

5005

Diag. Cht. No. 4115

Form 504 Ed. June, 1928	
DEPARTMENT OF COMMERCE U. S. COAST AND GEODETIC SURVEY	
R. S. Patton <i>Director</i>	
Hawaiian Is. State: Terr. of Hawaii	
C. & G. SURVEY L. & A. APR 7 1930 No. No.	
DESCRIPTIVE REPORT	
Topographic Hydrographic	Sheet No. 3 5005
LOCALITY	
Kailua Bay to Kiholo Bay	
N. W. Coast of Hawaii Island	
Territory of Hawaii	
1928-29	
CHIEF OF PARTY	
K. T. Adams	

5005

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.
5005

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. 3

REGISTER NO. 5005

State ~~TERRITORY OF HAWAIIAN IS.~~

General locality N. W. COAST OF HAWAII ISLAND

Locality KAILUA BAY TO KITHOLO BAY ✓

Scale 1/20,000 Date of survey Nov. 11, 1928 - Jan. 11, 1929

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

Chief of Party K. T. Adams

Surveyed by V. M. Gibbens

Protracted by A. N. Stewart

Soundings penciled by J. C. Mathisson

Soundings in fathoms ~~feet~~

Plane of reference M. L. L. W.

Subdivision of wire dragged areas by

Inked by

Verified by

Instructions dated November 3, 1927

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

DESCRIPTIVE REPORT

to accompany
HYDROGRAPHIC SHEET NO. 3
Scale 1/20,000
Kailua Bay to Kiholo Bay, Hawaii, T. H.

DATE OF INSTRUCTIONS: November 3, 1927.

LIMITS: The limits of this sheet are from Latitude $19^{\circ} 39' N$ to Latitude $19^{\circ} 51.5' N$ and from the shoreline out to the inshore limit of ship sheet No. 1.

CONTROL: The control for this sheet consisted of 4 triangulation stations, KEAHUALU, KEAHOLE, KEAHOLE LIGHT HOUSE, NAWAI, and Topographic signals located on Topographic Sheets No. D, 1928 and No. E, 1928-1929.

METHODS: The usual method of hand lead sounding was used from close inshore out to about 15 fathoms. For this work the whaleboat with the outboard motor was used. One officer in charge took right angle and plotted, one officer took left angle and coxswained the boat, one recorder, three men alternated between sounding and pulling in the lead and standing by the outboard motor. From about the 15 fathom depth out to the inshore limit of Ship Sheet No. 1, the usual method of hand machine sounding was used. For this the motorsailer was used. One officer in charge took right angle and plotted, one officer took left angle and coxswained the motorsailer, one recorder, two men operated the hand sounding machine and one launch engineer. A position was taken at each sounding.

DISCREPANCIES: Positions 1a to 8a ^{whaleboat} ~~motorsailer~~, and position 123a whaleboat, the tangent of the shoreline was used as the right object for the fix. We were too close to shore to see the right object.

The shoreline was transferred to the smooth sheet from Bromides of 1913 Topography furnished this ship by the office. There is a discrepancy between the 1913 topographic shoreline and the 1928-1929 topographic signals. In some places the signals are in the water and in other places the signals are too far inshore. The shore was left in pencil so the office might make the adjustment of the shoreline from the original 1913 Topographic sheet.

DANGERS: The only dangers on this sheet are two small shoals, one extending out from shore about 0.4 miles from signal Wump and the other extending out from shore about 0.5 miles from signal Pol.

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

Respectfully submitted,

V. M. Gibbens
V. M. Gibbens, Lieut.(j.g.)
Coast & Geodetic Survey.

Forwarded, approved,

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

VERIFICATION REPORT

Hydrographic Sheet No. 3

Kailua Bay to Kiholo Bay, T. H.

I hereby certify that I have examined this completed smooth hydrographic^{Sheet} and the records thereto and approve them.

The small boat hydrographic work was done by a party working from the ship and the boat sheet was examined every evening and discussed with the officer in charge. The ship work was done by myself in charge on the bridge.

