Respectfully submitted,

J. T. Jarman
Chief of Party

Encl.

Statistics
Hydrographic Title Sheets
List of Hydrographic Signals
Landmarks for Charts
Index Sheets
Abstract of Velocity Corrections
Abstract of Tide Reducers
Approval Sheet

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

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

TELEGRAPH ADDRESS:

EXPRESS ADDRESS:

Sept. 26, 1949

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

Subject: Approval of hydrographic surveys.

Boat sheets and records for the following listed surveys have been inspected and are approved.

H-7695, Field No. LR-11348 1948-49
H-7697, Field No. LR-11548 1948-49
H-7698, Field No. LR-11648 1948-49
H-7699, Field No. LR-11748 1948-49

G.T. Jarman

G.T. Jarman
Chief of Party

H 7795
LR 11348

Lake Roosevelt, Wash.

Smooth sheet. Projection and grid, Washington North, ruled on the machine in Washington,D.C. Control has been discussed by the COP on page 3 of this report.

Fathometer speed. The profiles have been checked for speed with templates drawm suitable to the rate of paper feed for the fathometer in use.

Supervision. Plotting has proceeded under the attention of the chief of party.

The corrections made to the report on pages 6 and 7 are the differences between boatsheet and smooth sheet soundings

Other subjects have had the attention of the field party and are covered in their report.

Edgar E. Smith
Cart.Engr.
Seattle Processing Office
3/15/50

1948-49
H 7698 / LR 11648
H 7699 ~ LR 11748
1948-49

Smooth sheets.

The projections and grids, Washington North, were ruled on the machine in Washington, D.C. The paper is not labeled.

Fathograms.

The fathograms were tested for speed at random intervals on each days work, using templates ruled at intervals suitable to the calibration of the fathometer.

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

Edgar E. Smith.
Cart. Engr.
Seattle Processing Office

3/14/50

H 7697 1948-49
LR 11548

Lake Roosevelt, Wash.

Smooth sheet. The projection and grid, Washington North, were ruled on the machine in Washington. The shoreline also was transferred in the Washington office but it was inked in Seattle.

Fathograms. The profiles were checked for speed at random intervals on each days work. The templates were ruled at intervals suitable to the fathometer in use.

Crossings& Junctions. Good.

Other subjects have been treated by the report of the field party.

Edgar E. Smith

Edgar E. Smith
Cart. Engr.
Seattle Processing Office

3/28/50

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. Sept. 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 HA

J.T. Jarman
Chief of Party.

STATE	Washington- Lake Roosevelt Bissell Flats to Marcus, Wash.		POSITION					METHOD OF LOCATION AND SURVEY No.	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
			LATITUDE		LONGITUDE		DATUM						
CHARTING NAME	DESCRIPTION	SIGNAL NAME	° ′	D.M. METERS	° ′	D.P. METERS							
STACK	T-8866 (H-7695) Stack, black metal		48 36	(699.2) 1154.2	118 07	(1222.4) 6.6	NA 1927	Radial Plot	1947		x		Area not charted 6/69

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

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. Sept. 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 ~~HA~~

J.T. Jarman
Chief of Party.

STATE: Washington - Lake Roosevelt Bissell Flats to Marcus, Wash.

CHARTING NAME	DESCRIPTION	SIGNAL NAME	POSITION LATITUDE ° ′	LATITUDE D.M. METERS	POSITION LONGITUDE ° ′	LONGITUDE D.P. METERS	DATUM	METHOD OF LOCATION AND SURVEY No.	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
DAY BEACON	T-10297 T-10301 H-7698 35 West Bissell Flats Day Bn.	Day & West	48 16	(1498.2) 355.0	118 08	(430.6) 806.8	NA 1927	Plane-table	1948		x		Chart 6169 ~~Area not charted~~
LIGHT	T-8863 H-7698 Mission Point 37 Light	Miss	48 21	(683.5) 1169.8	118 11	(1002.5) 232.6	"	Radial Plot	1947		x		"
LIGHT	T-8863 H-7698 Gifford Ferry 36 Light	Ford	48 18	(1605.4) 247.9	118 09	(1101.8) 134.7	"	"	"		x		"
LIGHT	T-8864 Chalk Grade 40 Light		48 26	(849.7) 1003.6	118 12	(1214.4) 18.7	"	"	"		x		"
LIGHT	T-8864 Shell Rock 41 Light	Pad	48 27	(612.4) 1240.9	118 13	(1147.3) 84.9	"	3 point fix	"		x		"
DAY BEACON	T-8864 Barnaby Flats Day Beacon 39		48 26	(443.8) 1409.3	118 12	(331.4) 901.0	"	Radial Plot	"		x		"
LIGHT	Point (T-8865) Rickey 45 Light H-7697	Rim	48 32	(517.1) 1336.2	118 08	(803.0) 427.6	"	"	"		x		"
LIGHT	T-8865 H-7697 French Point Rocks 43 Lt.	Rod	48 29	(341.7) 1511.6	118 11	(1125.8) 106.0	"	"	"		x		"
~~Light~~	T-8866 H-7695 Sherman Creek 47 Light	Zoo	48 34	(299.7) 1555.7	118 07	(223.9) 1005.9	"	"	"		x		"
DAY ~~Beacon~~	T-8866 H-7695 48 Colville Flats Day Beacon		48 34	(312.7) 1540.7	118 07	~~(607.7)~~ 107.2 (1122.6)	"	3 point fix	"		x		"

Your attention is called to the fixed red and green lights on the highway and railroad bridge at ~~Kettrix~~ Kettle Falls, sheet T-7112a which are not listed above.

This form shall be prepared in accordance with Hydrographic Manual pages 800 to 804. Positions of ...

1948-49

Information pertaining to hydrographic sheet H-7695, Field No. LR-11348.

Season 1948
Tabulated tide Reducers
Sheet LR-11348
H-7695 1948-49

7-186
(July 1935)

Date		Feet		Fms.
Sept.	20	≠ 0.6		≠ 0.1
	22	≠ 0.6		≠ 0.1
	23	≠ 0.6		≠ 0.1
	27	≠ 0.6		≠ 0.1
	29	≠ 0.6		≠ 0.1
	30	≠ 0.4		≠ 0.1
Oct.	1	≠ 0.4		≠ 0.1
	5	≠ 0.2		≠ 0.0
	8	≠ 0.2		0.0
		≠ 0.2	to 0900	0.0
	11	≠ 0.4	after 0900	≠ 0.1
	12	≠ 0.4		≠ 0.1
	18	≠ 0.4		≠ 0.1
	19	≠ 0.4		≠ 0.1
	28	≠ 0.6		≠ 0.1

Refer to Kettle Falls Gage

Season 1949 Tide Reducers

Sheet LR 11348

H-7695 (1948-49)

Refer to Kettle Falls Staff

	Feet		Fms.
May 10	5.0 ft.	All day	≠ 0.8 fm. all day
May 11	5.0 "	" "	≠ 0.8 fm. all day
May 12	5.0 "	" "	≠ 0.8 " " "
May 13	4.8 "	" "	≠ 0.8 " " "
	1.0 "	To 1500	≠ 0.2 fm. " "
May 19	0.8 "	After 1500	≠ 0.1 " " "
May 20	0.6 "	All day	≠ 0.1 " " "
May 21	0.4 "	" "	≠ 0.1 " " "

H-7695 (1948-49)

