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Form 504  
DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

State: *Oregon*

11-5613

DESCRIPTIVE REPORT.

Hyd. Sheet No. *4141-2*

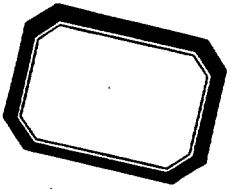
LOCALITY:

*Umpqua River —  
Mouth of River to the  
Point*

*1920*

CHIEF OF PARTY:

*O. W. Swainson*



O. & G. SURVEY  
L. & A.  
DEC 7- 1920  
Acc. No.

DESCRIPTIVE REPORT  
TO ACCOMPANY  
HYDROGRAPHIC SHEETS A AND C  
UMPQUA RIVER, OREGON  
1920  
O. W. SWAINSON, CHIEF OF PARTY.

DESCRIPTIVE REPORT TO ACCOMPANY  
HYDROGRAPHIC SHEETS A AND C  
UMPQUA RIVER, OREGON.

The hydrography of the Umpqua River, Oregon, consisted of a detailed hydrographic survey of the river from the whistling buoy off the bar to one quarter mile east of the railroad bridge at the east end of Bone Island. The work was done in accordance with the Director's orders of April 23, 1920, a copy of which is attached.

Organization of Party.

The party consisted of the Chief of Party, one assisting officer, a recorder, a coxswain, and two hands who acted as launch engineer and leadsman alternately. A large launch was hired for the work on and around the bar and a small launch for that on the river. For a description of these launches see the Chief of Party's Season's Report.

Scale.

The soundings were plotted on hydrographic sheets drawn to a scale of one to ten thousand.

Control.

Control was furnished by a system of tertiary triangulation expanded from the main scheme established in 1908. Supplemental signals<sup>located</sup> located by plane table.

Methods.

All soundings were taken with the hand lead. Where the depth was too great for the leadsman to get bottom with the launch under way the launch was stopped and backed to take off the headway. Usually when this was done the time of stopping the boat and the time of going ahead ( a h ) were both recorded in the sounding record.

The character of the bottom was determined by soap placed in the bottom of the lead and by feeling the bottom with the leadline.

Tides.

An automatic tide gauge was installed at the breakwater at the mouth of the river and kept in continuous operation during the entire period of the survey. A plane tide staff was nailed to a pile of the Gardiner Mill Co. Wharf at Gardiner and tied to the automatic gauge by thirty five hours of simultaneous readings.

The automatic gauge records should be used to reduce the soundings in the area from the whistling buoy to Double Cove Point Light. An average of the tides at the breakwater and Gardiner should be used for the soundings on the middle ground ( Double Cove Point Light to the Big Point ), and the tides at Gardiner for those on sheet C.

Weather.

Fair weather was encountered most of the time during the survey. The wind was generally northwest. When it shifted to the eastward it

nearly always brought rain. Fog prevented work on the bar about half of the time especially between June 10 and July 15.

The calmest sea was during the first three weeks of July. During the rest of the time the sea broke heavily on the bar. The channel was navigable practically all of the time, however. No unusual delays were caused by rains.

#### Aids to Navigation.

All aids to navigation were accurately determined. The rear entrance range <sup>beacon</sup> was located by triangulation, and a position was taken on the range near the outer striped buoy. The front range was located by topography.

The rear entrance range <sup>beacon</sup> is composed of white painted boards nailed to a tree on the edge of the timber. The front range beacon is situated on the sand hill. Both beacons have white lights.

The lighthouse is as described in the "List of Lighthouses".

The whistling buoy and two striped buoys were found to be about 150 meters further west than shown on the old chart. The whistling buoy has the letter "U" on it. The two striped nun buoys lie on the north side of the channel through the bar. There is a striped nun buoy in the breakers on the northern edge of the channel which the lighthouse tender was unable to remove.

The first buoy in the river is a black can; the next, opposite the jetty, is a red nun. All of the other buoys are black spars.

