5018

Diag. Cht. No. 4000

C. & G. SURVEY

Department of Commerce and Labor
COAST AND GEODETIC SURVEY

JUN 2 1930

Acc. No.

R.S. Patton
Superintendent.

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

DESCRIPTIVE REPORT.

Hydrographic *Sheet No.* 14 & 15 (one sheet)
5018

LOCALITY:

Nihoa Island 1:10,000

Adams Bay 1:2,500

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

1929

CHIEF OF PARTY:

K. T. Adams

B

5018

Form 537
11—5812

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. 5018

HYDROGRAPHIC TITLE SHEET

[redacted]

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. 14 & 15 (on one sheet)

REGISTER NO. 5018

State ~~Territory of~~ Hawaiian Is.

General locality Nihoa Island

Locality Around Nihoa and Adams Bay

Scale 1:10,000 1:2,500 Date of survey May 4,5, 1929

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

Chief of Party K. T. Adams

Surveyed by W.H. Bainbridge, F.B.Quinn

Protracted by J. S. Morton

Soundings penciled by J. S. Morton

Soundings in fathoms ~~feet~~

Plane of reference M L L W

Subdivision of wire dragged areas by

Inked by H.W.Murray

Verified by H.W.Murray

Instructions dated March 26, 1928

Remarks:

GPO

Descriptive Report

to accompany

Hydrographic Sheet No. 14,

Adams Bay, Nihoa Id., T.H.

Scale 1/2,500.

DATE OF INSTRUCTIONS: March 26, 1928.

LIMITS: The soundings were carried from as close in as it was practicable to go, out thru the points forming the bay to the 12 and 13 fathom curves.

CONTROL: The customary types of small signals were used. Located by topography - Topographic Sheet No. "A", Nihoa Id.

SURVEY METHOD: Hand lead soundings were made by a whaleboat party. The lines were spaced 25 meters apart inside the bay, and 50 meters apart outside.

GENERAL INFORMATION: The day the survey was made a light north easterly breeze was blowing with a moderate swell running, piling the water up on the point between the western and middle bights, and filling the western bight with breakers. This made it impossible to sound as close in along these places as about the remainder of the bay.

The bay offers no protection except that which the lee of the island would offer.

The best landings were made on the eastern side of the central bight between signals Dog and Abe.

However all the instruments and gear for the astronomic, gravity, and topographic work done during 1928 were landed at signal Boom where an "A" frame was erected. But the shore between Dog and Abe is steeper at the water line than here; which lessens the chances of the boat being caught on the rocks by a receding swell when the landing is made directly from the boat to the shore.

The bottom is of sand and coral.

LANDMARKS: The most prominent and conspicuous objects are the two highest peaks, Miller and Tanager, from a distance; and closer in the stove-pipe-like rock formation, "the"Needle", sitting on the edge of the cliff between two knolls at the southwestern edge of the island.

TIDAL NOTE

HYDROGRAPHIC SHEET NO. 14

No tides were observed in this area. Honolulu tides were used, corrected - 10 minutes for time and 75% for range. The corrections were obtained by using proportional distances between Honolulu and Midway.

POST-OFFICE ADDRESS:

TELEGRAPH ADDRESS:

EXPRESS OFFICE:

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

VERIFICATION REPORT

HYDROGRAPHIC SHEET NO. 14

This is to certify that I have examined the finished smooth sheet and completed records and hereby approve same.

Your attention is called to the fact that this sheet, No. 14 and sheet No. 15 have been placed on the same Whatman sheet, both of them embracing adjacent territory. Sheet No. 14 may be considered an insert on Sheet No. 15 if so desired.

The boat sheet was carefully examined by me on completion of the work, which was finished in one day.

K. T. Adams

K. T. Adams,
Chief of Party.

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SHEET NO. 15.
Nihoa Island, T. H.
Scale - 1/10,000

DATE OF INSTRUCTIONS:- March 26, 1928.

LIMITS: From the shore line out to approximately one mile offshore in every direction. Sheet No. 14, Adams Bay, appears on the same sheet as an insert on a 1/2,500 scale. Sheet No. 9, on a 1/60,000 scale joins the outer limits.

CONTROL: When the topography was done, signals could not be located around the North, West and East sides of the island. The steep cliffs and inaccessible shore line made this impossible. Topographic signals were located on the high peaks on these sides and along the shore line of the low South side.

To get signals for the inaccessible sides of the island, cuts were taken from the ship to prominent objects near the water line.

For location of the ship, two theodolites were set up on the island, one at signal "MILLER" and the other at signal "TAN". At a prearranged signal, simultaneous cuts were taken with the theodolites to the ship, and at the same instant sextant angles were taken from the ship to shore objects that were visible. When possible, the theodolite cuts were supplemented by fix angles from the ship. In this manner, good location was obtained of the ship at distances of from a half mile to a mile offshore. The cuts to the new signals were taken at the same instant as the positions of the ship.

