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Form 504

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

....., Director

State: Hawaiian Is.

DESCRIPTIVE REPORT

Topographic

Hydrographic

Sheet No.

4600

LOCALITY

Kauai

Waimea Bay and Approaches

1926

CHIEF OF PARTY

C.L. Garner

GOVERNMENT PRINTING OFFICE

DESCRIPTIVE REPORT

To accompany

HYDROGRAPHIC SHEET 4600

Waimea Bay and Approaches
~~WAIMEA AND MAKAWALI LANDINGS, KAUAI, T.H.~~

1926

Str. DISCOVERER

Lieut. Comdr. Clem L. Garner,
Chief of Party.

DESCRIPTIVE REPORT

to accompany

4801

HYDROGRAPHIC SHEET WAIMEA AND MAKAWELI LANDINGS, KAUAI, T.H.

Instructions dated Nov. 23, 1925.

AREA COVERED.

The work on this sheet consists of an inshore development of the vicinity of Waimea and Makaweli Landings, extending from a point $2\frac{1}{2}$ miles east of Makaweli Landing to Kekaha, carried to a sufficient distance offshore to locate the 100 fathom curve. It is joined on the east by the Port Allen sheet, scale 1/20,000, and on the west by the ship sheet, Kauai to Niihau, scale 1/60,000.

GENERAL DESCRIPTION OF COAST AND LANDMARKS.

The coast line in this vicinity is low, with long sand beaches and only a few short stretches of low rocky shore, backed by a gently rolling slope from one to five miles in width. The summit of the mountain range a few miles farther back is usually buried in clouds.

From eastward,

After passing Port Allen and Puolo Point, the first prominent object to be seen is the brick chimney of the Makaweli Sugar Mill. Makaweli Landing is located in a small bight about two miles beyond. The most prominent topographic feature near Waimea is the mouth of Waimea Canyon, which is visible from some distance out at sea. Waimea River is blocked at its mouth and is of no importance. The wharf at Waimea, which can be used only by small boats, is fairly prominent. Waimea Mill Chimney is partly obscured by trees, although its top is plainly visible. Kekaha shows as a group of houses surrounding the silver colored Kekaha Mill Chimney. The coast between Makaweli Landing and Kekaha is fringed with trees.

OUTLYING DANGERS AND ISLANDS.

There are no islands or known outlying dangers in this vicinity.

INSHORE DANGERS.

About midway between Makaweli and Waimea Landings, a *Sand spit* shoal extends offshore for a distance of about $\frac{3}{4}$ mile, *and deepens gradually toward the sea*. A red nun buoy marks its extremity.

About $\frac{1}{4}$ mile east of the town of Kekaha another shoal extends about $\frac{3}{4}$ mile offshore, and is nearly always breaking.

DANGERS SHOWN ON PREVIOUS CHARTS BUT NOT FOUND.

The soundings on this sheet and on the Port Allen sheet to the eastward do not show any indication of the isolated rock charted about

This often breaks just inside the 4 fathom depth.

1 1/4 miles offshore S.W. from the town of Makaweli. There was no local knowledge of this rock, and it appears therefore to be on the chart without any basis of fact. *

LANDINGS AND ANCHORAGES.

The two landings, Makaweli and Waimea, are used principally by steamers of the Inter Island Steam Navigation Co., while loading sugar. These small ships anchor rather close inshore while handling freight, but move out to deeper water during heavy swells or weather. Both landings have a depth of about 1 fathom 5 feet at the end of the dock, with a gradual decrease toward the beach. Two mooring buoys are maintained by the steamship company at Waimea, and there is another smaller one about a hundred yards from the dock which is used by fishing boats.

The bottom is regular at both anchorages, and of coral, sand, and mud, providing good holding ground. *There is very little coral.*

Fishing boats (sampan) anchor near Waimea wharf except during heavy swells or weather. During the former Makaweli affords more protection. During the latter boats have to run around the island for protection.

SURVEY METHODS.

The survey was made in accordance with the usual methods, the motor sailers doing the bulk of the work, carrying the development as close to the beach as safety would permit. As the hydrography was done prior to the completion of the topography, a number of positions ~~when plotted~~ on the smooth sheet, do not agree with the boat sheet, *as erroneous topographic positions were used on the boat sheets. The positions of signals are correct on the topographic and smooth hydrographic sheets.*

Respectfully submitted,

Earl M. Buckingham
Earl M. Buckingham,
Jr. H. & G. Engr.