All lights in the river are white.

Barretts Light and Three Mile Light were in considerable error on the old chart. The correct positions were determined by triangulation. The Bureau of Lighthouses was notified of the changes.

There is a Coast Guard station on the north side of the mouth of the river. The station maintains a lookout night and day for vessels in distress.

#### Bottom.

The bottom of the river as far up as the railroad bridge seemed to be mostly sand. This is also true of the channel through the bar. The only indications of rock were on the low water line off the small boat house on the south side of the entrance to the river, and Ork Reef. Both of these rocks bare at about mean low water.

#### Dangers to Navigation.

The only dangers to navigation besides the bar are the shoals off Winchester Bay, and Ork Reef off the eastern side of the same bay. The shoals are sand; Ork Reef is rock. The shoal off the Coast Guard Station and Middle Ground shoal are marked by black spar buoys. Between Barretts Light and Three Mile Light vessels should keep the north shore close at hand to avoid the shoal extending off of Big Point.

The channel through the bar was navigable for large launches the entire period of the survey, May 20 to August 30, 1920, although on several occasions the breakers on either side were very heavy. The channel becomes impassable during severe weather and heavy southwest winds. The bar is marked by breakers practically all of the time.

Winchester.

Winchester is a small summer resort at the head of Winchester Bay. The population is small and the houses few. As shown on the present chart an entirely wrong impression of its size and importance is conveyed.

Gardiner.

The town of Gardiner is a place of about four hundred inhabitants. It has two fair sized general stores and a lumber mill. The town's existence depends primarily on the lumber mill. The mill cuts about 40000 feet a day.

Supplies and water can be obtained at Gardiner.

The town is about one and one half miles from the railroad. There is a good automobile service to all trains, however.

Reedsport.

Reedsport is a comparatively new town situated on the railroad on the south shore of the river. Its population is about 1500. The town has numerous growing industries among which are three lumber mills and a fish cannery.

At present the water supply is poor but this will be remedied as soon as the new water system now under construction is finished.

Both towns have docks alongside of which vessels drawing 18 feet can lie.

Resources.

The principal resource of the district is lumber. The fish and dairy industries are growing into prominence. The output of the mills at present is limited by the difficulty of getting the lumber to the market. This is due to the scarcity of railroad cars and the unwillingness of vessels to call at the ports.

At present there is an average of about one lumber vessel of 500000 feet capacity a month entering the river. The business people claim they could furnish enough cargo for one one million foot vessel a week. However, at present the river channel is not deep enough to accomodate such large vessels.

For other information see the Chief of Party's Seasons report and the reports to accompany the topographic sheets.

*O. W. Swanson*

H. & G. Eng., Chief of party.

STATISTICS FOR HYDROGRAPHIC SHEET A

Date	Letter	Volume	Positions	Soundings	Miles	Vessel	
June	14	A	1	72	230	8.5	Queen
	17	B	1	57	138	6.5	"
	18	C	1	35	35	1.5	"
	19	D	1	16	16	1.5	Skiff
	26	E	1	37	37	4	Queen
	29	F	1	68	173	8	"
	30	G	2	104	214	11	"
July	1	H	2	93	188	7.8	"
	2	I	2	230	467	19	"
	10	J	3	276	697	24	"
	12	K	3	120	277	14.5	"
	14	L	4	168	602	17	Cub
	15	M	4	141	433	16	Queen
	16	N	4	112	250	14	"
	16	N	5	68	294	8	"
	19	O	5	101	450	8.5	Cub
	31	P	5	170	760	16	"
	Aug	2	Q	6	164	720	15
3		R	6	197	920	25	"
5		S	7	192	851	20	"
12		T	7	148	609	20	"
14		U	7	69	314	8	"
14		U	8	22	115	3	"
16		V	8	4	4	0.2	"
Sept	30	W	8	18	192	3.2	"
	1	X	8	4	10	0.2	"
Totals			2686	8996	280.4		

