

5444

U. S. COAST & GEODETIC SURVEY  
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Ed. June, 1928

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

*R. S. Patton*, Director

State: *S.W. Alaska*

DESCRIPTIVE REPORT

*Topographic* } Sheet No. 161 5444  
*Hydrographic* }

LOCALITY

*East of Chiniak Bay and Marmot  
Bay*

1933

CHIEF OF PARTY

*H. B. Campbell*

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

REG. NO.

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. 161A) 161 Smooth Sheet  
161B)

REGISTER NO.

State S.W. Alaska  
General locality Rodiak Island  
Locality East of Chiniak Bay and  
Scale 1/160,000 Date of survey June-July, 19 33  
Vessel DISCOVERER  
Chief of Party H. B. Campbell  
Surveyed by H. B. Campbell  
Protracted by Henry J. Healy & M. E. Wennermark  
Soundings penciled by Henry J. Healy  
Soundings in fathoms ~~feet~~  
Plane of reference M.L.L.W.  
Subdivision of wire dragged areas by \_\_\_\_\_  
Inked by A. M. Uzefovich  
Verified by A. M. Uzefovich and L. S. Straw  
Instructions dated April 21, 1932 and March 25, 19 33  
Remarks: Smooth sheet is complete work of Boat Sheets  
161 A and 161 B.

DESCRIPTIVE REPORT

to accompany

Hydrographic Field Sheet No. 161

(Hydrographic Boat Sheets Nos. 161A & 161B)

U.S.C. & G.S.S. DISCOVERER

H. B. Campbell, Comd'g.

Season 1933

Project No. HT-139

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AUTHORITY

This hydrographic sheet was accomplished under the Director's instructions to the Commanding Officer, U.S.C. & G.S.S. DISCOVERER, dated April 21, 1932 and March 25, 1933.

LIMITS

This offshore sheet joins the work done by the Ship DISCOVERER during the season of 1932 at the north and carries the work southward to a junction with the work done by the Ship SURVEYOR during the season of 1932.

The western limits join Sheets Nos. 41 and 42 executed by the Ship DISCOVERER during the season of 1933.

The eastern limit is a line between Lat.  $57^{\circ} 33.5'$  N, Long.  $150^{\circ} 10.0'$  W and Lat.  $56^{\circ} 55.0'$  N, Long.  $151^{\circ} 29.5'$  W.

SURVEY METHODS

The hydrography accomplished on this sheet comprises visual fix control and R.A.R. control. The western section of the work, (plotted on Boat Sheet No. 161 B) is controlled by visual fixes. Prominent peaks were used, which had been located by triangulation in previous years.

The eastern section of this work (plotted on Boat Sheet No. 161 A) is entirely controlled by R.A.R. Two radio stations were established to control the sounding lines. KVB was established on the southernmost part of Marmot Island. This station was established June 3, 1933. The magnetophone unit was placed in 20 fms. of water, floating 10 fms. below the surface. One reel of armored cable and about 3/4 of a reel of rubber cable were used to connect the unit with the radio station ashore. When the magnetophone unit was placed, sextant angles were taken to topographic signals ashore. The position was then plotted on a tracing of the topographic sheet executed by Lieut. (j.g.) H. F. Garber (1932), the position was then scaled off and transferred to this sheet. A correction to this position was applied to adjust it to the 1907 datum.

KVD was established at Cape Chiniak, June 5, 1933. The magnetophone unit was placed in 20 fms. of water, floating 10 fms. below the surface. One reel of armored cable and two reels of rubber covered cable were used to connect the magnetophone unit with the radio station ashore. When the magnetophone unit was placed, sextant angles were taken to triangulation stations and topographic stations located by the Ship SURVEYOR (season of 1932). This position was plotted on a tracing of the topographic sheet executed by Lieut. (j.g.) John Bowie, Jr. (1932). The position was scaled off and plotted on this sheet.

