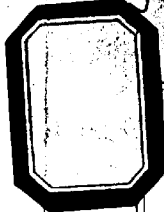


4758

Diag. Cht. No. 5902

C. & G. SURVEY
L & A
MAR 26 1928
Acc. No.



Form 504

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

State: OREGON

11-5613

DESCRIPTIVE REPORT.

HYDROGRAPHIC Sheet No. 6 4758

LOCALITY:

^{etz}
Siletz Bay
~~NORTHERN~~ OREGON

Cape Foulweather to Salmon River

50 to 100 fathoms

1927

CHIEF OF PARTY:

R. F. LUCE

4758

11

DESCRIPTIVE REPORT

to Accompany Hydrographic Sheets 2 and 6.

AUTHORITY.

Director's Instructions to the Commanding Officer of U.S.C.
& C.S.S. PIONEER, dated March 8, 1927.

LIMITS.

These sheets join to cover an area from the 50 fathom curve to the 100 fathom curve between sheets 1 and 5 (100 fm. to 1000fm.) and sheets 5 and 6 (20 fm. to 50 fm.) of this season and extending from a junction with the S. PIONEER's 1926 work on the north in latitude $45^{\circ}40'$ to approximately latitude $44^{\circ}47'$.

GENERAL DESCRIPTION.

The general description of the coast having been well covered in descriptive reports accompanying the launch and topographic sheets will not be taken up in this report.

OUTLYING DANGERS & ISLANDS.

There are no outlying dangers or islands within the limits of these sheets.

CURRENTS.

The prevailing current appears to be in a southerly or southeasterly direction as judged by courses required to run east and west sounding lines. It is of varying intensity, varying with the wind.

ANCHORAGES.

There are no anchorages within the limits of these sheets.

SURVEY METHODS AND CONTROL.

The sounding in this area was accomplished by tubes in the earlier part of the season previous to the installation of the Fathometer in accordance with the instructions for the use of tubes, at a speed of approximately 5 knots. After its installation, the Fathometer was used entirely for sounding in this area except for a period of about two hours when the Fathometer was stopped to allow work to be done on the motor generator. While the Fathometer was stopped sounding was continued with tubes. Daily comparisons of the Fathometer with wire soundings were made and very satisfactory results obtained.

Soundings were recorded at minute intervals except where sudden variations in depth required closer spacing.

Temperatures and water samples at various depths and various sections of the working ground were taken throughout the season for use in correcting the Fathometer soundings for temperature and salinity. These corrections were later combined with the correction for the distance of the oscillator from the hydrophones and all applied as an correction to the soundings. A copy of the derivation of these corrections is attached to this report.

The control was in general by the R. A. R. method although a number of lines at the earlier part of the season were controlled by fixes on visual objects on shore.

Velocity tests were made at various times throughout the season and a copy of the analysis of them is attached to this report. A velocity of 1477.0 m. per second was derived and used the entire season.

Crossings are good throughout the area covered by these sheets.

TIDAL DATA.

Tide reductions are all based on the portable staff established at Garibaldi, Oregon, and are in accordance with the Director's letter of November 19, 1927, abstracts of which follow:

* * ** * * ** * * ** * *

In reply to your letter requesting to be furnished with the tabulated hourly heights of tide at Garibaldi, Oregon, there are forwarded herewith the tabulations covering the period from April 26, 1927, to October 15, 1927. These hourly heights are referred to the zero of the tide staff. To refer them to the mean lower low water datum, 5.6 feet will have to be subtracted from each.

In regard to the time differences to be applied, you are advised that since the tide sweeps rapidly along this coast only two time differences appear to be necessary to cover the entire working grounds. For the area along the coast from the 3 fathom curve out to the 50 fathom curve, the time of the tide should be taken as 20 minutes earlier than at Garibaldi while beyond the 30 fathom curve it may be taken as 30 minutes earlier than at Garibaldi.

The range of tide for all parts of the working ground may be considered to be the same as at Garibaldi.

For off shore soundings the tide reducers may be omitted where they are generally not greater than 1% of the depth.