STATISTICS FOR HYDROGRAPHIC SHEET C

DATE	LETTER	VOLUME	POSITIONS	SOUNDINGS	MILES	VESSEL
Aug 14	A	1	24	38	1	Skiff
16	B	1	191	956	20	Cub
17	C	1	142	653	16	"
18	D	2	112	629	12.5	"
19	E	2	133	630	13	"
20	F	2	112	497	12	"
28	G	3	232	1128	25	"
30	H	4	84	378	4.8	"
Totals			1030	4909	104.3	

C O P Y.

39-GM

Washington, D.C.  
April 23, 1920.

To: Mr. O.W. Swainson,  
Junior Hydrographic and Geodetic Engineer,  
Office.

From: The Superintendent, Coast and Geodetic Survey.

Subject: INSTRUCTIONS.

You will please obtain all the necessary survey data at this office and as soon as practicable proceed to Seattle, Wash., where you will arrange for the survey of the mouth of the Umpqua River, Oregon. Upon completing arrangements in Seattle you will proceed to the mouth of the Umpqua River and make a hydrographic survey of the entrance and outer approaches from the outer buoy to Ork Reef.

2. In arranging for this work you will please inspect the river as far as the north end of Bone Island and make such recommendations relative to the advisability of extending the survey to include the area from Ork Reef to the north end of Bone Island as you may deem proper. The main object of the survey, however, is to obtain a clear definition of the channel and approaches leading into the Umpqua River from seaward.

3. The work will consist of determining by triangulation sufficient points for the control of the hydrography and topography. This triangulation will be tertiary in character and will supplement that in the vicinity of your field of work executed in 1906, as shown in Special Publication No. 13. You will please pay particular attention to the marking of stations, to furnishing descriptions of stations on the regular record form provided for that purpose, to picking out on the ground and locating prominent objects of a permanent nature for the chart and to the locating of objects which may be used for off shore hydrography.

4. The topography will be a revision of the shore line of the river adjacent to the hydrographic survey and coast line at the entrance for a distance of approximately one mile on either side of the entrance. If it is found upon inspection advisable to extend the hydrography to the north end of Bone Island the topography of the shore line on each side should be run as far as the railroad bridge in the vicinity of Gardiner. In order to furnish information for the possible use of U.S. Engineers you will please inspect the shores at the entrance at low water and furnish detailed information as to localities where rock is in evidence so far as practicable without actually making borings. Information of this character should be furnished for the bottom of the river and the entrance. The scale of the topographic sheet will be 1:10,000 and the topography will be executed in accordance with the General Instructions for Field Work.

5. The hydrography will consist of a close development of the ship channel and the area inside the breakwater as far as Ork reef with a



general development of the approaches. The following is given for your general guidance in this work.

6. From the longitude of the outer buoy in to the 2-fathom curve lines should be run in an approximately east and west direction, spaced 150 meters apart, for a distance of one half to three-fourths of a mile north and south of the buoy, these lines to be crossed by north and south lines spaced ~~300~~ meters apart. Over the area inside the 3-fathom curve split lines should be carried in to the breakers as far as safety will permit. In the main channel inside of the 3-fathom curve channel lines should be spaced 50 meters apart, crossed by lines 150 meters apart. These cross lines should be carried onto the shoals a sufficient distance to give a clear definition of the 6-foot curve. Additional lines should be run wherever shoal soundings are found or abrupt changes occur in the channel. All sloughs or leads branching out from the main ship channel are to be investigated, in order to determine their extent and depth. In connection with this it is desired that the limits of the areas bared at low water be determined by sextant cuts or by positions from which estimated distances to the low water line can be obtained. To obtain the elevation of the shoals bare at low water soundings should be taken insofar as practicable at or near high water.

7. Inside the breakwater and as far up as the north and east side of Ork Reef a close development will be made of the ship channel with a general development of Winchester Bay, carrying all lines in far enough to define the low water line.