Sheet LR-11348

Bar Check Residuals

(To be applied algebraically to seamed Index corrections)

7-186
(July 1935)

Date	Bar Check Residuals Feet	Fms.	Path.	Launch	Remarks
Sept 22	0.2	0.0	163	98	To 0900
22	-0.3	0.1	122	98	0900 to 1200
22	0.2	0.0	163	98	After 1200
23	-0.4	0.0	163	98	
27	-0.7	0.0	163	98	
29	-1.1	0.0	163	98	
30	-0.3	0.0	122	98	To Noon
30	-1.2	0.0	163	98	After 1200
Oct. 1	-0.6	0.0	163	98	
5	0.1	0.0	163	98	
8	-0.3	0.4	163	98	
11	-0.2	0.0	163	98	
12	-0.1	0.0	163	98	
18	-0.3	-0.3	163	98	
19	0.1	0.0	163	98	
28	0.2	0.0	163	98	

List of Hydrographic Signals
Sheet LR-11348
H-7695 (1948-49)

Abe
Ace
Act
Add
Ade
Age
Aha
Aim
All
Alp
Ann
And
Ark
Art
Axe
Bag
Big
Bea
Boy
Bus
Cod
Cry
Cut
Day
Doc
Eat
Egg
Ego
End
Eva
Few
Fix

Gag
Gal
Gas
Girl
Hid
Hop
How
Hub
Ice
Ida
Irk
Ivy
Jap
Joy
Key
Log
Long
Lux
New
Nip
Nor
Oar
Off
Oil
Pie
Que
Ran
Sis
Sol
Tom
Try
Use
Vet

Via
War
Was
Yes
Zoo

Information pertaining to hydrographic survey H-7697, 1948-49
Field No. LR-11548.

Season 1948

Velocity Correction list
Hydrographic Sheet
No. LR-11548 H-7697 1948-49
Launch LCVP

11 Oct. to 21 Oct.

Fathometers NK-7 86 & 172
Curve No. 22

To Depth Feet	Corr. Feet	To Depth Fms.	Corr. Fms.
21.0	0.0	15.4	-1.4
59.5	-0.2	30.5	-1.5
91.0	-0.4	Below 30.5	-1.6
122.0	-0.6		
152.0	-0.8		
182.0	-1.0		
Below 182 ft.	-1.2		

25 Oct. to 28 Oct

Fathometer NK-7 172
Curve No. 24

To Depth Feet	Corr. Feet	To Depth Fms.	Corr. Fms.
11.5	0.0	9.5	-1.4
29.2	-0.2	18.3	-1.5
50.5	-0.4	27.7	-1.6
69.0	-0.6	36.8	-1.7
89.0	-0.8		
106.0	-1.0		
123.0	-1.2		
142.0	-1.4		
160.5	-1.6		
179.0	-1.8		
Below 179 ft.	-2.0		

Computed by VTJ
Checked by
Copy Checked

VELOCITY CORRECTIONS
Season 1949-Lake Roosevelt
Project CE-332

Sheet LR 11348
Sheet LR 11548 . H 7697 1948-49

Curve No. 2 (feet)
Curve No. 3 (fms.)

NK 7 Fathometers

Reducers in Feet

0.0	to 16.5	ft.
-0.2	to 29.8	"
-0.4	to 42.8	"
-0.6	to 56.5	"
-0.8	to 69.5	"
-1.0	to 82.8	"
-1.2	to 96.0	"
-1.4	to 109.0	"
-1.6	to 123.1	"
-1.8	to 136.0	"
-2.0	to 149.0	"
-2.2	to 161.5	"
-2.4	to 174.2	"
-2.6	to 187.0	"
-2.8	to 198.8	"
-3.0	to 211.0	"

Reducers in Fms.

-1.2	to 6.0	fms.
-1.3	to 13.0	"
-1.4	to 20.0	"
-1.5	to 27.0	"
-1.6	to 33.2	"
-1.7	to 40.0	"
-1.8	to 46.7	"
-1.9	to 53.0	"
-2.0	after 53.0 fms.	

Season 1948
Tabulated Tide Reducers
Sheet LR-11548 H7689 1948-49

7-186
(July 1935)

Date	Feet	Fms.
	≠0.2 to 0900	0.0
Oct. 11	≠ 0.4 after 0900	≠ 0.1
12	≠ 0.4	≠ 0.4
13	≠ 0.4	≠ 0.4
14	≠ 0.4	≠ 0.1
15	≠ 0.4	≠ 0.1
18	≠ 0.4	≠ 0.1
21	≠ 0.4	≠ 0.1
25	≠ 0.6	≠ 0.1
26	≠ 0.6	≠ 0.1
28	≠ 0.6	≠ 0.1

Refer to Kettle Falls Gage

Season 1949, Tide Reducers

Sheet LR 11548 H-7697 1948-49

(Refer to Coulee Dam Gage)

May 21	0.6'	All day
May 22	0.6'	" "
May 23	0.6'	" "
May 24	0.6'	" "

Sheet IR-11548 H7987 1948-49
Bar Check Residuals
(To be applied to scanned Index corrections algebraically)

7-186
(July 1935)

Date	Bar Check Residual Feet	Fms.	Fath.	Launch	Remarks
Oct. 11	-0.5	0.0	NK-7 86	LOVP	
12	-0.5	0.0	86	LOVP	
13	-0.5	0.0	86	"	
14	-0.4	0.0	86	"	
15	-1.1	0.0	172	"	After 09:30
15	-0.9	0.0	86	"	To 09:30
18	-1.1	0.0	172	"	
21	-0.3	0.0	172	"	
25	-0.1	0.0	172	"	
26	0.2	0.0	172	"	
28	-0.4	0.0	172	"	

List of Hydrographic Signals
Sheet LR-11548 #709977 1948-49

Abe	T-8865
Add	LR-Q-48a
Aha	T-8865
Aim	"
Ann	LR-Q-48a
Art	T-8865
Axe	"
Bag	"
Bea	LR-Q-48a
Bus	triangulation
Bat	LR-Q-48a
Box	"
Bug	"
Cat	"
Cod	T-8865
Cry	triangulation
Den	LR-Q-48a
Dim	"
Dec	T-8865
Dug	"
Day	LR-Q-48b
Eat	"
End	"
Egg	T-8865
Eva	LR-Q-48a
Fat	LR-Q-48a
Fox	"
Gat	"
Gal	T-8865
Gum	"
Gas	triangulation
Hid	T-8865
Her	LR-Q-48b
Hal	"
Hat	T-8865
Hop	LR-Q-48b
Ivy	LR-Q-48a
Ice	"
Ida	T-8865
Irk	"
Joy	LR-Q-48a
Jig	"
Key	"
Lax	T-8865
Lit	LR-Q-48a
Lux	T-8865
Lat	LR-Q-48a
Leg	"
Mat	"
Nut	LR-Q-48b
Nay	triangulation
Nip	T-8865
Ner	"
Nat	LR-Q-48a
Out	LR-Q-48b
Oak	triangulation
Oil	LR-Q-48a
Off	"
Old	triangulation
Pie	LR-Q-48b
Pet	"
Pet	T-8865
Pat	LR-Q-48a
Que	"
Rev	LR-Q-48b
Rey	LR-Q-48a
Rim	T-8865
Rat	LR-Q-48a
Ray	LR-Q-48b
Red	T-8865
She	triangulation
Sis	LR-Q-48a
Sel	LR-Q-48a
Sat	"
See	"
Tem	LR-Q-48b
Try	T-8865
Une	LR-Q-48a
Use	T-8865
Vet	LR-Q-48a
Vat	"
Wal	"
War	"