* * ** * * ** ** * * ** * *

CORRECTIONS TO FATHOMETER SOUNDINGS AS DEvised

AND USED ON THE U.S.C. & G.S.S.

PIONEER

-1927-

It was believed, and subsequent investigations showed it to be feasible, that all corrections to Fathometer soundings such as temperature, salinity, length of baseline, etc., could be combined into one correction curve and applied as one correction. Corrections for tide were necessarily applied separately.

Surface, bottom and serial temperatures were taken throughout the season, as were water samples for determination of salinity values. These latter were taken in conjunction with the work done for the Scripps Institute of La Jolla, California. Salinity values were furnished by the Scripps Institute for the water samples furnished them. The salinity values varied from 28.95 to 34.22 parts per 1000 with an average value of 31.98 per 1000. As but very few salinities were obtained which deviated appreciably from the mean, it was thought to be of sufficient accuracy to take a mean value of 32 parts per 1000.

PLATE No. 1 gives the temperature depth curve for the work during the field season 1927. An average value was taken for the surface temperature which also gives the most probable curve. In order to determine the average temperature value of the water passed through by the sound for various depths, the method of equal areas was used. The ordinate which divided the area under the curve, from the surface to the bottom depth selected, into equal areas gives the average temperature for that depth. The values for various depths are listed on plate No. 1.

PLATE No. 2 gives the average temperature-depth curve for the work during the field season 1927. A table of temperature-salinity correction factors for various depth bands from 20 to 100 fathoms is included on Plate No. 2.

PLATE No. 3 gives the Fathometer correction curve for uniform scale readings of hydrophone oscillator distance of 69.4 feet and of 93.0 feet corresponding to the magazine and sonic hydrophones respectively.

As all corrections were of quite small value and presented gradual changes with increasing depths, it was possible to combine these several corrections into one correction curve and table of corrections for each hydrophone oscillator distance. These curves and tables are given in Plate No. 4, in fathoms and tenths.

Fathometer corrections were taken from the table on Plate No. 4 and entered in the column marked "Leadline Correction". The reducers for tides were entered in their respective column and the reduction of soundings proceeded with as in any ordinary case.

As the slopes in the area in which the fathometer was used were gradual and of no great value, no slope corrections were applied to Fathometer soundings.

Roland D. Home

Forwarded March 22, 1928-

O. W. Swainson, Comd.

NOTE:

Plates Nos. 1, 2, 3 and 4 are attached to the original copy of The DESCRIPTIVE REPORT to accompany hydrographic sheets 2 and 6.

DETERMINATION OF SOUND VELOCITY; OREGON COAST 1927.

Date	Time	K G A M				Time	K G A L				Notes
		Rej- ected Obs.	All Obs.	Very good	Best Obs.		Rej- ected	All Obs.	Very good	Best Obs.	
5/26	12:72		73.4								North insho sheet
	15:02		73.6		31.01		59.7				
	15:52		74.9		31.15		56.4				
	15:50		74.0		26.55	R					
	15:05		77.1								
	12:93	R									
5/27	16:59		77.9								
	16:92		75.9								
	16:45		76.1		26.66		68.6				
	16:19		73.0		26.59		62.6				
	15:89		73.1								
6/9	20:82		77.0	77.0	22.78		52.8				
	21:35		74.7	74.7							
	21:19		75.8	75.8							
	20:97		75.4	75.4							
	29:49		74.0	74.0	74.0						
	29:55		71.7	71.7	71.7						
	8/25						12.89		81.6		Sout inst sheet
							12.62		81.8		
							12.60		81.0		
							12.55		82.8		
							12.23		83.3		
	6/1		71.9				27.73	R			Offical Sheet
	6/2		76.7	76.7			31.35		68.6		
	19		77.0	77.0			31.73		59.8		
			81.0	81.0			32.00		58.6		
	6/8		81.0				34.26		67.4		
			73.8								
	6/15		86.1								
			77.4	77.4							
	6/23		72.2	72.2							
			76.9	76.9							
	8/11		92.1				13.12		71.4		
			77.9	77.9	77.9		10.70		75.6		
	8/12		74.5	74.5	74.5		23.84		74.7	74.7	74.7
			77.9	77.9	77.9		25.99		76.8	76.8	76.8
			77.4	77.4	77.4		29.15		74.9	74.9	74.9
			76.7	76.7	76.7		31.70		73.3	73.3	73.3
			76.5	76.5	76.5		34.86		79.3	79.3	79.3
			74.7	74.7	74.7		38.57		79.4	79.4	79.4
	9/23		79.6	79.6	79.6		12.79		85.0		
			81.4	81.4	81.4		13.00		83.5		
			81.3	81.3	81.3		13.40		81.6		
			82.3	82.3	82.3		15.60		83.7		
			82.1	82.1	82.1		13.85		85.7		
			80.3	80.3	80.3						
SUM			3157.8	2167.9	1403.8				1935.1	458.4	4581.4
No. of observations			41	28	18				26	6	6
Average			1477.02	77.43	77.99				1474.42	76.40	76.40
Means of BOTH STATIONS									1476.01	77.25	77.59