8. Currents should be observed in the channel just inside the narrow part of the entrance with hourly or half hourly observations over a period of about 25 hours. For the hydrographic work you will establish an automatic tide gauge near the entrance which should be maintained as long as the work is being done in this locality. If it is considered advisable to extend the work beyond the limits given herein a station should be maintained at or near Gardiner, on which half hourly readings should be made for one or two days both day and night in order to obtain a good plane of reference through a comparison with the automatic tide gauge. Such other tides should be observed at Gardiner as may be required for reduction of soundings made at a distance of more than three miles from the sea. You will establish at least three good bench marks near each gauge, as directed in paragraphs 442 to 448 of the general Instructions for Field Work.

9. To assist you in this work Mr. L. M. Zeskind, Junior Hydrographic and Geodetic Engineer, now on duty at the Seattle Field Station, will be assigned to your party and you will hire the necessary hands on the working grounds, employing a leadman if necessary at Seattle, Wash. From information at hand it is understood you can probably charter a suitable launch either on the working grounds or at one of the nearby ports on the coast such as Coos Bay or Suislaw River. Arrangements for the charter of the launch are to be made in accordance with paragraphs 359 (c) and 359 (d) of the Regulations.

10. While in Seattle you will obtain all necessary information relative to the practicability of shipping by freight to the Umpqua River one of the Survey's launches, in the event that a launch cannot be obtained on or near the working grounds as stated.

11. Relative to surveys northward from Ork Reef you will make recommendation to this office in time for authorization of this work to reach you before the completion of the survey at the mouth of the river. Estimates for the work called for in these instructions should be prepared promptly for the approval of this Office.

12. The actual necessary expenses of travel and transportation incurred in the execution of these instructions are hereby authorized.

Signed R.L.Faris  
Acting Superintendent.

DEPARTMENT OF COMMERCE  
 U. S. COAST AND GEODETIC SURVEY  
 WASHINGTON

February 4, 1921.

To: The Chief of the Section of Field Records.  
 From: A. L. Shalowitz, Hydrographic and Topographic Draftsman.  
 Subject: Verification of Hydrographic Sheet 4141, Umpqua River, Oregon.

The following remarks relative to the execution of Sheet No. 4141 are made with full knowledge of the probable difficulty of the work as well as the poor personnel the officer in charge had to contend with.

The sounding records for this sheet are extremely poor and due allowance being made for inefficient recording, it shows a flagrant disregard of the general instructions for hydrographic work. In the entire eight volumes of records the nature of the bottom was noted no more than a half dozen times. The time interval is consistently bad and many doubtful places that might have been very readily cleared up had to be left unsolved and the most probable positions accepted for the soundings. A case in point is where 20 or 30 second soundings were taken at regular intervals for say a period of a minute and then for no apparent reason and without any remarks there is a lapse of another minute or two to the next position without a single sounding being taken. This has frequently occurred not in turns of lines but in straight stretches. To plot such soundings strictly in accordance with the recorded times would have the effect of bunching the first few soundings and then having a long space between the last sounding and the sounding on the next position. This would be erroneous and would frequently introduce serious discrepancies to the location of the soundings. It is the opinion of the writer who has had considerable experience in hydrographic work that the fault lay with the recorder in not keeping close tab on the minute hand of the clock and that the soundings were taken at regular intervals. A suggestion that I believe would tend to obviate any such doubt would be to have recorded in the record book continuous intervals ~~whether~~ whether soundings were taken then or not. If a sounding is missed or for some other reason not taken that space could be left blank and then the office would know whether there actually was a long lapse of time or not. The form suggested follows:

Where this form is not adhered to the deficiencies should be supplied at the end of the day's work by the officer in charge, who is in a better position to more intelligently interpret the records than a draftsman in the office is.

