5739
5740

5739 5740

Form 504
Ed. June, 1928

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

R. S. Patton, *Director*

State: Alaska

DESCRIPTIVE REPORT

~~*Topographic*~~
Hydrographic } *Sheet No.* 82 162

LOCALITY

Northwest of Unalaska and Akun Islands.

19 34

CHIEF OF PARTY

H. B. Campbell

U. S. GOVERNMENT PRINTING OFFICE: 1930

Form 537
Ed. Sept., 1929

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. 82 162

REGISTER NO. H5739 H5740

State Alaska

General locality Aleutian Islands

Locality Northwest of Unalaska and Akun Islands.

H5739 1:80,000
H5740 Scale 1:160,000 Date of survey August 24 - Sept. 30 1934

Vessel DISCOVERER

Chief of Party H.B. Campbell

Surveyed by H.B. Campbell and party.

Protracted by P.L. Bernstein and R.A. Gilmore

Soundings penciled by P.L. Bernstein and R.A. Gilmore

Soundings in fathoms ~~FEET~~

Plane of reference M.L.L.W.

Subdivision of wire dragged areas by

Inked by H5739: E.E. Hayes H5740 L.M. Ewell, jr.

Verified by Mark S. Gurnee

Instructions dated April 13, 1934

Remarks:

U. S. GOVERNMENT PRINTING OFFICE: 1929

DESCRIPTIVE REPORT

to accompany

Hydrographic Sheets #82 and 162

U.S.C. & G.S.S. DISCOVERER H.B. Campbell, Comd'g.

Season 1934

Project No. HT-177

-:-

AUTHORITY

These hydrographic sheets were done in accordance with Director's instructions dated April 13, 1934, to the Commanding Officer of the U.S.C. & G.S.S. DISCOVERER.

LIMITS

These sheets cover an offshore area northwest of Unalaska and Akun Islands and embody the area included between the following limits:-

A line from Lat. 55° 07', Long. 165° 30', to Lat. 54° 28', Long. 167° 44' on the north; and a line from Lat. 54° 28', Long. 165° 30' to Lat. 54° 05', Long. 167° 00' on the south.

SURVEY METHODS

The hydrography accomplished on these sheets comprises R.A.R. Control entirely. Poor visibility would not permit visual fixes. Two radio stations were established to control the sounding lines.

KVB was established off Cape Cheerful on August 13, 1934. The magnetophone unit was placed in 16 fms. water, floating 10 fms. below the surface.

1 reel of armored cable and about 1/2 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 various tangents and triangulation stations which were later located. A three point problem was com-

puted for this location, the computations for which are enclosed herewith.

The position of the hydrophone as shown on the boat sheets is in error, as the boat sheet position was plotted by using tangents to points, which were not located accurately.

KVD was established near Akun Head August 20, 1934. The magnetophone was placed in 23 fms. of water, floating 10 fms. below the surface.

1 reel of armored cable and 1 reel 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 white washes on the shore. A 40:000 sheet was made and sextant cuts were taken by the ship, using triangulation stations, to locate the whitewashes. The position of the magnetophone was scaled off the 40:000 sheet and transferred to these sheets. (1935) This 40:000 sheet is submitted with the smooth sheets. See D.R. of H-5967 for discussion of log found in this hydrophone which was not detected on this survey. H.W.M. 7/16/36

VELOCITY

On October 5, 1934, velocity tests were made. This was one of the few days during the season that visual fixes could be taken for any distance off shore. A 40:000 scale sheet was used and Cape Cheerful was the only station from which distances were obtained. The position of the hydrophone was plotted on this sheet, and the positions taken by the sextant cuts on triangulation stations plotted. The distances were scaled off and this data was tabulated as shown on the enclosed table. A mean velocity of 1473.8 m/sec was obtained.

The theoretical bottom velocity was also computed according to tables No. 5 and 6 in the Hydrographic Manual and found to be 1473.3 The velocity determined from actual tests (1473.8) was used in plotting the sheet. Attached to this report will be found a tabulated list of all results.

Distance circles were then drawn on the sheets using units of time.

Bomb positions were usually taken at intervals of 15 to 20 minutes, which were considered sufficient to control the sounding lines accurately.

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

At the close of the season a test for instrumental lag was made, and this was found to be negligible.

Soundings were obtained by the fathometer using Red Light or Red Light x 6 method. Vertical casts were taken in accordance with the instructions, obtaining a comparison for the fathometer, also temperatures, water specimens and bottom characteristics.

TIDES

For soundings under 100 fms. correction for tide was applied using the Dutch Harbor data.

FATHOMETER CORRECTIONS

The data pertaining to fathometer corrections is as follows:-

FATHOMETER CORRECTIONS

Red Light - Direct	fms.	Red Light x 6	fms.
0 to 15	-2	250 to 450	- 5
16 to 92	-1½	451 to 535	-10
93 to 120	-1	536 to 600	-15
121 to Up	0	601 to 665	-20
		666 to 730	-25
		731 to 805	-30
		806 to 880	-35
		881 to 960	-40

DISCREPANCIES NOTED

Sheet 82: H-5739 ✓

all par. references apply to Verification report H5739

The soundings between positions 1A and 13A are questionable as the fathometer wasn't working well this day. 6-13A Rejected See Ver. Report H5739 Par. 3a 3g

The soundings between positions 30D and 36D seem too deep. 32-35D Rejected See Par 3b

The soundings from 79C to 81C are too shoal, and should be rejected. REJECTED Par 3C M.S.G.