ADOPTED VALUE 1477.0 meters per second

TABLE OF STATISTICS

*The statistics on this page pertain to H. 4754
S.P.*

Sheet No. 2 ⁴⁷⁵⁴

Date	Day letter	Volume	Positions	Soundings	Sta. miles	Vessel	Apparatus
June 1, 1927	A	1	30	144	23.2	Ship	Tubes
" 2	B	1	56	145	25.5	"	"
" 3	C	1	15	91	14.0	"	"
" 8	D	2	25	124	46.1	"	"
" 15	E	2	18	50	9.2	"	"
" 23	F	2	24	82	13.3	"	"
July 7	G	2	52	123	21.0	"	Fathomster
" 8	H	2	24	77	15.7	"	"
" 8	H	3	62	227	40.5	"	"
" 14	J	3	109	380	71.0	"	"
" 15	K	3	109	340	57.0	"	"
" 15	L	3	3	8	1.2	"	"
" 16	L	4	109	311	46.5	"	"
" 19	M	4	46	137	23.0	"	"
" 21	M	4	33	177	29.7	"	"
" 25	P	4	45	355	47.0	"	"
" 26	Q	5	115	709	111.0	"	"
" 27	R	5	7	55	10.9	"	"
" 28	S	5	20	147	19.5	"	"
" 28	S	6	1	11	1.5	"	"
" 29	T	6	11	88	11.4	"	"
Aug. 1	U	6	23	258	40.2	"	"
" 2	V	6	110	596	96.8	"	"
" 2	V	7	8	49	14.9	"	"
" 3	W	7	116	700	117.5	"	"
" 8	X	7	17	115	16.2	"	"
" 9	Y	8	20	113	19.5	"	"
" 10	Z	8	37	244	36.8	"	"
" 11	A'	8	34	231	37.0	"	"
" 12	B'	8	79	507	55.0	"	"
" 25	C'	9	53	313	55.0	"	"
Sept. 25	D'	9	8	0	0.0		Velocity tests

Copy for Record Section files.

April 12, 1926.

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
4 volumes of sounding records for

HYDROGRAPHIC SHEET 4758

Locality: COAST OF OREGON

Chief of Party: R. F. Luce, 1927.
Plane of reference is M L & W
5.6 ft. on tide staff at Garibaldi.

Condition of records satisfactory except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of each day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.

Hammann
Chief, Division of Tides and Currents.

IN REPLY ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY
AND NOT THE SIGNER OF THIS LETTER

AND REFER TO No. 11-DEM

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

May 29, 1928.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4758

Off Siletz Bay, Oregon

Surveyed in 1927

Instructions dated March 8, 1927

Chief of Party, R. F. Luce.

Surveyed by R. F. Luce.

Protracted by J. C. Bose.

Soundings penciled by C. LeFever.

Verified and inked by F. B. Kelly.