#### VELOCITY

On June 8th and July 17th velocity tests were made. The positions taken on June 8th were plotted on the 1/160,000 projection (aluminum sheet) and the distances from these to the shore stations were scaled off. An 80,000 projection was laid out on the back of the aluminum boat sheet. The positions taken on July 17th were then plotted and the distances from these positions to the shore station units were then scaled off. These

data were then tabulated and a mean velocity of 1471.1 m/s obtained. The theoretical bottom velocity was also computed according to Tables Nos. 5 and 6 in the Hydrographic Manual, and found to be 1471.2 m/s. The velocity determined from actual tests (1471.1 m/s) was used. Attached to this report will be found a tabulated list of all results. Distance circles were then drawn on the sheet using units of time. The circles are five seconds apart (7355.5 m.).

Bomb positions were usually taken at intervals of fifteen to twenty minutes, which was considered sufficient to well control the sounding lines.

Tin can bombs were used wherever possible. When these failed to give the desired results, cast iron bombs were used. Attached to this report is a complete list of the bombs used.

Soundings were obtained by the fathometer using Red Light Method. A few of the deeper soundings were taken using the red light times six method. Vertical casts were taken in accordance with the instructions, obtaining a comparison for the fathometer, also temperatures, water specimens and bottom characteristics.

No regular system of cross lines was run, but where crossings were made the soundings check very closely. The shoalest soundings obtained were 25 fms. in Lat.  $57^{\circ} 43.3'$  N, Long.  $151^{\circ} 47.3'$  W; and Lat.  $57^{\circ} 43.6'$  N, Long.  $151^{\circ} 47.0'$  W.

#### TIDES

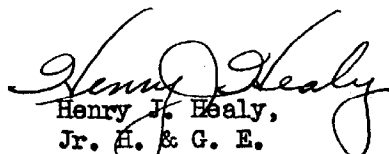
Tidal data for the soundings on this sheet was obtained from the automatic tide gage at Kodiak.

FATHOMETER CORRECTION

The data pertaining to fathometer corrections is as follows:

10 - 37 fms.	-1 fm.
38 - 58 fms.	-1/2 fm.
59 fms. up	0 fm.

Respectfully submitted,

  
Henry J. Healy,  
Jr. H. & G. E.

Approved and forwarded:



H. B. Campbell,  
H. & G. Engineer,  
Chief of Party.

STATISTICS - BOAT SHEET NO. 161 A  
R. A. R.

<u>Date</u>	<u>Day</u>	<u>St.Miles</u> <u>Sdg.Lines</u>	<u>Fath.</u> <u>Sdgs.</u>	<u>Vert.</u> <u>Casts</u>	<u>No.</u> <u>Pos.</u>
6/7/33	A	54.2	233	-	33
6/8/33	B	85.7	370	-	36
6/9/33	C	152.7	700	-	67
6/10/33	D	128.9	532	-	46
6/12/33	E	68.8	204	-	28
6/13/33	F	97.1	439	4	44
6/14/33	G	157.4	284	-	67
6/15/33	H	173.1	735	-	61
6/16/33	J	157.0	622	10	55
6/17/33	K	130.8	577	-	32
6/21/33	L	177.6	765	10	63
6/22/33	M	212.3	973	-	82
6/23/33	N	11.4	21	-	2
6/27/33	P	85.6	425	-	34
7/11/33	Q	159.5	741	8	69
7/12/33	R	192.4	900	-	108
7/13/33	S	143.4	691	4	91
<b>Totals</b>		<b>2,187.9</b>	<b>9,212</b>	<b>36</b>	<b>938</b>