Your attention is called to the discrepancies in shoreline mentioned in this Descriptive Report. My instructions called for recovering the old topographic stations built and located by E. R. Hand. So much time was spent hunting for these, and then many of them were doubtful or could not be found at all, that I finally ran a plane table traverse to locate the signals. These topographic sheets, D and E, have already been submitted.

In regard to the fathometer soundings, it has been impossible to correct many of them for slope. Sheet #1 has already been completed and sent to the office. A tracing of the inshore soundings was retained for the purpose of getting the slopes on this sheet, However, inadvertently the soundings, corrected for slope, were the soundings on the tracing, whereas we needed the uncorrected soundings.

An effort was made to use these corrected soundings but the slopes are so great in this vicinity that ridiculous results were obtained south of Keahole Point. Therefore these soundings have been left uncorrected and should be corrected for slope by the verifier.

Tide rips are encountered off the point $3\frac{1}{2}$ miles north of Keahole Point. The present Chart No. 4115 and E. R. Hand's topographic sheets show a sunken rock off this point some little distance offshore. This rock was not found and it is believed that tide rips caused the suspecting of the rock, without its actual presence being verified.

Omitted from H. 5005 & Chart by order of Chief F. R. Dent.

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

STATISTICS FOR SHEET, FIELD NO. 3, 1928-1929

Kailua Bay to Kiholo Bay, Hawaii, T.H.

<u>DATE</u>	<u>DAY</u>	<u>NO. OF POSITIONS</u>	<u>NO. OF SOUNDINGS</u>	<u>STATUTE MILES</u>
		Whaleboat		
Nov. 11	a	123	702	18.4
Dec. 18	b	132	762	22.1
		255	1464	40.5
		Motorsailer		
Nov. 12	a	114	114	7.3
13	b	94	206	20.7
14	c	87	87	17.4
Jan. 6	d	85	352	18.1
11	e	102	452	11.4
		482	1211	74.9
		Gig		
Dec. 14	a	44	44	8.6
16	b	123	123	25.5
		167	167	34.1
		Ship		
Dec. 15	A	42	97	15.2
	TOTALS	926	2939	164.7

TIDAL NOTE

Sheet No. 3,
Kailua Bay to Kiholo Bay, Hawaii, T. H.

1928-29

No tides were observed within the limits of this sheet.

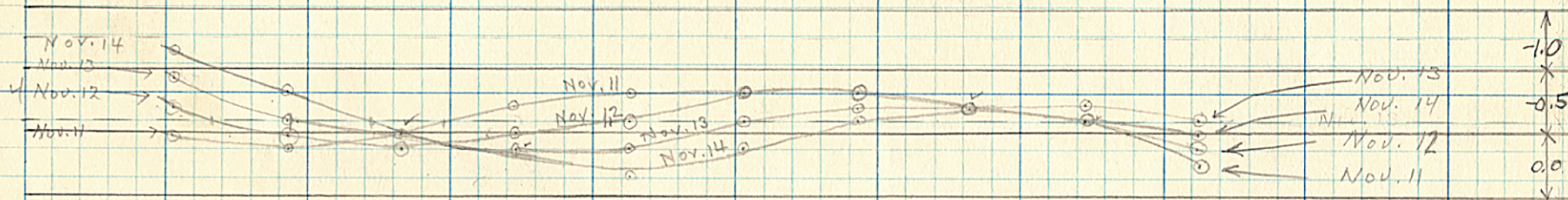
For 20 days, from November 25 to December 14, inclusive, a comparison of tides observed at Kawaihae, Hawaii Island, was made with those at Honolulu. This comparison gave a ratio of ranges as 1.15 and a time of tides $3\frac{1}{2}$ minutes earlier than Honolulu. Previous data taken over a longer period and used in the Tide Tables, give a time difference along this coast of 30 minutes earlier at Mahukona and 45 minutes earlier at Kealahou. Using these values a time difference of 40 minutes earlier was used with Honolulu tides, with the ratio of ranges 1.15.

