

4731

Diag. Cht. Nos. 8552 & 8502-2

Form 504

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

E. Lester Jones, Director

C. & G. SURVEY

L. & A.

FEB 17 1928

Acc. No.

State: S.W. Alaska

DESCRIPTIVE REPORT

~~Topographic~~
Hydrographic

Sheet No. "0" 4731

LOCALITY

~~Gulf of Alaska~~ Blying Sound
Puget Bay to Vic. of
~~San Juan~~ to Chiswell Ids

192 7

CHIEF OF PARTY

R. R. Lukens

GOVERNMENT PRINTING OFFICE

4731

DESCRIPTIVE REPORT
to accompany
HYDROGRAPHIC SHEET "O"
Gulf of Alaska.

Steamer SURVEYOR 000 R. R. Lukens,
Chief of Party.

1 9 2 7

Scale - 1:80,000.

This sheet covers the offshore hydrography from the meridian of Puget Bay, westward, to a junction with the old work in the vicinity of the Chiswell Island. On the east it joins hydrographic sheet "H" of the 1927 season.

CONTROL: The hydrography is controlled by mountain peaks, most of which are located by triangulation. The control was ample and satisfactory. The peaks and features that were located by sextant cuts are shown in blue. Heights were determined by sextant angles from the deck of the ship. Three or more determinations of each peak were made and the mean is shown on the sheet.

TIDE GAUGE: All soundings were reduced from the automatic gauge located at Seward, in Resurrection Bay.

METHODS: Except for the inshore hydrography done by the launch, all sounding on this sheet was done by the ship, using the fathometer. In a few instances, when the fathometer was not working properly, up-and-down casts were made at short intervals. As explained in the Descriptive Report of sheet "H", fathometer soundings were reduced by means of curves in the same manner as for tube soundings. Numerous up-and-down casts were made both for the purpose of checking the fathometer and for obtaining the character of bottom.

DANGERS: No offshore dangers were found. The bottom is unusually smooth and for the most part consists of sticky, blue mud. Hydrographic sheet, register No. 3420, shows an 85 fathom sounding in Lat. $59^{\circ} 32'$, Long. $149^{\circ} 11'$. No indications of this sounding were found; the least depth found in this position being 114 fathoms. It is believed that the sounding on sheet No. 3420 is in error. Although the soundings here show the bottom slightly uneven, it is probably due to poor functioning of the fathometer at this time. The up-and-down sound-

ings show even bottom. When in depths just over 100 fathoms, the fathometer is sometimes hard to read due to strays that come in around 5 to 7 fathoms.

CAPE JUNKEN TO DAY HARBOR: There was no way of getting any control on this section except by hydrographic methods. Natural features along the coast were cut in from strong fixes, and the shoreline was carefully sketched in. This was supplemented by fixes (where possible) taken on a launch cruising close to the beach. Judging by the excellent way in which the cuts intersected it is believed that the shore line is laid down with sufficient accuracy for all practical purposes. This section of the coast is very rugged and offers no shelter.

CAPE JUNKEN is a bold, rounding cape with many rock slides. At the foot of the cape there is a narrow ridge which forms two steps, when viewed from along shore, east or west.

JOHNSTONE BAY is an open bight with no anchorage. There is a black, sand beach at the head of the bay and a stream enters at the eastern end of this beach. Between Johnstone Bay and Cape Junken is a small rock-bound cove which is wide open to the southwest and offers no shelter. There is a small sand beach at the head of this cove.

EXCELSIOR GLACIER is a prominent glacier discharging into Johnstone Bay.

CAPE FAIRFIELD is bold and rugged, with steep cliffs and rock slides. There is a prominent pinnacle rock at the foot of the eastern pitch of the Cape. There is a detached rock 20 feet high a short distance off the Cape, about one mile westward of the pinnacle rock. The shores here consists of huge rock slides and are fringed with numerous rocks and reefs.