Position No.	Time	Soundings	
		Fathoms	Feet
1	8-10-00	2	3
	20	2	2
	40	5	4
	11-00	—	—
	20	—	—
2	40	6	5
	8-12-00	6	0

In the sounding work outside the bar the practice was adopted of taking up and down casts, but instead of taking position angles at the time of taking the sounding, the angles were taken at the moment of stopping the engine and then

after a lapse of 30 seconds or so when the boat had killed its headway, the sounding was taken. This method at best permits only of an approximation of the location of the sounding as there is no way of calculating the distance the launch has traversed during the interval when headway was being killed. It is difficult to understand why a fix was not obtained at the moment of taking the sounding instead of at the moment of stopping the engine.

Not once was the boat's head by compass or the course given, and there seemed to be a general hesitancy in making remarks as to change of speed or change of course. Many cases were left in doubt because the record failed to note a change in course and yet the positions showed a decided change. In approaching the shore the records show no indication of a slowing down nor do they indicate any increase of speed when leaving the shore. This is a direct disregard of paragraph 268 of the General Instructions for field work.

No care was exercised in the recording of position numbers, they being frequently placed between two spaces making it very difficult to determine at which time they were taken. Position numbers in the angle column were entirely omitted. There was a general practice of recording names of signals with the first letter only. This is contrary to the adopted practice and caused much loss of time to the verifier as frequently one or two pages had to be turned back to find out what the signals were. In several instances two distinct names were used for the same object. In the case of  $\Delta$  Rear Range, the word Range was used throughout the records, notwithstanding the fact that there was a signal Front Range close by and no mention whatever being made that Range refers to  $\Delta$  Rear Range. Names of signals were at times entirely omitted and very often soundings were recorded with no time whatever given. In a general way there is very little that can be said in favor of the records. The recording of M. Perkins' hand was an impossibility, it frequently bordering on illegibility. That of I. M. Teskind, Recorder, was not so bad and even spasmodically good, although all the records lacked completeness and detail. This could not have escaped the notice of the chief of party as the smooth sheet was protracted and the soundings plotted by him. It is the opinion of the writer that all corrections and adjustments in time and other explanatory notes should have been made by the plotter instead of being left to the verifier.

The protracting of the positions ~~was~~ generally good there being but a very few positions in error. However, the positions were not all numbered especially in the channel and on the bar so that it was very difficult to follow a line and replotting had to be resorted to. Practically the whole

of "A" day was omitted and yet no mention made why it was omitted. The entire work for the day was replotted on tracing paper and an inspection disclosed that some of the positions were very weak and others highly improbable. After a consultation with Capt. Ellis only those lines were accepted that did not seriously conflict with the already plotted work. Several stretches of lines on other days were also omitted by the plotter without any remarks. The plotting of the soundings was extremely poor. No attention was paid to the time interval and were generally spaced at approximately equal intervals. It is highly doubtful whether spacing dividers were used. Practically all the soundings had to be respaced and there is no question but what a saving in time would have resulted had the plotting been left entirely to the office.

Discrepancies in soundings on cross lines of five and six feet are very common. Otherwise the area seems to be fairly well developed. Two cases on the sheet, however, are in doubt and might have been given a further examination. The first is a 10 ft. spot at position 147 P. and occurs between a 27 and a 24 ft. sounding. There are greater depths all around and it is not very probable that this shoal sounding exists. A check line would have dispelled all doubt. The second is a 26 and a 29 ft. sounding at position 9 B. outside the bar. There is much deeper water all around and it seems that a further investigation should have been made for a verification or for possible shoaler water. The fix used was very weak and might account for shifting these soundings too far to the westward.

*Aaron L. Shalowitz*

Aaron L. Shalowitz.  
Hydrographic & Topographic Draftsman.

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY  
WASHINGTON

SECTION OF FIELD RECORDS.