STATISTICS - BOAT SHEET NO. 161 B

VISUAL

Date	Day	St. Miles Sdg. Lines	Fath. Sdgs.	Vert. Casts	No. Pos.
6/7/33	A	159.8	720	9	138
6/8/33	B	228.8	1005	10	171
6/9/33	C	161.2	740	-	117
6/13/33	D	208.4	911	8	181
6/14/33	E	167.4	728	2	128
6/15/33	F	140.9	662	3	125
6/18/33	G	150.1	666	2	119
8/21/33	H	66.7	308	-	57
8/30/33	J	155.8	767	-	129
8/31/33	K	187.9	984	3	150
9/1/33	L	157.9	747	3	135
9/2/33	M	188.8	761	3	153
9/3/33	N	128.7	621	7	124
9/18/33	P	106.5	520	2	93
9/19/33	Q	93.7	446	2	85
9/20/33	R	44.8	217	2	42
Totals		2,347.4	10,803	55	1,947



VELOCITY TESTS June 8, 1933

No.	KVB) KVD)	Scaled	KVB) KVD)	f.	KVB) KVD)	corr.	Time	Velocity m/s
1.	4098.9x16 3236.5x16		1.0000	"	65550.4 51784.0		44.63 35.28	1468.75 1467.80
2.	4141.0x16 3108.5x16		"	"	66256.0 49736.0		45.04 33.93	1471.05 1465.84
3.	4178.8x16 2975.0x16		"	"	66860.8 47600.0		45.45 32.45	1471.07 1466.88
4.	4227.1x16 2860.0x16		"	"	67633.6 45760.0		45.94 31.18	1472.22 1467.61
Mean of June 8 tests -----								1468.9

VELOCITY TESTS July 17, 1933

No.	KVB) SCALED KVD)	KVB) f. KVD)	KVB) corr. KVD)	Time	Velocity m/s	
1.	980.0 x 8 6717.5 x 8	1.0000 "	7840.0 53740.0	5.17 -----	1516.45 -----	Rej.
2.	1534.0 x 8 6163.0 x 8	" "	12272.0 49304.0	8.27 -----	1483.91 -----	Rej.
3.	1769.5 x 8 5928.9 x 8	" "	14156.0 47431.2 61587.2	9.56 32.23 41.79	1480.75 1471.65	1473.73
4.	2018.5 x 8 5676.0 x 8	" "	16148.0 45408.0 61546.0	10.93 30.85 41.78	1477.4 1471.9	1473.10
5.	2266.5 x 8 5426.1 x 8	" "	18132.0 43408.8 61540.8	12.24 29.52 41.76	1481.37 1470.49	1473.67
6.	2424.5 x 8 5269.5 x 8	" "	19396.0 42156.0 61552.0	13.13 28.65 41.78	1477.23 1471.41	1473.24
7.	2714.5 x 8 4979.8 x 8	" "	21716.0 39838.4 61554.4	14.07 27.71 41.78	1543.42 1437.69	1473.30
8.	2732.5 x 8 4960.5 x 8	" "	21860.0 39684.0 61544.0	14.79 26.98 41.77	1478.02 1470.87	1473.40
9.	2928.5 x 8 4764.0 x 8	" "	23428.0 38112.0 61540.0	15.87 25.91 41.78	1476.24 1470.94	1472.95
10.	3094.5 x 8 4598.0 x 8	" "	24756.0 36784.0 61540.0	16.76 25.02 41.78	1477.09 1470.18	1472.95
11.	3225.5 x 8 4467.2 x 8	" "	25804.0 35737.6 61541.6	17.48 24.30 41.78	1476.20 1470.68	1472.99
12.	3366.0 x 8 4327.5 x 8	" "	26928.0 34620.0 61548.0	----- 23.45	----- 1476.33	Rej.
14.	3962.0 x 8 3732.5 x 8	" "	31696.0 29860.0 61256.0	21.85 20.33 42.18	----- 1468.77	Rej.
			Mean value, July 17th tests			1473.26
			" " June 8th "			1468.9
			Mean value used			1471.1 m/s

THEORETICAL VELOCITY

Average depth - - - - - 45 fms.

Average bottom temperature- - - - 5.6° C.