MOUNT FAIRFIELD (Δ Fair) is the name given to the highest and most prominent peak on Cape Fairfield. It has a fairly sharp summit and is 3660 feet in height. There are ice fields on the peak and a tongue of a glacier extends almost to the summit.

WHIDBEY BAY is a large open bight which affords an anchorage in 12 Fathoms, about one mile off the black sand beach at the head of the bay. The bottom consists of mud and sand and is good holding ground. A stream enters the bay at the western end of the sand beach.

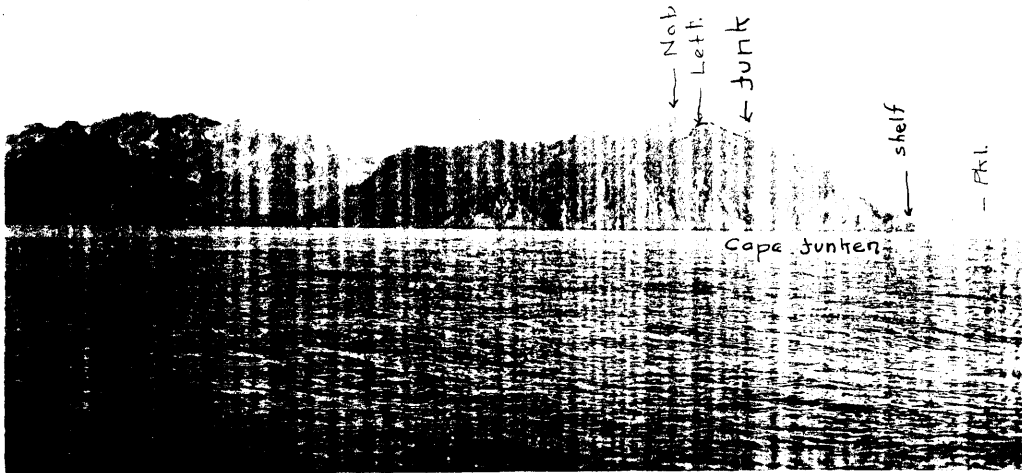
CAPE MANSFIELD is bold and rugged with rock slides and vertical cliffs. There is a rock awash at mean tide about 1/4 mile off Cape Mansfield. Deep water extends close up to this rock on all sides. Just westward from Cape Mansfield there is a small cove with a sand beach at its head. A depth of 12 fathoms, in fine, gray sand, will be found near the center of this cove.

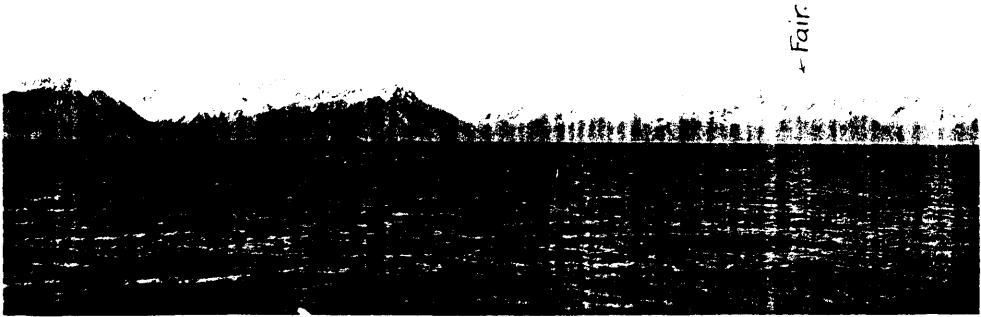
DAY HARBOR has not been surveyed.