Report on Hydrographic Sheet 4141.                      Surveyed in 1920.  
Chief of Party: O.W.Swainson.                      Surveyed by O.W.Swainson.  
Protracted by O.W.Swainson.                      Soundings plotted by O.W.Swainson.  
Verified and inked by A. L. Shalowitz.

1. The records do not conform to the requirements of the General Instructions. See accompanying report by A. L. Shalowitz.
2. The plan and character of the development fulfill the requirements of the General Instructions, except that there should have been additional cross lines.
3. The plan and extent of development satisfy the specific instructions. These directed that the survey extend from the entrance to Ork Reef. No specific authority could be found for extending the survey above Ork Reef, but it is presumed the extension was based on supplementary orders.
4. The sounding line crossings are below the standard in a number of instances.
5. It was possible to draw the depth curves in all but a few unimportant instances.
6. The field plotting was completed to the extent prescribed in General Instructions.
7. Owing to the failure to observe time intervals in plotting it was necessary for the office draftsman to practically re-plot all soundings.
8. As the region of this survey is all changeable bottom, no attempt was made to plot previous surveys on the sheet.
9. The existence of the following shoal spots is doubtful: 36 feet 1 mile north of P.S. can buoy; 26 feet 100 meters south of same buoy, and 10 feet 200 meters north of Ork Reef. These shoals were not rejected in the records nor were they investigated as directed by par. 243 of General Instructions. They should be investigated if opportunity offers.
10. Rating of the work - Character and scope of the surveying - Fair  
Quality of field drafting - Fair.
11. Reviewed by E. P. Ellis, February, 1921.
12. Two copies of this report to be sent to Hydrography and Topography Division.

*marked on photographs # 2 & investigations*  
*# items 1 & 2*  
*# items 3, 4, 5, 6, 7, 8, 9, 10, 11, 12*  
*Later surveys by Corps of Engineers*  
*make these unnecessary*  
*Make by hand June 1928*

Hydrographic Sheet No. 4142  
Umpqua River: Oregon

The work on this sheet was protracted and pencil plotted by the Field Party but is not satisfactory work in either case. The protracting as far as accuracy may be considered up to the standard of the office but the positions are not well defined either in the picked position or the designating number and letter. This made it necessary to reprotract a larger number of positions as would otherwise have been necessary.

The plotting had the appearance of being eye spaced instead of divider spaced and fractions were used and plotted in all the shoulder water. This required respacing throughout.

The party work so far as it applies to the survey proper is considered good. The area surveyed is well covered and develops condition in a satisfactory manner. But few cross lines were run but those run ~~cross~~ cross satisfactorily.

The records cannot be considered good as many positions are left in doubt and the names of signals are given only at beginning of lines and at changes. They are <sup>then</sup> initialed until changed. This is apt to confuse and adds to the work of the verifier.

John D. Torney  
Jan. 28, 1921

AND REFER TO NO.

4-MEM

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY  
WASHINGTON

SECTION OF FIELD RECORDS.

Report on Hydrographic Sheet No. 4142.      Surveyed in 1920.  
Chief of Party:    O. W. Swainson.      Surveyed by O. W. Swainson.  
Protracted by L. M. Zeskind.      Soundings plotted by L. M. Zeskind.  
Verified and inked by J. D. Torrey.

1. The records do not conform to the requirements of the General Instructions. The writing was carelessly done, there were practically no bottom characteristics, boat's courses entirely omitted, initials used frequently for names of signals.
2. The plan and character of development fulfill the requirements of the General Instructions except that there should have been some cross lines.
3. The sounding line crossings are adequate.
4. It was possible to draw the usual depth curves.
5. The field plotting was completed to the extent prescribed in General Instructions, but was found to be unsatisfactory. The protracting was accurate, but the pricked positions were not clearly indicated and the numbers and day letters so sparse and poorly placed that much protracting was necessary to identify positions. Little or no attention was paid to time intervals in plotting soundings, hence the office draftsman had to replot the sheet through-out.
6. As the entire area of the sheet has changeable bottom, no attempt was made to join the old hydrography with this survey.
7. The crossover channel northwest of Bone Island is extensively used. Further development is required in this channel in order that it may be correctly charted.
8. Rating of the work - Character and scope of surveying --Good.  
Quality of field drafting -- Peer.
9. Reviewed by E. P. Ellis, February 1921.
10. Two copies of this report to be sent to Hydrography and Topography Division.



