

4764

Diag. Cht. No. 8201-3

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

State: SE. Alaska

G. S. SURVEY
L. A. A.
MAY 5 - 1928
Acc. No.

DESCRIPTIVE REPORT
~~Topographic~~ } Sheet No. **7 4764**
Hydrographic }

LOCALITY
Keku Strait
S. End of Keku Strait to Summit I.

1927

CHIEF OF PARTY
H. A. Cotton

GOVERNMENT PRINTING OFFICE

4764

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

C. & G. SURVEY
L. & A.
MAR 31 1928
Acc. No.

REG. NO. 4764

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. 7

REGISTER NO. **4764**

State SE. ALASKA

General locality ~~SE. ALASKA~~ Keku Strait

Locality S. End of Keku Strait to Summit I.
~~KEKU STRAIT~~ (- Rocky Pass)

*South end of Keku Strait
to Summit I.*

Scale 1-10000 Date of survey Sept. ¹⁵ & Octo. ¹³, 192⁷

Vessel Steamer "Explorer"

Chief of Party Harold A. Cotton

Surveyed by W. Weidlich & P. R. Hathorne

Protracted by W. Weidlich

Soundings penciled by W. Weidlich

Soundings in ~~fathoms~~ # # # # # feet

Plane of reference M.L.L.W.

Subdivision of wire dragged areas by _____

Inked by *John Fleming* Sept. 12 - 1928

Verified by *JH*

Instructions dated February 18th, 192⁷

Remarks: _____

DESCRIPTIVE REPORT.

To accompany Hydrographic Sheet # ⁷ 47 4764

AUTHORITY:

The hydrography on this sheet was executed under instructions of the Director of U.S. Coast & Geodetic Survey, dated February 18th 1927. ✓

LIMITS:

The area between Beacon #1 (△ ISA) and # 15 was covered by this survey. ✓

METHODS:

Practically all work was done by launch # 47 with exception of the area between △ DEL and △ WAN, when tender # 1 was used, Mr. P.R. Hathorne in charge. ✓

Work done by launch # 47 is shown by red letters and the work done by tender # 1 in blue. ✓

An eight lbs. lead was used for practically all the work with exception of the deeper water at the southern entrance. ✓

Practically all lines are channel lines and run in various directions. Between △ ISA and △ WAN lines were run also in easterly and westerly direction, from 200 to 100 meters apart with numerous splits between, especially in the work done by the tender. ✓

Numerous rocks were found by this survey. ✓

All soundings are up and down. The lines in the Devils Elbow were run at slack tides or when the current was at its minimum. When running with the current the launch was running with the engine barely turning over, just sufficient to have steerage way. Against the current the speed was increased to maintain average sounding speed, about 2 knots over the ground. No difficulties were experienced to obtain up and down soundings. ✓

CONTROL:

Triangulation and topography furnished the necessary control with the exception of a few signals north of Δ TEED. Practically all signals were covered at high tides and in order to expedite the work signals YEL, CON and GE were located by sextant angles. Signal Ge, shown in red on smooth sheet was unused at all, as this signal was build on a log, and swinging around at half tides.

Bottom:

Bottom is very irregular, hard, sticky and rocky.

KELP:

Practically all dangers are marked by kelp with a few exception, as shown in the next paragraph. Kelp is visible in the narrows(Devils Elbow) at low tides and high water slack. The strong will cause it to ride under the water so that it will not be seen. Same may be said of the kelp between beacons # 13 (Δ TEED) and # 15.

DANGERS:

1. A rocky shoal marked by thick kelp with 11 feet over it at M.L.L.W. lies 325 meters 84° from Δ DEL. This spot is not developed and there may be less. (Pos. 49-50 c. blue)
2. A rock with 1 foot over it at M.L.L.W. lies 325 meters $297\frac{1}{2}^\circ$ from Δ TURN. and is not marked by any kelp. (pos. #7-78 e) red.
3. A rock which bares about $\frac{1}{2}$ foot at M.L.L.W. lies 455 meters 308° from Δ TURN and is not marked by any kelp. (Pos. # 7 e.) red.
4. A rock ^{with} ~~which bares~~ about 1 foot at M.L.L.W. lies 415 meters $311\frac{1}{2}^\circ$ from Δ TURN and is marked by very thick kelp. (Pos. # 85 c.) red.
5. A rock awash at M.L.L.W. and not marked by any kelp lies 630 meters $321\frac{1}{2}^\circ$ from Δ TURN (Pos. # 12 e. red)
6. A rock which bares about 1 foot at M.L.L.W. lies 420 meters 170° from Δ FIVE and is marked by thick kelp. (Pos. # 83 c red.)