Respectfully

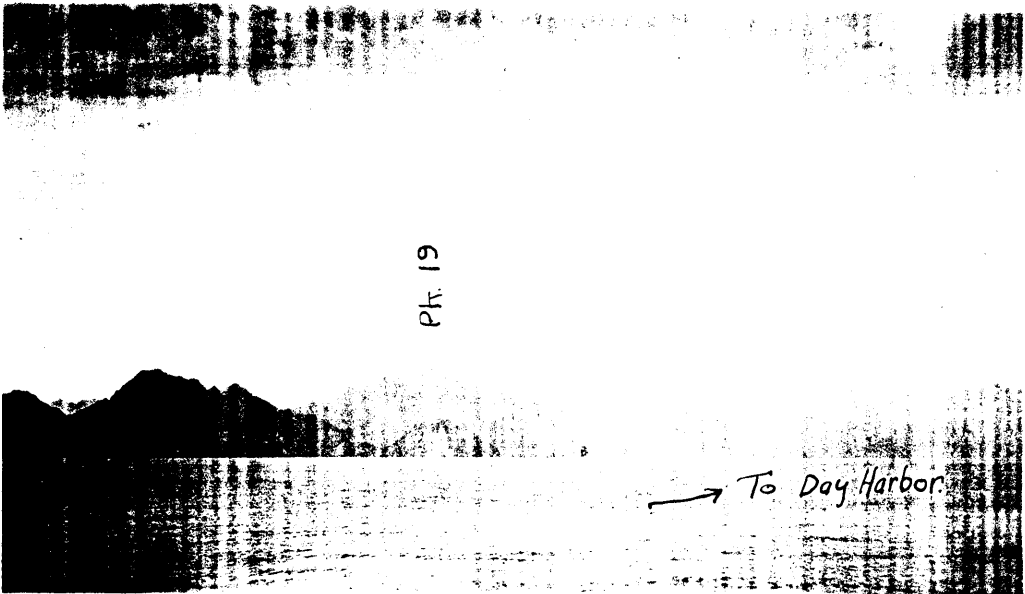


R. R. Lukens,
Commanding Str. SURVEYOR.



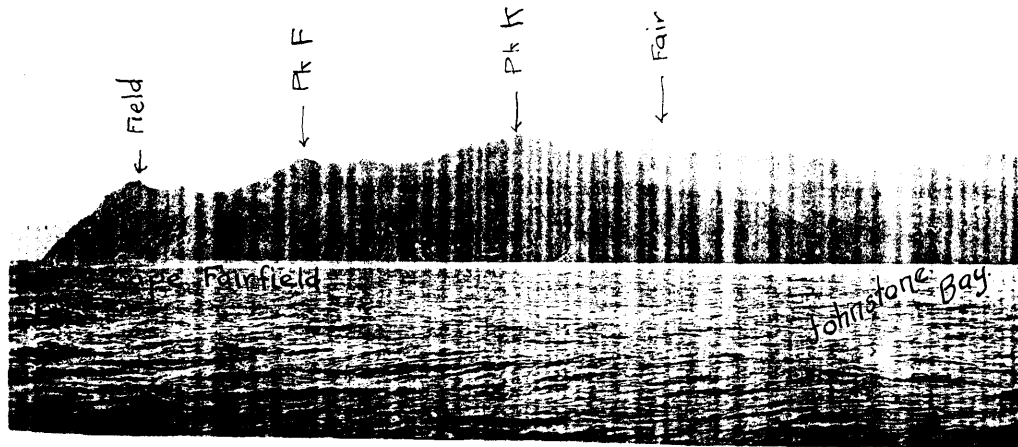


← Fair



Pk. 19

→ To Day Harbor



STATISTICS

For Hydrographic Sheet "0"

Date	Day	Positions	Soundings	Miles sta.	Boat
Aug. 27	A	24	81	25.5	Surveyor
30	B	58	230	63.0	"
31	C	156	706	146.5	"
Sept. 1	D	119	467	123.0	"
2	E	105	340	111.0	"
8	F	89	340	108.5	"
10	G	115	374	119.0	"
12	H	96	473	95.0	"
15	J	101	469	90.0	"
16	K	99	386	117.0	"
21	L	29	127	25.0	"
28	M	53	284	32.0	"
29	N	7	29	6.5	"
28	e	12	37	3.0	Gig
28	d	70	184	34.4	M. S.
29	e	44	111	21.9	"
TOTALS		1177	4636	1125.3	
		Square Miles, Area 798.0 sq. mi.			