Average salinity for area - - - - 33.7 parts per 1000

From Table No. 5, Hydrographic Manual - - 803.6 fm./s

From Table No. 6, Hydrographic Manual - - .94 fm./s  
(Adiabatic correction)

804.54 fm./s

$$804.54 \times 6 + 3.281 = 1471.2 \text{ m/s}$$

APPROVAL OF CHIEF OF PARTY

Sheet No. 161 and accompanying records (161A and 161B) have been inspected by me. Both the field and office work were done under my supervision. No further hydrography is considered necessary in the area covered by this sheet, except for a small triangle in the northwestern part of the area.

Respectfully,



H. B. Campbell,  
H. & G. Engineer,  
Chief of Party.

POST-OFFICE ADDRESS: 601 Federal Office Bldg.,  
Seattle, Washington.

TELEGRAPH ADDRESS:

EXPRESS ADDRESS:

pc/pf

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

Ship DISCOVERER

Kodiak, Alaska  
July 31, 1933

To: The Commanding Officer,  
U.S.C. & G.S.S. DISCOVERER,  
Kodiak, Alaska.

From: Philip Cohen, Electrician,  
U.S.C. & G.S.S. DISCOVERER,  
Kodiak, Alaska.

Subject: Season's Report.

There is respectfully transmitted a report on the number of bombs fired, the total cost of bombs, and an analysis of the cost of several sizes of bombs, for the season of 1933.

*Philip Cohen*  
Philip Cohen,  
Electrician,  
Ship DISCOVERER.

BOMB RECORD

H. B. Campbell,  
H. & G. Hager,  
Commanding.

U.S.C. & G.S.S. DISCOVERER  
Season of 1933.

Vicinity  
Southwest  
Alaska

	Large C.I.	Medium C.I.	Small C.I.	Quarts	Pints	Misses	Total	Remarks
June 7				3	14		17	
" 8			1	3	24		28	
" 9	2			11	25		36	
" 10				11	24	1	36	
" 12				1	16		17	
" 13		2		6	20		26	
" 14				25	18		43	
" 15		3		12	26		39	
" 16				29	11		40	
" 17				18	6		24	
" 21		27		24			51	
" 22		24		26			50	
" 23		1		1			2	
" 27	7			16	4		27	
July 11				16	46	1	63	
" 12	2	6		35	23		66	
" 13	7		3	41	4		55	
" 17				10	5		15	Velocity tests.
Totals	18	63	4	288	266	2	639	

BOMB RECORD

Total Cost of Bombs for Season of 1933

Capacity	Number	Cost	Total Cost
Pint	266	\$0.0500	\$13.35
Quart	288	0.0575	16.56
Small C.I.	4	0.5000	2.00
Medium C.I.	63	0.7000	44.10
Large C.I.	18	0.8300	14.76
			<u>\$90.77</u>

Fuse	491'	0.1100 ft.	\$54.0100
Caps	724 ea.	0.0282 ea.	20.5168
Powder	999#	0.4500 #	449.1500
Discs, large	288 ea.	0.1500 ea.	43.2000
" , small	266 ea.	0.1000 ea.	26.6000
			<u>\$593.2768</u>

Total cost of bombs \$684.0468

Analysis of Cost of Bombs

Size	Amount	Powder Cost	Container Cost	Fuse Length	Fuse Cost	Caps No.	Caps Cost	Discs No.	Discs Cost	Unit Cost of Bombs
Pint	14 oz.	\$0.3938	\$0.0500	6"	\$0.0550	1	\$0.0282	1	\$0.1000	\$0.6270
Quart	27 oz.	0.7594	0.0575	7"	0.0642	1	0.0282	1	0.1500	1.0593
Small C.I.	5 oz.	0.1400	0.5000	10"	0.0918	1	0.0282	None		0.7600
Medium "	3 lb.	1.3500	0.7000	23"	0.2108	2	0.0563	"		2.3171
Large "	5 lb.	2.2500	0.8200	23"	0.2567	2	0.0563	"		3.3830

rac  
82

May 29, 1934

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in  
14 volumes of sounding records for