7. A rock awash at M.L.L.W. lies 125 meters 90° from △ NINE . (Pos. # 71-72 b.red) ✓

scales 130 meters

8. A rocky patch which bares at minus tides and is marked by thick kelp lies about 145 meters 80° from △ NINE. This rocky patch is almost in midchannel and causes the swirls in the narrows. Positions taken at high water slack. (Pos. # 84-85-86 e. red) ✓

9. A 4 foot spot lies about 210 meters 285° from △ BEAK and about 100 meters 355° from a rock which bares at low tides. (Pos. # 81-82 b.red) ✓

10. A 3 foot spot(rocky bottom) at the edge of kelp lies about 300 meters 147½° from △ TEED (Pos. # 15.k.) ✓

11. A rock which bares about 3 feet at M.L.L.W. lies 220 meters 36° from △ TEED and is marked by kelp. (Pos. 21.k.) ✓

12. A rock with 1 foot over it at M.L.L.W. lies 315 meters 5° from △ YOU and is marked by kelp. (Pos. # 27.k.) ✓

13. A rock which ~~bare~~ ^{is covered by} about 2 feet at M.L.L.W. lies 455 meters 90° from △ DUN . Pos. [^] 75-76 k.) ✓

*Records do not indicate this is rock.
Never charted.
Falls on sounding line of H-9079
Disregard
AKM*

ANCHORAGES:

Anchorage may be had in many places and those used by the Explorer are only suitable to vessels of smaller tonnage. While working at the southern end of the sheet the Explorer anchored about 375 meters southeast from ○ BOT . (Remains of a fish trap) in 8 to 10 fathoms sticky and hard bottom. It is practically in mid-channel and exposed to stiff Southerly winds. ✓

While working at the upper end of the sheet a suitable and well protected anchorage was found southeast of a fishtrap. Bottom is very irregular but sticky. ✓

There are several small bight suitable as anchorage for small fishing vessels, but as a rule, trollers were found to be anchored in most any place as long it was away from the current. ✓

A fairly good anchorage will be found in a bight northeast from △ FIVE. There are several piles, the remains of a house, strong enough for any small boat to tie to. ✓

Another anchorage may be had northwest of beacon # 11 (△ PETE) in 3 to 4 fathoms, sticky bottom. ✓

WATER SUPPLY.

There are numerous small streams which furnish good drinking water. Fishermen usually use a small boat making several trips to fill their water tanks. Most of the streams are blocked by large flats and may be approached only at high tides. ✓

CURRENT:

Flood runs in a northerly and ebb in a southerly direction with the channel. The estimated velocity of the current at the southern entrance near buoy # 2 is 1 to 2 knots. The strength of the current decreases between buoys # 2 and 3, but increases when approaching the narrows, known as Devils Elbow. The estimated velocity in that locality is from 5 to 7 knots at maximum. When past the Elbow the strength of the current decreases again, estimated velocity 1-3 knots, until the summit is reached above beacon # 15.

Harold Cotton

H. H. H. H.

STATISTIC SHEET No. 7.

Date 1927	Letter	Vol.	Pos.	Sdgs.	Miles St.	Launch.
Sept. 15th.	a. blue ✓	1.	118	503	8.5	Tender #1
" 16th.	b. " ✓		103	395	10.5	" #1.
" 22nd.	c. " ✓	2.	109	478	9.5	" #1.
Total			330	1376	28.5	
Sept. 15th.	a. red ✓	1	124	543	15.5	# 47.
" 16th.	b. " ✓		111	607	15.5	# 47
" 22nd.	c. " ✓		64	353	6.8	# 47
" 23rd.	d. " ✓		102	548	11.3	# 47
" 24th.	e. " ✓		119	600	11.2	# 47
" 26th.	f. " ✓		87	409	8.0	# 47
" 27th.	g. " ✓		108	501	12.0	# 47
" 28th.	h. " ✓		29	125	4.0	# 47
Octo. 12th.	j. " ✓		45	215	5.1	# 47
" 13th.	k. " ✓		102	583	10.1	# 47
Total			891	4484	99.5	

Copy for Section of Field Records files.

May 24, 1928.