List of Hydro. Pos. & LANDMARKS FOR CHARTS

Seattle, Washington,

Surveyor: _____

January 19 _____, 19 8

SUPERINTENDENT, U. S. COAST AND GEODETIC SURVEY:

The following determined objects are prominent, can be readily distinguished from seaward from the description given below, and should be charted:

Sheet O 1927

R. R. Lukens
R. R. Lukens Chief of Party.

DESCRIPTION.	POSITION.					Datum.	Method of determination.	Charts affected. Remarks
	Latitude.		Longitude.					
	'	D. M. meters.	'	D. P. meters.				
Beach	59	58	110	148	55	448		End of rocks
Tan	59	57	743	148	55	272		Pinnacle rk.
Pk. "E"	60	01	655	148	57	661		Peak
Pk "G"	60	03	1653	148	55	440		"
Hay	59	55	1216	148	53	435		Point of rocks
20' rock	59	55	592	148	52	795		Detached rk
Field	59	55	1080	148	52	64		Peak
Foot	59	55	488	148	50	480		Pinnacle rk
Pk "F"	59	55	1584	148	50	848		Peak
Peak "K"	59	56	1400	148	50	832		"
Peak "H"	60	03	813	148	49	541		"
White	59	56	1607	148	44	512		White rk
Peak "L"	59	56	655	148	43	180		Peak
Ken	59	55	1768	148	42	751		Detached rk
Low	59	55	1360	148	41	204		Low black rk
Left	59	55	552	148	38	920		Peak
Nob	59	55	1448	148	37	567		Peak

A list of objects which are of sufficient prominence for use on the charts, together with a description of the same, must be furnished in a special report on this form, and a copy of such report must be attached by the Chief of Party to his descriptive report. The selection, determination, and description of these points are of primary importance.

The description of each object should be short, but such as will identify it; for example, standpipe, water tower, church spire, tank, tall stack, red chimney, radio mast, etc. Generally, flagstuffs and like objects are not sufficiently permanent to chart.

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

Sheet #2.

LANDMARKS FOR CHARTS

....., 19

SUPERINTENDENT, U. S. COAST AND GEODETIC SURVEY:

The following determined objects are prominent, can be readily distinguished from seaward from the description given below, and should be charted:

.....
Chief of Party.

DESCRIPTION.	POSITION.					Method of determination.	Charts affected.	
	Latitude.			Longitude.				Datum.
	'	"	D. M. meters.	'	D. P. meters.			
Scar	59	59	318	149	12	723	Large wht. scar near shore line	
Peak "A"	59	58	670	149	06	669	Peak	
Up	59	57	47	149	05	744	Pinnacle rk	
Pk "B"	59	59	429	149	03	593	Peak	
Bum	59	56	1676	149	02	112	Pinnacle rk	
Cap	59	56	1684	149	00	720	" "	
Peak "M"	59	57	1007	149	00	464	Peak	
Peak "C"	59	59	1325	148	59	262	"	
Fat	59	58	350	148	57	434	Large rock	
Ship (Surveyor at anchor)	59	57	687	148	56	917	Ship's anchorage.	

A list of objects which are of sufficient prominence for use on the charts, together with a description of the same, must be furnished in a special report on this form, and a copy of such report must be attached by the Chief of Party to his descriptive report. The selection, determination, and description of these points are of primary importance.
The description of each object should be short, but such as will identify it; for example, standpipe, water tower, church spire, tank, tall stack, red chimney, radio mast, etc. Generally, flagstuffs and like objects are not sufficiently permanent to chart.

J. S. A.
February 24, 1928.

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
7 volumes of sounding records for

HYDROGRAPHIC SHEET 4731

Locality: S. W. ALASKA

Chief of Party: R. B. Lukens, 1927.
Plane of reference is M L L W
2.4 ft. on tide staff at Seward

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.

J. S. A.
Chief, Division of Tides and Currents.

DEPARTMENT OF COMMERCE

AND REFER TO NO. 11-DEM

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

May 9, 1928.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4731

Blying Sound - Puget Bay to Vicinity of Chiswell Islands

Surveyed by R. R. Lukens and S. B. Grenell.