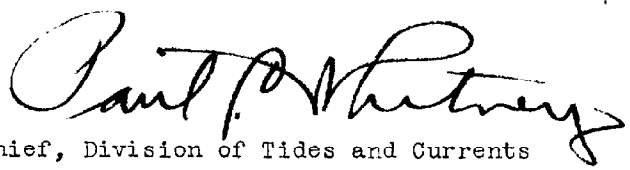
HYDROGRAPHIC SHEET 5444

Locality East of Chiniak Bay, Off Kodiak Island, Southwest Alaska

Chief of Party: H. B. Campbell in 1933  
Plane of reference is mean lower low water, reading  
4.0 ft. on tide staff at Kodiak  
19.9 ft. below B. M. 8

Height of mean higher high water above plane of reference is 8.8 feet

Condition of records satisfactory except as noted below:

  
Chief, Division of Tides and Currents



Field Records Section (Charts)

HYDROGRAPHIC SHEET No. **5444**.

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

Number of positions on sheet	1947 <u>938</u> 2,885	
Number of positions checked	..20..	1 A. M. U.
Number of positions revised	...7..	
Number of soundings recorded	10,803 <u>9,212</u> 20,015	
Number of soundings revised	.....	30 A. M. U.
Number of signals erroneously plotted or transferred	0	

Date:.....*Sept. 20, 1934*.....

Cartographer:.....*Alexis M. Uzefovich*.....

Verification of protracting ~~and inking~~ by L. S. Straw

Time: ~~18~~ hr.

Verification <sup>and</sup> of inking by *A. M. Uzefovich*

Time: *158 hours*

Review by *Harold W. Murray*

Time: *6 hrs.*

Sept. 20, 1934

Section of Field Records  
Report on H-5444

Chief of Party H. B. Campbell      Protracted by H. J. Healy, and M. E. Wennermark  
Surveyed in June-July 1933      Soundings plotted by H. J. Healy  
Surveyed by H. B. Campbell      Verified, and inked by A. M. Uzefovich

1. The records conform to the requirements of the General Instructions. ✓
2. The field plotting was completed to the extent prescribed in the General Instructions. ✓
3. The hydrography is complete, and the usual depth curves can be drawn. ✓
4. The junctions with adjacent sheets H-5177, H-5259, H-5250, H-5442, and H-5443 were verified, and all are satisfactory. ✓
5. Remarks: As H-5250, H-5442, and H-5443 have scales 1:40,000, the overlaps were made on them from H-5444, which has scale 1:160,000. ✓  
There is some difference between the smooth, and the Boat sheets in regard to the location of position 63B, (sounding 56 fathoms, Vol. I, page 52; Lat.  $57^{\circ}25'$ , Long.  $151^{\circ}33'$ ), therefore the location of sounding 42 fathoms (pos. 63B-64B, page 53, second line from the top) - looks suspicious, though pos. 63B on H-5444 was verified, and it is satisfactory.  
42 fms. OK. - Sharp draft. 7/20/34

Respectfully submitted

Alexis M. Uzefovich

Inspection of the Protracting of H 5444.  
By Leo S. Straw.

East of Chiniak Bay, Kodiak Island, Alaska.  
Surveyed by H. B. Campbell, 1933.

Three Point Fixes and R. A. R. ---Fathometer.

1. Protracting.

The protracting is satisfactory. There is good agreement of the Three Point Fix work with the R. A. R. work. Line 35 S (red) to 46 A was revised. A slight "swing" in the fix (Edge, Chart, and Shaft) was noted in this locality. The adjustment is in better agreement with the Boat Sheet and fills the gap between sounding lines run on J (red) day. The bottom here is of a uniform character and a slight displacement of positions is of no critical importance. The other fixes used in this part of the sheet were Duck, Spruce, Shaft, and Duck, Chart, Shaft. Positions governed by these fixes checked accurately. Positions in other parts of the sheet were investigated and found to be satisfactory.

