

5008

Diag. Cht. No. 4115

Form 504
Ed. June, 1928

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

R. S. Patton, Director

C. & G. SURVEY

L. S. A.

APR 7 1930

Avail.

Hawaiian Is.
State: ~~Terr. of Hawaii.~~

DESCRIPTIVE REPORT

~~Topographic~~ } Sheet No. 13. 5008
Hydrographic }

LOCALITY

Hawaiian Is.
~~Territory of Hawaii.~~

~~Southeast Coast of the Island~~

~~of Hawaii.~~

Approaches to Punaluu Harbor and Honuapo Harbor
~~3 1/2 miles south of Honuapo to 2 1/2 miles~~
~~east of Punaluu, Hawaii.~~

1929

CHIEF OF PARTY

K. T. ADAMS.

5008

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. 5008

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. 13.

REGISTER NO. 5008

State ~~Territory of Hawaiian Is.~~

General locality Southeast Coast of the Island of Hawaii.

Locality Approaches to Punaluu Harbor and Honuapo Harbor
~~3 1/2 miles south of Honuapo, Hawaii to 2 1/4 miles east of Punaluu, Hawaii.~~

Scale 1-20,000. Date of survey Oct. 14 to 23rd., 1929.

Vessel U. S. C. & G. S. S. GUIDE.

Chief of Party K. T. Adams.

Surveyed by Ships Officers.

Protracted by Glendon E. Boothe, John C. Mathisson

Soundings penciled by John C. Mathisson

Soundings in fathoms ~~F33~~t

Plane of reference M. L. L. W.

Subdivision of wire dragged areas by _____

Inked by L. S. Strick

Verified by L. S. S.

Instructions dated June 17th, 1929., 192

Remarks: Plane table signals were located on an accompanying sheet which will be destroyed when the hyd. sheet is completed

DESCRIPTIVE REPORT
to accompany

HYDROGRAPHIC SHEET NO. 13.

Scale 1 - 20,000.

TERRITORY OF HAWAII.

Southeast Coast of the Island of Hawaii.

$3\frac{1}{2}$ miles south of Honuapo, Hawaii to $2\frac{1}{4}$ miles east of Punaluu, Hawaii.

AUTHORITY:

Instructions of the Director dated June 17, 1929.

PURPOSE:

This sheet is to cover the area between Honuapo Harbor, and Punaluu Harbor; join up with Hydrographic Sheet No. 12 at Honuapo, Hawaii, and Hydrographic Sheet No. 14 at Punaluu, Hawaii; the approach to Honuapo from the south; the approach to Punaluu from the east; and to run offshore to approximately the 500 fathom curve. ✓

LIMITS:

The area covered by this sheet reaches from $3\frac{1}{2}$ miles south of Honuapo Harbor to $2\frac{1}{4}$ miles east of Punaluu Harbor, and runs out to approximately the 500 fathom curve. Joining to Hydrographic Sheet No. 12, Honuapo Harbor, Hawaii, and Hydrographic Sheet No. 14, Punaluu Harbor, Hawaii. ✓

SURVEY METHODS:

The inshore work was done by a sub-party working from the U. S. C. & G. S. S. GUIDE using the motorsailer. The offshore was done by the GUIDE. ✓

The personnel of the party using the motorsailer consisted of one officer in charge, right angle, and plotting; one officer steering, and left angle; one engineer to run the motorsailer engine; and three seamen to handle the handlead, and the hand sounding machine. The ship used the red light, and white light fathometer methods for sounding, and the necessary personnel to handle the ship while using visual fixes. ✓

The usual method of hand lead sounding was used. The sounding lines were run approximately parallel to the coast line. The lines were spaced 50 meters apart out to the 10 fathom curve, and 100 meters apart from the 10 to the 20 fathom curves. From 20 fathoms out to 100 fathoms the work was done with a hand sounding machine with the lines spaced 200 meters apart.

When the sounding lines had been carried by the motor-sailer far enough offshore for safety for the ship the work was taken up by the ship using the red light and the white light fathometer methods with visual fixes for control. The lines were spaced about 250 meters apart from the 100 fathom curve to the 200 fathom curve, and the spacing was gradually increased as the depth increased until the lines were about a mile apart at the 500 fathom curve.

The motorsailer went as close inshore as was practicable, but owing to the steep shore, without beaches, it was only possible, generally, to get in as far as the 5 fathom curve. In some places a short distance farther in was reached.

CONTROL:

The only sand beaches on this sheet are at the northern limit at triangulation station KAMEHAME and at signals MUT and LEAN, with the exception of the harbors. The coast line, as a whole, is made up of almost sheer, black lava, and rocky cliffs ranging from a few feet to 200 feet at the southern end of the sheet.