Chief of Party, R. R. Lukens.

Protracted by E. H. Kirsch.

Soundings plotted by E. H. Kirsch.

Verified and inked by J. G. Ladd.

1. The specific instructions were complied with.
2. Inside the 20 fathom curve, lines were spaced from 600 to 800 meters apart, which appears to be rather excessive considering the nature of the coast. Numerous detached rocks lie close inshore.

The anchorage in Whidbey Bay and the bight just west of Cape Mansfield should have been better developed.

3. Numerous rocks were located by the hydrographic party along this coast. These are all shown on the smooth sheet with their elevations above high water in parentheses as no topography was done here. The plane of reference used as high water in computing elevations of rocks was assumed as 12 ft. above mean lower low water. The field party did not show all the rocks on the smooth sheet that were shown on the boat sheets and indicated in the sounding records. This work was completed by the office draftsman.
4. Numerous vertical casts were taken and they agreed very closely with the Fathometer. Where differences occur it is recommended that the shoalest sounding be used.
5. South of Cape Mansfield a submarine ridge makes off to the southeastward. The shoal 52 fathom and 53 fathom indications on the lines to the south of the 50 fathom curve are probably continuations of this ridge.

6. The launch work did not join on to that of H. 4693 near Shelf. A blank area was left here extending out from the beach about 800 meters and about 2800 meters in an east and west direction.
7. The 85 fathom sounding shown on H. 3420 was not verified. Additional work was done in that vicinity but no indications of a shoaling were found. The least depth found at that spot was 114 fathoms.
8. No report has yet been made by the verifier but it is understood that the field drafting was very good.
9. Sounding records were very good; inking, excellent.
10. Reviewed by W. M. Gibson, May 6, 1928.

Approved:

Chief, Section of Field Records (Charts)

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

Off axis

All soundings ^{- and rocks} on H-4731 inshore from the ~~broken~~ green line drawn on H-4731 should be rejected.

The reasons for this rejection are as follows:

The inshore work on H-4731 was controlled by very poor topography accomplished by the use of sextants. This was later done by plane table and the hydrography was done over with the plane table topography as control. This latter work is on H-4824.

H-4824 was done on a 20,000 scale as compared with the previous work on H-4731 which is on a 60,000 scale.

The two surveys do not agree so the later work on H-4824 should be accepted because of its superior quality.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. 4731

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. "0"

REGISTER NO. 4731

State ~~S. W.~~ Alaska

General locality ~~Gulf of Alaska~~ Blying Sound

Locality ~~Cape Vankin to~~ Puget Bay to Vic. of Chiswell Island.

Scale 1:80,000 Date of survey Aug to Sept, 1927

Vessel Steamer SURVEYOR

Chief of Party R. R. Lukens

Surveyed by R. R. Lukens

Protracted by E. H. Kirsch

Soundings penciled by E. H. Kirsch

Soundings in fathoms feet

Plane of reference M. L. L. W.

Subdivision of wire dragged areas by

Inked by John G. Ladd

Verified by John G. Ladd

Instructions dated February 3, 1927

Remarks:

4731 Add'l Work

4731 Add'l Work

Form 504

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

....., Director

State: Alaska

DESCRIPTIVE REPORT

~~Topographic~~ } Sheet No. 4731 Add'l Work.
~~Hydrographic~~ }

LOCALITY

Gulf of Alaska

South of Montague Island

to Seal Rock

1928

CHIEF OF PARTY

R.R. Lukens *R.R. Lukens*

DESCRIPTIVE REPORT.

Hydrographic Sheet No. 4731

Str. SURVEYOR. R.R.Lukens, Chief of Party

1928

DESCRIPTIVE REPORT.

Hydrographic Sheet 4731

Str. SURVEYOR

R.R.Lukens, Comdg.

1928.