Tides - Sheet 3

Hawaii

1928-1929

6
7 8 9 10 11 12 1 2 3 4 5 6 7



Nov. 11

8:00 AM - 10:30 = 0.0' ✓✓
~~10:30~~ - 4:45 PM = -0.5' ✓✓
~~4:45~~ - 6:00 = 0 ✓✓

Nov. 14

~~8:00~~ - 8:45 = -1.0 ✓✓
~~8:45 AM~~ - 10:20 = -0.5' ✓✓
~~10:20~~ - ~~1:55~~ = 0 ✓✓
~~2:20~~ - 5:20 = -0.5 ✓✓
~~5:20~~ - 5:30 = 0 ✓✓

Nov. 12

8:00 AM - ~~9:10~~ ~~8:40~~ = -0.5' ✓✓
~~8:40~~ 9:10 - ~~11:25~~ 11:25 PM = 0 ✓✓
~~11:25~~ 12:50 - 4:25 = -0.5' ✓✓
~~4:25~~ 4:30 - 5:30 = 0 ✓✓

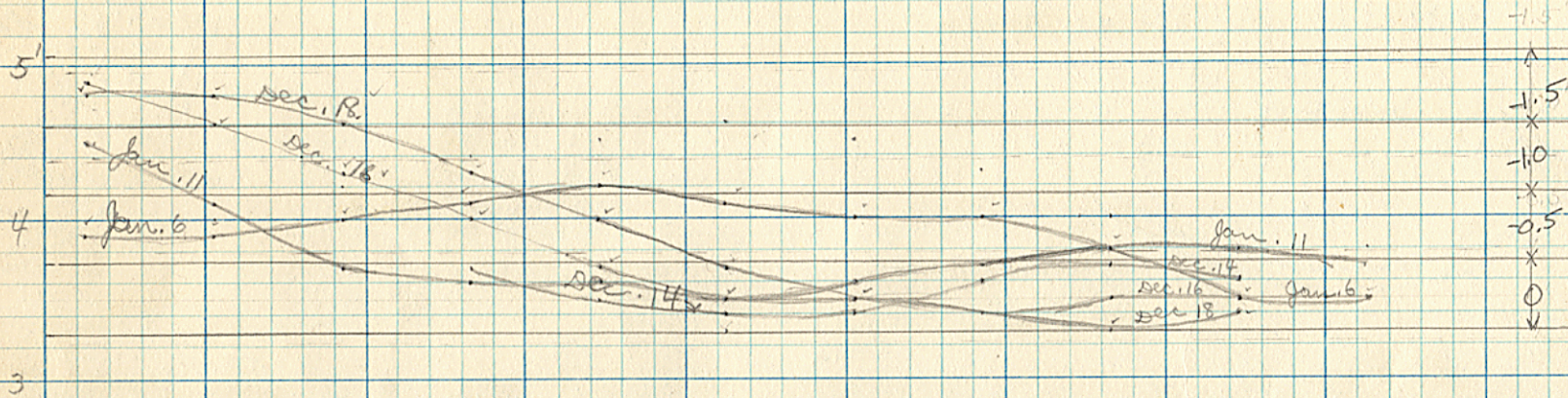
Nov. 13

8:00 AM - ~~10:25~~ ^{10:25} = -0.5' ✓✓
~~10:25~~ 10:05 - 12:55 PM = 0 ✓✓
~~12:55~~ 12:55 - 5:20 = -0.5' ✓✓

✓ and

Tides
Sheet # 3, Hawaii. 1928-29

7 AM 8 9 10 11 12 PM 1 2 3 4 5 6



Dec. 14
 10:20 - 4:20 = 0.0' ✓✓

Jan. 6
 7:20 - 10:45 = 0.5' ✓✓
~~10:45 - 11:55 = 1.0~~ ✓✓
 11:55 - 3:35 = 0.5' ✓✓
 3:35 - 5:30 = 0 ✓✓

Dec. 16
 7:20 - 8:20 = 1.5' ✓✓
 8:20 - 9:50 = 1.0' ✓✓
 9:50 - 11:15 = 0.5' ✓✓
 11:15 - 4:25 = 0.0' ✓✓
 4:25 - 5:40 = 0.5' ✓✓

Jan. 11
 7:20 - 8:10 = 1.0' ✓✓
 8:10 - 9:15 = 0.5' ✓✓
 9:15 - 2:30 = 0.0' ✓✓
 2:30 - 5:00 = 0.5' ✓✓

Dec. 18
 7:00 - 9:25 = 1.5' ✓✓
 9:25 - 10:45 = 1.0' ✓✓
 10:45 - 12:10 = 0.5' ✓✓
 12:10 - 4:20 = 0.0' ✓✓

WPA

SALINITY DETERMINATION

for use with
Temperature Corrections
Sheet No. 3, West Coast of Hawaii Id.