The sounding lines were run as close to the shore as possible on the calmest days that were had. Part of the time the boat was just on the edge of the breakers, and in the edge of the backwash.

The water up to the shore along the most of the coast appears to be two to four fathoms in depth. Breakers, in all weather, are found quite a distance offshore at the sand beach at signals MUT and LEAN. Landings cannot be made at this beach. At triangulation signal KAMEHAME there is a small sand beach but it is guarded by a row of large rocks, with breakers in all weather. With a well trained boat crew it would be possible to land at this point by watching carefully, in calm weather.

Close inshore the bottom is made up of large rocks and sand, but at a short distance offshore it is composed of sand with some rocks. Very little coral was found, and that was close inshore.

The shore is very broken, and has small coves, and small indentations. The swell breaking in these places against the almost sheer, rocky shore causes a large amount of spray to fly high in the air, giving the coast line a dangerous aspect.

Owing to the depth of the water close to the shore, and to the size of the swells, they are normally heavy, there is quite a noticeable backwash along the whole coast, altho it does not extend any distance offshore.

TIDAL DATA:

A portable tide gauge was established at Honuapo, Hawaii. Tidal data for the sheet was secured from the records of this gauge.

ANCHORAGES:

This coast is an unprotected one from the prevailing winds. It affords protection in "kona weather", (southerly weather). See the reports of Hydrographic Sheets No. 12 and No. 14 for description of anchorages at the harbors. As a rule the water is too deep inshore to allow ships to anchor except at the harbors.

LANDMARKS:

Approaching from the south the sheer, reddish brown cliffs about 200 feet in height show prominently. Running for a short distance these cliffs drop off into a rough, black lava shoreline with steep cliffs from a few feet to about fifteen feet in height.

Before reaching the town of Honuapo a reddish brown colored concave appearing cliff 236 feet in height shows prominently with the top almost black in color and with a pointed appearance.

Next to show up is the black stack, and group of white buildings at the Hutchinson Sugar Plantation Mill, 0.4 of a mile N. by E. from the dock.

Next in prominence is the group of five oil tanks of the Standard Oil Company, 0.1 mile north of the dock. These tanks are gray in color.

The white washed cairn, triangulation station HONUAPU, about 8 feet in diameter and 10 feet high, $\frac{1}{4}$ mile E. by N. from the dock, shows up well for a short distance.

The country between Honuapo and Punaluu is of the same character having black lava fields leading from the shore to about one half mile inland, with the sugar cane fields, and green brush covered hills showing in the background.

On approaching from the northeast the most prominent object is the Pahala Mill owned by the Hawaiian Agricultural Company. The mill buildings are white and two tall, white colored, stacks show

clearly against a background of dark green trees. This mill is three miles inland and 800 feet above mean sea level.

Coming in nearer the next structure of prominence is the church at Punaluu located at the top of a steep lava bank, about 90 feet above sea level, and about 275 meters inland. This church is south of a large grove of cocoanut and algeroba trees, It is of wood, very old, painted yellow, with a green roof, and has a tall steeple painted green.

STATISTICS:

Statistics of the work are attached to this report.

Respectfully submitted,


Glendon E. Boothe,
Jr. H. & G. Engr.,
U. S. C. & G. Survey.

Forwarded; Approved.



K. T. Adams,
H. & G. Engr.
U. S. C. & G. Survey.

STATISTICS FOR HYDROGRAPHIC SHEET NO. 13.

MOTORSAILER.

DATE 1929	DAY Letter	POSITIONS No. of	NO. OF SOUNDINGS.		STATUTE MILES.		
			Hand Lead	Hand Mach.	Hand Lead.	Hand Mach.	
Oct.	14	a	81	160	41	5.3	2.9
"	15	b	41	56	24	2.0	2.7
"	16	c	113	42	101	1.3	10.7
"	19	d	149	361	44	11.2	3.5
"	21	e	30	81	2	2.3	---
"	22	f	116	164	62	3.3	5.1
TOTALS		6	530	864	274	25.4	24.9

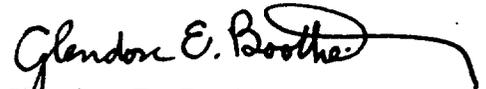
SHIP.

DATE 1929	DAY Letter	POSITIONS No. of	NO. OF WHITE LIGHT SOUNDINGS.	STATUTE MILES.		
				Red Light.	White Light	
Oct.	22	A	143	125	38.4	21.8
Oct.	23	B	95	59	24.4	16.9
TOTALS		2	238	184	62.8	38.7

TIDAL NOTE FOR HYDROGRAPHIC SHEET NO. 13.