(11)

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
volumes of sounding records for

HYDROGRAPHIC SHEET 4764

Locality: **KIKKI STRAIT, S.E. ALASKA**

Chief of Party:
Plane of reference **Ms A. Cotton, 1927.**

5.6 ft. on tide staff at **M L L W**
2.4 ft. ~~-----~~ **Monte Carlo Island.**
Beck Island

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.

G. H. Russell

Chief, Division of Tides and Currents.

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. **4764**

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

Number of positions on sheet . **1221** .
Number of positions checked . **455** .
Number of positions revised . **26** .
Number of soundings recorded . **5860** .
Number of soundings revised . **983** .
Number of signals erroneously
plotted or transferred **8** .

Date: - *Sept. 12, 1928* - - - - -

Cartographer: - *John Fleming* - - - - -

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

Number of positions on sheet
Number of positions checked
Number of positions revised
Number of soundings recorded
Number of soundings revised

Field Records Section

Report on Hy. 4764 - Surveyed in 1927
 Chief of Party H.A. Cotton - Surveyed by Weidlich and P.R. Hawthorne
 Retracted by - W. Weidlich - Sounding plotted by - W. Weidlich
 Verified and inked J. Fleming

- (1) Records conform to G. I. except as noted below. ✓
- (2) Plan and character of development fulfill requirements of G. I. ✓
- (3) Sounding line crossings are satisfactory ✓
- (4) Depth curves may be completely drawn ✓

5 Eight topo. signals were erroneously plotted on the smooth sheet. These signals, however, were rarely used and consequently the development was not materially affected. ✓
 Signals changed were; RAT, COW, REP, DIK, FER, HIM, BUS, DEP.

6 While the plotting of positions was found to be 'Very Good' and the time interval between soundings in close agreement with the record, the sounding values on the smooth sheet and the corresponding values in the record differed a surprisingly great number of times. ✓
 A peculiarity of the work was the duplication of soundings, that is, sounding values between two positions were repeated between the next two positions, but the latter did not agree with the record.

7 Apparently little attention was given to sounding line crossings for in closely developed areas particularly in, or near the channel large values were plotted while the record for another sounding line crossing at the point gave smaller values - the difference between values, however was not great. but in every case the smaller value was used when inking the sheet.

Field Records Section
Report on Hy. 4764

Page 2

- 8 Whenever Minus sounding values were between 1^{FT} and 1.5^{FT} they were plotted as the next whole number this is a violation of G. I. and all such values had to be changed before indexing. ✓
old instructions did not require
- 9 At 7-c a sounding was plotted as -0.5^{FT} a note on the smooth sheet read " 1^{FT} OVER AT M.L.L.W." yet 'Rock awash' was drawn on top of the sounding the conditions, from the above information may be visualized with some degree of certainty but the information is conflicting. ✓
- 10 A 'Rock awash' is shown on the smooth sheet near pos. 78-b but no reference is made to this in the sounding record. Tide too high. See topo sheet a.T.S. The sounding line passed over or around Rock awash at pos. 55-d but there are no remarks concerning it in the record. Tide too high. See topo sheet for auth. a.T.S. Between positions 4-c and 5-c (blue) no mention is made of either rocks or buoy (Sounding volume #6 - Page 4) Tide too high. See topo. a.T.S.
- 11 No remarks in record concerning Rock awash between 63-b-64-b (red) Tide too high ✓
- 12 Position 58-b red opposite topo sig 'WIN' was plotted beside the 'rock awash' 55 meters out of true position sounding 4^{FT} at end of red line is true position ✓

Field Records Section
Report on Hy - 4764

13 Attention is invited to the unusual sounding discovered between 75-b and 76-b whose value is - 4 FT.
The value plotted by the field party was 22 ft which corresponds with the position and value of 100-d. But sounding line 75-b-76-b crossed here and the two soundings namely - 4 ft and 22 fall on almost identically the same spot
These positions and the sounding intervals were carefully checked with no difference in the results of a second check. The 22 ft sounding was omitted and the - 4 ft sounding plotted.