The value of salinity, $34.5 \frac{0}{100}$ was determined from observations submitted to Director on March 22, 1929.

See Transmitting Letter of that date:- "Package No. 6, 3 sheets, Salinity Determinations".

Department of Commerce and Labor
COAST AND GEODETIC SURVEY
Form 377

COAST AND GEODETIC SURVEY STEAMER "GUIDE"

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 _____

SERIAL TEMPERATURES
Taken February 22, 1929,
10 Miles West of Keahole Point Light, Hawaii, T. H.
Latitude $19^{\circ} - 44' N$, Longitude $156^{\circ} - 14.5' W$

Signature of the Officer of the Deck: _____

Signature of the Recorder: _____

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

Locality 10 mi. W. of Keahole Lt. Date, February 22, 1929
Hawaii Island, T. H.

Sounding No. 9 K Line Sheet #2

Lat. 19° - 44' N Long. 156° - 14.5' W

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.						REMARKS.		
	Reading.		Correction.		Corrected.			No. of the Thermometer.	Kind of Thermometer used.
	Min.	Max.	Min.	Max.	Min.	Max.			
Surface.							Temperature of Air 77° F Temperature of Thermometer, Locker		
2	24	35				4114	deep-sea		
10	23	60				"			
25	22	95				4164	"		
35	22	45				"			
40	22	25				"			
47	22	00				"			
60	21	90				"			
75	21	10				"			
90	20	45				"			
105	18	50				"			
112	19	70				"			
120	18	30				"			
130	15	30				"			
140	14	45				"			
150	14	45				"			
160	11	00				"			
175	10	70				"			
190	9	35				"			

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		
205	8	90				4104	Deep-sea		
225	8	40				"			
250	7	50				"			
285	7	00				"			
326	6	20				"			
400	5	20				"			
550	4	25				"			
800	3	15				"			
* 125	17	50				"	* Taken to Check		
* 150	15	10				"	previous observation		
* 160	12	30				"	at same depth.		

Signature of the Officer of the Deck: H. C. Warwick

Signature of the Recorder: Francis B. Quinn

Signature of the Officer of the Deck: H. C. Warwick

Signature of the Recorder: F. B. Quinn

ECM
x.a.e.

May 19, 1930.

Division of Hydrography and Topography:

Division of Charts:

Tide Reducers are approved in
6 volumes of sounding records for

HYDROGRAPHIC SHEET 5005

Locality: Hawaii Island (Kailua Bay- ^{Kiholo} Kilo Bay)

Chief of Party: K. T. Adams, in 1928-1929

Plane of reference is ~~mean lower low water reading~~ ^{mean lower low water reading} on tabulations at Honolulu

~~3.5~~ ^{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.

Chief, Division of Tides and Currents.

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 5005

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

Number of positions on sheet	<u>926</u>
Number of positions checked	<u>190</u>
Number of positions revised	<u>11</u>
Number of soundings recorded	<u>2939</u>
Number of soundings revised	<u>204</u>
Number of signals erroneously plotted or transferred

Date: Oct. 11, 1930

Cartographer: Harold W. Murray

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. D *H.5005*

REGISTER NO.

State Territory of Hawaii

General locality Hawaii Island

Locality Kaiwi Point to Kuili Hill

Scale 1:20,000 Date of survey November & December 1928

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

Chief of Party K. T. Adams

Surveyed by H. C. Warwick

Inked by H. C. Warwick

Heights in feet above _____ to ground to tops of trees

Contour, Approximate contour, Form line interval _____ feet

Instructions dated November 3, 1927, October 8, 1928

Remarks: No shore line, location of signals for hydrographic purposes.