Season 1948

Velocity Correction List

Hydrographic Sheet
No. LR-11648 H-7698 1948-49
Launch 98

13 Oct to 21 Oct

Fathometer NK-7 163
Curve No. 22

To Depth Feet	Corr Feet	To Depth Fms.	Corr. Fms.
21.0	0.0	16.2	-0.6
59.5	-0.2	31.3	-0.7
91.0	-0.4	Below 31.3	-0.8
122.0	-0.6		
152.0	-0.8		
182.0	-1.0		
Below 182 ft.	-1.2		

1 Nov. to 5 Nov.

Fathmmeter NK-7 163
Curve No. 24

To Depth Feet	Corr. Feet	To Depth Fms.	Corr. Fms.
11.5	0.0	10.7	-0.6
29.2	-0.2	19.0	-0.7
50.5	-0.4	28.0	-0.8
69.0	-0.6	37.0	-0.9
89.0	-0.8		
106.0	-1.0		
123.0	-1.2		
142.0	-1.4		
160.5	-1.6		
179.0	-1.8		
Below 179 ft.	-2.0		

Computed by VTJ
Checked by

Copy checked

VELOCITY CORRECTIONS
Season 1949-Lake Roosevelt
Project CS-332

MK 7 Fathometers

Sheet LR 11648 H7698 1948-49
" LR 11748 H7699 1948-49
" LR 10848 H7690

Curve No. 2 (feet)
Curve No. 3 (Fms.)

Reducers in feet

0.0	to 14.5	ft.
-0.2	to 29.8	"
-0.4	to 42.8	"
-0.6	to 56.5	"
-0.8	to 69.5	"
-1.0	to 82.8	"
-1.2	to 96.0	"
-1.4	to 109.0	"
-1.6	to 123.1	"
-1.8	to 136.0	"
-2.0	to 149.0	"
-2.2	to 161.5	"
-2.4	to 174.2	"
-2.6	to 187.0	"
-2.8	to 198.8	"
-3.0	to 211.0	"

Reducers in Fms.

-1.2	to 6.0	fms.
-1.3	to 13.0	"
-1.4	to 20.0	"
-1.5	to 27.0	"
-1.6	to 33.2	"
-1.7	to 40.0	"
-1.8	to 46.7	"
-1.9	to 53.0	"
-2.0	after 53.0	fms.

Season 1948
Tabulated Tide Reducers
Sheet LR-11648 H-7698 1948-49
H-7698

7-186
(July 1935)

Date	Feet		Fms.
Oct. 13	∠ 0.4		∠ 0.1
14	∠ 0.4		∠ 0.1
15	∠ 0.4		∠ 0.1
20	∠ 0.4		∠ 0.1
21	∠ 0.4		∠ 0.1
Nov. 1	∠ 1.2	to 1400	∠ 0.2
	∠ 1.4	after 1400	
2	∠ 1.4	to 0900	∠ 0.2
	∠ 1.6	after 0900	∠ 0.3
3	∠ 1.6		∠ 0.3
4	∠ 1.6		∠ 0.3
5	∠ 1.8		∠ 0.3

Refer to Kettle Falls Gage

Season 1949. Tide Reducers

Sheet LR 11648/H10698 1948-49

Refer to Coulee Dam Gage

	Feet		Fms.	
May 26	+ 0.6'	All day	+ 0.1 fm	all day
May 27	+ 0.6'	" "	+ 0.1 "	" "

Sheet LR-11648 #47698 48-49

7-186
(July 1935)

Bar Check Residuals
(To be applied algebraically to seamed Index Corrections)

Date	Bar Check Residuals Feet	Fms	Fath.	Launch	Remarks
Oct. 13	0.2	0.0	163	98	
14	0.1	0.0	163	98	
15	0.0	0.1	163	98	
20	0.0	0.0	163	98	
21	-0.3	-0.2	163	98	
Nov. 1	0.2	-0.1	163	98	
2	0.5	0.2	163	98	
3	0.4	0.0	163	98	
4	0.4	-0.1	163	98	
6	-0.1	-0.2	163	98	

List of Signals for Hydrographic Sheet
LR-11648 H-7698
H7698-1948-49

Abe
Ace
Ade
Age
Aha
Alp
Ann
Ask
Bag
Bed
Bes
Boa
Box
Boy
Bus
Cab
Cat
Cow
Cry
Cut
Did
Dim
Dog
Doc
Dug
Ear
Eat
Egg
Ego
Ema
End
Eva
Fin
Ford
Fox
Gas
Gum
Hat
His
Hop
Hub
Ike
Ion
Jap
Jim
Joe
Key
Kid
Kim
King
Log
Lou
Lux
Mal
Man
Meg
Miss
Mix
Moon
Mug
New
Nig
Oat
One
Owl
Pie
Pig
Pop
Pet
Pro
Ram
Rev
Rim
Sal
Sat
She
Sir
Sis
Sow
Sue
Tax
Ted
Tom
Use
Vega
Vet
Wag
Wan
Wee
West
Wet
Yeg
Yes
Zoo

Information pertaining to hydrographic survey H-7699, 1948-49
Field No. LR-11748.

Season 1948

Velocity Correction List Cont'd.
Sheet LR-11748 H-7699
H-7699 1948-49

Launch ICVP

19 Oct. to 20 Oct. Fathometer NK-7 172 ; Curve No. 22

To Depth Feet	Corr Feet
21.0	0.0
59.5	-0.2
91.0	-0.4
122.0	-0.6
152.0	-0.8
182.0	-1.0
Below 182 ft.	-1.2

To Depth Fms.	Corr. Fms.
15.4	-1.4
30.5	-1.5
Below 30.5	-1.6

1 Nov. to Nov. 5 Fathometer NK-7 172; curve No. 24
" NK-7 86

To Depth feet	Corr. feet
11.5	0.0
29.2	-0.2
50.5	-0.4
69.0	-0.6
89.0	-0.8
106.0	-1.0
123.0	-1.2
142.0	-1.4
160.5	-1.6
179.0	-1.8
Below 179.0 ft.	-2.0

To Depth fms.	Co rr. fms.
9.5	-1.4
18.3	-1.5
27.7	-1.6
36.8	-1.7

Comp uted GTJ
Checked
Copy Checked

VELOCITY CORRECTIONS
Season 1949-Lake Roosevelt
Project CS-332

MK 7 Fathometers

Sheet LR 11648 H-7698 1948-49
" LR 11748 H-7699 1948-49
" LR 10848 H-7690

Curve No. 2 (feet)
Curve No. 3 (Fms.)

Reducers in feet

0.0	to 16.5	ft.
-0.2	to 29.8	"
-0.4	to 42.8	"
-0.6	to 56.5	"
-0.8	to 69.5	"
-1.0	to 82.8	"
-1.2	to 96.0	"
-1.4	to 109.0	"
-1.6	to 123.1	"
-1.8	to 136.0	"
-2.0	to 149.0	"
-2.2	to 161.5	"
-2.4	to 174.2	"
-2.6	to 187.0	"
-2.8	to 198.8	"
-3.0	to 211.0	"

Reducers in Fms.