In many cases, slope angles had to be taken from peaks to shore objects. In these instances, vertical angles were taken to the objects. The problem was then considered as a right triangle, and the slope angle reduced to horizontal by the formula "horizontal angle equals the square root of the square of the slope angle minus the square of the vertical angle".

Five officers on the bridge of the ship and two ashore were used in taking all angles.

The positions of the ship are shown on the smooth sheet, encircled in blue and numbered from "1 to "29". The new signals along the shore line are shown in blue and labelled both with the letters used when taking cuts and the names assigned them in the sounding volume.

CHANGES IN TOPOGRAPHY: At the time soundings were taken with the new control the inaccessible shoreline was carefully resketched by the hydrographic party and appears on the smooth hydrographic sheet in revised form. The topographic shoreline is left in pencil to show the amount of change.

By direction of Chief, Div. Charts the topographic sheet (No. 4356) as originally surveyed shall be used for charting.
E. P. Ellis
June 27, 1933

SURVEY METHODS: A whaleboat and motor-sailer were used for the inshore soundings out to about a half mile. Regular small-boat handlead methods were followed. The outer limits of the sheet were sounded by the ship using the fathometer.

GENERAL INFORMATION: The fixes around the east end of the island were hard to obtain and are rather weak close to shore.

ANCHORAGES: The safest anchorages are between the 15 and 20 fathom curves west and southwest from the island. Some tendency to drag anchor was observed here. The prevalent current set is westerly south of the island and northwesterly to northerly west of the island.

LANDMARKS: "MILLER" and "TANAGER" peaks are the most noticable objects seen on first landfall. From the west, "NEEDLE" peak is very prominent, showing up distinctly to a distance of about ten miles. It is a sharp small peak, shaped like a tree trunk and in a little cut between two rounded peaks.

STATISTICS: The statistics for this sheet appear on a another page attached to this report.

Respectfully submitted,

Francis B. Quinn

Francis B. Quinn,
Jr. H. & G. Engineer.

Forwarded, approved,

K. T. Adams

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

SHEET NO. 15

CONSTANT CORRECTIONS TO RED LIGHT SOUNDINGS.

Depth fm.	Temp. °C	Sum	Mean °C for layer	Factor	Correction fathoms.
13½	24.6	- - -	24.60	+.0259	0.34
23-2/3	24.4	49.0	24.50	+.0257	0.69
40	23.5	72.5	24.13	+0.252	1.01

SUMMARY

Depth	Corr.
13	
	+0.3
14.7	
	+0.4
18.5	
	+0.5
22.3	
	+0.6
26.1	
	+0.7
30.2	
	+0.8
34.4	
	+0.9
38.5	
	+1.0
43.1	

DATA SHEET FOR OCEAN OBSERVATIONS

Steamer GUIDE, Hawaiian Islands Observer, Various Officers

WATER SAMPLES

Sample No. Date Time	Latitude Longitude	Therm. No. Reading Cor. Temp.	Haul No. Apparatus Depth	Salinity	
		#4114			
133 4/26/29 7:00 p.m.	23 04.3 161 24.3	24.1	Surface	35.00	
134 4/29/29 7:12 A.M.	23 14.2 161 42.3	24.4	Surface	35.01	
135 4/29/29 8:20 p.m.	23 03.2 161 54.5	24.5	Surface	35.16	
136 4/30/29 8:15 a.m.	23 04.2 161 38.6	25.1	Surface	34.97	Note: Refer to copy of Salinity observations made by GUIDE, sent to the Director by the Scripps Institute of Oceanography of the University of California under date of Sept. 18, 1929.
137 4/30/29 11:11 a.m.	23 17.3 161 54.3	24.7	Surface	34.94	
138 4/30/29 8:00 p.m.	23 08.9 161 46.6	24.5	Surface	34.96	
141 * 5/7/29 11:20 a.m.	23 07.2 162 06.6	24.5	Surface	35.00	*No W.S. #139 and 140
142 5/8/29 2:57 p.m.	22 54.12 162 01.34	No temp.	1489 fms	34.79	
143 5/8/29 4:25 p.m.	22 54.12 162 01.34	#8269 4.85	410 fms	34.46	
144 5/8/29 6:30 p.m.	22 54.12 162 01.34	22.1	Surface	35.03	
146 * 10:40 a.m. 5/9/29	23 10.5N 162 26.0W	#8269 23.7	Surface	34.97	* No #145
146a 5/16/29 1:00 p.m.	23 16.0 163 08.5	24.1	Surface	35.00	

147	23 15.5	26.0	Surface	34.93	
5/16/29	163 10.0				
4:20 p.m.					
148	23 11.28				
5/17/29	163 10.05	24.0	Surface	34.88	
10:00 p.m.					
150*	22 48.0				*No. #149
5/18/29	161.27.1	23.7	Surface	35.12	
11:00 p.m.					