GPO

*This sheet not registered as Topo. Sheet,
marked Boat Sh. H. 5005 - applies also to H. 5006
Attach Desc. Rep. to Desc. Rep. H. 5005*

DESCRIPTIVE REPORT
to accompany
TOPOGRAPHIC SHEET NO. D.
Scale 1:20,000
Kaiwi Point to Kuili Hill
Hawaii Island, T. H.

Filed as B. Sh. H. 5005
Attach. to Desc. Rep.
H. 5005

Surveyed November and December, 1928.

Chief of Party - K. T. Adams

Topographer - H. C. Warwick

OBJECT: The object of this survey was merely to locate signals for hydrographic purposes. The shore line was entirely disregarded, it having been done by Lieutenant E. R. Hand in 1913. The present survey was necessary because sufficient of the 1913 signals could not be located to give adequate hydrographic control.

CONTROL: Triangulation stations Keahuolu, Keahole, Keahole Point Light, and Kuili.

METHOD: Regular plane table traverse method was used throughout, locating each of the previously built signals by rod readings on them. The closures were as follows:

From Station Keahuolu to Station Keahole Point Light, closure 40 meters, distance 6.6 statute miles.

From Station Keahole Point Light to Station Kuili, closure 17 meters, distance 6.7 statute miles. Both closures adjusted throughout.

LANDMARKS: Signal LAWN, as described.

PROGRESS: This traverse consumed the better part of four days. The first two days three men were used on the party; the last two days two men were used.

STATISTICS:	Statute miles of traverse	13.3
	Signals built	44
	Signals located	55
	Working days	4
	Men on party	2 & 3

H. C. Warwick, Jr.
H. C. Warwick, Jr. H & G E.,
Coast & Geodetic Survey.

Forwarded:

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

List of Plane Table Positions.

Name	Latitude	D M (402)	Dongitude	D P (1400)	Remarks	Height
Gib	19- 48	1443 (1657)	156 - 01	346 (1103)	Whitewash on high tip of rock	20'
Pat	19 - 48	188 (117)	156 -01	643 (880)	Whitewash cairn Offshore gable of black roof house alongside a red roof.	15'
Bum	19 - 47	1728 (261)	156 - 01	866 (511)	Red roof gable runs N and S	
You	19 - 47	1584 (502)	156 - 01	1236 (402)	Tree on point, most seaward North gable, southernmost	
Zat	19 - 47	1343 (770)	156 - 01	1345 (1532)	house of group Flag topof and on north	
Mit	19 - 47	1075 (918)	156 - 02	215 (1155)	end of long green knoll	
No	19 - 47	927 (1198)	156 - 02	592 (1004)	Whitewash cairn	
Die	19 - 47	647 (1386)	156 - 02	643 (1111)	Whitewash lava tip	
Pau	19 - 47	459 (1523)	156 - 02	636 (1163)	Whitewash on lava	
Mast	19 - 47	322 (1678)	156 - 02	584 (1061)	North gable of Northernmost house of group	
Not	19 - 47	167 (1722)	156 - 02	686 (768)	Whitewash trunk of coco palm Whitewash on North face of	
We	19 - 47	123 (389)	156 - 02	979 (646)	old stone wall White flag top of lava	
Tip	19 - 46	1556 (1839)	156 - 02	1101 (431)	mound Whitewash on N W corner of	
Wump	19 - 47	6 (405)	156 - 02	1316 (193)	old stone wall	
Up	19 - 46	1440 (345)	156 - 02	1554 (40)	Whitewash on lava	12'
Top	19 - 46	1500 (742)	156 - 02	1707 (1627)	Top of pinnacle rock on end of point	
Dirt	19 - 46	1103 (1040)	156 - 03	120 (1567)	Whitewash cairn	
Gimp	19 - 46	805 (1681)	156 - 03	180 (1610)	Whitewash	10'
Cl	19 - 46	164 (22)	156 - 03	137 (1516)	Whitewash cairn	15'
Hal	19 - 45	1823 (372)	156 - 03	231 (40)	Whitewash	15'
Lava	19 - 45	1473 (604)	156 - 02	1707 (1515)	Prominent tip of lava	
Hang	19 - 45	1241 (980)	156 - 03	232 (1527)	Whitewash	10'
Mare	19 - 45	865 (1202)	156 - 03	220 (299)	Whitewash	15'
Lawn	19 - 45	643 (1598)	156 - 02	1448 (1214)	Conspicuous lava pinnacle on top of cinder cone	65'
Land	19 - 45	247 (237)	156 - 03	533 (979)	Whitewash	10'
Hug	19 - 44	1608	156 - 03	768	Whitewash	6'

List of Plane Table Positions.