-1.2	to 6.0	fms.
-1.3	to 13.0	"
-1.4	to 20.0	"
-1.5	to 27.0	"
-1.6	to 33.2	"
-1.7	to 40.0	"
-1.8	to 46.7	"
-1.9	to 53.0	"
-2.0	after 53.0	fms.

Season 1948
Tabulated Tide Reducers
Sheet LR-11748 #17699 948-49

7-186
(July 1935)

Date	Feet		Fms.
Oct. 19	≠ 0.4		≠ 0.1
20	≠ 0.4		≠ 0.1
21	≠ 0.4		≠ 0.1
22	≠ 0.4		≠ 0.1
25	≠ 0.6		≠ 0.1
26	≠ 0.6		≠ 0.1
27	≠ 0.6		≠ 0.1
Nov. 1	≠ 1.2	to 1400	≠ 0.2
	≠ 1.4	after 1400	
2	≠ 1.4	to 0900	≠ 0.2
	≠ 1.6	after 0900	≠ 0.3
3	≠ 1.6		≠ 0.3
4	≠ 1.6		≠ 0.3
5	≠ 1.8		≠ 0.3

Refer to Kettle Falls Gage.

Season 1949, Tide Reducers

Sheet LR 11748 H7689 48-49

Refer to Coulee Dam Gage

	Feet		Fms.
May 24	+ 0.6'	All day	+ 0.1 fm. all day
May 25	+ 0.6'	" "	+ 0.1 " " "
May 26	+ 0.6'	" "	+ 0.1 " " "

Sheet LB-11748 M-7[illegible] 1948-49

7-186
(July 1935)

Bar Check Residuals
(To be applied to scanned Index Corrections algebraically)

Date	Bar Check Residuals Feet	Fms.	Path.	Launch	Remarks
Oct. 19	-1.0	0.2	172	LCVP	
20	-0.7	0.0	172	LCVP	
22	0.1	-0.1	163	98	
25	0.2	-0.2	163	98	
26	-0.4	-0.2	163	98	
27	0.2	-0.2	163	98	
Nov. 1	-0.9	0.0	172	LCVP	
2	-0.8	0.0	172	"	
3	-1.2	0.0	86	"	
4	-1.1	0.0	86	"	
5	-0.8	0.0	86	"	

7695

STATISTICS 1948-49

Sheet LR-11348 H-7695

Vol. No.	Day Letter	Date	H^L Wire	Positions	Statute Miles
		(Season 1948, Launch 98)			
1	a (red)	Sept. 20	0	194	47.9
2	b "	22	0	135	32.0
2	c "	23	0	119	22.7
3	d "	27	2	183	20.4
3	e "	29	4	142	22.2
4	f "	30	0	139	31.6
4	g "	Oct. 1	0	9	1.6
4	h "	5	4	117	14.9
5	j "	8	2	76	6.5
5	k "	11	3	154	24.4
6	l "	12	2	175	31.8
6	m "	18	5	78	13.2
7	n "	19	5	81	16.0
7	p "	28	1	102	14.8
		(Season 1949, Launch ICVP)			
8	a (blue)	May 10	19	32	1.9
8	b "	11	12	187	27.2
8	c "	12	70	70	—
8	d "	13	31	40	—
9	e "	19	10	51	3.5
9	f "	20	14	87	5.2
9	g "	21	4	4	—
	Totals		188	2175	337.8

Area square statute miles— 8.5

7697

STATISTICS
Sheet LR-11548 + 7697-1948 49

Vol. No.	Day Letter	Date	HL Wire	Positions	Statute Miles
		Season 1948, Launch ICVP			
1	a (blue)	Oct. 11	5	87	20.0
1	b "	12	0	83	22.1
2	c "	13	1	193	59.5
3	d "	14	0	229	63.8
4	e "	15	1	100	23.7
4	f "	18	1	145	33.1
5	g "	21	1	113	29.4
5	h "	25	1	79	8.9
6	j "	26	3	111	16.1
6	k "	28	3	130	22.2
7					
		Season 1949, Launch ICVP			
7	l "	May 21	10	64	5.6
7	m "	22	26	34	—
7	n "	23	30	165	20.0
7	~~o~~ p "	24	---	~~103~~ 50	~~9.1~~ 8.2
7	~~p~~ q "	25	4	4	—
	Totals		86	~~1630~~ 1577	333.5 332.6

Square Statute Miles----- 8.8

7698

STATISTICS

Sheet LR-11648 47698 1948-49

Vol. No.	Day Letter	Date	HL Wire	Position	Statute Miles
		(Season 1948, Launch 98)			
1	a (red)	Oct. 13	0	178	48.4
1 &2	b "	14	0	177	45.9
2	c "	15	0	96	26.0
3	d "	20	0	134	30.0
3 &4	e "	21	0	139	32.8
4	f "	Nov. 1	0	145	18.0
5	g "	2	0	126	19.7
5	h "	3	0	134	17.4
6	j "	4	13	54	6.9
6	k "	5	16	153	23.3
		(Season 1949, Launch ICVP)			
7	a (blue)	May 26	12	62	1.3
7	b "	27	13	129	6.4
	Totals		54	1527	276.1

Area square statute miles— 8.8

7699

STATISTICS
Sheet LR-11748 H-7699 1948-49

Vol. No.	Day Letter		Date	HL Wire	Positions	Statute Miles
			R.G.R. blue (Season 1948, Launch 98)			
1	lowercase letters — a	(red)	Oct. 21	0	20	5.7
1	b	"	22	0	39	10.7
1	c	"	25	1	179	41.4
2	d	"	26	0	200	51.7
3	e	"	27	3	145	18.8
			Season 1948, Launch LCVP			
4	R.G.R. upper case letters — a	(blue)	Oct, 19	1	62	18.4
5	b	"	20	1	162	46.7
5-6	c	"	Nov. 1	0	105	14.5
6	d	"	2	0	58	9.2
6	e	"	3	0	106	15.9
7	f	"	4	5	60	9.2
7	g	"	5	4	135	17.8
			Season 1949, Launch LCVP			
8	h	"	May 24	31	53	0.9
8	j	"	25	65	65	---
8	k	"	26	20	66	3.0
	Totals			131	1449	263.9

Square statute miles----9.0

7695

Form 712
DEPARTMENT 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-7695, Field No. LR-11348

Locality Washington
Lake Roosevelt

Chief of Party: J.T. Jarman
Plane of reference is 1288.575 feet above mean sea level
3.204 ft. on tide staff at Kettle Falls
81.714 ft. below B. M. A-281

Refer to " Special Report, Water Surface Elevations (Tides), Season 1948, Project CS-332, Lake Roosevelt" for additional information.

Condition of records satisfactory except as noted below:

Chief, Division of Tides and Currents.

U. S. GOVERNMENT PRINTING OFFICE 756675

RHC

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography~~ 13 April 1950

Division of Charts: R. H. Carstens

Plane of reference approved in
9 volumes of sounding records for

HYDROGRAPHIC SHEET 7695

Locality Kettle Falls, Lake Roosevelt, Washington

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

3.2 ft. on tide staff at Kettle Falls.
81.7 ft. below B. M. A 281

Condition of records satisfactory except as noted below:

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

U. S. GOVERNMENT PRINTING OFFICE 756075

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

7697

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-7697, Field No. LR-11548
1948-49

Locality Washington
Lake Roosevelt

Chief of Party: J.T. Jarman
Plane of reference is 1288.575 feet above mean sea level
3.204 ft. on tide staff at Kettle Falls
81.714 ft. below B. M. A-281

Refer to "Special Report, Water Surface Elevations (Tides), Season 1948, Project CS-332, Lake Roosevelt" for additional information.