Ink Jul. 18, 1928

LIMITS This sheet which is on the scale of 1:80,000 covers the offshore area between Montague Island and Seal Rock, in the Gulf of Alaska. The most of the work was done during the season of 1927, The additional work done during the season of 1928 is shown in pencil. This additional work was in the nature of extending the work and squaring up the sheet.

METHODS All work on the sheet was done by visual control. The greater part of the soundings were made by the fathometer checked by frequent vertical casts. In a few cases the fathometer refused to function, and vertical casts were made until the fathometer began working again.

FATHOMETER SOUNDINGS were reduced for temperature and salinity in accordance with the instructions in the Hydrographic Manual. The data and tabulations for these reductions are to be forwarded with sheet No.7, (R.A.R.)

DESCREPERNCIES* In one case, from position 20A' to 27A', it appears that the fathometer readings were consistantly too great by three fathoms. The cause for this is not clear, for the speed and other adjustments were correct. In this case, I believe it would have been better to construct a graph and reduce the soundings from the graph. The instructions however apparantly do not approve of this method. In all other instances the fathometer soundings checked fairly well with the up and down casts.

In Lat. 59-32 and Long. 148-24, the soundings indicate some irregularity in the bottom. This was overlooked on the boat sheet, and the needed additional lines were not run.

DANGERS No dangers were found on the sheet. There is an extensive bank in Lat. 59-35, Long.148-40, with depths of 41 to 50 fathoms with smooth bottom, mostly mud and gravel. No rock bottom was found here. The extension of this bank to the southward is shown on sheet No.7, (RAR)

TIDES Soundings on this sheet were reduced from the gauge at Seward.

On C'day July 27 June 27. The following note appears: Found draft already done and out of hand. Recast same to 3. (note corrected made). This info. is the discrepancy noted.

The topography and inshore hydrography between Cape Junken and Day Harbor was done this year on a scale of 1:20,000 and is shown on sheets already forwarded to the office.

PEAKS " FAIR & H" which were located by triangulation and sextant cuts last year were relocated this year. "FAIR" was computed from stronger triangles and agreed within a few meters of the 1927 determination. Peak "H" was located by triangulation from a strong triangle. The new position differs considerably from the graphic position. The difference is in a north and south direction and effects the positions only slightly. The work of 1928 was plotted using the same determination as the 1927 work.

For a number of years past, the area covered by this sheet has been fished extensively by the halibut fishermen. Hundreds of these boats are on the fishing ground annually, and they search carefully for fishing banks. I have enquired among them and have never heard of any shoal waters or dangers having been found.

Respectfully submitted,

R. R. Lukens
R. R. Lukens,

Chief of Party.

STATISTICS FOR SHEET #4731

Day	Date	Miles of Sound- ing lines	Soundings	Positions	Vessel.	Volume
A'	June 27, 1928	46.0	165	39	SURVEYOR.	1
B'	July 26, 1928	5.0	9	8	"	1
C'	July 27, 1928	108.0	277	106	"	1
D'	Sept. 4, 1928	21.0	70	18	"	1
E'	Sept. 5, 1928	56.0	321	57	"	1
F'	Sept. 7, 1928	24.0	78	20	"	1
G'	Sept. 10, 1928	51.8	223	45	"	1 & 2
H'	Sept. 15, 1928	45.0	185	38	"	2
J'	Sept. 17, 1928	64.0	332	64	"	2
K'	Oct. 1, 1928	32.0	170	34	"	2
L'	Oct. 2, 1928	7.0	38	12	"	2
M'	Oct. 5, 1928	5.0	32	10	"	2
TOTALS		464.8	1896	45		2

1
?
(45)

Division of Hydrography and Topography:

March 14, 1929

Division of Charts:

Tide Reducers are approved in
3 volumes of sounding records for

HYDROGRAPHIC SHEET

4731 (Add'l work)

Locality: **Cape Julian-Chiswell I., S. W. Alaska**

Chief of Party: **R. R. Lukens in 1928**

Plane of reference is **Mean Lower Low Water, reading**
2.6 ft. on tide staff at **Seward, Alaska**

~~ft. below B. M.~~

4.6 " " " " **Day Harbor, Alaska**

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 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.