Name	Latitude	D M	Longitude	D P	Remarks	Height
		(824)		(1014)		
Cop	19 - 44	1021	156 - 03	733	Whitewash	12'
		(1355)		(1026)		
Mule	19 - 44	490	156 - 03	721	Whitewash	10'
		(1761)		(754)	Outer gable of new house	
New	19 - 44	84	156 - 03	993	of lightkeeper	
		(1789)		(500)		
Jet	19 - 44	56	156 - 03	1247	Whitewash boulder	
		(233)		(472)	Old metal square tank	
Box	19 - 43	1612	156 - 03	1275	at ruins of old house	
		(1143)		(976)		
Hero	19 - 43	702	156 - 03	771	Whitewash boulder	
		(1527)		(1527)		
Mi	19 - 43	318	156 - 03	320	Cloth around boulder	
		(46)		(1586)		
Ham	19 - 42	1799	156 - 03	161	Banner	
		(551)		(1666)	Whitewash corner of rock,	
Bird	19 - 42	1294	156 - 03	81	top of cliff	25'
		(1345)		(1707)		
Art	19 - 42	500	156 - 03	40	Whitewash cairn and flag	
		(1835)		(151)		
Al	19 - 42	10	156 - 02	1596	Algaroba bush	
		(456)		(394)	Large tripod signal built on	
Flat	19 - 41	1389	156 - 02	1354	top of highest mound on point	
		(470)		(813)	Paint on seaward end of	
Here	19 - 41	1375	156 - 02	935	ancient stone house	
		(650)		(869)		
Por	19 - 41	1195	156 - 02	879	Whitewash on point of cliff	8'
		(949)		(1296)		
Buc	19 - 41	806	156 - 02	452	Whitewash rock corner and flag	
		(1170)		(1565)		
Nec	19 - 41	675	156 - 02	183	North gable old tin roof house	
		(1550)		(1510)		
Ruf	19 - 41	295	156 - 02	238	Whitewash cairn and flag	
		(50)		(1678)		
at	19 - 40	1795	156 - 02	70	Whitewash cairn and upright log	
		(666)		(537)		
Spe	19 - 40	1179	156 - 01	1211	N. gable of northernmost house	
		(983)		(460)		
Wet	19 - 40	862	156 - 01	1288	Whitewash trunk of dead cocopalms	
		(1054)		(336)	Flag at most offshore algaroba	
Flag	19 - 40	791	156 - 01	1412	tree on point	
		(1364)		(318)		
Bit	19 - 40	481	156 - 01	1430	Cloth on rock in bight	
		(1569)		(31)		
Old	19 - 40	276	156 - 01	1717	Whitewash "O" on lava mound	20'
		(1793)		(1733)		
Dub	19 - 40	52	156 - 02	15	White boulder	
		(65)		(1711)	Whitewash corner of rock, top	
Hit	19 - 39	1780	156 - 02	37	of cliff, N. side of bight in cliff	25'

Sheet 3.

List of Plane Table Positions.

Name	Latitude	D M (332)	Longitude	D P (1682)	Remarks	Height
Tem	19 - 39	1513 (716)	156 - 02	66 (1632)	Temporary signal, cloth weighted with rocks	
Wise	19 - 39	1129 (1285)	156 - 02	116 (36)	Whitewash on top of lava mound	24'
Viv	19 - 39	560 (1829)	156 - 01	1712 (502)	Two spots of Whitewash on Mound	20'
Far	19 - 39	16	156 - 01	1246	Whitewash on extreme Southern end of point	

SECTION OF FIELD RECORDS
REPORT ON SHEET No. 5005

CHIEF OF PARTY - H. J. Adams

DATE SURVEYED - Nov. 11, 1928 - Jan. 11, 1929

SURVEYED BY - V. M. Gibbens

PROTRACTED BY - A. N. Stewart

SOUNDINGS PLOTTED BY - J. C. Mathison

VERIFIED & INKED BY - Harold W. Murray

1. The plan and character of development fulfill the requirements of the general instructions.

2. The sounding line crossings are adequate.

3. The usual depth curves can be completely drawn.

4. The field plotting was quite accurate. However, more care could have been taken in crowded regions in the selection of the critical soundings.