COAST AND GEODETIC SURVEY STEAMER "_____"

Locality, _____ *Date,* _____, *19*____

Sounding No. _____ *Line* _____

DEPTHS, IN FATHOMS.	TEMPERATURES.						No. of the Thermometer.	Kind of Thermometer used.	REMARKS.
	Reading.		Correction.		Corrected.				
	Min.	Max.	Min.	Max.	Min.	Max.			
Surface.									Temperature of Air _____ Temperature of Thermometer, Locker _____

Signature of the Officer of the Deck: _____

Signature of the Recorder: _____

11—802

Department of Commerce and Labor
COAST AND GEODETIC SURVEY
Form 377

COAST AND GEODETIC SURVEY STEAMER "GUIDE"

SSW from Nihoa Island
Locality, 22°-54.12' N, 162-0134' W Date, May 8, 1929

Sounding No. ____ Line 115 K Sheet #9

	Depths, in Fathoms.	Temperatures. Reading. Min.	Reading. Max.	Correction. Min.	Correction. Max.	Corrected. Min.	Corrected. Max.	No. of the Thermometer.	Kind of Thermometer used.	Remarks.
		#4114		#11070						
	Surface.									Temperature of Air ____
Bott.	1489	24	5					Water Sample	(DeepSea) Ther.	Temperature of Thermometer, Tan 02-45
P.M.		#37464								Miller
3:59	850			2	85					Mid 74-12
	600	3	65	3	75					
4:25	410	4	85	5	00			Water sample		
	340	5	75	6	10					
	2 65	8	05	8	55					
4:55	225	11	20	10	80					
	200	12	55	12	00					
	188	11	70	13	10					
5:17	175	13	00	14	35					
5:23	165	13	70	14	65					
5:29	150	14	80	15	80					
	140	15	85	16	60					
5:42	130	16	35	17	00					
5:47	115	17	05	18	15					
5:54	107	17	75	18	45					

Signature of the Officer of the Deck: F. B. Quinn

Signature of the Recorder: F. B. Quinn

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Department of Commerce and Labor
COAST AND GEODETIC SURVEY
Form 377

COAST AND GEODETIC SURVEY STEAMER "____"

Locality, ____ Date, ____, 19__

Sounding No. ____ Line ____

	Depths, in Fathoms.	Temperatures. Reading. Min.	Reading. Max.	Correction. Min.	Correction. Max.	Corrected. Min.	Corrected. Max.	No. of the Thermometer.	Kind of Thermometer used.	Remarks.
	~~Surface.~~		(Continued)							Temperature of Air ____
	95	19	30	20	35					Temperature of Thermometer,
	80	20	40	20	90					Locker ____
	65	20	90	21	60					
	45	22	00	23	45					
6:18	35	23	95	24	40					
6:23	25	24	50	24	50					
	10	24	30	24	60					
	2	24	65	24	55					

Signature of the Officer of the Deck: F. B. Quinn

Signature of the Recorder: F. B. Quinn

11—802

STATISTICS FOR HYDROGRAPHIC SHEET No. 15

DATE 1929	DAY LETTER	BOAT	NO. OF POSITIONS	NO. OF SOUNDINGS HAND LEAD	MACHINE	STATUTE MILES
May 14	a	Gig	180	- -	180	16.9
May 5	a	Whaleboat	34	161		2.6
May 5	A	Ship	111	(Fathometer - Red Light)		27.7
TOTALS			325	161	180	47.2

STATISTICS:

Date 1929	Day	Volume No.	No. of Positions	No. of Soundings	Statute Miles
May 4	a	1	159	602	8.0

Respectfully submitted,

W.H. Bainbridge

W.H. Bainbridge, Jr. H & G E

Forwarded, Approved,

K.T. Adams

K.T. Adams,
Chief of Party,
Str. GUIDE.

TIDAL NOTE

HYDROGRAPHIC SHEET NO. 15

No tides were observed in this area. Honolulu tides were used, corrected - 10 minutes for time and 75% for range. The corrections were obtained by using proportional distances between Honolulu and Midway.

ecm
rae

FOR THE FILES OF THE FIELD RECORDS SECTION

June 7, 1930

Division of Hydrography and Topography:

Division of Charts:

Tide Reducers are approved in
2 volumes of sounding records for

HYDROGRAPHIC SHEET 5018

Locality: Territory of Hawaii (Nihou I.)