A portable automatic tide gauge, No. 200, was established on the dock at Homuapo by Lieut. J. H. Peters on July 22, 1929. Three months of observations were obtained, and a computation of MLLW was made. The gauge was removed on October 23, 1929 upon the completion of sounding in that vicinity.

Respectfully submitted,



Glendon E. Boothe,
Jr. H. & G. Engr.
U. S. C. & G. Survey.

Forwarded; Approved.



K. T. Adams,
H. & G. Engr.
U. S. C. & G. Survey.

All tidal data was forwarded on January 7, 1930 as per "Transmitting Letter" of that date, and received at Washington on January 14, 1930. Reducers were taken directly from the marigrams by using a template, (or scale), that was enclosed with data.

REDUCTION OF SOUNDINGS
for
HYDROGRAPHIC SHEET NO. 13.

Red light soundings were reduced for velocity of sound and slope. White light soundings were reduced for slope only, the velocity of sound reduction being omitted in accordance with your authority dated December 12, 1929, which was based on the following data copied from my letter dated December 5, 1929.

"I give herewith a resume' of the reductions necessary on one sheet which has already been reduced.

From zero to 200 fathoms the reductions are plus and gradually increase from zero to three fathoms.

From 200 fathoms to 450 fathoms the reductions gradually decrease from plus three fathoms to zero.

From 450 fathoms to 1500 fathoms the reductions are negative and gradually increase from zero to seven fathoms.

From 1500 fathoms to 2250 fathoms the reductions are negative and gradually decrease from seven fathoms to zero.

From 2250 fathoms to 2635 fathoms the reductions are again positive and gradually increase from zero to eleven fathoms.

It is therefore to be seen that this reduction is always less than one half of one percent and is generally very much less than that. Also this reduction is always less than half of the probable error of observation of a white light sounding!

Slope corrections were made by drawing the depth curves on the boat sheet and using a transparent celluloid scale originated by Lieutenant J. A. Bond.

K. T. Adams
K. T. ADAMS,
H. & G. Engr.

COMPARATIVE SOUNDINGS

Used to determine

CONSTANT REDUCTION TO RED LIGHT SOUNDINGS

Sheet No. 13, Honuapo - Punaluu, Hawaii, T.H.
October 22 -23, 1929

DATE	FATHOMETER READING	VELOCITY CORRECTION	CORRECTED FATHOMETER	HANDLEAD SOUNDING	HANDLEAD minus FATHOMETER
1929					
Oct. 22	24.7	+0.7	25.4	24.5	+ 0.9
	25.3	0.7	26.0	25.5	0.5
23	26.0	0.7	26.7	26.5	0.2
	20.5	0.6	21.1	21.0	0.1
	20.5	0.6	21.1	21.2	0.1
					<hr/> +0.1 - 1.7
					+0.1
					<hr/> Sum (5) - 1.6
					Mean - 0.32

Subtract 0.3 fms. from each red light fathometer sounding on sheet No. 13.

Tabulated by KTA
✓ JBA

COAST AND GEODETIC SURVEY STEAMER "....."

Locality, Date,, 19.....

Sounding No. Line

DEPTHS, IN FATHOMS.	TEMPERATURES.						REMARKS.		
	Reading.		Correction.		Corrected.			No. of the Thermometer.	Kind of Thermometer used.
	Min.	Max.	Min.	Max.	Min.	Max.			
Surface.								Temperature of Air Temperature of Thermometer. Locker Abstract of Serial Water Temperatures taken 4 miles ESE of Honolulu, Hawaii, T.H., and used for reduction of soundings on Hydro- graphic Sheet No. 13, S.E. Coast of the Island Of Hawaii, T.H. by U. S. C. & G. S. S. GUIDE. This is a checked copy of the original record. The original record is being retained at this time as it is a part of the volume containing all serial temperatures taken by this party.	

Signature of the Officer of the Deck:

Signature of the Recorder:

COAST AND GEODETIC SURVEY STEAMER "GUIDE"

Locality, 4 mi. ESE from Honuapo, Hawaii, T.H., Oct. 23, 1929

Sounding No. _____ Line 55B - Sheet #13
Lat. 19°-03.5' N, Long. 155°-29.3 W

COAST AND GEODETIC SURVEY STEAMER "GUIDE"

Locality, 4 mi. ESE from Honuapo, Hawaii, T.H., Date, Oct. 23, 1929

Sounding No. _____ Line 55B - Sheet #13
Lat. 19°-03.5' N Long. 155°-29.3 W

DEPTH, IN FATHOMS.	TEMPERATURES.						REMARKS.	DEPTH, IN FATHOMS.	TEMPERATURES.						REMARKS.				
	Reading.		Correction.		Corrected.				No. of the Thermometer.	Kind of Thermometer used.	Reading.		Correction.			Corrected.		No. of the Thermometer.	Kind of Thermometer used.
	Min.	Max.	Min.	Max.	Min.	Max.					Min.	Max.	Min.	Max.		Min.	Max.		
AM Surface.	#4110	#4102						PM Surface.	#4110	#4102									
10 ²⁹	623	Miss	4.2					12 ⁵⁵	40	25.6	25.1						Temperature of Air Temperature of Thermometer. Locker		
10 ⁴⁹	402	5.7	5.7					1 ⁰²	30	26.0	26.0								
11 ⁰¹	341	6.65	6.7					1 ⁰⁷	15	26.2	26.2								
11 ¹²	286	7.7	7.2					1 ¹²	7	26.3	26.35								
11 ²³	251	7.9	7.7					1 ²²	5	22.9	23.0 (Reject)								
11 ³³	216	8.3	8.4																
11 ⁴¹	191	9.3	11.5																
11 ⁴⁹	171	10.6	13.0																
1 ²⁹	160	10.7	11.6																
12 ⁰⁰	151	13.4	13.0																
12 ⁰⁹	135	14.9	13.9																
12 ¹⁹	121	16.3	16.8																
12 ³⁵	115	20.4	20.4																
1 ²⁵	105	18.7	19.0																
12 ³²	95	20.3	22.3																
12 ³⁹	80	21.3	22.5																
12 ⁴⁴	60	22.5	22.9																
12 ⁴⁹	50	24.5	25.5																

Signature of the Officer of the Deck: Glendon E. Boothe, Jr. H & G E
Francis B. Quinn, Jr. H & G E
Signature of the Recorder: Glendon E. Boothe, Jr. H & G E
Francis B. Quinn, Jr. H & G E

Signature of the Officer of the Deck: Glendon E. Boothe Jr. H & G E
Francis B. Quinn, Jr. H & G E
Signature of the Recorder: Glendon E. Boothe Jr. H & G E
Francis B. Quinn, Jr. H & G E

Salinity 34.5 ‰

Determination of Temperature Correction
 Hydrographic Sheet No. 13.
 Honuapo, Hawaii, T.H. (4mi. ESE of Δ Honuapo)

Depth	Temp. °C	Sum	Mean °C	Red Light Soundings Only		Summary
				Factor	Correction fms.	Temperature Correction Depth Corr.
13-1/3	26.2		26.20	+0.0283	+0.38	13.0 to fms.
26-2/3	26.0	52.2	26.10	+0.0282	+0.75	16.8 -+0.4
40	25.6	77.8	25.93	+0.0279	+1.12	20.4 -+0.5
53-1/3	24.0	101.8	25.45	+0.0272	+1.45	24.0 -+0.6
66-2/3	22.7	124.5	24.90	+0.0264	+1.76	27.6 -+0.7
80	21.3	145.8	24.30	+0.0254	+2.03	31.2 -+0.8
93-1/3	20.5	166.3				35.8 -+0.9
106-2/3	18.7	185.0				38.4 -+1.0
120	16.7	201.7				42.2 -+1.1
133-1/3	14.3	216.0	21.60	+0.0202	+2.69	46.3 -+1.2
146-2/3	12.8	228.8	20.80	+0.0186	+2.72	50.2 -+1.3
160	11.2	240.0	20.00	+1.0170	+2.72	54.4 -+1.4
173-1/3	10.2	250.2	19.25	+0.0157	+2.72	58.7 -+1.5
186-2/3	9.5	259.7	18.55	+0.0145	+2.70	63.0 -+1.6
200	8.8	268.5	17.90	+0.0133	+2.67	67.4 -+1.7
213-1/3	8.4	276.9	17.31	+0.0121	+2.58	72.4 -+1.8
226-2/3	8.2	285.1				77.3 -+1.9
240	7.9	293.0				297 -+2.0
253-1/3	7.7	300.7				382 -+1.0
266-2/3	7.5	308.2				464 - 0
280	7.3	315.5				535 --1.0
293-1/3	7.1	322.6	14.66	+0.0061	+1.79	601 --2.0
306-2/3	6.9	329.5	14.33	+0.0053	+1.63	613-1/3-3.0
320	6.7	336.2	14.01	+0.0045	+1.46	
333-1/3	6.6	342.8				
346-2/3	6.4	349.2				
360	6.3	355.5				
373-1/3	6.1	361.6	12.91	+0.0023	+0.86	
386-2/3	5.9	367.5	12.67	+0.0018	+0.70	
400	5.7	373.2				
413-1/3	5.6	378.8				
426-2/3	5.5	384.3				
440	5.4	389.7	11.81	+0.0001	+0.04	
453-1/3	5.3	395.0	11.62	-0.0003	-0.14	
466-2/3	5.2	400.2	11.43	-0.0006	-0.28	
480	5.1	405.3				
493-1/3	5.0	410.3				
506-2/3	4.9	415.2				
520	4.8	420.0	10.77	-0.0020	-1.04	
533-1/3	4.7	424.7	10.62	-0.0023	-1.23	
546-2/3	4.6	429.3	10.47	-0.0026	-1.42	
560	4.5	433.8				
573-1/3	4.4	438.2				
586-3/2	4.3	442.5				
600	4.3	446.8	9.93	-0.0037	-2.22	
613-1/3	4.2	451.0	9.80	-0.0041	-2.52	