The crossings between 74D and 76D seem in error. Retained Par 3d Par 3e

The soundings from 3 - 5B seem too deep. Rejected Par 3f, 3g

Probably somewhat too deep but not sufficiently so to warrant rejection.

Sheet 162: H 5740 — The soundings between 50G and 58G are too deep and should be rejected. (See verification report H5740 Par. 3a)

The soundings between 34G and 35G were doubtful and should be investigated. (See Ver Report H5740 Par 3b.)

These soundings were questioned and rejected in the field. The bottom here is fairly rough & it is believed no additional investigation is warranted.

Respectfully submitted,

P.L. Bernstein

P.L. Bernstein,
Jr. H. & G. Engineer.

R.A. Gilmore

R.A. Gilmore,
Jr. H. & G. Engineer.

Approved and forwarded:

H.B. Campbell

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

NOTE TO ACCOMPANY DESCRIPTIVE REPORT FOR R.A.R.

Field Sheets 82 and 162, 1935.

It will be noted that the work on these sheets is very close. It was done in this manner for several reasons, as follows:

Nearly all of the work was done in foggy weather and nights when very little other work could have been done, so the additional expense of extremely close work was only the cost of the bombs and oil.

This work is adjacent to Bogoslof Island and Makushin Volcano, and within an area of recent volcanic activity.

H B Campbell

H. B. Campbell, H&GE,
Chief of Party, C&GS,
Ship DISCOVERER.

SEXTANT ANGLES TAKEN AT HYDROPHONES

Cape Cheerful

△ SKUM	152° - 30'
△ LENA	
△ $KALEKTA_2$	22° - 46'

Akun Head

ww #4 - ww #3	30° - 08'
ww #3 - ww #2	36° - 56'
ww #2 - ww #1	27° - 54'

STATISTICS - SHEET NUMBER 82 H5739

R. A. R.

Date	Day	St. Miles Sdg. Lines	Fath. Sdgs.	Vert. Casts	No. Pos.
8/24/34	A	202.7	469	0	110
8/25/34	B	196.8	425	0	99
8/26/34	C	153.0	358	10	81
8/28/34	D	128.9	298	0	77
8/29/34	E	188.1	419	3	109
8/30/34	F	170.7	411	11	103
8/31/34	G	91.7	216	7	62
9/4/34	H	48.0	115	5	36
Totals	8	1179.9	2711	36	677

SHEET NUMBER 162 H5740

9/4/34	A	32	79	0	17
9/5/34	B	200.9	726	0	87
9/6/34	C	187	620	10	83
9/14/34	D	152.5	463	11	75
9/15/34	E	159	535	11	82
9/16/34	F	209	630	1	101
9/29/34	G	158.7	302	0	80
9/30/34	H	265.7	899	0	96
Totals	8	1364.8	4254	33	621

Area covered by both sheets 3187 sq. st. miles.

KVB

VELOCITY TESTS October 5, 1934.

Position	Distance on 1:10,000	Actual Dist.	Time	Velocity	
1	3989	15956	10.86	1469.2	
2	4035	16140	10.95	1474.0	
3	4081	16324	11.05	1477.3	
4	4139	16556	11.31	1463.9	
5	4190	16760	11.39	1471.5	
6	4272	17088	11.57	1476.9	
7	4363	17452	11.84	1474.0	
8	4481.5	17926	12.12	1479.1	
9	4540	18160	12.27	1480.0	
10	4889	19556	13.31	1469.2	
11	5193.5	20774	14.06	1477.6	
12	5556	-----	-----	------	Reject
13	5839	23356	15.81	1477.3	
14	6590	26360	17.87	1475.1	
15	7810.5	31242	21.26	1469.5	
Totals		273650	185.67	1473.8	(Mean)

Mn = 13'

Mean Velocity 1473.8

THEORETICAL VELOCITY

Average depth - - - - - - - - - -450 fms.

Average bottom temperature - -3.7° C.

Average salinity - - - - - - - -33.4 parts per 1000.

From table 5 and 6 (Hydrographic Manual).

Theoretical Velocity - - - - - - - - - - - - - - - - - -805.7 fms/s.

805.7 x 6 ÷ 3,281 = 1473.3 m/sec.

H.B. Campbell, Commanding
Ship DISCOVERER.

BOMB RECORD
U.S.C. & G.S.S. DISCOVERER
SEASON OF 1934

Date	Large C.l.	Medium C.l.	Quarts	Pints	Total	Remarks
Aug. 23				50	50	
" 24			18	51	69	
" 25			8	49	57	
" 28			9	35	44	
" 29			3	53	56	
" 30			13	60	73	
" 31			12	31	43	
Sept. 4	5		24	8	37	
" 5	26		24		50	
" 6	9	2	42		53	
" 14	4	1	45		50	
" 15			53		53	
" 16			56		56	
" 29	4		50		54	
" 30	1	3	45		49	
Oct. 1		1	11		12	
" 5	3		5	11	19	Velocity tests.
" 6	2			1	3	" "
TOTALS	54	7	418	349	828	
			50		50	These bombs were used for tests and mis-fires.
					878	

BOMB RECORD.
TOTAL COST OF BOMBS FOR SEASON OF 1934.