5. The junction with H-4957 on the west coast is satisfactory except that

little or no overlapping has occurred which would serve as a field check. The transfer was made with the proportional dividers.

6. More judgement might have been used in the selection of signals. As it was, three-letter words almost alike in spelling and sound occurred within the usual range of angles. Confusion did result not only in verifying the sheet but in reading the record.

7. As noted in the Description Report, a discrepancy resulted in transferring the shore line. The field used the 1913 Topographic sheet #3425. Since that date, a new datum has been established which had not been transferred to this sheet. Accordingly, a revised datum or projection was laid on the topographic sheet and checked. The source of reference was "Triangulation in Hawaii", S. P. No. 156. From this new datum, the shore line was satisfactory. Half the shore line had been inked by the field. This was removed in the Office.

8. Some of the fathometer soundings for "4" day were corrected for slope by the field. These soundings were compared to the table in Publication #165 and the corrections found to be practically negligible. The soundings were accordingly inked without slope corrections.

9. A few more remarks in the record, relative to changes in the ship's course, would have been quite valuable.

10. In latitude $19^{\circ}51'30''$, a discrepancy is present between the shore line and the boat's course. This area has not been inked pending revision by the reviewer.

11. Attention is called to a shoal sounding of 10 fathoms in lat. $19^{\circ}50'30''$. The field appears to have questioned this sounding, then approved it. The original entry looks like 20 fathoms which is logical for this area. It is believed that the 10 fathoms is in error.

(This sounding plotted as 20 fathoms to agree with boat's log.)

Respectfully submitted:

Harold W. Murray

Oct. 13, 1930.

DEPARTMENT OF COMMERCE

AND REFER TO No. 11-WSW

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

March 21, 1931.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 5005

Kailā^u B. to Kiholo B., Hawaii.

Surveyed in 1928 and 1929

Hand lead, machine and fathometer soundings

Instructions dated November 3, 1927. (Guide)

Chief of Party - K. T. Adams

Surveyed by - V. M. Gibbens

Protracted by - A. N. Stewart

Soundings plotted by - J. C. Mathisson

Verified and inked by - H. W. Murray

1. The records are well kept and conform to the requirements.
2. The plan, character and extent of the survey conform to the requirements of the General and Specific Instructions. The sounding lines are generally spaced closer than the instructions call for.
3. Very few cross lines were run as nearly all of the lines are parallel to the shore line. The agreement of adjacent lines is fairly good except in the broken and irregular areas close inshore.
4. The information is sufficient for drawing the usual depth curves with the exception of the curves under five fathoms which can be partially drawn.
5. The junction on the north east with H. 5006 is satisfactory.

The junction with the offshore sheet, H. 4957 is satisfactory.

The junction on the south with H. 4798 is satisfactory.

There is no previous hydrographic survey of this area.

The topographic survey of 1913, T. 3425, shows a number of reef or breaker symbols, some of which are marked P. D. Apparently these are breakers observed by the topographer and should be superseded by the hydrography on this sheet, H. 5005. The field party makes no recommendation about the P.D. sunken rock shown on T. 3425, in Lat. $19^{\circ}47.75'$, Long. $156^{\circ}03.2'$, except to state that it was not found. While the existence of this rock may not be conclusively disproved, the chief of party thinks that the topographer probably saw tide rips and the removal of the rock from the chart is recommended by the chief of the Field Record Section.

6. The usual amount of field plotting was accurately done by the field party.

It was not clear from the record whether the sounding at position 116b (brown) was intended for 10 or 20 fathoms. Although the sounding was reduced as 10 fathoms the original entry looked more like 20 fathoms on the boatsheet. It was plotted as 20 fathoms on the smooth sheet.