Chief of Party: T. T. Adams in 1929
Plane of reference is mean lower low water, reading
3.5 ft. ~~on tide staff at~~ on tabulations at Honolulu
17.3 ft. below B. M. 2

Condition of records satisfactory except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.

RCW

Chief, Division of Tides and Currents.

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 5018.

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

Number of positions on sheet	484
Number of positions checked	119
Number of positions revised	4
Number of soundings recorded	1374
Number of soundings revised	176
Number of signals erroneously plotted or transferred	.....

Date: August 15, 1930

Cartographer: Harold W. Murray

POST-OFFICE ADDRESS:

TELEGRAPH ADDRESS:

EXPRESS OFFICE:

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

VERIFICATION REPORT

HYDROGRAPHIC SHEET NO. 15

This is to certify that I have examined the smooth sheet and completed records and hereby approve same.

The field work was all done under my supervision, the ship work being actually directed by me.

Your attention is especially called to the following: When the topography was done in 1928 before I took command, no signals had been built or located on the steep east, north and west sides. And the shoreline on the topographic sheet submitted at that time, was sketched in on these sides, with no control.

For the hydrography, identifiable spots were selected on the shoreline and these were located by the method described in the descriptive report.

The shoreline was then sketched by the hydrographer to fit these signals, and it must be considered more accurate than the original topography. You are therefore requested to take this shoreline from the smooth sheet, where topographic signals were not located, in preference to the topographic sheet.

This original boat sheet was constructed on a 1:20,000 scale but the smooth sheet was constructed on a 1:10,000 scale in order to obtain greater accuracy in plotting the cuts to the signals.

K. T. Adams

K. T. Adams,
Chief of Party.

SECTION OF FIELD RECORDS

REPORT ON SHEET No. 5018

AUG. 16, 1930

CHIEF OF PARTY — H. T. Adams

DATE SURVEYED — May 4 & 5, 1929

SURVEYED by W. H. Bainbridge & F. B. Quinn

SOUNDINGS PROTRACTED & PLOTTED by J. S. Morton

VERIFIED & INKED by Harold W. Murray

1. The records, plan and character of development conform to the requirements of the General Instructions.
2. The plan and extent of development satisfy the specific instructions.
3. Considering the nature of the survey, the sounding line crossings appear to be adequate.
4. The usual depth curves can be completely drawn with the exception of the 5-fathom curve or less on the West coast.
5. The protracting was accurate and the work neat. In certain areas inshore where it became necessary to omit soundings

owing to the congestion, those soundings omitted by the field party should have been retained as they were essential for the purpose of accurately delineating the related depth curves.

6. No other unusual circumstance was noted during the verification.
7. A difference is noted in the position of the small island on the west coast (N.W. of O Bull) as indicated by Vol. 2, Page 35, of the Field Record and the plotted position on the smooth sheet.
8. It is thought that more bottom characteristics should have been obtained on the outer limits of the survey around Nihoa Island.
9. The soundings in red, representing the overlap in Adams Bay were plotted from the field records.
10. It is thought that a shoal area directly south of Adams Bay has been insufficiently developed.

11. The shore line on the west and north coast did not agree with Top. #4356 and was resurveyed by the Hydrographic Party.

Respectfully submitted:-

Harold W. Murray

IN REPLY ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY
AND NOT THE SIGNER OF THIS LETTER

AND REFER TO No. 11-DRM

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

Section of Field Records

Review of Hydrographic Sheet No. 5018

Nihoa Island, Hawaii

Surveyed in 1929

Instructions dated March 26, 1928 (GUIDE)

Chief of Party, K. T. Adams

Surveyed by W. H. Bainbridge and F. B. Quinn

Protracted and soundings plotted by J. S. Morton

Verified and inked by H. W. Murray

1. The records conform to the requirements of the hydrographic manual except that in a day, Vol. 2, no sheave corrections are either given or shown.

2. The work conforms to the requirements of the specific instructions. The 2 - 10 fathom soundings shown immediately south of Adam Bay should have been developed a little more fully. However, enough work was done on the large scale sub-plan of Adam Bay to show that these are isolated spots and not connected.

3. Junctions: As sheet 4640 is still in the field it was not possible to verify the junctions.

4. No additional work is necessary.

5. Notes to compiler:

   The shoreline of the north and west coasts of Nihoa Island should be taken from the hydrographic sheet 5018 (See note of E. P. Ellis in descriptive report T. 4356), (and page 1, descriptive report H. 5018) . See note by E.P. Ellis, July 27, 33 in descriptive report of H. 5018 (page 1).

6. Reviewed by I. E. Rittenburg, August 1930.

Approved:

A.M.S.

Chief, Section of Field Records (Charts)

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

Applied to chart 4181 Aug. 15, 1940 g.H.S.