2. Records.

The records conform to the requirements of the Hydrographic Manual.

Aug. 3, 1934.

Respectfully submitted

Leo S. Straw.

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5444 (1933).

Instructions dated April 21, 1932 and March 25, 1933 (DISCOVERER).  
Kodiak Island, S. W. Alaska - East of Chiniak Bay.

Fathometer Soundings - 3-Point Control on Shore Signals and RAR  
Control using Shore Hydrophone Stations.

Chief of Party: H. B. Campbell.  
Surveyed by: H. B. Campbell.  
Protracted by: H. J. Healy and M. E. Wennermark.  
Soundings penciled by: H. J. Healy.  
Verified and inked by: L. S. Straw and A. M. Uzefovich.

1. Condition of Records.

The records are neat, legible and conform to the requirements of the Hydrographic Manual with the exception that position numbers and day letters for A to P days inclusive are duplicated on the sheet as a result of the field party combining Field Sheets 161A and 161B into one smooth sheet. This has not been changed in the office.

2. Compliance with Instructions for the Project.

The plan, character and extent of the development satisfy the instructions for the Project except as noted in paragraph 5b below.

3. Sounding Line Crossings.

No cross lines were required by the instructions for the Project. Those which were run are in very good agreement with the main system of lines.

4. Depth Curves.

Within the limits of the survey the usual depth curves may be satisfactorily drawn.

5. Junctions with Contemporary Surveys.

a. The junctions with H-5177 (1931-32), H-5250 (1932), H-5443 (1933) and H-5442 (1933) on the west are excellent.

b. The junction with H-5259 (1932) on the north and north-east is very good with the exception that in the vicinity of Lat.  $57^{\circ}55'$ , Long.  $151^{\circ}40'$ , a holiday of about 25 square miles exists. The depths here vary from 33 to 55 fms.

c. To the southeast the work was not extended beyond the limits of this survey (H-5444). No work is contemplated here at this time.

6. Comparison with Prior Surveys.

There are no prior surveys within the area covered by this sheet.

7. Comparison with Chart 8502.

Soundings shown on this chart within the limits of this survey are from miscellaneous sources. Portions are shown on Chart 8500, Editions of 1868 and 1886. Several soundings are shoaler than those of the new survey but in view of their uncertain origin and their questionable accuracy in both depth and position, they should be omitted from future charting.

8. Field Plotting.

Field protracting and plotting were very accurate and conform to the requirements of the Hydrographic Manual.

9. Additional Field Work Recommended.

For Future Consideration:

Additional lines should be run so as to eliminate the holiday of about 25 square miles in area in vicinity of Lat.  $57^{\circ}55'$ , Long.  $151^{\circ}40'$ .

10. Superseding Previous Surveys.

No prior surveys exist within the limits of the present survey.

11. Reviewed by: Harold W. Murray - September 27, 1934.

Inspection Note.

Attention is called to the close agreement between the average experimental velocity for this area and the theoretical bottom velocity (see Descriptive Report, Pages 2 and 3). This appears to be further evidence that the use of the empirical bottom layer of water for determining velocities in shoal water (up to 250 fathoms approximately) will give results well within the limits of the instrumental equipment used.

A. L. Shalowitz.

Inspected by: A. L. Shalowitz.

*K. T. Adams*  
K. T. Adams,  
Chief, Section of Field Records.

Examined and approved:

*L. O. Polout*  
Chief, Division of Charts.

*G. B. Borden*  
Chief, Section of Field Work.

*G. Hude*  
Chief, Division of H. & T.

Applied to Chart No.  
8535 (1934), 1:80,000, by James W. McGuire.