The discrepancy between the 1913 topographic shoreline and the 1928-1929 topographic signals was caused by transferring the shoreline without correcting the old projection on T. 3422. After the projection was corrected in the office there were no discrepancies except that the soundings encroached a trifle on the shoreline between signals Nest and Lew in Lat $19^{\circ}51.4'$ and a slight adjustment was necessary.


7. Character and scope of surveying - good.


The bottom is so broken and irregular close inshore that a number of places might be pointed out where more development could have been done, but close development on all of these shoal indications is probably not justified by their importance. The two shoals making off from the shore north of Lat. $19^{\circ}47'$ and in the vicinity of Lat. $19^{\circ}50'$ are fairly well developed and the survey as a whole is considered adequate.

8. No additional work is recommended.

9. Reviewed by R. L. Johnston. December 23, 1930.

Approved:


 Chief, Section of Field Records (CHARTS)


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

VELOCITY CORRECTIONS FOR RED LIGHT SOUNDINGS
 Sheet No. 3, Kailua Bay to Kiholo Bay, Hawaii, T.H.
 (From Observations off Keahole Pt. Lt.)

Depth	Temp. °C	Sum °C	Mean °C	Factor	Corr. fms.	Summary - Keahole Depth Correction
13-1/3	23.4	- - -	23.40	+0.0238	+0.32	13
26-2/3	22.7	46.1	23.05	+0.0231	+0.62	15.8
40	22.2	68.3	22.77	+0.0225	+0.90	+0.3
53-1/3	21.8	90.1	22.52	+0.0220	+1.07	+0.4
66-2/3	21.4	111.5	22.30	+0.0216	+1.43	20.4
80	20.9	132.4	22.07	+0.0211	+1.68	+0.5
93-1/3	20.4	152.8	21.83	+0.0207	+1.93	24.7
106-2/3	19.8	172.6	21.58	+0.0202	+2.14	+0.6
120	18.2	190.8	21.20	+0.0194	+2.33	29.3
133-1/3	15.7	206.5	20.65	+0.0183	+2.43	+0.7
146-2/3	14.0	220.5	20.05	+0.0171	+2.50	34.0
160	12.7	233.2	19.43	+0.0160	+2.56	+0.8
173-1/3	11.2	244.4	18.80	+0.0149	+2.58	39.8
186-2/3	10.1	254.5	18.17	+0.0138	+2.57	+0.9
200	9.3	263.8	17.59	+0.0127	+2.53	45.9
213-1/3	8.7	272.5	17.03	+0.0116	+2.48	+1.0
226-2/3	8.3	280.8	16.52	+0.0105	+2.38	53.5
240	7.9	288.7	16.04	+0.0096	+2.31	+1.1
253-1/3	7.6	296.3	15.59	+0.0085	+2.15	57.2
266-2/3	7.3	303.6	15.18	+0.0075	+2.00	+1.2
280	7.1	310.7	14.80	+0.0065	+1.82	60.9
293-1/3	6.8	317.5	14.46	+0.0057	+1.67	+1.3
306-2/3	6.5	324.0	14.10	+0.0047	+1.44	64.9
320	6.3	330.3	13.76	+0.0040	+1.28	+1.4
333-1/3	6.0	336.3	13.45	+0.0034	+1.13	69.0
346-2/3	5.8	342.1	13.16	+0.0028	+0.97	+1.5
360	5.7	347.8	12.88	+0.0023	+0.83	74.4
373-1/3	5.5	353.3	12.62	+0.0017	+0.63	+1.6
386-2/3	5.3	358.6	12.37	+0.0012	+0.46	79.8
400	5.2	363.8	12.13	+0.0008	+0.32	+1.7
						85.1
						+1.8
						90.4
						+1.9
						96.2
						+2.0
						286
						+1.0
						365
						0

Applied to compilation 4140 F.M.B. May 1941

The image shows a page of graph paper with a grid of empty cells. A dark, textured vertical strip is visible on the left side, possibly representing the spine of a book. The grid is composed of 10 columns and 13 rows of empty cells, with the top row containing handwritten text.