- G.F.B.

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

Honolulu, T. H.

February 9, 1929, 19

Director,
SUPERINTENDENT, U. S. COAST AND GEODETIC SURVEY:

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

H5008

K. T. Adams

K. T. Adams.

Chief of Party.

DESCRIPTION.	POSITION.				Datum.	Method of determination.	Charts affected.
	Latitude.		Longitude.				
	° ' "	D. M. meters.	° ' "	D. P. meters.			
Black, concave cliff, 236 feet high, south of town.	19	04	1724.0	155 33	907.0	Old. Hawaiian Topo.	4115.
Black stack, Sugar Mill at Honuapo, 70 ft. high	19	05	269.4	155 33	176.6	" Topo.	4102. 4115.
5 oil tanks, painted white (In a row) * WW. Cairn. Signal							4102. 4115.
Honuapo	19	05	554.7	155 32	1741.6	" Triang.	4115.
Yellow, wood church painted green roof with steeple located at Punaluu, south of village	19	08	399.4	155 30	1055.9	" Triang.	4102. 4115.
Stack, Pahala, Higher & easterly of two tall white colored stacks about 3 miles inland. 800 feet above sea level	19	12	44.3	155 28	1358.4	" Triang.	4102. 4115.
* These tanks appear on a map showing Honuapo Landing and Surroundings made by T. Koike, October 1, 1929.							

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

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

VERIFICATION REPORT

Hydrographic Sheet No. 13

The finished smooth sheet and the completed records have been examined by me and are hereby approved.

Practically all of the ship work was done by myself or under my direct supervision and the small boat work was examined daily as it was done and discussed with the officer in charge.

The following two salinities were taken in this vicinity.

10-23-29	at 10:29 AM	- depth 623 fm.	- temp. 4.2° C
	Latitude 19-03.5	Salinity 34.63	
	Longitude 155-29.3		
10-23-29	at 1:20 Pm	- depth surface temp.	26.3° C
	Latitude 19-03.5	Salinity 34.77	
	Longitude 155-29.3		

K. T. Adams

K. T. Adams,
Commanding,
Steamer GUIDE.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

TOPOGRAPHIC TITLE SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. M

REGISTER NO.

State Territory of Hawaii

General locality Southeast coast of Hawaii Island.

Locality Honuaupo and Punaluu

Scale 1 : 20,000 Date of survey October 12 to 22, 192⁹

Vessel U. S. C. & G. S. S. GUIDE

Chief of Party K. T. Adams

Surveyed by G. W. Lovesee.

Inked by G. W. Lovesee.

Heights in feet above ----- to ground to tops of trees

Contour, Approximate contour, Form line interval ----- Feet

Instructions dated June 17, 192⁹

Remarks: Topographic signals only, no topography on this sheet.

G P O

*This sheet was not registered as a
topographic sheet but filed as Bsh. 5008
The disc. report is attached to H. 5008*

DESCRIPTIVE REPORT

TO ACCOMPANY TOPOGRAPHIC SHEET

NO. "M"

SCALE 1:20,00.

SOUTH COAST OF HAWAII ISLAND

SURVEYED OCTOBER 1929.

K. T. Adams, H. & G. Engineer, Chief of Party.
George W. Lovewee, Aid, Topographer.

LIMITS:

The work on this sheet covers the location of topographic signals along the coast of Hawaii Island from triangulation station Kipaepae 1914, three miles south of the village of Honuapo to triangulation station Kamehame 1914, two and one half miles east by north of the village of Punaluu. No Topography was done on this sheet except the location of topographic signals used for inshore hydrography.

CONTROL:

The control consists of various triangulation stations established by E. R. Hand in 1914. The following triangulation stations were used: Kamehame 1914; Stack Pahala 1914; Hill 1914; Church Punaluu 1914; Honuapo 1914; Church Honuapo 1914; Kipaepae 1914. Triangulation stations Luu and Pun were established by our party and used on this sheet.

METHOD:

The plane table traverse method was used to locate all signals. The topographic signals were built in advance of the traverse. They consist of white washed rocks and rock cairns, also white flags and rock cairns and rocks wrapped with white cloth.

TRAVERSE CLOSURES:

The traverse from Stations Kipaepae to Church Honuapo, error 6 meters, adjusted. The traverse from Stations Honuapo to Luu, error 20 meters, adjusted. The traverse from Stations Pun to Kamehame, error 0.0 meters.

GENERAL DESCRIPTION OF LOCALITY:

The area along the shore line south from the village of Honuapo is rocky with some soil and a scrub brush. Cliffs along the shore line vary in height from a gradual slope inland to nearly vertical cliffs 250 feet in height. Between the villages of Honuapo and Punaluu and east of Punaluu the shore line consists of lava flows and is baren of vegetation. The shore line drops abruptly from 10 to 40 feet to the waters edge. Signals on this sheet were located for the Hydrographic survey of Honuapo and Punaluu Bays.

PROGRESS:

Work was started on October 12th and completed on October 22nd, 1929.

STATISTICS:

Statute miles of Topo signals along shore line ----- 8.8

All work was done by a shore party working several days from the ship.

REMARKS:

When the field sheets for this region were laid out paragraph 4 of the instructions was followed rather than paragraph 1 due to the fact the surveys of previous season were made on 1 : 2,500 scale. See Instructions for this region dated June 17, 1929.

APPROVED:

K. T. Adams
K. T. Adams,
H. & G. E., Chief of Party.

RESPECTFULLY SUBMITTED,

George W. Lovesee
George W. Lovesee,
Aid, C. & G. Survey.

DEPARTURES OF THE MERIDIAN & PARALLEL FOR TOPOGRAPHIC SHEET "M" HAWAII 1929.

SIGNAL	LATITUDE	LONGITUDE	DESCRIPTION OF SIGNAL
Rat	- (43.0) 19° 01' +1801.8	155° - (1696.7) 155° 34' + 58.0	Rag on rock on stone fence.
Yes	19° 02' -(1620.3) + 224.5	155° 33' - (133.0) + 1621.5	Rag on rock.
No	19° 02 (1350.4) 494.4	155° 33' (294.0) 1460.8	Flag and cairn, no white wash.
Six	19° 02 (1072.8) 772.0	155° 33' (463.2) 1291.3	Flag and cairn, no white wash.
Five	19° 02 (703.8) 1141.0	155° 33' (669.0) 1085.5	White wash cairn.
Fore	19° 02' (226.3) 1618.3	155° 33' (965.8) 78877	Flag on cairn near edge of bluff.
Tres	19° 03' (1723.5) 121.3	155° 33' (1084.0) 670.4	Whitewash cairn on top of cliff.
Dos	19° 03' (1431.0) 413.8	155° 33' (1076.0) 674.4	Whitewash cairn.
Uno	19° 03' (1300.0) 544.8	155° 33' (1174.4) 580.0	Whitewash cairn.
Cor	19° 03' (1034.0) 810.8	155° 33' (1120.4) 634.0	Flag on SW corner of shed.
Land	19° 03' (554.0) 1290.8	155° 33' (1067.4) 687.0	Flag 100 meters inland.
Hal	19° 03' (276.0) 1568.8	155° 33' (999.9) 754.5	Flag and whitewash on hill.
Ned	19° 03' (34.4) 1810.4	155° 33' (1066.4) 688.0	Whitewash cairn.
She	19° 03' (1592.8) 4 252.0	155° 33' (1081.2) 673.0	Old shed.
nd	19° 04' (1414.6) 43022	155° 33' (1101.1) 653.1	Flag and whitewash cairn.
Cairn	19° 04' (487.2) 5 1357.6	155° 33' (722.0) 2 1032.0	White wash cairn.
Not	19° 05' (431.6) 1413.2	155° 32' (801.2) 952.8	Flag.

SIGNAL	LATITUDE	LONGITUDE	DESCRIPTION OF SIGNAL
● Ale	19° 05' (298.0) +1546.8	155° 32' (906.0) +848.0	Whitewash cairn
Bat	19° 05' (202.0) 1642.8	155° 32' (1016.0) 738.0	Flag
Cox	19° 05' (86.0) 1758.8	155° 32' (1098.0) 656.0	Whitewash cairn
Don	19° 06' (11634.0) 210.8	155° 32' (1190.8) 563.0	Whitewash on cliff
Egg	19° 06' (1494.8) 350.0	155° 32' (1293.8) 460.0	Whitewash cairn on cliff
Fig	19° 06' (1237.0) 607.8)	155° 32' (1412.8) 341.0	Flag
Gin	19° 06' (1116.8) 728.0	155° 32' (1546.8) 207.0	Whitewash cairn
Haw	19° 06' (911.8) 933.0	155° 32' (1639.8) 115.0	Whitewash cairn
If	19° 06' (830.3) 1014.5	155° 31' (34.0) 1719.8	Flag on shack
Jack	19° 06' (618.0) 1226.8	155° 31' (144.0) 1609.8	Pole wrapped with white cloth
Keep	19° 06' (508.0) 1336.8	155° 31' (271.0) 1482.8	Whitewash cairn
Lean	19° 06' (319.0) 1525.8	155° 31' (426.8) 1327.0	Pole with flag
Mut	1525.8 19° 06' (110.0) 1734.8	155° 31' (492.5) 1260.8	Whitewash cairn
Now	19° 06' (43.0) 1701.8	155° 31' (758.0) 995.8	Cairn and whitewash.
Oke	19° 07' (1841.8) 3.0	155° 31' (845.6) 908.0	Cairn with white cloth on cliff
at	19° 07' (1806.8) 38.0	155° 31' (998.0) 755.6	White flag
Quake	19° 07' (1801.8) 43.0	155° 31' (1111.0) 642.6	Whitewash cairn
Rap	19° 07' (1768.2) 76.6	155° 31' (1205.6) 548.0	White Flag
Sax	19° 07' (1736.6) 108.2	155° 31' (1360.6) 393.0	Whitewash cairn and flag

SIGNAL	LATITUDE	LONGITUDE	DESCRIPTION OF SIGNAL
Tern	19° 07' -(1662.8) + 182.0	155° 31' -(1396.4) + 357.2	White rag around rocks
Ult	19° 07' (1609.8) 235.0	155° 31' (1451.0) 302.6	White flag
Wine	19° 07' (1442.8) 402.0	155° 31' (1614.6) 139.0	Whitewash on rock
ape	19° 07' (1366.8) 478.0	155° 31' (1583.6) 170.0	Whitewash on rock
Sario	19° 07' (1261.8) 583.0	155° 31' (1646.6) 107.0	Flag on pole
Spade	19° 08' (941.0) 903.8	155° 29' (1366.5) 387.0	Whitewashed cairn
Heart	19° 08' (830.0) 1014.8	155° 29' (1498.5) 255.0	Flag and whitewashed cairn
Club	19° 08' (703.8) 1141.0	155° 29' (1670.5) 83.0	Old whitewashed cairn, large
Shep	19° 08' (650.0) 1194.8	155° 28' (103.0) 1650.5	Whitewashed cairn, 70 M. inland
Crack	19° 08' (564.0) 1280.8	155° 28' (303.0) 1450.5	Whitewash on large rock
Trip	19° 08' (448.8) 1400.0	155° 28' (516.0) 1237.5	Flag and whitewashed cairn
Grit	19° 08' (352.0) 1492.8	155° 28' (778.0) 975.5	Whitewashed cairn
Vim	19° 08' (250.0) 1594.8	155° 28' (1078.5) 675.0	Whitewashed cairn and flag
Frisco	19° 08' (204.0) 1640.8	155° 28' (1263.5) 490.0	Whitewashed cairn

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. *H-5008*.....

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

Number of positions on sheet	<i>768</i>
Number of positions checked	<i>268</i>
Number of positions revised	<i>3</i>
Number of soundings recorded	<i>1326</i>
Number of soundings revised	<i>0</i>
Number of signals erroneously plotted or transferred	<i>0</i>

Date: *October 20, 1930*.....

Cartographer: *Geo. S. Straub*.....

SECTION OF FIELD RECORDS.

Surveyed in 1929.

REPORT ON SHEET - H-5008

Chief of Party. Z. G. Adams

Surveyed by Z. G. Adams and G. E. Boothe

Protracted by G. E. Boothe and J. R. Mathisson

Soundings Plotted by J. R. Mathisson

Verified and Inked by ~~Geo. E. Boothe~~ Geo. E. Boothe

1. The records conform to the requirements of the General Instructions.

2. The plan and character of the development fulfill the requirements of the General Instructions.

3. The sounding line crossings are adequate in this survey.

4. The usual depth curves can be completely drawn, with the exception of close inshore.

5. The field plotting was completed to the extent prescribed in the General Instructions.

6. No part of the drafting done in the field party had to be done over in this office.

7. The junction with sheets H-4936 and H-4959 respectively, are satisfactory.

8. No further surveying is required to fully develop important areas within the limits of this sheet.

9. REMARKS.

All "No. bottom" soundings on inshore Hydrography were rejected - The character of the bottom is adequately determined by soundings on either side of "No bottom soundings," by interpolation.

The work as a whole is considered very satisfactory.

Respectfully Submitted

Geo. H. Straw

Oct. 20, 1930

DEPARTMENT OF COMMERCE

AND REFER TO No. 82-DRM

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

SECTION OF FIELD RECORDS

Review of Hydrographic Sheet No. 5008

Approaches to Punaluu and Honuapo Harbors, Hawaiian Islands

Surveyed in 1929

Instructions dated June 17, 1929 (GUIDE)

Chief of Party, K. T. Adams

Surveyed by K.T.A. and G. E. Boothe

Protracted by G.E.B. and J. C. Mathisson

Soundings plotted by J.C.M.

Verified and inked by L. S. Straw

1. The records conform to the requirements of the Hydrographic Manual with the exception that practically no bottom characteristics are noted outside the 100 fathom curve. A few vertical casts should have been taken for this very purpose.
2. The work is in accord with the specific instructions of above date as supplemented by the earlier instructions of Nov. 3, 1927 for the spacing of lines in deep water.

It should be noted that while the instructions call for a combined survey of the two roadsteads (Honuapo and Punaluu) with the area in between on a scale of 1:5000, it was found advisable to survey the above roadsteads on a 1:2500 scale (see H. 4959 and H. 4936). This made it impossible to include the intervening area on the same scale. This area was, therefore, surveyed on the present sheet on a scale of 1:20,000. The spacing of the lines, nevertheless, conforms to the spacing that would have obtained had a 1:5000 scale survey been made. The development in this intervening area is adequate with the possible exception of the 3 fathom spot in the cove about one mile southwest of Punaluu Harbor.

3. The sounding line crossings are adequate except in the vicinity of lat. $129^{\circ} 04 \frac{1}{2}'$, long. $155^{\circ} 20 \frac{1}{4}'$. There is a discrepancy of about 45 fathoms in the crossing of the two lines run on A and B days. The soundings were white light soundings and may be partly accounted for by the personal equations of the observers. It is not known whether the soundings on the two days were taken by different observers.

4. The usual field plotting was satisfactorily completed. It is noted that the field party has entered on the smooth sheet both the corrected and uncorrected fathometer soundings (the latter being the sounding as actually read and the former being the sounding corrected for either velocity or slope or both.) I do not know what the basis for these double ^{entires} ~~entires~~ is, unless it is the very last statement in Special Publication 165 (page 23) which calls for the showing on the smooth sheet of both corrected and uncorrected soundings, wherever slope corrections have been made. It was not intended that any distinction be made between soundings as read on the fathometer and those same soundings corrected for temperature and salinity. There would be no particular object in differentiating these since the correction for these items, ^{just} ~~just~~ as the correction for tide, sheave, lead line etc. are definite corrections easily determined. It is the correction for slope that is the uncertain factor and therefore it is desirable to have the uncorrected sounding also shown on the sheet, in order that the verifier and reviewer can make any necessary studies.

To summarize the procedure, then:

1. Where no slope corrections have been applied, plot only the soundings corrected for the usual factors, such as velocity, tide, index correction, etc.
2. Where slope corrections have been applied, plot the final soundings, including all corrections, in their proper position on the line and immediately below or adjacent thereto plot the soundings as corrected for everything except slope.

The slope corrections that were made by the field party were accepted in the office verification and no attempt was made to change them so as to conform to the method given in Special Publication No. 165.

5. The junction with the contemporary survey, H. ⁴⁹³⁶ ~~4639~~, is satisfactory.

The junction with H. 4959 is adequate although more soundings are desirable between the shore and 10 fathom curve at the southern approach to Punaluu Harbor. In this same vicinity but a little further south a line of shoal soundings (11 fms.) on pos. 87-89 d falls outside of deeper soundings. No adjustment was possible to correct this apparent discrepancy, and it is shown on the sheet as recorded. An additional line should have been run between this line and the next offshore line to determine the extent of this shoaling.

No comparison has been made with H. 4655a (surveyed in 1927) as this was only a reconnaissance survey and should be superseded by the present survey.

6. Attention is called to the fact that the principal control for ^(location of hydro signals) this sheet was established by a topographic party during the same season. As no shoreline was run at the time, the sheet is not registered as a topographic sheet but accompanies the hydrographic sheet and is marked "Boat sheet." It is the only authority for the location of the signals
7. No additional work is recommended.
8. Reviewed by A. L. Shalowitz, February 1931.

Approved:

A. M. Sobieralski
Chief, Field Records Section

T. S. Borden
Chief, Field Work Section