Condition of records satisfactory except as noted below:

Chief, Division of Tides and Currents.

U. S. GOVERNMENT PRINTING OFFICE 756675

RHC

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography~~ 19 April 1950

Division of Charts: R. H. Carstens

Plane of reference approved in
7 volumes of sounding records for

HYDROGRAPHIC SHEET 7697

Locality Lake Roosevelt, Washington

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

3.2 ft. on tide staff at Kettle Falls
81.7 ft. below B. M. A 281

-1.4 ft. on tide staff at Coulee Dam
166.2 ft. above B. M. OSBORNE 2

Condition of records satisfactory except as noted below:

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

U. S. GOVERNMENT PRINTING OFFICE 756675

7698

Form 712
DEPARTMENT 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-7698, Field No. LR-11648
1948-49

Locality Washington
Lake Roosevelt

Chief of Party: J.T. Jarman
Plane of reference is 1288.575 feet above mean sea level
3.204 ft. on tide staff at Kettle Falls
81.714 ft. below B. M. A-281

Refer to "Special Report, Water Surface Elevations, Season 1948, Project CS-332, Lake Roosevelt" for additional information.

Condition of records satisfactory except as noted below:

Chief, Division of Tides and Currents.

U. S. GOVERNMENT PRINTING OFFICE 756675

RHC

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography~~ 17 May 1950

Division of Charts: R. H. Carstens

Plane of reference approved in
7 volumes of sounding records for

HYDROGRAPHIC SHEET 7698

Locality Gifford, Lake Roosevelt, Washington

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

3.2 feet on tide staff at Kettle Falls
81.7 feet below B. M. A 281

-1.4 feet on tide staff at Coulee Dam
166.2 feet above B. M. OSBORNE 2

Condition of records satisfactory except as noted below:

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

U. S. GOVERNMENT PRINTING OFFICE 756075

7699

Form 712
DEPARTMENT 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-7699, Field No. LR-11748
1948-49

Locality Washington
Lake Roosevelt

Chief of Party: J.T. Jarman
Plane of reference is 1288.575 feet above mean sea level
3.204 ft. on tide staff at Kettle Falls
81.714 ft. below B. M. A-281

Refer to "Special Report, Water Surface Elevations (Tides), Season 1948, Project CS-332, Lake Roosevelt" for additional information.

Condition of records satisfactory except as noted below:

Chief, Division of Tides and Currents.

U. S. GOVERNMENT PRINTING OFFICE 756675

RHC

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography~~ 17 May 1950

Division of Charts: R. H. Carstens

Plane of reference approved in
8 volumes of sounding records for

HYDROGRAPHIC SHEET 7699

Locality Chalk Grade, Lake Roosevelt, Washington

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

3.2 feet on tide staff at Kettle Falls
81.6 feet below B. M. A281

-1.4 feet on tide staff at Coulee Dam
166.2 feet above B. M. OSBORNE 2

Condition of records satisfactory except as noted below:

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

U. S. GOVERNMENT PRINTING OFFICE 756675

H 7695
Lr 11348 1948-49

Lake Roosevelt, Wash.

List of geographic names
penciled on smooth sheet.

Washington

Franklin D. Roosevelt Lake

Stevens County

Ferry County

Sherman Creek Point

Kettle Falls

H 7697 1948-49
LR 11548

Lake Roosevelt, Wash.

List of geographic names
penciled on smooth sheet.

Franklin D. Roosevelt Lake

Washington

Stevens County

Ferry County

Colville National Forest

Rickey Point

French Point Rocks

See also map and report on names for Proj. PH-2(45). A copy of the map which identifies the features is not at hand. The report gives many names which do not appear on the photo compilation. There are many features which should be labeled and it is recommended that those names which are suitable and authentic be transferred from the map and report on names.

H 7698 1948-49
LR 11648

Lake Roosevelt, Washington.

List of geographic names
penciled on smooth sheet.

Washington

Ferry County

Stevens County

Franklin D. Roosevelt Lake.

H 7699 1948-49
LR 11748

Lake Roosevelt, Washington.

List of geographic names
penciled on smooth sheet.

Franklin D. Roosevelt Lake.

Washington

Stevens County

Ferry County

Colville Indian Reservation. omit

Little Jim Creek

Barnaby Creek

Barnaby Island

Quilisascut Creek

Cheweka Creek

See also report on geographic names Proj. PH-2(45)
and the map which accompanied it.

FEB 15 1950

FORM 537a (9-24-47) DEPARTMENT OF COMMERCE COAST AND GEODETIC SURVEY

REGISTER NO. ~~T-10300~~ Destroyed

TOPOGRAPHIC TITLE SHEET

FIELD NO. LR-R-48

Each Planetable and Graphic Control Sheet should be accompanied by this form, completed so far as practicable, when forwarded to the Washington Office.

STATE: Washington

GENERAL LOCALITY: Lake Roosevelt

LOCALITY: Daisy, Washington to Shell Rock 41 Light

SCALE: 1: 10,000

DATE OF SURVEY: October, 1948

VESSEL: Field Party

CHIEF OF PARTY: J.T. Jarman

SURVEYED BY: George N. Lathrop

INKED BY: Hal A. Marchant and Federico Ridad

HEIGHTS IN FEET ABOVE ~~MEAN~~ 1288.575 ft. ~~M.S.L.~~ ☐ TO GROUND ☐ TO TOPS OF TREES

CONTOUR APPROXIMATE CONTOUR FORM LINE INTERVAL _____ FEET

PROJECT NUMBER: CS-332

REMARKS

The normal lake level is 1290 feet, USBR 1937 Independent Datum, or 1288.575 feet above mean sea level. Heights of rocks and islands are referred to the normal lake level, i.e., the height of a feature above normal lake level is given.

Graphic Control Survey LR-R-48 (~~T-10300~~) was destroyed after hydro. signals were transferred to H-7698.

The magnetic declination at

Δ CP144 (USBR), 1936, on 5/24/49 at 1120 was 21°50' E (scaled).

12136

FEB 15 1950

FORM 537a (9-24-47) DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

REGISTER NO. ~~T. 10301~~ Destroyed

FIELD NO. LR-S-48

TOPOGRAPHIC TITLE SHEET

Each Planetable and Graphic Control Sheet should be accompanied by this form, completed so far as practicable, when forwarded to the Washington Office.

STATE: Washington

GENERAL LOCALITY: Lake Roosevelt

LOCALITY: Bissell Flats to Daisy, Washington

SCALE: 1: 10,000

DATE OF SURVEY: October, 1948

VESSEL: Field Party

CHIEF OF PARTY: J.T. Jarman

SURVEYED BY: George N. Lathrop

INKED BY: Federico Ridad

HEIGHTS IN FEET ABOVE ~~MEAN~~ 1288.575 ft. ~~M.S.L.~~ ☐ TO GROUND ☐ TO TOPS OF TREES

CONTOUR APPROXIMATE CONTOUR FORM LINE INTERVAL _____ FEET

PROJECT NUMBER: CS-332

REMARKS

The normal lake level is 1290 feet, USBR 1937 Independent Datum, or 1288.575 feet above mean sea level. Heights of rocks and islands are referred to the normal lake level, i.e., the height of the feature above normal lake level is given.

Graphic Control LR-S-48 was destroyed after hydro. signals were transferred to H-7698.