14 The count of unplotted soundings was 76 and these were plotted and inked (see 16.a below) ✓

15 A comparison of smooth sheet boat sheet and topo sheet did not bring out any discrepancy except as follows:

A. 'Rock awash' in approx Lat. Long. ?
not shown on Topo sheet

A. 'Rock awash' in approx Lat. Long.
not shown on Topo sheet

These were transferred from smooth sheet to Topo sheet

16 No reference to rock awash in sounding record for position 71-b - 72-b (red) Thus O.K. ✓
Tide was 12.7 ft. Reduced mtg. 0.3 ft. rky. ALS

16 a) Of the 983 soundings revised in the office 760 were due to changes in tide reducers at the office for J. and K days
The remaining 223 were as follows
136 revisions for reason stated in paragraph # 8
84 revisions because of improper values, incorrect time intervals and repetitions. ✓

What does this mean?

17

18

The position of sig. DEP on Topo. 4331 does not agree with its position shown ^{on} Topo 4341 and the position of this signal on the smooth sheet does not agree with either Topo. sheet.

The mean of the topo. positions was used and the position replotted on the smooth sheet.

19

There is a Δ station and a \odot signal with the same name 'DEL'

20

Paragraphs # 11, 13 of page 3 - Descriptive report should be corrected to agree with the revised sounding values for K day. What, more with #10 and #12

21

The names of land areas and notes for rock obstructions were all drawn at the office.

22

The development of the shoal shown in blue at the lower end of this sheet was carefully checked using the sounding volumes for H. 4763

23

Questionable areas in which further development would appear to be advisable are observed in Lat. $56^{\circ} 33' 45''$ West of NAR

Possible anchorage area ^{LAT.} $56^{\circ} 34' 30''$ to $56^{\circ} 36'$

Undeveloped area south of Δ DEL. Lat. $56^{\circ} 35' 05''$

Doubtful area in Lat. ^{Shoal East of DEL also.} $56^{\circ} 36' 10''$ Long. $133^{\circ} 40' 54''$

" " in Lat. $56^{\circ} 36' 20''$ Long. $133^{\circ} 40' 54''$

A spot directly East of Δ you (top of sheet)

A Shoal area in Lat. $56^{\circ} 34' 10''$ Long. $133^{\circ} 43' 20''$

John Fleming Sept. 12 - 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 January 16, 1929.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4764

Keku Strait, Southeast Alaska

Surveyed in 1927

Instructions dated February 18, 1927 (EXPLORER)

Chief of Party, H. A. Cotton.

Surveyed by W. Weidlich.

Protracted and soundings plotted by W. W.

Verified and inked by J. Fleming.

1. The records conform to the requirements of the General Instructions.
2. The plan and extent of development conform to the requirements of the specific instructions with the exception that in certain portions of the strait, additional development should have been made. These will be enumerated under the paragraph for additional work.
3. The sounding line crossings are generally adequate. There are several suspicious looking differences, but these may be accounted for by the irregular character of the bottom.
4. The usual depth curves could be completely drawn, in the main chamels with very few exceptions. Outside of the channel, the work was not carried close enough to shore in places to fully develop all the depth curves. These may not be so important, however, since low water flats make out from shore in many places and kelp lines the inshore ends of the chamels in other places.
5. The usual field plotting was done by the field party, but was found to be below standard for the following reasons:
 - a. Eight topographic signals were erroneously plotted on the smooth sheet.
 - b. Carelessness in the plotting of soundings. This consisted principally in the plotting of soundings between two successive positions, soundings already plotted between the two preceding positions.

c. The use of the same name (Del) for different signals is objectionable.

6. The junctions with the contemporary adjacent survey H. 4763 will be taken up in the review of that sheet.

The junction with H. 4765 is inadequate. The information on the two sheets is insufficient to guide the compiler in properly delineating the channel. The deep line on H. 4764 between the two shoal lines on H. 4765 appears doubtful and should be re-examined.

7. Additional work is necessary in the following places before the survey can be considered sufficient for charting purposes:

a. A detailed development of Devils Elbow on a 1:5000 scale. The position where a -4 foot sounding was found (75-76^bred) (minus 4) should be especially re-examined. (See notes below, paragraph 9, b).

b. A complete development on a larger scale of the channel west of Summit Island. It is recommended that this work be done on a 1:5000 scale and should include an area from a point north of Bn. 17 (on H. 4765) to a point opposite Δ You (on H. 4764). There is evidence that the channel swerves off to the westward at a point about 250 meters north of Δ You and this area should be closely examined.