Capacity	Number	Cost	Total Cost	
Pint	349	$0.0400	$13.96	
Quart	468	0.0600	28.08	
Medium C.l.	7	0.7000	4.90	
Large C.l.	54	0.8200	44.28	
			$91.22	$91.22
Fuse	659	$0.0100*	$ 6.59	
Caps	939	0.0200ea.	18.78	
Powder	1385 lbs.	0.5500#	761.75	
Pig Lead	1265 "	0.0700#	85.05	
			872.17	872.17
				963.39 Total cost of bombs.

ANALYSIS OF COST OF BOMBS

Size	Powder Amount	Powder Cost	Container cost	Fuse length	Fuse cost	Caps No.	Caps cost	Lead lbs.	Lead cost	Unit Cost of Bombs
Pint	14 oz.	$0.4812	$0.0400	6"	$0.0050	1	$0.0200	1	$0.0700	$0.6362
Quart	27 oz.	0.9281	0.0600	6"	0.0050	1	0.0200	2	0.1400	1.2131
Medium C.l.	3 lb.	1.6500	0.7000	24"	0.0400	2	0.0400	none		2.4300
Large C.l.	5 lb.	2.7500	0.8200	28"	0.0425	2	0.0400	"		3.6525

Philip Cohen

Philip Cohen,
Electrician,
Ship DISCOVERER.

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

TELEGRAPH ADDRESS:

EXPRESS ADDRESS:

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

Ship DISCOVERER

January 31, 1935.

To: Commanding Officer,
U.S.C. & G.S.S. DISCOVERER,
Seattle, Washington.

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

Subject: Season 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 1934.

Philip Cohen

Philip Cohen,
Electrician,
Ship DISCOVERER.

HYDROGRAPHIC SURVEY NO. 5739

Smooth Sheet 1

Boat Sheet 2

Sounding Records 3 Vols. 2 Vols. Bomb Records

Descriptive Report Yes

Title Sheet Yes

List of Signals

Landmarks for Charts (Form 567)

Statistics

Approved by Chief of Party H. B. Campbell

Recoverable Station Cards (Form 524)

Special Chart for Lighthouse Service
(Circular Nov. 30,1933)

Remarks

HYDROGRAPHIC SURVEY NO. 5740

Smooth Sheet 1

Boat Sheet 1

Sounding Records 3 Vols. 2 Vols. Bomb Records

Descriptive Report Yes

Title Sheet Yes

List of Signals

Landmarks for Charts (Form 567)

Statistics

Approved by Chief of Party H. B. Campbell

Recoverable Station Cards (Form 524)

Special Chart for Lighthouse Service
(Circular Nov. 30,1933)

Remarks

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. H5739

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

Number of positions on sheet	677
Number of positions checked	.....
Number of positions revised	1
Number of soundings recorded	2747
Number of soundings revised	60 (Approx.)
Number of signals erroneously plotted or transferred	.....

Date: July 16, 1935

Verification by Mark S. Gurnee 16 hrs Time: 34 Hours
Taking by: E.E. Hargrave 18 Hrs

Review by Harry T. Walsh Time: 8 hrs
R.J. Christman 2 "

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. H5740

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

Number of positions on sheet	621
Number of positions checked	.....
Number of positions revised	.....
Number of soundings recorded	4287
Number of soundings revised	—
Number of signals erroneously plotted or transferred	.....

Date: July 16, 1935

Verification by Mark S. Furnee 12 Hrs. Time: 38½ Hours
Taking by L. M. Ewell Jr. 26½ Hrs.

Review by Harry T. Walsh Time: 7½ hrs.
R. J. Christman " 2 "

Attach to Descriptive Report → H-5740

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 27
Ed. April, 1929

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

			°	′	″
α	2	to 3	34	08	05
2d ∠		&	+ 60	17	14
α	2	to 1	94	25	19
Δα					
			180	00	00.0
α′	1	to 2			

			°	′	″
α	3	to 2	214	05	07
3d ∠		&	− 96	56	46
α	3	to 1	117	08	21
Δα					
			180	00	00.0
α′	1	to 3			

First Angle of Triangle

	°	′	″			°	′	″
φ	54	00	22.637	2 KALEKTA$_2$	λ	166	22	35.860
Δφ	+		44.599		Δλ	+	16	44.920
φ′	54	01	07.236	HYDROPHONE 1 CAPE CHEERFUL	λ′	166	39	20.780

	°	′	″			°	′	″
φ	53	57	11.048	3 LENA	λ	166	26	16.000
Δφ	+	03	56.188		Δλ	+	13	04.780
φ′	54	01	07.236	HYDROPHONE 1 CAPE CHEERFUL	λ′	166	39	20.780

	Logarithms
s	4.263687
Cos α	8.887059
B	8.509784
h	1.660530
s²	8.52737
Sin² α	9.99741
C	1.54183
	0.06661
h²	
D	

Values in seconds	
223.7	
1st term	− 45.765
2d term	+1.166
3d term	+
−Δφ	− 44.599

½(φ+φ′)	°	′	″

	Logarithms	Values in seconds
s	4.263687	378.4
Sin α	9.998705	
A′	8.508762	
Sec φ′	0.230977	
Δλ	3.002131	1004.92
Sin ½(φ+φ′)		
−Δα		

	Logarithms
s	4.205666
Cos α	9.659111
B	8.509787
h	2.374564
s²	8.41133
Sin² α	9.89868
C	1.54104
	9.85105
h²	4.7491
D	2.3715
	7.1206

Values in seconds	
1st term	− 236.899
2d term	+ .710
3d term	+ .001
−Δφ	− 236.188

½(φ+φ′)	°	′	″

	Logarithms	Values in seconds
s	4.205666	
Sin α	9.949342	
A′	8.508762	
Sec φ′	0.230977	
Δλ	2.894747	784.780
Sin ½(φ+φ′)		
−Δα		

11—9362 U. S. GOVERNMENT PRINTING OFFICE: 1929

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 25
Ed. Jan., 1929

COMPUTATION OF TRIANGLES

State: Alaska

11—9121

U. S. GOVERNMENT PRINTING OFFICE: 1930

NO.	STATION	OBSERVED ANGLE	CORR'N	SPHER'L ANGLE	SPHER'L EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
	2-3						3.854573
	1 CAPE CHEERFUL HYDROPHONE	22 - 46 - 00					0.412313
	2 KALEKTA$_2$	60 - 17 - 14					9.938780
	3 LENA	96 - 56 - 46					9.996801
	1-3						4.205666
	1-2						4.263687
	2-3						
	1						
	2						
	3						
	1-3						
	1-2						
	2-3						
	1						
	2						
	3						
	1-3						
	1-2						
	2-3						
	1						
	2						
	3						
	1-3						
	1-2						

Do not write in this margin

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 662
Ed. Mar., 1929

INVERSE POSITION COMPUTATION

$$s_1 \sin\left(\alpha+\frac{\Delta\alpha}{2}\right)=\frac{\Delta\lambda_1 \cos\phi_m}{A_m}$$

$$s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)=\frac{-\Delta\phi_1 \cos\frac{\Delta\lambda}{2}}{B_m}$$

$$-\Delta\alpha=\Delta\lambda \sin\phi_m \sec\frac{\Delta\phi}{2}+F(\Delta\lambda)^3$$

in which log $\Delta\lambda_1$=log $(\lambda'-\lambda)$−correction for arc to sin*; log $\Delta\phi_1$=log $(\phi'-\phi)$−correction for arc to sin*; and log s=log s_1+ correction for arc to sin*.

NAME OF STATION

1. ϕ	53 - 57 - 11.048	LENA	λ	166 - 26 - 16.000
2. ϕ'	54 - 01 - 06.998	SKUM	λ'	166 - 40 - 11.704
$\Delta\phi$ $(=\phi'-\phi)$	+ 03 - 55.950		$\Delta\lambda$ $(=\lambda'-\lambda)$	13 - 55.704
$\frac{\Delta\phi}{2}$	01 - 57.975		$\frac{\Delta\lambda}{2}$	06 - 57.852
$\phi_m\left(=\phi+\frac{\Delta\phi}{2}\right)$	53 - 59 - 09.023			
$\Delta\phi$ (secs.)	+ 235.95		$\Delta\lambda$ (secs.)	+ 835.704

log $\Delta\phi$	2.372820		**log** $\Delta\lambda$	2.922053
cor. arc−sin	−		cor. arc−sin	−
log $\Delta\phi_1$	2.372820		log $\Delta\lambda_1$	2.922053
log cos $\frac{\Delta\lambda}{2}$			**log cos** ϕ_m	9.769366
colog B_m	1.490215		**colog** A_m	1.491236
log $\left\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\right\}$	3.863035 −	(opposite in sign to $\Delta\phi$)	**log** $\left\{s_1 \sin\left(\alpha+\frac{\Delta\alpha}{2}\right)\right\}$	4.182655
			log $\left\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\right\}$	- 3.863035
			log tan $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	0.319620
log $\Delta\lambda$	+ 2.922053 (3 log $\Delta\lambda$)		$\alpha+\frac{\Delta\alpha}{2}$	° ′ ″
log sin ϕ_m	9.907880 (log F)			115 - 35 - 48
log sec $\frac{\Delta\phi}{2}$	(log b)		**log sin** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.955138
			log cos $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.635517
log a	2.829933 +		**log** s_1	4.227517
a	675.980 +		cor. arc−sin	+
b	---- ″		log s	4.227517
$-\Delta\alpha$ **(secs.)**	+ 675.980 ″			
$-\frac{\Delta\alpha}{2}$	+ 337.99 ′ ″			
	+ 05 38			
$\alpha+\frac{\Delta\alpha}{2}$	115 35 48			
α **(1 to 2)**	115 41 26			
$\Delta\alpha$	- 11 16			
	180			
α' **(2 to 1)**	295 30 10			

* Use the table on the back of this form for correction of arc to sin.

NOTE.—For log s up to 4.52 and for $\Delta\phi$ or $\Delta\lambda$ (or both) up to 10′, omit all terms below the heavy line except those printed in heavy type or those underscored, if using logarithms to 6 decimal places.

11—9810

Table of arc-sin corrections for inverse position computations

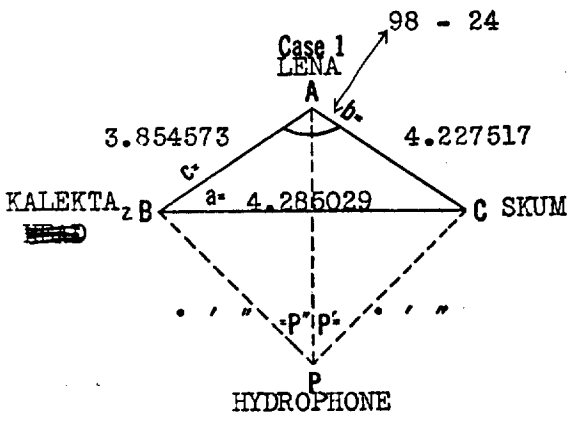
log s_1	Arc-sin correction in units of seventh decimal of logarithms	log $\Delta\phi$ or log $\Delta\lambda$	log s_1	Arc-sin correction in units of seventh decimal of logarithms	log $\Delta\phi$ or log $\Delta\lambda$	log s_1	Arc-sin correction in units of seventh decimal of logarithms	log $\Delta\phi$ or log $\Delta\lambda$
4. 177	1	2. 686	5. 223	124	3. 732	5. 525	497	4. 034
4. 327	2	2. 836	5. 234	130	3. 743	5. 530	508	4. 039
4. 415	3	2. 924	5. 243	136	3. 752	5. 534	519	4. 043
4. 478	4	2. 987	5. 253	142	3. 762	5. 539	530	4. 048
4. 526	5	3. 035	5. 260	147	3. 769	5. 543	541	4. 052
4. 566	6	3. 075	5. 269	153	3. 778	5. 548	553	4. 057
4. 599	7	3. 108	5. 279	160	3. 788	5. 553	565	4. 062
4. 628	8	3. 137	5. 287	166	3. 796	5. 557	577	4. 066
4. 654	9	3. 163	5. 294	172	3. 803	5. 561	588	4. 070
4. 677	10	3. 186	5. 303	179	3. 812	5. 566	600	4. 075
4. 697	11	3. 206	5. 311	186	3. 820	5. 570	613	4. 079
4. 716	12	3. 225	5. 318	192	3. 827	5. 575	625	4. 084
4. 734	13	3. 243	5. 326	199	3. 835	5. 579	637	4. 088
4. 750	14	3. 259	5. 334	206	3. 843	5. 583	650	4. 092
4. 765	15	3. 274	5. 341	213	3. 850	5. 587	663	4. 096
4. 779	16	3. 288	5. 349	221	3. 858	5. 591	674	4. 100
4. 792	17	3. 301	5. 356	228	3. 865	5. 595	687	4. 104
4. 804	18	3. 313	5. 363	236	3. 872	5. 600	702	4. 109
4. 827	20	3. 336	5. 369	243	3. 878	5. 604	716	4. 113
4. 857	23	3. 366	5. 376	251	3. 885	5. 608	729	4. 117
4. 876	25	3. 385	5. 383	259	3. 892	5. 612	743	4. 121
4. 892	27	3. 401	5. 390	267	3. 899	5. 616	757	4. 125
4. 915	30	3. 424	5. 396	275	3. 905	5. 620	771	4. 129
4. 936	33	3. 445	5. 403	284	3. 912	5. 624	785	4. 133
4. 955	36	3. 464	5. 409	292	3. 918	5. 628	800	4. 137
4. 972	39	3. 481	5. 415	300	3. 924	5. 632	814	4. 141
4. 988	42	3. 497	5. 422	309	3. 931	5. 636	829	4. 145
5. 003	45	3. 512	5. 428	318	3. 937	5. 640	845	4. 149
5. 017	48	3. 526	5. 434	327	3. 943	5. 644	861	4. 153
5. 035	52	3. 544	5. 440	336	3. 949	5. 648	877	4. 157
5. 051	56	3. 560	5. 446	345	3. 955	5. 652	893	4. 161
5. 062	59	3. 571	5. 451	354	3. 960	5. 656	909	4. 165
5. 076	63	3. 585	5. 457	364	3. 966	5. 660	925	4. 169
5. 090	67	3. 599	5. 462	373	3. 971	5. 663	941	4. 172
5. 102	71	3. 611	5. 468	383	3. 977	5. 667	957	4. 176
5. 114	75	3. 623	5. 473	392	3. 982	5. 671	973	4. 180
5. 128	80	3. 637	5. 479	402	3. 988	5. 674	989	4. 183
5. 139	84	3. 648	5. 484	412	3. 993	5. 678	1005	4. 187
5. 151	89	3. 660	5. 489	422	3. 998			
5. 163	94	3. 672	5. 495	433	4. 004			
5. 172	98	3. 681	5. 500	443	4. 009			
5. 183	103	3. 692	5. 505	453	4. 014			
5. 193	108	3. 702	5. 510	464	4. 019			
5. 205	114	3. 714	5. 515	474	4. 024			
5. 214	119	3. 723	5. 520	486	4. 029			

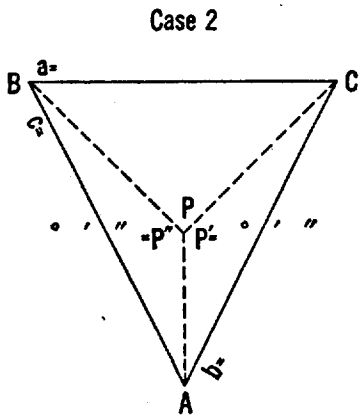
U. S. GOVERNMENT PRINTING OFFICE. 1939 11—9810

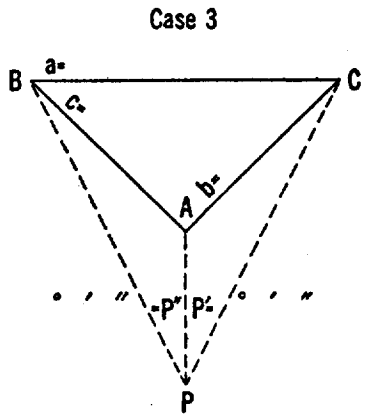
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 655
Ed. Sept., 1929

LOCATION OF CAPE CHEERFUL HYDROPHONE

COMPUTATION OF THREE-POINT PROBLEM







Cases 1 and 2

P′	152 - 30
P″	22 - 46
A	98 - 24
Sum	273 - 40
½ Sum	136 - 50
S = 180° − ½ sum =	43 - 10

Case 3

P′	
P″	
Sum	
A	
S = ½ (A − sum) =	A − sum

Log c =	3.854573
Log sin P′ =	9.664406
Colog b =	5.772483
Colog sin P″ =	0.412313
Sum = log tan Z =	9.703775
Z =	26° - 49 - 10
Z + 45° =	71 - 49 - 10
Log cot (Z + 45°) =	9.516413 +
Log tan S =	9.972188
Sum = log tan ϵ =	9.488601 (sign +)
ϵ	17° - 07 - 14
S	43° - 10 - 00

(Tan ϵ+)
S + ϵ = angle ABP 60 - 17 - 14
S − ϵ = angle ACP 26 - 02 - 46

(Tan ϵ−)
S − ϵ = angle ABP
S + ϵ = angle ACP

BPA	22 - 46 - 00	APC	152 - 30 - 00	PCB	04 - 30 - 36
ABP	60 - 17 - 14	PCA	26 - 02 - 46	CBP	00 - 13 - 24
PAB	(96 - 57 - 46)	CAP	01 - 27 - 14	BPC	175 - 16 - 00

(For explanation of this form see Special Publication No. 138, pages 191 and 192, or Special Publication No. 145, pages 98–100)

U. S. GOVERNMENT PRINTING OFFICE: 1940
11—6912

Survey No. H5740

GEOGRAPHIC NAMES

Date. May 2, 1935 ALASKA

Chart No. 8802;8860

Diagram No. 8802-2;8860

Approved by the Division of Geographic Names, Department of Interior. ✳

Referred to the Division of Geographic Names, Department of Interior. R

Under investigation. Q

Status	Name on Survey	Name on Chart	New Names in local use	Names assigned by Field	Location
	No Names	----------			

(M-136)

GEOGRAPHIC NAMES

ALASKA

Survey No. H5739

Date. May 2, 1935

Chart No. 8802;8860

Diagram No. 8802-2;8860

Approved by the Division of Geographic Names, Department of Interior. ✳

Referred to the Division of Geographic Names, Department of Interior. R

Under investigation. Q

Status	Name on Survey	Name on Chart	New Names in local use	Names assigned by Field	Location
	No Names	----------			

(M-136)

Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Ed. Feb. 1935

TIDE NOTE FOR HYDROGRAPHIC SHEET

May 10, 1935.

Division of Hydrography and Topography:

Division of Charts: Attention Mr. E. P. Ellis

Tide Reducers are approved in
3 volumes of sounding records for

HYDROGRAPHIC SHEET 5739

Locality Northwest of Unalaska and Akun Islands, Aleutian Islands, Alaska

Chief of Party: H. B. Campbell in 1934
Plane of reference is mean lower low water, reading
3.7 ft. on tide staff at Dutch Harbor
12.5 ft. below B.M. 1

Height of mean higher high water above plane of reference is 3.7 ft.

Condition of records satisfactory except as noted below:

Paul P. Whitney

Chief, Division of Tides and Currents.

U. S. GOVERNMENT PRINTING OFFICE

Lac

Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Ed. Feb. 1935

TIDE NOTE FOR HYDROGRAPHIC SHEET

May 10, 1935.

Division of Hydrography and Topography:

✓ Division of Charts: Attention Mr. E. P. Ellis

Tide Reducers are approved in
3 volumes of sounding records for

HYDROGRAPHIC SHEET 5740

Locality Northwest of Unalaska and Akun Islands, Aleutian Islands, Alaska

Chief of Party: H B Campbell in 1934
Plane of reference is mean lower low water reading
3.7 ft. on tide staff at Dutch Harbor
12.5 ft. below B.M. 1

Height of mean higher high water above plane of reference is 3.7 ft.

Condition of records satisfactory except as noted below:

Paul P. Whitney

Chief, Division of Tides and Currents.

U. S. GOVERNMENT PRINTING OFFICE

Verification Report
H 5739 (1934)

I Conformity to Hydrographic Manual
Satisfactory

II Depth Curves
The 50, 100, and 200 fathom curves are completely drawn

III Field and Office Plotting
The usual procedure of verification was followed. The following changes and adjustments were made:

a. Soundings between 6 and 13 A (red) were rejected (see Descriptive Report "Discrepancies noted" P. 1) (Lat 54° 25'; Long 166° 35') (see P g below)

b. Soundings and positions from 32 to 35 D were rejected. The records show confusion of both fixes and the fathometer at this time, and the soundings are in poor agreement. (Lat 54° 33'; Long 165° 50')

c. Soundings from 77 to 81 C were rejected. Fathometer reader was changed at 77 C, and from then to 81 C (the end of the day) the fixes are questionable and the soundings recorded much too shoal. (Lat 54° 24'; Long 166° 20')

d. Soundings from 102-103 E were rejected. These soundings were in very poor agreement with 74-76 D (Lat 54°-15'; Long 166°-35') (see P h below)

e. Soundings from 2-5 B were rejected. These were much deeper than adjoining soundings and apparently in error (Lat 54° 32'; Long 166° 12') Position 7B also was rejected, and the line from 5 to 10 B replotted on course and time (see P g below)

f. Soundings 1-3 H were rejected (see P g below)

g. It was noted on both this sheet and H 5740 (1934), which is essentially the same survey, that the fathometer was consistently giving poor results at the beginning of each day's work (usually with the soundings too deep). This was used in adjusting poor crossings, and is important in the consideration of 3 a, e, and f above.

Soundings at the beginning of a day are also erratic (Lat 54° 15; long 167° 00', but the bottom in the southeastern portion of this sheet is very irregular, and probably explains the variance at this point. (see P III c, Ver. Report H 5740)

h. Other crossings between 74 and 76 D day and 4-6 E day

(Lat. 54°12'; Long 166°38'), which do not agree too well, are explainable because of the irregular bottom. The crossings on E day at this point might also be in error due to their occurrence at the beginning of a day's work, as pointed out in the preceding paragraph.

IV JUNCTIONS

Junction with H5740 (1934) has been made on this sheet, and the agreement is satisfactory.

V Remarks

None

Respectfully submitted,

Mark S. Gurney

July 16, 1935.

1-9C also projection 11 TIC

Verification Report
H 5740 (1934)

I Conformity to Hydrographic Manual
Satisfactory

II Depth Curves
The 50, 100, + 200 fathom curves are completely drawn

III Field and Office Plotting
The usual procedure of verification was followed. The following changes or recommendations for changes are noted:

a. The Descriptive Report, under "Discrepancies Noted," recommends the rejection of 50-58 G day. These soundings do appear to be too deep, but the verifier does not consider that there is any reason sufficient to warrant rejection of the soundings.

b. Soundings between 33 and 34 G up until R.L. Direct was used, were rejected in the field. All R.L. Direct soundings just prior to position 35 G have been retained. ✓

c. Soundings 1-4 C day have been rejected by the verifier (Lat 54° 38' Long 167°-10'). Also the first 4 soundings of F day have been rejected (Lat 54° 40' Long 166°-30'). In both cases rejection has been made under reasoning as stated in Verification Report for H5739 (1934), par 3g. crossing 3-4C is poor + sdgs not needed

IV Junctions
The only junction - H5439 (1934) had already been accomplished.

V Remarks
None

Respectfully submitted

Mark S. Gurnee

July 16, 1935

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5739 (1934) - FIELD NO. 82

Northwest of Unalaska and Akun Islands, Alaska
Surveyed in August - September, 1934
Instructions dated April 13, 1934 (SURVEYOR)

Fathometer Soundings. RAR Control.

Chief of Party - H. B. Campbell.
Surveyed by - H. B. Campbell.
Protracted by - P. L. Bernstein and R. A. Gilmore.
Soundings penciled by - P. L. Bernstein and R. A. Gilmore.
Verified by - M. S. Gurnee.
Inked by - E. E. Goyea.

1. Condition of Records.

The records are neat and legible and conform to the requirements of the Hydrographic Manual except that the position numbers and day letters were not in color on the title pages and covers to conform with the records.

The Descriptive Report is clear and comprehensive and adequately covers all matters of importance.

2. Compliance with Instructions for the Project.

The plan, character, and extent of the survey amply comply with the instructions for the project.

3. Sounding Line Crossings.

The cross lines and adjacent parallel lines are in very good agreement.

4. Depth Curves.

The usual depth curves may be satisfactorily drawn.

5. Junctions with Contemporary Surveys.

The junction with H-5740 (1934) on the west, north and east is satisfactory, except at the southeast corner (lat. 54°30½35', long. 165°35').

At the present time there is no contemporary survey on the south.

6. Comparison with Prior Surveys.

H-3194 (1910).

This survey, plotted on Chart No. 8802, shows a single line of soundings across the present survey, and this is in good agreement.

7. Comparison with Charts No. 8802 and No. 8860.

Within the area of the present survey the charts are based on the survey discussed in the foregoing paragraph, and upon B. P. 25933 (U. S. S. Tahoe, 1932) with a few other soundings which appear on the first edition of the chart (1902), the source of which could not be ascertained. While the charted soundings from the various sources are not in bad agreement, the present survey adequately covers the area and is the result of more accurate and precise methods of surveying. It should supersede all hydrography shown at present on the charts.

8. Field Plotting.

Field protracting and plotting were excellent, and conform to the requirements of the Hydrographic Manual.

9. Additional Field Work Recommended.

This survey is complete and no additional field work is required, except that on the continuance of the work in this area a line of soundings should be run between the limits of H-5739 (1934) and H-5740 (1934) (see paragraph 5) as far north as lat. 54°35' and then continue WSW between the widely spaced lines there, for a distance of approximately five miles.

10. Superseding Old Surveys.

Within the area covered, the present survey supersedes the following survey for charting purposes:

H-3194 (1910) in part.

11. Reviewed by - Harry T. Kelsh, August 8, 1935, and R. J. Christman, August 9, 1935.

Inspected by - R. L. Johnston.

Examined and approved:

C. K. Green, C. K. Green
Chief, Section of Field Records.

L. O. Colbert
Chief, Division of Charts.

F. B. Borden
Chief, Section of Field Work.

G. Rude
Chief, Division of H. & T.

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5740 - FIELD NO. I62 (1934)

Northwest of Unalaska and Akun Islands, Alaska
Surveyed in September, 1934
Instructions dated April 13, 1934 (SURVEYOR)

Fathometer Soundings. RAR Control.

Chief of Party - H. B. Campbell.
Surveyed by - H. B. Campbell.
Protracted by - P. L. Bernstein and R. A. Gilmore.
Soundings penciled by - P. L. Bernstein and R. A. Gilmore.
Verified by - M. S. Gurnee.
Inked by - L. M. Ewell, Jr.

1. Condition of Records.

The records are neat and legible and conform to the requirements of the Hydrographic Manual except that the position numbers and day letters were not in color on the title pages and covers to conform with the records.

The Descriptive Report is clear and comprehensive and adequately covers all matters of importance.

2. Compliance with Instructions for the Project.

The plan, character, and extent of the survey comply with the instructions for the project.

3. Sounding Line Crossings.

Such cross lines as occur in the work, as well as adjacent parallel lines are generally in good agreement.

4. Depth Curves.

The usual depth curves may be satisfactorily drawn.

5. Junctions with Contemporary Surveys.

The junction with H-5739 (1934) on the south is satisfactory.

There are no contemporary surveys on the north, east and west at the present time.

6. Comparison with Prior Surveys.

H-3194 (1910).

This survey, plotted on chart 8802, shows a single line of soundings across the present survey, and this is in good agreement.

7. Comparison with Charts No. 8802 and No. 8860.

Within the area of the present survey the charts are based on the survey discussed in the foregoing paragraph, and upon B. P. 25933 (U. S. S. Tahoe, 1932) with a few soundings which appear on the first edition of the chart (1902), the source of which could not be ascertained. The charted soundings from the various sources are not in bad agreement with the present survey. The latter, however, is the result of more accurate and precise methods of surveying and since it adequately covers the area it should supersede all hydrography shown at present on the charts.

8. Field Plotting.

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

9. Doubtful Soundings.

Some soundings between pos. 33G and pos. 35G (lat. 54°40.0', long. 166°17.0') which appear too shoal were questioned and rejected in the field, however a statement in the Descriptive Report says that the soundings were doubtful and should be investigated. The bottom in this area is regular and these soundings, the shoalest of which is 90 fathoms, appear to be incorrect fathometer soundings. ~~The 90 has been placed on the sheet in pencil but should not be charted, unless additional work verifies the sounding.~~ Since the rejected soundings leave $2\frac{1}{2}$ miles in which no soundings are retained, and since on the adjacent line (36D to 37D) two soundings are questioned in this vicinity, the area of questionable soundings should be re-surveyed.

10. Additional Field Work Recommended.

This survey in general is quite complete, however as recommended by the field party, the doubtful soundings described in the preceding paragraph should be further investigated. The Chief of Party has been requested by radio to verify or definitely disprove these questioned soundings.

11. Superseding Old Surveys.

Within the area covered, the present survey supersedes the following survey for charting purposes:

H-3194 (1910) in part.

12. Reviewed by - Harry T. Kelsh, August 8, 1935, and R. J. Christman, August, 9, 1935.

Inspected by - R. L. Johnston.

Examined and approved:

C. K. Green, C. K. Green
Chief, Section of Field Records.

L. O. Colbert
Chief, Division of Charts.

F. B. Borden
Chief, Section of Field Work.

G. Rude
Chief, Division of H. & T.

Hyd C. 5739
" 5740

Applied to Charts 8860. 8802 + 9302 - Oct 10 - 1935

P. B. Castles.

25 Jan 3, 1936
C&GS.

H 5739, H 5740 applied to Ch. 8861 - Feb. 1942 - J. F. Walker