The magnetic declination at
△ CP 175 (USBR), 1936, on 6-3-49, at 0820 was 22°00'E (scaled)
△ CP 169 (USBR), 1936, on 6-3-49, at 0915 was 21°50'E (scaled)

12136

FEB 15 1950

FORM 537a (9-24-47) DEPARTMENT OF COMMERCE COAST AND GEODETIC SURVEY

REGISTER NO. ~~T-7113 a&b~~ Destroyed

TOPOGRAPHIC TITLE SHEET

FIELD NO. LR-Q-48 a&b

Each Planetable and Graphic Control Sheet should be accompanied by this form, completed so far as practicable, when forwarded to the Washington Office.

STATE: Washington

GENERAL LOCALITY: Lake Roosevelt

LOCALITY: Shell Rock 41 Light to Colville River

SCALE: 1: 10,000

DATE OF SURVEY: October, 1948

VESSEL: Field Party

CHIEF OF PARTY: J.T. Jarman

SURVEYED BY: George N. Lathrop

INKED BY: Hal A. Marchant and Federico Ridad

HEIGHTS IN FEET ABOVE ~~MEAN~~ 1288.575 ft. M.S.L. ☐ TO GROUND ☐ TO TOPS OF TREES

CONTOUR: APPROXIMATE CONTOUR FORM LINE INTERVAL _____ FEET

PROJECT NUMBER: CS-332

REMARKS

The normal lake level is 1290 feet, USBR 1937 Independent Datum, or 1288.575 feet above mean sea level. Heights of rocks and islands are referred to the normal lake level, i.e, the height of a feature above normal lake level is given.

Graphic Control survey LR-Q-48 a&b was destroyed after hydro. signals ~~after~~ and shoreline were transferred to H-7699 and H-7697.

The magnetic declination at
Δ CP 197, 1936, on 5-22-49 at 1300 was 21°50'E (scaled).
Δ CP 160, 1936, on 5-22-49 at 0230 was 21°50'E (scaled).

12136

FEB 15 1950

FORM 537a (9-24-47)

DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

REGISTER NO. ~~T-7112 a&b~~ Destroyed

FIELD NO. LR-N-48 a&b

TOPOGRAPHIC TITLE SHEET

Each Planetable and Graphic Control Sheet should be accompanied by this form, completed so far as practicable, when forwarded to the Washington Office.

STATE: Washington

GENERAL LOCALITY: Lake Roosevelt

LOCALITY: Colville River to Marcus, Washington

SCALE: 1: 10,000

DATE OF SURVEY: Sept.-Oct., 1948

VESSEL: Field Party

CHIEF OF PARTY: J.T. Jarman

SURVEYED BY: L. Tiemzo

INKED BY: Hal A. Marchant

HEIGHTS IN FEET ABOVE ~~MEAN~~ 1288.575 ft. ~~M.S.L.~~ ☐ TO GROUND ☐ TO TOPS OF TREES

CONTOUR APPROXIMATE CONTOUR FORM LINE INTERVAL _____ FEET

PROJECT NUMBER: CS-332

REMARKS

The normal lake level is 1290 feet, USBR 1937 Independent Datum, or 1288.575 feet above mean sea level. Heights of rocks and islands are referred to the normal lake level, i.e., the height of a feature above the normal lake level is given.

Graphic Control Survey LR-N-48 (T-7112 a&b) was destroyed after hydro. signals and shoreline changes were transferred to H-7695 (1948-49).

The magnetic declination at

Δ CP 164, 1936, on 10-1-48 at 0810, was 21°48' E

Δ CP 172, 1936, on 9-30-48 at 1400, was 21°52' E

12136

DESCRIPTIVE REPORT
To Accompany

Topographic Control Survey T-10301, Field No. LR-S-48
Topographic Control Survey T-10300, Field No. LR-R-48
Topographic Control Survey T-7113 a & b, Field No. LR-Q-48 a & b
Topographic Control Survey T-7112 a & b, Field No. LR-N-48 a & b

These surveys are a by-product of Projects Ph-2(45) and CS-332. Project Ph-2(45) furnished shoreline and photo-hydro locations for the hydrographic survey of Franklin D. Roosevelt Lake, Project CS-332 is the hydrographic survey of the lake. The graphic control sheets were used to locate additional hydrographic stations by planetable methods, as well as to verify, in several instances, the compilation of the shoreline, and the location of some of the photo-hydro stations.

INSTRUCTIONS

1. These surveys are not covered by specific instructions. In general, Instructions for Project CS-332 cover the surveys. The latter instructions suggest that additional hydrographic stations be located by sextant cuts plotted on the boat sheets. Due to the large number of additional stations necessary plus the desirability of having some check on the photo-hydro locations, the suggestion was not practical, and separate graphic control sheets were adopted.

SURVEY LIMITS AND DATES

1. These surveys are on the main body of Lake Roosevelt extending from Bissell Flats to Marcus, Washington; they were surveyed in September-October 1948.

T-10301 (LR-S-48) extends from Bissell Flats to Daisy, Washington; work began on October 20, 1948 and the sheet was completed on October 26, 1948.

T-10300 (LR-S-48) extends from Daisy, Washington to Shell Rock 41 Light; began work on October 15, 1948 and the sheet was completed on October 19, 1948.

T-7113 a & b (LR-Q-48 a & b) extends from Shell Rock 41 Light to the Colville River; work began on October 9, 1948 and the sheet was completed on October 14, 1948.

T-7112 a & b (LR-N-48 a & b) extends from the Colville River to Marcus, Washington; work began on September 28, 1948 and the sheet was completed on October 8, 1948.

CONTROL

1. Horizontal control for these surveys is second and third order triangulation executed by the Bureau of Reclamation from 1934 to 1940. For a complete treatment of the main source of the horizontal control, refer to the "Special Report on Reservoir Boundary Control Points, Project Ph-2(45)" previously submitted to the Washington Office.

2. The USBR third order triangulation within this area is listed in plane coordinates based on the Washington North State Grid system. Therefore these survey sheets contain the latter grid system as well as the geographic system.

METHODS

1. Standard planetable methods were used throughout the survey. In a few instances, the planetable method was supplemented by theodolite cuts which were protracted.

2. Elevations of rocks and islands are referred to the "1290 Foot Datum Plane" which is based on the 1937 USBR Independent Datum of Leveling. The "1290 Foot Plane" is the normal lake level being the maximum height to which the water rises in the lake. This plane is the equivalent to 1288.575 feet above mean sea level. For additional treatment of this subject refer to Descriptive Report to accompany Hydrographic Sheets H-7681 and H-7682, of 1947 side heading "D".

3. Recovery notes are being submitted for all triangulation stations visited during the course of the survey. In some instances, USBR Second Order triangulation stations were used for orientation purposes, but the stations were not visited. The original tripod placed by the USBR when the triangulation was executed was still standing, and was used for the sighting point.

4. Locations of photo-hydro stations which were accepted from the shoreline survey sheets have been shown on the graphic control sheets with green circles. Locations of additional stations plus the locations of those photo-hydro stations found to be in error have been shown with red circles. Most of the photo-hydro stations accepted were checked with the planetable.

5. These control sheets contain the final accepted location for all hydrographic control, and where discrepancies exist, if any, the control sheet location should be accepted.