8. The following places are mentioned as possibly requiring additional work in the future but not imperative for present needs. The places noted are for the most part in the main channel as it is not considered that the secondary channels are sufficiently important at this stage of the commercial development of this area to warrant additional work.

a. An extension of the survey in the channel to the eastward of Summit Island with a possible development of the area due south of the entrance to this channel. K. 1000

b. Some additional soundings in the main channel in the vicinity of lat. $56^{\circ} 39'$ 1290 m., long. $133^{\circ} 43'$ 415 m.

c. Additional development in the main channel in the vicinity of the 6 foot spot in lat. $56^{\circ} 38'$ 1350 m., long. $133^{\circ} 42'$ 640 m. There is no record of the leadman having felt around with the lead, hence shoal water may extend further in the channel than shown.

d. An examination of the area in the vicinity of lat. $56^{\circ} 38'$, long. $133^{\circ} 42'$ with particular attention to the 7 and 9 foot shoals close by.

discredited
H-9081 (1969)

e. A development of the 9 foot sounding in mid-channel in lat. $56^{\circ} 36'$ 1655 m., long. $133^{\circ} 40'$ 955 m. (pos. 4 b, red). The importance of this sounding lies only in the fact that shoaler water may exist here. Judging from the surrounding depths it would appear as though an error of one fathom was made.

f. In mid-channel to the ^{north} southwest of Δ Turn between the two rocks awash. (Lat. $56^{\circ} 36'$ 1250 m., long. $133^{\circ} 41'$)

g. Additional sounding lines are desirable in the main channel from a point due east of Δ Wan to a point due west of Δ Turn.

h. A development of the area in the channel in the vicinity of lat. $56^{\circ} 35'$ 1610 m., long. $133^{\circ} 40'$ 950 m. between the 6-foot sounding at position 69 d (red) and the 20-foot sounding in mid-channel at position 103 a (blue).

i. A further development of the area around the 11 foot spot in lat. $56^{\circ} 35'$ 340 m., long. $133^{\circ} 42'$. As noted in the descriptive report, the development over this spot is incomplete and much less water may exist here. The old survey H. 2150 shows a $1 \frac{1}{4}$ fathom sounding close by, which of course should be retained.

j. The area running inshore from the 18 foot curve to the westward of Δ La and swinging around to the north as far as lat. $56^{\circ} 35'$ and around to the east as far as \odot See, while off the main channel, is not sufficiently developed for completing the depth curves. This area is, however, not considered very important.

k. A split line is desirable north of the kelp patch in lat. $56^{\circ} 33'$ 1000 m., long. $133^{\circ} 43'$ 460 m.

l. The area about 100 meters east of \odot Cow (lat. $56^{\circ} 38'$ 690 m., long. $133^{\circ} 42'$ 390 m.) should be examined if work is done again in this vicinity. A 10 foot sounding was originally plotted here, but by rejecting position 83 b (red) and plotting this position on time and line, the 10 foot sounding was replaced by a 42 foot sounding. This change smoothed out the 30 foot curve and made the adjacent soundings agree. It appears to be the more logical position. This change was approved by A. M. Sobieralski. *Ans.*

9. Attention is called to the following:

a. On account of the character of the bottom in this locality it is recommended that in compiling the chart all shoals now shown on the old surveys that supplement shoals developed on the new survey should be retained.

b. In lat. 56° 38' 160 m., long. 133° 41' 150 m. a -4 foot sounding was found (pos. 75-76 b, red). This sounding was omitted by the field party and no reference made to it in the descriptive report. A sounding of 22 feet was obtained at practically the same spot on a later day (pos. 100 d, red) and this sounding plotted instead. The rock, if existing, is extremely important since it falls in practically the middle of an already treacherous channel. An examination of the topographic sheet negatives its existence. The topographer must have been in this locality at or near low water since he has shown on his sheet a rocky ledge nearby marked "Awash at low water." Even if it is assumed that "low water" corresponds to the higher of the low waters and that the topographer was in this vicinity at that stage of the tide and not at the lower of the low waters, he should still have seen the -4 foot spot since the mean of the lower lows and the mean of the higher lows differ by 1 1/2 to 2 feet. For this reason, as well as the fact that 22 feet was later obtained at the same spot, it was decided to omit the sounding from the smooth *✓ Amb.* sheet. (Approved, A. M. Sobieralski). It is possible that an error was made in the sounding or that position 75b belongs further inshore. As already mentioned under the paragraph for additional work, this spot should be reexamined.

10. Reviewed by A. L. Shalowitz, November, 1928.

Approved:

A. M. Sobieralski

Chief, Section of Field Records (Charts)

Paul S. Bondur

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