Paul C. Whitney

Chief, Division of Tides and Currents.

Section of Field Records.

Report on Hyd. Sheet No. 4731 (Addl. Work)

Instructions dated, Feb. 18, 1928 (Surveyor).

Chief of Party R. P. Lukens.
Surveyed by "
Contracted & Plotted by J. N. Jones.
Verified & Dukes by E. Piegari.

1. The records beginning with "D" day failed to indicate which of the two ^{used} light methods were in the fathometer work.

It is believed that the ^{two} methods were used in this part of the work as was done under similar conditions in work previous to "D" day.

Several soundings were questioned in the records with no reasons attached and not initialed by the questioner.

It became necessary to study each case and where no sufficient good reason appeared for rejecting a sounding, it was retained where such supplied additional information.

Exs. 5 J, 37 E'.

Vol. 1, p. 26 (C' day), a note is recorded as follows: ^{found} ~~found~~ draft ^{settling} ~~section~~ loose and on zero. Reset same to 3. (no correction made.) Some of the discrepancies between the fathometer and vertical cast ^{soundings} readings as shown in different sections of the sheet may be accounted for, somewhat, by this operation of the Fathometer.

In numerous cases the two methods Fathometer and V.C. agree very closely.

Changes were made to the ^{plotted} fathometer soundings where the vessel was stopped for a V.C. sounding, in which preference was given to the shallower additional sounding taken just before "going ahead" if then such was recorded.

Ex. 20 F'.

2. The plan and character of development fulfill the requirements of the Genl Instr. and also the Spec. Instr.

3. The sounding lines crossings are satisfactory and the area covered by the additional work of this sheet is sufficient to continue or complete the 50 and 100 fathoms curves.

(over)

4. The junction with H. 4724 is satisfactory. The sheet adjoining on the south is not yet completed. Further study was thought advisable by the Chief of Field Records of the western part of the sheet with work done in 1912 on H. 3420 for the purpose of comparison. This study will be done by him personally.

No contemporary work on the west adjoins this sheet filed in this Office at this date.

5. (a) Character and scope of the surveying, - good.
(b) Field drafting, - good.

Reviewed by E. Pregari Mar. 27, 1929.

Supplemental Report.

As mentioned in Des. Rep., the Chief of Party has noted the irregularity of the bottom, viz. of Lat. $59^{\circ}32'$ and Long. $148^{\circ}24'$.

Further comment should be made ^{here} in regard to it. The shallowest sounding in this vicinity is 52 fathoms and indications surrounding this spot are such that it is recommended that further development be made.

It is recommended that ^{no} soundings on a day are ~~not~~ used in compiling chart unless more (-3) fathoms ^{is} applied to soundings as plotted on sheet. It is very apparent from a comparison of vertical casts and fathometer soundings that there was an index correction of this amount on that day.

J. S. Borden
Chf. Sec. Field Work

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

REG. NO. 4731 Add'l. Work

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. 4731

REGISTER NO. 4731 Add'l. Work

State Alaska

General locality Gulf of Alaska

Locality South of Montague Id. to Seal Rock.

Scale 1:80,000 Date of survey June-Oct, 1928

Vessel SURVEYOR.

Chief of Party R.R.Lukens

Surveyed by R.R.Lukens

Protracted by J.N.Jones, D.O.

Soundings penciled by J.N.Jones, D.O.

Soundings in fathoms ~~xxxxxxx~~

Plane of reference M.L.L.W., Seward gauge

Subdivision of wire dragged areas by

Inked by

Verified by

Instructions dated Feb. 18, 1928, 1928

Remarks: Additional work done during season of 1928
Original date of sheet, 1927.

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 4731 (add work)

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

Number of positions on sheet 451
Number of positions checked 59
Number of positions revised
Number of soundings recorded 1898
Number of soundings revised
Number of signals erroneously
plotted or transferred

Date: Mar. 27, 1929

Cartographer: G. P. P. P.