SHORELINE AND TOPOGRAPHY

1. The shoreline shown in pencil on these sheets came from shoreline surveys, Project Ph-2(45), T-8863 through T-8866, of 1946-47. The shoreline on T-10300 and T-10301 was acceptable and no changes were made. Corrections were made in red ink on sheets T-7113 a & b and T-7112 a & b as follows:

(a) Change in shoreline, T-7113a; Lat. 48° 30.8' (H-7697), Long. 118° 08.9' to Lat. 48° 31.85', Long. 118° 08.1'; believed to be a compilers error. Sketched with the aid of sextant fixes and measured distances at topographic signals.

(b) Change in shoreline, ~~T-7112a;~~ LR-N-48a Lat. 48° 38.7' (H-7695), Long. 118° 04.75' to Lat. 48° 39.75', Long. 118° 04.5'; believed to be a compiler's error although erosion due to wave action could be responsible. Sketched with the aid of sextant fixes and measured distances at topographic signals.

(c) Change in shoreline, ~~T-7112a~~ LRN-48a (H-7695); Lat. 48° 40.45', Long. 118° 06.4' at the mouth of the Kettle River. No change was obtained on the south shore of the Kettle River; the slight change shown on the north shore is believed to be due to a compiler's error. This shoreline is rocky and has not changed since the photographs were obtained.

(d) Change in shoreline, ~~T-7112a~~ LR-N-48a (H-7695), Lat. 48° 37.7', Long. 118° 06.6'; change is due to a large slide.

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)" previously submitted to the Washington Office. *Filed in C.P. Sect.*

AIDS TO NAVIGATION

1. Form 567 lists all fixed aids to navigation, and is attached to this report. The aids listed are the same that the Photogrammetric Party, Project Ph-2(45) submitted, and have the same locations; the one exception is West Bissell Flats Day Beacon 35 which was moved slightly by the topographer, Project CS-332.

LANDMARKS FOR CHARTS

1. Data relative to landmarks for charts are shown on Form 567, a copy of which is attached. These are the same objects submitted by personnel of Project Ph-2(45), and are at the same locations.

GEOGRAPHIC NAMES

1. For a complete treatment of Geographic Names, refer to "Special Report, Geographic Names, Sheets 8849 to 8859, Project Ph-2(45)" previously submitted to the Washington Office. *Filed in Geo. Name Sect.*

2. No additional information was obtained by the topographic and hydrographic units, Project CS-332.

3. It is known that the National Park Service is contacting the Bureau of Reclamation, the Indian Service and various residents along the lake shore in an endeavor to provide suitable names for the large number of unnamed features on the lake. This information is not yet available.

Respectfully submitted,

J. T. Jarman
Chief of Party

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-7695

Records accompanying survey:

Boat sheets 1; sounding vols. 9; wire drag vols. .....;

bomb vols. .....; graphic recorder rolls 5 envel.

special reports, etc. .....

.....

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

Number of positions on sheet		2175
Number of positions checked		372
Number of positions revised		37
Number of soundings revised (refers to depth only)		39
Number of soundings erroneously spaced		166
Number of signals erroneously plotted or transferred		1 Signal from manual R.K.D
Topographic details	Time	1 hr.
Junctions	Time	6 hrs
Verification of soundings from graphic record	Time	9 hrs

Verification by Robert K. DeLaubenfels Total time 155 hrs Date 9-18-50

Reviewed by Isadore M. Jeskund Time 34 Date 9-29-50

M-2232-1

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-7697.../948-49

Records accompanying survey:

Boat sheets 1...; sounding vols. 7...; wire drag vols. .....;

bomb vols. .....; graphic recorder rolls 3 envel.;

special reports, etc. .....

.....

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

Number of positions on sheet		1577
Number of positions checked		112
Number of positions revised		8
Number of soundings revised (refers to depth only)		17
Number of soundings erroneously spaced		35
Number of signals erroneously plotted or transferred		—
Topographic details	Time	2
Junctions	Time	3
Verification of soundings from graphic record	Time	6

Verification by Earl M. Briggs Total time 112 Date 8-30-50

Reviewed by [signature] Time 21 Date 9/20/50

M-2232-1

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-7698 1948-49

Records accompanying survey:

Boat sheets 1; sounding vols. 7; wire drag vols. .....;

bomb vols. .....; graphic recorder rolls 3 envel.;

special reports, etc. .....

.....

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

Number of positions on sheet		1527
Number of positions checked		164
Number of positions revised		3
Number of soundings revised (refers to depth only)		20
Number of soundings erroneously spaced		22
Number of signals erroneously plotted or transferred		0
Topographic details	Time	2
Junctions	Time	3
Verification of soundings from graphic record	Time	40

Verification by Robert C. Richard Total time 165 Date 7/14/50

Reviewed by [signature] Time 13 Date 7/31/50

M-2232-1

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-7699 1948-49

Records accompanying survey:

Boat sheets 2; sounding vols. 8; 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		1449
Number of positions checked		190
Number of positions revised		9
Number of soundings revised (refers to depth only)		19
Number of soundings erroneously spaced		30
Number of signals erroneously plotted or transferred		0
Topographic details	Time	3
Junctions	Time	11
Verification of soundings from graphic record	Time	20

Verification by Robert C. Richard Total time 183 Date 7/31/50.

Reviewed by Lee Zeskind Time 8 Date 8/1/50

M-2232-1

GEOGRAPHIC NAMES

Survey No. H-7695

Name on Survey	A On Chart No.	B On previous survey No.	C On U. S. quadrangle Maps	D From local information	E On local Maps	F P. O. Guide or Map	G Rand McNally Atlas	H U. S. Light List	K	
Washington									USGB	1
Ferry County										2
Stevens County										3
Franklin D. Roosevelt Lake									USGB	4
										5
Colville River										6
Sherman Creek Point										7
Kettle Falls			(town)							8
West Kettle Falls										9
Kettle Falls Highway Bridge										10
Great Northern R.R. Bridge										11
Marcus										12
Kettle River Arm										13
Gorge Bridge										14
Marcus Flats										15
Katy Cr	4 SD				Names underlined in red are approved.					16
Nancy Cr.	18 A				5-15-50 - L. Heck					17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

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GEOGRAPHIC NAMES

Survey No. H-7697

1948 ·49

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	
Washington									USGB	1
Ferry County										2
Stevens County										3
Franklin D. Roosevelt Lake									USGB	4
										5
French Point Rocks										6
Marton Creek										7
Rickey Point										8
Rickey Creek	OK 9-14-50 L.H.									9
					Names underlined in red are approved.					10
						5-15-50.		L. Heck		11
										12
										13
										14
										15
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										27

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GEOGRAPHIC NAMES

Survey No. H-7698

Name on Survey	A On Chart No.	B On previous survey No.	C On U. S. quadrangle Maps	D From local information	E On local Maps	F P. O. Guide or Map	G Rand McNally Atlas	H U. S. Light List	K	
Washington									U.S.G.B	1
Ferry County										2
Stevens County										3
Franklin D. Roosevelt Lake									U.S.G.B	4
										5
Bissell Flats										6
Stranger Creek			(east side)							7
Stranger Creek			(west ")							8
Gifford Ferry landing										9
Inchelium Ferry landing										10
Hall Creek										11
Mission Point										12
Daisy										13
										14
										15
				Names underlined in red are approved. 5-15-50. L. Heck						16
										17
										18
										19
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										24
										25
										26
										27

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GEOGRAPHIC NAMES

Survey No. H-7699 1948-49

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									U.S.G.B.	1
Ferry County										2
Stevens County										3
Franklin D. Roosevelt Lake									U.S.G.B.	4
										5
Mission Point										6
Daisy										7
Little Jim Creek										8
Chemeka Creek										9
Barnaby Creek										10
Barnaby Island										11
Quillasascut Creek										12
										13
										14
					Names underlined in red are approved.					15
						5-15-50. L. HECK				16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

M 234

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY REGISTRY NO. H-7695

FIELD NO. LR-11348

Washington, Franklin D. Roosevelt Lake, Colville River to Marcus

Surveyed in Sept., 1948 - May, 1949 Scale 1:10,000

Project No. CS-332

Soundings:

808 Fathometer
NK-7 Fathometer

Control:

Sextant fixes on shore signals

Chief of Party - J. T. Jarman
Surveyed by - G. W. Moore, H. A. Marchant and J. T. Jarman
Protracted by - B. Smith
Soundings plotted by - B. Smith
Verified and inked by - R. K. DeLawder
Reviewed by - I. M. Zeskind, 28 September 1950
Inspected by - R. H. Carstens

1. Shoreline and Control

The shoreline of this survey originates with air-photographic surveys T-8866, T-8867 and T-8868 of 1946-47. Shoreline revisions in red are from graphic control survey LR-N-48 (field number) which was subsequently destroyed.

The control is described in the Descriptive Report.

2. Sounding Line Crossings

Depths at crossings are in adequate agreement.

3. Depth Curves and Bottom Configuration

The depth curves are adequately developed except in foul areas inshore and in log storage areas.

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 north of the Kettle Falls bridges and less irregular south of them. The bottom in general drops sharply at the

shore to depths of 30-120 ft. However, depths along the axis of the natural channel range from 92 to 234 ft. Sandy hillocks, knolls, pinnacles and channel deeps contribute to the bottom irregularity.

4. Junctions with Contemporary Surveys

Adequate junctions were effected with H-7697 (1948-49) on the south, H-7698 (1948) on the northwest and H-7693 (1948-49) on the northeast.

5. Comparison with Prior Surveys

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

6. Comparison with Charts

There are no charts of the area by this Bureau.

7. Condition of Survey

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

b. The 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

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY REGISTRY NO. H-7697

FIELD NO. LR-11548

Washington, Franklin D. Roosevelt Lake, Vicinity of French Point Rocks
Surveyed in Oct., 1948 - May, 1949 Scale 1:10,000
Project No. CS-332

Soundings: Control:

NK-7 Fathometer Sextant fixes on shore signals

Chief of Party - J. T. Jarman
Surveyed by - H. A. Marchant and J. T. Jarman
Protracted by - H. C. Parsons
Soundings plotted by - H. C. Parsons
Verified and inked by - E. M. Bragonje
Reviewed by - I. M. Zeskind, 18 September 1950
Inspected by - R. H. Carstens

1. Shoreline and Control

The shoreline for this survey originates with air-photographic surveys T-8865 and T-8866 of 1946-47. Shoreline revisions shown in red are from LR-Q-48a (field number) which was subsequently destroyed.

The control is 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 portion of the Franklin D. Roosevelt Lake formed by the impoundment of the Columbia River upstream from the Grand Coulee Dam. The bottom is fairly irregular and generally slopes abruptly at the shore to depths as great as 120 ft. Channel deeps, submerged benches and sandy hillocks contribute to the bottom irregularity.

4. Junctions with Contemporary Surveys

Adequate junctions were effected with H-7699 (1948-49) on the south and H-7695 (1948) on the north.

5. Comparison with Prior Surveys

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

6. Comparison with Charts

There are no charts of the area by this Bureau.

7. Condition of Survey

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

b. The 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 surveys 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

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY REGISTRY NO. H-7698

FIELD NO. LR-11648

Washington, Franklin D. Roosevelt Lake, Bissell Flats to Daisy

Surveyed in Oct., 1948 - May, 1949 Scale 1:10,000

Project No. CS-332

Soundings:

808 Fathometer
NK-7 Fathometer

Control:

Sextant fixes on shore signals

Chief of Party - J. T. Jarman
Surveyed by - G. W. Moore and H. A. Marchant
Protracted by - C. N. Hillman
Soundings plotted by - C. N. Hillman
Verified and inked by - R. C. Richard
Reviewed by - I. M. Zeskind, 31 July 1950
Inspected by - R. H. Carstens

1. Shoreline and Control

The shoreline of this survey originates with T-8862, T-8863 and T-8864 of 1946-47.

The source of the control is given 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 portion of the Franklin D. Roosevelt Lake formed by the impoundment of the Columbia River upstream from the Grand Coulee Dam. The bottom is fairly irregular. In general it slopes abruptly from shore to depths of 30 to 60 ft. and less abruptly offshore to a natural channel where depths along the axis range from 175 to 258 ft. Channel deeps and submerged hillocks contribute to the bottom irregularity.

4. Junctions with Contemporary Surveys

Adequate junctions were effected with H-7699 (1948-49) on the north and with H-7690 (1948-49) on the south.

5. Comparison with Prior Surveys

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

6. Comparison with Charts

There are no charts of the area by this Bureau.

7. Condition of Survey

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

b. The field plotting was accurately done.

8. Comparison 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

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY REGISTRY NO. H-7699

FIELD NO. LR-11748

Washington, Franklin D. Roosevelt Lake, Daisy to Vicinity of Quillasascut Creek
Surveyed in Oct., 1948 - May, 1949 Scale 1:10,000
Project No. CS-332

Soundings:

808 Fathometer
NK-7 Fathometer

Control:

Sextant fixes on shore signals

Chief of Party - J. T. Jarman
Surveyed by - H. A. Marchant, C. Lind and G. W. Moore
Protracted by - C. C. Cummings
Soundings plotted by - C. C. Cummings
Verified and inked by - R. C. Richard
Reviewed by - I. M. Zeskind, 1 August 1950
Inspected by - R. H. Carstens

1. Shoreline and Control

The shoreline of this survey originates with air-photographic surveys T-8863, T-8864 and T-8865 of 1946-47.

The origin of the control is given 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 portion of the Franklin D. Roosevelt Lake formed by the impoundment of the Columbia River upstream from the Grand Coulee Dam. The bottom is fairly irregular. In general it slopes abruptly from the shore to depths of 30 to 60 ft. and less abruptly offshore to a natural channel where depths along the axis range from 152 to 212 ft.

Submerged hillocks are found on several of the benches between the shore and the natural channel.

4. Junctions with Contemporary Surveys

An adequate junction was effected with H-7698 (1948-49) on the south. The junction with H-7697 (1948-49) on the north will be discussed in the review of that survey.

5. Comparison with Prior Surveys

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

6. Comparison with Charts

There are no charts of the area by this Bureau.

7. Condition of Survey

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

b. The 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

NAUTICAL CHARTS BRANCH

SURVEY NO. ~~H-7695~~ H-7695

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
8/11/52	6169	JA 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.

NAUTICAL CHARTS BRANCH

SURVEY NO. H-7697 1948-49

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
8/12/52	6169	L.P. 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
			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.

NAUTICAL CHARTS BRANCH

SURVEY NO. H-7698 1948-49

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
8/14/52	6169	J G 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
			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.

NAUTICAL CHARTS BRANCH

SURVEY NO. H-7699 1948-49

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
12/13/52	6169	J.G. 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
			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.