AND REFER TO NO. 41/EAL

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY  
WASHINGTON

December 29, 1920.

Division of Hydrography and Topography:

Division of Charts:

Tidal reductions are approved in  
8 volumes of sounding records for

HYDROGRAPHIC SHEET 4141

Umpqua River, Oregon.  
O. W. Swainson in 1920.

Plane of reference is  
Mean lower low water, reading

4.5 ft. on tide staff at jetty at mouth of Umpqua River. \*

\* Allowance made for difference in tide at place of soundings.

Condition of records: Satisfactory.



Chief, Division of Tides and Currents.

DIRECTOR  
ADDRESS THE SUPERINTENDENT  
U. S. COAST AND GEODETIC SURVEY

AND REFER TO NO. 41/VFB

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

WASHINGTON

December 23, 1920.



Division of Hydrography and Topography: ✓

Division of Charts:

Tidal reductions are approved in  
4 volumes of sounding records for

HYDROGRAPHIC SHEET 4142

Umpqua River, Oregon.  
O. W. Swainson in 1920.

Plane of reference is  
Mean lower low water, reading

2.3 ft. on tide staff at Gardiner.  
4.5 ft. " " " " Jetty. \*

\* Allowance made for difference in tide at  
place of soundings.

Condition of records: Fair.

A handwritten signature in cursive script, appearing to read "G. W. Swainson".

Chief, Division of Tides and Currents.

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

The finished Hydrographic Sheet is to be accompanied by the following title sheet, filled in as completely as possible, when the sheet is forwarded to the Office.

U. S. Coast and Geodetic Survey.

Register No. 4141

State . Oregon . . . . .

General locality . Umpqua River . . . . .

Locality . Mouth of River to the Point  
~~Bay and Entrance~~ . . . . .

Chief of party . O.W. Swainson . . . . .

Surveyed by . . . O.W. Swainson . . . . .

Date of survey . . June and July 1920 . . . . .

Scale . . . . . 1:10,000 . . . . .

Soundings in . . . . feet . . . . .

Plane of reference . . Mean lower low water . . . . .

Protracted by O.W.S. Soundings in pencil by O.W.S.

Inked by . . . . . Verified by . . . . .

Records accompanying sheet (check those forwarded):

Des. report,  Tide books,  Marigrams,  Boat sheets,

8  Sounding books,  Wire-drag books,  Photographs.

Data from other sources affecting sheet . . . . .

Remarks:

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

The finished Hydrographic Sheet is to be accompanied by the following title sheet, filled in as completely as possible, when the sheet is forwarded to the Office.

U. S. Coast and Geodetic Survey.

Register No. 4142

State . . . Oregon . . . . .

General locality Umpqua River

Locality . . . ~~vicinity of Gardiner~~ The Point to Reedport . . . . .

Chief of party . . . O. W. Swainson . . . . .

Surveyed by . . . O. W. Swainson . . . . .

Date of survey . . . May to Sept 1920 . . . . .

Scale . . . . . 1:10,000 . . . . .

Soundings in . . . feet . . . . .

Plane of reference . . . Mean lower low water

Protracted by R. M. Zerkus Soundings in pencil by R. M. Zerkus

Inked by . . . . . Verified by O. W. Swainson

Records accompanying sheet (check those forwarded):

Des. report, 4 Tide books, 4 Marigrams, 1 Boat sheets,

4 Sounding books, \_\_\_\_\_ Wire-drag books, \_\_\_\_\_ Photographs.

Data from other sources affecting sheet . . . . .

Remarks: