6413

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

State: ~~ALASKA.~~ Aleutian Islands

11—5613

DESCRIPTIVE REPORT.

Hydrographic *Sheet No.* 121

LOCALITY:

off Umnak & Unalaska Islands

~~Aleutian Islands,~~

Uliaga Island to Vicinity of Bogoslof Island

~~Bering Sea,~~

~~N.W. of Umnak Island.~~

1938

CHIEF OF PARTY:

Roland D. Horne H.& G.Engr.

6413

Form 537
Ed. Dec. 1930

REG. NO.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

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. 121

REGISTER NO. H 6413

State ~~Alaska~~ Aleutian Islands off Umnak & Unalaska Islands

General locality ~~Aleutian Islands, Bering Sea~~

Locality ~~N.W. of Umnak Island~~ Uliaga Island to Vicinity of Bogoslof Island

Scale 1:120,000 Date of survey Aug. - Sept., 1938

Vessel Ship PIONEER

Chief of Party Roland D. Horne

Surveyed by Roland D. Horne

Protracted by Gilbert R. Fish

Soundings penciled by Gilbert R. Fish

Soundings in fathoms ~~feet~~ Fathoms

Plane of reference M.L.L.W.

Subdivision of wire dragged areas by

Inked by R.H. Carstens

Verified by R.H. Carstens

Instructions dated February 3, 1938

Remarks:

U. S. GOVERNMENT PRINTING OFFICE

FINAL FATHOMETER CORRECTIONS

FOR

Hydrographic Sheet Field No. 121 H-6413

For fast dial speed:

Depth (Fms)	Corr. (Fms)
0 - 19.9	+1.0
20 - 42.9	+0.5
43 - 62.9	0.0
63 - 81.9	-0.5
82 - 100.9	-1.0
101 - 119.9	-1.5
120 - 138.9	-2.0
139 - 158.9	-2.5
159 - 176.9	-3.0
177 - 195.9	-3.5
196 - 215	-4.0

For slow dial speed:

Depth (Fms)	Corr. (Fms)
200 - 249	-16.0
250 - 300	-17.0
301 - 354	-18.0
355 - 404	-19.0
405 - 464	-20.0
465 - 529	-21.0
530 - 590	-22.0
591 - 660	-23.0
661 - 740	-24.0
741 - 830	-25.0
831 - 940	-26.0
941 - 1110	-27.0
1111 - 1560	-28.0
1561 - 1710	-27.0

Descriptive Report

To Accompany Hydrographic Sheet No. 121 H-6413
Season of 1938
Aleutian Islands, Alaska.
U.S.C.& G.S.S.PIONEER - - - - - - - R.D.Horne, Commanding.

LOCALITY:
Northwest of Umnak Island and north by east of Uliaga Island.

DATE OF INSTRUCTIONS:
Director's instructions dated February 3, 1938.

SURVEY METHODS:
This is an off-shore survey and the work was all done by the ship PIONEER, with various Officers in charge of the plotting. All soundings were obtained by the Fathometer, and standard corrections were applied. Vertical casts and serial temperatures were taken as necessary to determine Fathometer corrections (See report on Fathometer Corrections, Season of 1938).

The entire sheet is controlled by R.A.R. A velocity of 1472 m/s was used for the boat sheet, and a velocity of 1474 m/s was used for the smooth sheet. The latter velocity was derived from the average velocities obtained by firing five bombs from points off the south shore of Bogoslof Island, the position of the ship being determined by sextant angles on signals on Bogoslof Island identified from the ship. These positions were plotted on a photostat of hydrographic sheet #5965. (See special section of this report for results of this velocity test.)

The following R.A.R. stations were used for control:-

Datum - Unalaska, 1901

Umnak Island (CAPE)	Lat. 53°- 29' - 39.2"	(1211.9 m.)
	Long. 168°- 19'- 42.4"	(781.8 m.)
Adugak Island (ADUGAK)	Lat. 52°- 55' - 00"	(00 m.)
	Long. 169°- 09'- 00"	(00 m.)
Uliaga Island (ULI)	Lat. 53°- 03' - 38.8"	(1199.4 m)
	Long. 169°- 43'- 47.6"	(886.4 m.)

Bomb reception was good except in areas of uneven bottom where a lag was noted. Portions of lines on which the bomb reception was poor were adjusted by log and course, a log factor being obtained from positions held fixed.

DISCREPANCIES:
The discrepancies on this sheet are of minor importance. The cross line ran on "H" day checks within reasonable limits except in areas of uneven bottom where a shift of position equal to one sounding interval would improve the crossing. These shifts were not made. Adjustments made on the sounding lines improved a number of the crossings
The following crossings have the largest discrepancies:-
Lat. 54°-08', Long. 169°- 09', 13-14 G, 6-7 H, 1270 between ~~1217~~ 1212 and 1247.
Lat. 53°- 27', Long. 169°- 27', 8-9 C, 37-38 H, 1167 between 1182 and 1192.

DANGERS:
None.

ANCHORAGES:
None.

COMPARISONS WITH PREVIOUS SURVEYS:
There are no previous surveys in this area.
The 500 fathom sounding shown on chart 8802 in lat. 53°-42', long. 169°-10', was not verified and there are no indications of such depths in that area. See par. 6, review.

JUNCTIONS WITH CONTEMPORARY SURVEYS: H-5767
The junction with the R.A.R. sheet done by the Ship DISCOVERER in 1935 appears satisfactory.
H-6383 -- The junction with this sheet, done by the SURVEYOR in 1937 & 1938, appears satisfactory.

Gilbert R. Fish

Submitted by- Gilbert R. Fish,
Jr.H.& G.E., C.& G.S.

This sheet, report, and records accompanying it have been examined and are forwarded approved.

Roland D. Horne

Roland D. Horne,
H.& G.E., C.& G.S.
Chief of Party,
Commanding Ship PIONEER.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 662
Rev. April, 1931

Velocity Tests.

#1

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°	56'	04".2	#1 λ	168°	05'	21".4
2. ϕ'	53	29	39.2	Cape λ'	168	19	42.4
$\Delta\phi\ (=\phi'-\phi)$	−	26	25.0	$\Delta\lambda\ (=\lambda'-\lambda)$	+	14	21.0
$\frac{\Delta\phi}{2}$	−	13	12.5	$\frac{\Delta\lambda}{2}$		7	10.5
$\phi_m\left(=\phi+\frac{\Delta\phi}{2}\right)$	53	42	51.7				
$\Delta\phi$ (secs.)	−	1585.0		$\Delta\lambda$ (secs.)		861.0	

log $\Delta\phi$	−3.200 0293		**log** $\Delta\lambda$	+2.935 0032	
cor. arc−sin	− 11		cor. arc−sin	− 03	
log $\Delta\phi_1$	3.200 028		log $\Delta\lambda_1$	2.935 003	
log cos $\frac{\Delta\lambda}{2}$	9.999 999		**log cos** ϕ_m	9.772 183	
colog B_m	1.490 195		**colog** A_m	1.491 231	
log $\left\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\right\}$	4.690 222	(opposite in sign to $\Delta\phi$)	**log** $\left\{s_1 \sin\left(\alpha+\frac{\Delta\alpha}{2}\right)\right\}$	+4.198 417	
			log $\left\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\right\}$	+4.690 222	
log $\Delta\lambda$		3 log $\Delta\lambda$	**log tan** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	+9.508,195	
log sin ϕ_m		log F	$\alpha+\frac{\Delta\alpha}{2}$	° 17 ' 51 " 41.8	
log sec $\frac{\Delta\phi}{2}$		log b	**log sin** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.486741	
log a			**log cos** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.978 546	
a			**log** s_1	4.711 676	
b			cor. arc−sin	+	
$-\Delta\alpha$ **(secs.)**	"		log s	4.711 677	
$-\frac{\Delta\alpha}{2}$	° ' "			51484.5 m	
$\alpha+\frac{\Delta\alpha}{2}$					
α (1 to 2)					
$\frac{\Delta\alpha}{2}$					
	180				
α′ (2 to 1)					

Time 34.83 s. Vel = 1478.2 m/s

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

RJS.

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 whole or in part) in heavy type or those underscored, if using logarithms to 6 decimal places. 11—9810

U. S. GOVERNMENT PRINTING OFFICE: 1931

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			

#2

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 662
Rev. April, 1931

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°	54′	46.7″	#2	λ	168°	05′	26.7″
2. ϕ'	53	29	39.2	Cape	λ'	168	19	42.4
$\Delta\phi$ $(=\phi'-\phi)$	−	25	07.5		$\Delta\lambda$ $(=\lambda'-\lambda)$	+	14	15.7
$\frac{\Delta\phi}{2}$	−	12	33.8		$\frac{\Delta\lambda}{2}$		7	07.8
$\phi_m\left(=\phi+\frac{\Delta\phi}{2}\right)$	53	42	13.0					
$\Delta\phi$ (secs.)	−	1507.5			$\Delta\lambda$ (secs.)	+	855.7	

log $\Delta\phi$	3.178 257		**log** $\Delta\lambda$	2.932 3215	
cor. arc−sin	−		cor. arc−sin	−	3
log $\Delta\phi_1$	3.178 257		log $\Delta\lambda_1$	2.932 321	
log cos $\frac{\Delta\lambda}{2}$	9.999 999		**log cos** ϕ_m	9.772 294	
colog B_m	1.490 194		**colog** A_m	1.491 730	
log $\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\}$	4.668 450	(opposite in sign to $\Delta\phi$)	**log** $\{s_1 \sin\left(\alpha+\frac{\Delta\alpha}{2}\right)\}$	4.195 845	
			log $\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\}$	4.668 450	
			log tan $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.527 395	
log $\Delta\lambda$	3 log $\Delta\lambda$		$\alpha+\frac{\Delta\alpha}{2}$	18° 36′ 52″	
log sin ϕ_m	log F		**log sin** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.504 060	
log sec $\frac{\Delta\phi}{2}$	log b		**log cos** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.976 665	
log a			**log** s_1	4.691 785	
a			cor. arc−sin	+	1
b	″		log s	4.691 786	
$-\Delta\alpha$ **(secs.)**	″			49179.7 m	
$-\frac{\Delta\alpha}{2}$	° ′ ″				
$\alpha+\frac{\Delta\alpha}{2}$					
α **(1 to 2)**					
$\Delta\alpha$					
	180				
α' **(2 to 1)**					

Time = 33.51 s. Vel = 1467.6 m/s

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

-1235

* 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 whole or in part) in heavy type or those underscored, if using logarithms to 6 decimal places. 11—9810

U. S. GOVERNMENT PRINTING OFFICE: 1931

✓ #3

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 662
Rev. April, 1931

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 Pos #3	53° 55' 45.1"	#3	λ	168° 05' 12.7"	
Cape 2. ϕ'	53° 29' 39.2"	Cape	λ'	168° 19' 42.4"	
$\Delta\phi\ (=\phi'-\phi)$	26' 05.9"		$\Delta\lambda\ (=\lambda'-\lambda)$	14' 29.7"	
$\frac{\Delta\phi}{2}$	13' 03.0"		$\frac{\Delta\lambda}{2}$	07' 14.8"	
$\phi_m\left(=\phi+\frac{\Delta\phi}{2}\right)$	53° 42' 42.1"				
$\Delta\phi$ (secs.)	1565.9"		$\Delta\lambda$ (secs.)	869.7"	
log $\Delta\phi$	3.194764		**log** $\Delta\lambda$	2.939370	
cor. arc−sin	− 1		cor. arc−sin	−	
log $\Delta\phi_1$	3.194763		log $\Delta\lambda_1$	2.939370	
log cos $\frac{\Delta\lambda}{2}$			**log cos** ϕ_m	9.772211	
colog B_m	1.490195		**colog** A_m	1.491230	
log$\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\}$	4.684958 (opposite in sign to $\Delta\phi$)		**log**$\{s_1 \sin\left(\alpha+\frac{\Delta\alpha}{2}\right)\}$	4.202812	
			log$\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\}$	4.684958	
log $\Delta\lambda$	3 log $\Delta\lambda$		**log tan** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.517854	
log sin ϕ_m	log F		$\alpha+\frac{\Delta\alpha}{2}$	18° 14' 13.2"	
log sec $\frac{\Delta\phi}{2}$	log b		**log sin** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.495472	
			log cos $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.977618	
log a			**log** s_1	4.707339	
a			cor. arc−sin	+ 1	
b			log s	4.707338	
$-\Delta\alpha$ **(secs.)**			log 34.46 sec.	1.537315	
$-\frac{\Delta\alpha}{2}$	° ' "			3.170023	
$\alpha+\frac{\Delta\alpha}{2}$					
α **(1 to 2)**					
$\Delta\alpha$					
	180°				
α' **(2 to 1)**					

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

Vel = 1479.2 m/s.

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 whole or in part) in heavy type or those underscored, if using logarithms to 6 decimal places. 11—9810

U. S. GOVERNMENT PRINTING OFFICE: 1931

✓ #3.

#4

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 662
Rev. April, 1931

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	′ 56	″ 24.1	#4	λ	° 168	′ 04	″ 41.2
2. ϕ'	53	29	39.2	Cape	λ'	168	19	42.4
$\Delta\phi\ (=\phi'-\phi)$		26	44.9		$\Delta\lambda\ (=\lambda'-\lambda)$		15	01.2
$\frac{\Delta\phi}{2}$		13	22.4		$\frac{\Delta\lambda}{2}$		07	30.6
$\phi_m\left(=\phi+\frac{\Delta\phi}{2}\right)$	53	43	01.6					
$\Delta\phi$ (secs.)			1604.9		$\Delta\lambda$ (secs.)			901.2

log $\Delta\phi$	3.205448			**log** $\Delta\lambda$	2.954821
cor. arc−sin	1			cor. arc−sin	
log $\Delta\phi_1$	3.205447			log $\Delta\lambda_1$	2.954821
log cos $\frac{\Delta\lambda}{2}$				**log cos** ϕ_m	9.772155
colog B_m	1.490195			**colog** A_m	1.491230
log $\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\}$	4.695642	(opposite in sign to $\Delta\phi$)		**log** $\{s_1 \sin\left(\alpha+\frac{\Delta\alpha}{2}\right)\}$	4.218206
				log $\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\}$	4.695642
				log tan $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.522564
log $\Delta\lambda$		3 log $\Delta\lambda$		$\alpha+\frac{\Delta\alpha}{2}$	° 18 ′ 25 ″ 21.0
log sin ϕ_m		log F		**log sin** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.499717
log sec $\frac{\Delta\phi}{2}$		log b		**log cos** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.977153
log a				**log** s_1	4.718489
a				cor. arc−sin	+ 1
b				log s	4.718488
$-\Delta\alpha$ **(secs.)**				log 35.14 s.	1.545802
$-\frac{\Delta\alpha}{2}$	°	′	″		2.172686
$\alpha+\frac{\Delta\alpha}{2}$					
α (1 to 2)					
$\frac{\Delta\alpha}{}$					
	180				
α′ (2 to 1)					

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

Vel. = 1488.2 m/s.

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 whole or in part) in heavy type or those underscored, if using logarithms to 6 decimal places. 11—9810

U. S. GOVERNMENT PRINTING OFFICE: 1931

#5

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 662
Rev. April, 1931

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 Pos. #5	53°	56′	20.″5	#5	λ	168°	04′	32.″5
2. ϕ' Cape	53	29	39.2	Cape	λ'	168	19	42.4
$\Delta\phi$ $(=\phi'-\phi)$	−	26	41.3		$\Delta\lambda$ $(=\lambda'-\lambda)$		15	09.9
$\frac{\Delta\phi}{2}$		13	20.6		$\frac{\Delta\lambda}{2}$		07	35.0
$\phi_m\left(=\phi+\frac{\Delta\phi}{2}\right)$	53	42	59.9					
$\Delta\phi$ (secs.)			1601.2		$\Delta\lambda$ (secs.)			909.9

log $\Delta\phi$	3.204473		**log** $\Delta\lambda$	2.958994	
cor. arc−sin	− 1		cor. arc−sin	−	
log $\Delta\phi_1$	3.204472		log $\Delta\lambda_1$	2.958994	
log cos $\frac{\Delta\lambda}{2}$			**log cos** ϕ_m	9.772160	
colog B_m	1.490195		**colog** A_m	1.491231	
log $\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\}$	4.644667 (opposite in sign to $\Delta\phi$)		**log** $\{s_1 \sin\left(\alpha+\frac{\Delta\alpha}{2}\right)\}$	4.222385	
			log $\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\}$	4.644667	
			log tan $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.527718	
log $\Delta\lambda$		3 log $\Delta\lambda$	$\alpha+\frac{\Delta\alpha}{2}$	18° 37′ 38.″5	
log sin ϕ_m		log F	**log sin** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.504351	
log sec $\frac{\Delta\phi}{2}$		log b	**log cos** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.976632	
log a			**log** s_1	4.718034	
a			cor. arc−sin	+ 1	
b			log s	4.718035	
$-\Delta\alpha$ (secs.)			log 35.21 s.	1.546666	
$-\frac{\Delta\alpha}{2}$	°	′ ″		3.171369	
$\alpha+\frac{\Delta\alpha}{2}$					
α (1 to 2)					
$\Delta\alpha$					
	180				
α' (2 to 1)					

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

Vel. = 1483.8 m/s.

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 whole or in part) in heavy type or those underscored, if using logarithms to 6 decimal places. 11—9810

U. S. GOVERNMENT PRINTING OFFICE: 1931

RJS MS.

#6

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 662
Rev. April, 1931

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°	54′	46.7″	#2	λ	168°	05′	26.7″
2. ϕ'	53	03	38.8	U1i	λ'	169	43	47.6
$\Delta\phi$ $(=\phi'-\phi)$	−	51	07.9		$\Delta\lambda$ $(=\lambda'-\lambda)$	+	38	20.9
$\frac{\Delta\phi}{2}$	−	25	34.0		$\frac{\Delta\lambda}{2}$		19	10.5
$\phi_m\left(=\phi+\frac{\Delta\phi}{2}\right)$	53	29	12.8					
$\Delta\phi$ (secs.)		− 3067.9			$\Delta\lambda$ (secs.)	+	5900.9	

log $\Delta\phi$	3.486 8412		**log** $\Delta\lambda$	3.7709183	
cor. arc−sin	− 39		cor. arc−sin	− 147	
log $\Delta\phi_1$	3.486 837		log $\Delta\lambda_1$	3.7709046	
log cos $\frac{\Delta\lambda}{2}$	9.999 956		**log cos** ϕ_m	9.774522	
colog B_m	1.490 178		**colog** A_m	1.491 225	
log $\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\}$	4.976 971	(opposite in sign to $\Delta\phi$)	**log** $\{s_1 \sin\left(\alpha+\frac{\Delta\alpha}{2}\right)\}$	5.036 651	
			log $\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\}$	4.976 971	
			log tan $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	10.059 680	
log $\Delta\lambda$		3 log $\Delta\lambda$	$\alpha+\frac{\Delta\alpha}{2}$	48° 55′ 27.9″	
log sin ϕ_m		log F	**log sin** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.877 281	
log sec $\frac{\Delta\phi}{2}$		log b	**log cos** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.817 601	
log a			**log** s_1	5.159 370	
a			cor. arc−sin	+ 9	
b			log s	5.159 379	
$-\Delta\alpha$ **(secs.)**				144,337.5	
$-\frac{\Delta\alpha}{2}$	°	′ ″			
$\alpha+\frac{\Delta\alpha}{2}$					
α **(1 to 2)**					
$\Delta\alpha$					
	180				
α' **(2 to 1)**					

Time = 9843 s Vel = 1466.4 m/s.

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

- RJS

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 whole or in part) in heavy type or those underscored, if using logarithms to 6 decimal places. 11—9810

U. S. GOVERNMENT PRINTING OFFICE: 1931

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 662
Rev. April, 1931

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

Vel. Test

	° ′ ″			° ′ ″
1. ϕ Pos #3	52 55 45.1	#3	λ	168 05 12.7
2. ϕ' Uli	52 02 38.8	Uli	λ'	169 43 47.6
$\Delta\phi\ (=\phi'-\phi)$	− 52 06.2	$\Delta\lambda\ (=\lambda'-\lambda)$		1 38 34.9
$\frac{\Delta\phi}{2}$	− 26 03.2	$\frac{\Delta\lambda}{2}$		+ 49 17.4
$\phi_m\left(=\phi+\frac{\Delta\phi}{2}\right)$	52 29 22.0			
$\Delta\phi$ (secs.)	− 3126.2	$\Delta\lambda$ (secs.)		5914.9″

log $\Delta\phi$	− 3.495031	**log $\Delta\lambda$**	3.771947
cor. arc−sin	− 4	cor. arc−sin	− 15
log $\Delta\phi_1$	3.495027	log $\Delta\lambda_1$	3.771932
log cos $\frac{\Delta\lambda}{2}$	9.999955	**log cos ϕ_m**	9.774467
colog B_m	1.490179	**colog A_m**	1.491225
log$\left\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\right\}$	4.985161 (opposite in sign to $\Delta\phi$)	**log$\left\{s_1 \sin\left(\alpha+\frac{\Delta\alpha}{2}\right)\right\}$**	5.037624
		log$\left\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\right\}$	4.985161
log $\Delta\lambda$ / 3 log $\Delta\lambda$		**log tan $\left(\alpha+\frac{\Delta\alpha}{2}\right)$**	10.052463
log sin ϕ_m / log F		$\alpha+\frac{\Delta\alpha}{2}$	48° 27′ 08.2″
log sec $\frac{\Delta\phi}{2}$ / log b		**log sin $\left(\alpha+\frac{\Delta\alpha}{2}\right)$**	9.874135
log a		**log cos $\left(\alpha+\frac{\Delta\alpha}{2}\right)$**	9.821673
a		**log s_1**	5.162489
b		cor. arc−sin	+ 9
−$\Delta\alpha$ **(secs.)**		log s	5.163498
−$\frac{\Delta\alpha}{2}$	° ′ ″	log 99.19 s.	1.996468
			3.167020
$\alpha+\frac{\Delta\alpha}{2}$			
α **(1 to 2)**			
$\Delta\alpha$			
	180°		
α' **(2 to 1)**			

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

Vel. = 1469.0 m/s.

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 whole or in part) in heavy type or those underscored, if using logarithms to 6 decimal places. 11—9810

U. S. GOVERNMENT PRINTING OFFICE: 1931

[illegible] RJS.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 662
Rev. April, 1931

INVERSE POSITION COMPUTATION

#8

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

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

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

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 Pos 2	53° 56′ 24.1″	#4	λ	168° 04′ 41.2″	
2. ϕ'	53 03 38.8	011	λ'	169 43 47.6	
$\Delta\phi$ $(=\phi'-\phi)$	51 45.3		$\Delta\lambda$ $(=\lambda'-\lambda)$	1 39 06.4	
$\frac{\Delta\phi}{2}$	26 22.6		$\frac{\Delta\lambda}{2}$	49 33.2	
$\phi_m\left(=\phi+\frac{\Delta\phi}{2}\right)$	53 30 01.0				
$\Delta\phi$ (secs.)	− 3165.3		$\Delta\lambda$ (secs.)	5946.4	
log $\Delta\phi$	3.500415		**log** $\Delta\lambda$	3.774254	
cor. arc−sin	− 4		cor. arc−sin	− 15	
log $\Delta\phi_1$	3.500411		log $\Delta\lambda_1$	3.774239	
log cos $\frac{\Delta\lambda}{2}$	9.999955		**log cos** ϕ_m	9.774386	
colog B_m	1.490179		**colog** A_m	1.491225	
log $\left\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\right\}$	4.990545 (opposite in sign to $\Delta\phi$)		**log** $\left\{s_1 \sin\left(\alpha+\frac{\Delta\alpha}{2}\right)\right\}$	5.039849	
			log $\left\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\right\}$	4.990545	
			log tan $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	10.049304	
log $\Delta\lambda$	3 log $\Delta\lambda$		$\alpha+\frac{\Delta\alpha}{2}$	48° 14′ 43.2″	
log sin ϕ_m	log F		**log sin** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.872742	
log sec $\frac{\Delta\phi}{2}$	log b		**log cos** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.823437	
log a			**log** s_1	5.167107	
a			cor. arc−sin	+ 10	
b			log s	5.167117	
$-\Delta\alpha$ **(secs.)**			log 99.68 sec.	1.998608	
$-\frac{\Delta\alpha}{2}$				3.165097	
$\alpha+\frac{\Delta\alpha}{2}$					
α **(1 to 2)**					
$\Delta\alpha$					
	180				
α' **(2 to 1)**					

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

Vel. = 1474.1 m/s.

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 whole or in part) in heavy type or those underscored, if using logarithms to 6 decimal places. 11—9810

U. S. GOVERNMENT PRINTING OFFICE: 1931

#9

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 662
Rev. April, 1931

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 Pos. 5	52° 56' 20.5"	#5	λ	168° 04' 32.5"	
2. ϕ' Unk.	53 03 38.8	Unk	λ'	169 43 47.6	
$\Delta\phi$ $(=\phi'-\phi)$	52 41.7		$\Delta\lambda$ $(=\lambda'-\lambda)$	1 39 15.1	
$\frac{\Delta\phi}{2}$	26 20.8		$\frac{\Delta\lambda}{2}$	49 37.6	
$\phi_m\left(=\phi+\frac{\Delta\phi}{2}\right)$	53 29 59.6				
$\Delta\phi$ (secs.)	3161.7		$\Delta\lambda$ (secs.)	5955.1	
log $\Delta\phi$	3.499921		**log** $\Delta\lambda$	3.774889	
cor. arc−sin	− 4		cor. arc−sin	− 15	
log $\Delta\phi_1$	3.499917		log $\Delta\lambda_1$	3.774874	
log cos $\frac{\Delta\lambda}{2}$	9.999955		**log cos** ϕ_m	9.774389	
colog B_m	1.490179		**colog** A_m	1.491225	
log $\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\}$	4.990051 (opposite in sign to $\Delta\phi$)		**log** $\{s_1 \sin\left(\alpha+\frac{\Delta\alpha}{2}\right)\}$	5.040488	
			log $\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\}$	4.990051	
log $\Delta\lambda$	3 log $\Delta\lambda$		**log tan** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	10.050437	
log sin ϕ_m	log F		$\alpha+\frac{\Delta\alpha}{2}$	48° 19' 10.5"	
log sec $\frac{\Delta\phi}{2}$	log b		**log sin** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.873242	
log a			**log cos** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.822805	
a			log s_1	5.167246	
b			cor. arc−sin	+ 10	
$-\Delta\alpha$ **(secs.)**			log s	5.167236	
$-\frac{\Delta\alpha}{2}$	° ' "		log 99.88 s.	1.999478	
$\alpha+\frac{\Delta\alpha}{2}$				3.167758	
α **(1 to 2)**					
$\Delta\alpha$					
	180°				
α' **(2 to 1)**					

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

Vel. = 1471.5 m/s.

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 whole or in part) in heavy type or those underscored, if using logarithms to 6 decimal places. 11—0810

U. S. GOVERNMENT PRINTING OFFICE: 1931

#4
10

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 642
Rev. April, 1931

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°	56′	24.1″	#4	λ	168°	04′	41.2″
2. ϕ'	53	55	00.0	Adugak	λ'	169	09	00.0
$\Delta\phi\ (=\phi'-\phi)$	01	01	24.1		$\Delta\lambda\ (=\lambda'-\lambda)$	1	04	18.8
$\frac{\Delta\phi}{2}$		30	42.0		$\frac{\Delta\lambda}{2}$		32	09.4
$\phi_m\left(=\phi+\frac{\Delta\phi}{2}\right)$	53	25	42.0					
$\Delta\phi$ (secs.)		3684.1			$\Delta\lambda$ (secs.)		3858.8	

log $\Delta\phi$	3.566 320		**log** $\Delta\lambda$	3.586 452	
cor. arc—sin	− 6		cor. arc—sin	− 6	
log $\Delta\phi_1$	3.566 314		log $\Delta\lambda_1$	3.586 446	
log cos $\frac{\Delta\lambda}{2}$	9.999 981		**log cos** ϕ_m	9.775 121	
colog B_m	1.490 173		**colog** A_m	1.491 223	
log$\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\}$	5.056 468	(opposite in sign to $\Delta\phi$)	**log**$\{s_1 \sin\left(\alpha+\frac{\Delta\alpha}{2}\right)\}$	4.852 790	
			log$\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\}$	5.056 468	
			log tan $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.796 322	
log $\Delta\lambda$		3 log $\Delta\lambda$	$\alpha+\frac{\Delta\alpha}{2}$	32° 01′ 53.8″	
log sin ϕ_m		log F	**log sin** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.724 593	
log sec $\frac{\Delta\phi}{2}$		log b	**log cos** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.928 271	
log a			**log** s_1	5.128 197	
a			cor. arc—sin	+ 1.946 796	
b			log s	3.181 401	
$-\Delta\alpha$ (secs.)				Reject	
$-\frac{\Delta\alpha}{2}$	°	′	″	Vel. *1518.4 m/s	
$\alpha+\frac{\Delta\alpha}{2}$					
α (1 to 2)					
$\Delta\alpha$					
	180				
α' (2 to 1)	* No definite mark on tape.				

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

Do not use.

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 whole or in part) in heavy type or those underscored, if using logarithms to 6 decimal places. 11—9810

U. S. GOVERNMENT PRINTING OFFICE: 1931

TABLE OF STATISTICS

Sheet Field No. 121. H2413

USC & GSS PIONEER 1938 Roland D. Horne, Com'dg.

Day Letter	Date	Soundings Fath.	V.C.	Positions Visual	D.R.	Bomb	Statute Miles of sounding lines.
A	8/26	176	-	-	4	28	61.0
B	8/27	296	1	1	13	39	90.4
C	8/28	217	-	-	-	28	82.3
D	8/29	277	1	-	5	55	107.5
E	8/30	484	-	-	16	74	200.1
F	8/31	356	-	-	8	53	157.6
G	9/1	367	1	-	9	62	159.8
H	9/2	314	-	-	10	39	138.0
Totals		2487	3	1	65	378	996.7
Grand Total		2490			444		996.7

FINAL FATHOMETER CORRECTIONS

FOR

Hydrographic Sheet Field No. 121 H-6314

For fast dial speed:

Depth (Fms)	Corr. (Fms)
0 - 19.9	+1.0
20 - 42.9	+0.5
43 - 62.9	0.0
63 - 81.9	-0.5
82 - 100.9	-1.0
101 - 119.9	-1.5
120 - 138.9	-2.0
139 - 158.9	-2.5
159 - 176.9	-3.0
177 - 195.9	-3.5
196 - 215	-4.0

For slow dial speed:

Depth (Fms)	Corr. (Fms)
200 - 249	-16.0
250 - 300	-17.0
301 - 354	-18.0
355 - 404	-19.0
405 - 464	-20.0
465 - 529	-21.0
530 - 590	-22.0
591 - 660	-23.0
661 - 740	-24.0
741 - 830	-25.0
831 - 940	-26.0
941 - 1110	-27.0
1111 - 1560	-28.0
1561 - 1710	-27.0

ABSTRACT OF VELOCITY TESTS.

BERING SEA

1938

C day.

Date	Station	Position		Velocity m/s
8/28	Cape	1		1478.2 ✓
"	"	2		1467.6
"	"	3	5.5	1479.2
"	"	4		(1488.3)R
"	"	5		1483.8 1477
"	Uliaga	2		1466.4
"	"	3	12.5	1469.0
"	"	4		1474.1
"	"	5		1471.5 1475
"	Adugak	4		(1518.4)R
			Average	1473.7

Value used 1474 m/s

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. H6413

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

Number of positions on sheet	444
Number of positions checked	44
Number of positions revised	36
Number of soundings recorded	2490
Number of soundings revised	5 + 2 = 7
" " " erroneously spaced	2
Number of signals erroneously plotted or transferred	.....

Date: 2/17/39

Verification by R.H. Carstens Elkins (5 hr.) Time: 56'

Review by J.A. McCormick, Feb. 21, 1939 Time: 8 hr.

HYDROGRAPHIC SURVEY NO. H-6413

Smooth Sheet Yes

Boat Sheet Yes

Records; Sounding 2 Vols., Wire Drag XX Vols., Bomb 2 Vols.

Descriptive Report Yes

Title Sheet Yes

List of Signals -----

Landmarks for Charts (Form 567) None

Statistics Yes

Approved by Chief of Party Yes

Recoverable Station Cards (Form 524) None

Special Chart for Lighthouse Service (Circular Nov.30, 1933) None

Hydrography: Total Days 8 ; Last Date Sept. 2, 1938

Remarks

2776

	Remarks	Decisions
1	Title only	Baker, etc
2	" "	U.S.G.B
3		U.S.G.B (530680)
4		530695
5		U.S.G.B (535680)
6		U.S.G.B (535680)
7		525690
8		
9		
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26		
27		
M 234		

GEOGRAPHIC NAMES

Survey No. H6413

Name on Survey	On Chart No. A,	On previous survey No. B,	On U. S. quadrangle Maps C,	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
Aleutian Islands										1
Unalaska I.*										2
Umnak I*										3
Uliaga I.										4
Bogoslof I*										5
Bering Sea*										6
Adugak I										7
										8
										9
				L. Hawk		3/18/39				10
										11
										12
										13
										14
										15
										16
										17
										18
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										20
										21
										22
										23
										24
										25
										26
										27

M 234

FORM M-238

MEMORANDUM

IMMEDIATE ATTENTION

SURVEY
DESCRIPTIVE REPORT } No. H-6413

received Jan. 13, 1939
registered Jan. 16, 1939
verified
reviewed
approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

ROUTE		Initial	Attention called to
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V JBR

Form 713
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Ed. Feb. 1935

TIDE NOTE FOR HYDROGRAPHIC SHEET

January 20, 1939.

Division of Hydrography and Topography:

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

Plane of reference
~~Tide Reducers are~~ approved in
4 volumes of sounding records for

HYDROGRAPHIC SHEET 6413

Locality Uliaga Island to Vicinity of Bogoslof Island, off Umnak and Unalaska Islands, Aleutian Islands.

Chief of Party: R. D. Horne in 1938.
Plane of reference is
ft. on tide staff at
ft. below B.M.

On account of the extreme depths no tide reducers are necessary.

Condition of records satisfactory except as noted below:

Chief, Division of Tides and Currents.

U. S. GOVERNMENT PRINTING OFFICE

Verifying Report for H-6413 (1938)

1. The sounding records were neat ✓ and complete and conform to the requirements of the General Instructions
2. The field plotting was completed to the extent prescribed by the ✓ Hydrographic Manual and the only drafting done over is shown on the statistics sheet. A number of soundings were improved by a slight readjustment of lines according to dead reckoning
3. The usual depth curves can be satisfactorily drawn. The 1000 fm. ✓ curve in the vicinity of lat 59-35 long 169-10 was left in pencil awaiting the junction with H-6393.
4. As this is an off shore sheet no ✓ shore line is shown on it
5. A satisfactory junction was made with the only contemporary ✓ adjacent sheet available, H-5967 (1935)
6. The control consisted of three hydrophone stations UL I, ✓ CAPE and ADUGAK. The hydrophone stations were located by sextant fixes on shore signals, were plotted on larger scaled sheets not yet

registered and were then transferred to this sheet.

7. It is noted that in this first survey covering this area only 2 bottom characteristics were secured

Respectfully Submitted
R.H. Carstens
2/17/38

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 6413 (1938) FIELD NO.121

Uliaga Island to Vicinity of Bogoslof Island, Off Umnak and Unalaska Islands, Aleutian Islands.
Surveyed in Aug. - Sept. 1938, Scale 1:120,000
Instructions dated Feb. 3, 1938 (PIONEER)

Fathometer Soundings. RAR control.

Chief of Party - R. D. Horne.
Surveyed by - R. D. Horne.
Protracted by - G. R. Fish.
Soundings plotted by - G.R. Fish.
Verified and inked by - R. H. Carstens.

1. Shoreline and Signals.

As this is an offshore survey, no shoreline is shown. Hydrophone stations were located by sextant fixes on shore signals. The fixes were plotted on various inshore sheets, the resulting positions scaled and plotted on the present survey. The geographic positions of the hydrophones are listed in the descriptive report, page 1.

2. Junctions with Contemporary Surveys.

a. The junction with H-5967 (1935) on the northeast is satisfactory.

b. The junctions with H-6383 (1937-38) on the southeast will be considered in the review of that survey when the sheet is received from the field.

c. The instructions contemplate new surveys on the south and west. Junctions with these surveys will be considered in their respective reviews.

3. Sounding Line Crossings.

Sounding line crossings are, in general, very good. Discrepancies of approximately 2% in depth are noted in some of the crossings of H day lines with those of other days. As stated in the Descriptive Report, page 1, a shift of position equal to one sounding interval would in most cases bring the crossings into good agreement. Some have been improved by replotting in the office, but in no case have changes of a purely arbitrary nature been made.

4. Depth Curves.

The usual depth curves may be satisfactorily drawn.

5. Comparison with Prior Surveys.

This Bureau has made no prior surveys in this area.

6. Comparison with Chart 8802(New Print dated Nov. 3, 1938).

With in the area of the present survey the chart is based principally on track line soundings obtained by various vessels of the U. S. Coast Guard and furnished this office in Chart Letters 559 of 1925, 822 of 1932 and 108 of 1934 and on B.P.'s 25933 and 25934 of 1932. The outstanding difference between the chart and the survey is the 500 fathom sounding charted in lat. 53°42', long. 169°10' where the present survey shows approximately 880 fathoms. Investigation of the discrepancy in depths showed the 500 to be an erroneous charting of a 900 fathom depth from Chart Letter 108 of 1934. Other differences are readily reconciled by considering the dead reckoning control used by the Coast Guard as compared with the R.A.R. on the present survey. The present survey should supersede all previous information in the charting of the common area.

7. Condition of Survey.

a. The sounding records are neat and legible.

b. The descriptive report satisfactorily covers all items of importance.

c. The field plotting was satisfactory.

d. Only two bottom characteristics were obtained on the entire survey which covers a total area of approximately 2500 square miles (see Director's letter of Dec. 8, 1938 on the subject of bottom characteristics).

e. The time circles were drawn in ink and with lines so heavy that they are unnecessarily prominent. It is preferable that time or distance circles on all RAR sheets be plotted in pencil only.

8. Compliance with Instructions for the Project.

The survey satisfies the instructions for the project.

9. Additional Field Work Recommended.

No additional work is recommended.

10. Superseded Old Surveys.

None.

11. Reviewed by - J. A. Mc Cormick, Feb. 21, 1939.

Inspected by - E. P. Ellis.

Examined and approved:

Thos. B. Reed

T. B. Reed,
Chief, Section of Field Records

K. T. Adams

Chief, Division of Charts.

Fred. L. Peacock

Chief, Section of Field Work

G. Rude

Chief, Division of H. & T.

Applied to chl. 8802 J.M.a. 8/22/29
" " " 8861 J.F.W. 2/24/42
" " new chart 9030 g. H. S. 3/25/42