1. The records conform to the requirements of the General Instructions.
2. The plan and character of development satisfy the requirements of the General Instructions.
3. The crossing lines generally show good agreement.
4. There are no shoals or changes indicated on the sheet.
5. Only two depth curves are shown on the sheet and they were penciled in the field.
6. The soundings between 1B and 4B are questioned as they differ by about 10 fathoms from H. 4756.
7. The junction with H. 4756, inshore, is good with the exception noted in paragraph 6.
The junction with H. 4757 offshore is good with one exception and this line was left uninked.
Sheet H. 4754 on the north has not yet been inked.
8. One hundred and thirty-nine fixes were checked and 12 found slightly in error.
9. Field drafting, good.
10. Report by F. B. Kelly, May, 1928.

IN REPLY ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY
AND NOT THE SIGNER OF THIS LETTER

AND REFER TO No. 11-DRM

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

WASHINGTON

February 28, 1929.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4758

Cape Foulweather to Salmon River, Oregon

Surveyed in 1927

Instructions dated April 17, 1926 (PIONEER) and March 8, 1927
(PIONEER)

Chief of Party, R. F. Luce.

Surveyed by R. F. L.

Protracted by J. C. Bose.

Soundings plotted by C. LeFever.

Verified and inked by F. B. Kelly.

1. The records conform to the requirements of the General Instructions.
2. The plan and extent of the development satisfy the specific instructions with the exception that the instructions of April 17, 1926 call for echo soundings in depths exceeding 100 fathoms only. This was doubtless intended to apply to the use of the sonic depth finder and did not contemplate the perfection of the fathometer at such an early date.
3. The sounding line crossings are adequate.
4. The usual depth curves could be drawn.
5. The usual field plotting was completed by the field party and was found to be satisfactory.
6. The junctions with the adjacent contemporary survey will be taken up when those sheets are reviewed.
7. The line from 1B to 4B has been rejected in the office as it is manifestly in error. It differs considerably from the closely spaced adjacent line on this survey and also differs by the same amount from the two adjoining surveys, H. 4754

and H. 4756. There are evidences in the sounding record that the fathometer was not working properly. A wire sounding taken at position 4B shows a difference of 7 fathoms in 50 fathoms. These considerations prove conclusively that the line is erroneous.

8. No additional work is necessary within the limits of this survey.
9. Reviewed by A. L. Shalowitz, October, 1928.

Approved:

Chief, Section of Field Records (Charts)

Chief, Section of Field Work (H. & T.)

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

4758

HYDROGRAPHIC TITLE SHEET

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

Field No. 6

REGISTER NO. 4758

State OREGON

General locality Siletz Bay
~~NORTHERN OREGON COAST~~

Locality Cape Foulweather to Salmon River
~~OFF SILETZ BAY~~

Scale 1 - 80,000 Date of survey SEPTEMBER 16-Oct. 14, 1927

Vessel U.S.C. & G.S.S. PIONEER

Chief of Party R. F. LUCE

Surveyed by R. F. LUCE

Protracted by J. C. BOSE

Soundings penciled by CURTIS LE FEVER

Soundings in fathoms ~~XXXX~~

Plane of reference MEAN LOWER LOW WATER

Subdivision of wire dragged areas by

Inked by

Verified by

Instructions dated MARCH 8, 1927

Remarks:

TABLE OF STATISTICS

Sheet No. 5. 4758

Date	Day letter	Volume	Posi- tions	Sound- ings	Sta. miles	Vessel	Apparatus
Sept. 16, 1927	A	1	84	496	89.5	Ship	Fathometer
" 20 "	B	1	23	149	27.0	"	"
" 21 "	C	1	10	65	11.4	"	"
" 23 "	D	2	22	137	25.6	"	"
Oct. 4 "	E	2	29	151	27.6	"	"
" 5 "	F	2	90	507	87.3	"	"
" 5 "	F	3	33	213	19.5	"	"
" 6 "	G	3	38	248	42.3	"	"
" 7 "	H	3	12	77	19.8	"	"
" 13 "	J	3	63	301	55.0	"	"
" 13 "	J	4	30	149	38.0	"	"
" 14 "	K	4	14	74	13.7	"	"