Approved and Forwarded,

Clem L. Garner
Clem L. Garner,
Chief of Party.

* *The source of the information upon which this rock was charted is very indefinite. It first appears upon our original compilation of the chart. A notice to Mariners warns that a reef extends 3/4 mile offshore and it appears probable that reef line was further extended and sunken rock symbol placed within it as a precaution.*

Kekaha
Not due to this, but to error in position of O B French's determination which was furnished Garner by office. Error was subsequently

NOTE: noted in office adjustment. Waimea is a new structure
Position of Kekaha Chimney as plotted on smooth sheet is correct. A.L.S.
The greater amount of the hydrography on the western boat sheet of Waimea is out in position due to erroneous positions and topography due to two causes. First, the Kekaha and Waimea mill chimneys were found to differ from the geographic positions, the former by some 500 meters, (due to new structures being built to replace old ones now destroyed.) Second; the topographer lost the eye-piece of his alidade and in an attempt to use the eye-piece from his 7" theodolite became considerably confused in his first topography which was transferred to the boat sheet referred to above. New positions were, therefore, determined for the chimneys and the topography entirely done over. (See Descriptive Report to accompany topographic sheet of Waimea Landing, Kauai.)

Elem L. Garner
Elem L. Garner,
Chief of Party.

This Hydrographic sheet has not been plotted with the usual care, the pencil used was too soft, and the work would not be accepted except on account of a shortage of officers. Three pairs of soundings ~~on~~ smooth sheet are not in agreement and are not verified as the sounding volumes were erroneously mailed ahead of the sheet. C.L.G.

STATISTICS OF SHEET.

Date(1926)	Letter	Volume	Position	Soundings	Miles	Vessel		
Jan.27	a	1	53	103	8.8	Stbd.	Motor	Sailer.
Feb.12	b	1	59	104	8.0	"	"	"
"	a	1	93	221	12.9	Port	"	"
Feb.13	b	1	43	80	5.3	"	"	"
March 30	c	1	63	205	13.0	Stbd.	"	"
"	c	1	94	249	11.8	Port	"	"
March 31	d	1-2	152	517	19.3	Stbd.	"	"
"	d	1-2	86	205	7.5	Port	"	"
April 1	e	2	68	353	8.0	Stbd.	"	"
"	e	2	74	211	7.0	Port	"	"
April 2	A	1	41	41	15.0	DISCOVERER		
"	f	2	45	179	7.1	Stbd.	Motor	Sailer.
"	f	2	17	48	1.6	Port	"	"
April 7	B	1	14	14	11.0	DISCOVERER		
"	g	2-3	47	156	7.3	Stbd.	Motor	Sailer.
"	g	2	87	512	3.5	"	Whaleboat.	
May 20	h	2-3	71	158	9.4	Port	Motor	Sailer.
June 11	h	3	22	86	2.0	Stbd.	"	"

3442 1585

Area of Sheet 20 Square Statute Miles.

Section of Field Records.

Report on Sheet No. 4600

Surveyed in Jan. - June, 1926.

Chief of Party. Clem S. Garner.

Surveyed by - Clem S. Garner, Jack Senior, R. W. Knox, J. C. Partington.

Protracted by - J. C. Partington, E. M. Buckingham.

Soundings plotted by - E. M. Buckingham.

Verified & Inked by. D. R. Rounds.

1. The records conform to the requirements of the General Instructions, except in the following respects:
 - (a) Failure to record time ahead in many places.
 - (b) Failure to note change of course, in some instances where a decided change is made.
2. The plan and character of the development fulfill the requirements of the General Instructions. In the vicinity of Long. $159^{\circ} 39' 940$ m., Lat. $21^{\circ} 55'$, a line of soundings should have been run, covering the blank area to the north and east. Also, the area to the north and east of Long. $159^{\circ} 40' 1190$ meters, Lat. $21^{\circ} 57'$ should have been better developed.

3. The sounding line crossings are adequate.

There are several pairs of soundings, as mentioned in C. S. Gann's report, that do not agree. Most of these soundings were taken on positions, and in all cases these positions have been carefully checked.

4. The depth curves above three fathoms can be completely drawn, except, in one or two instances the five fathom curve is doubtful across the vacant areas mentioned above. A marked irregularity is caused in the ten fathom curve by the soundings between positions 61c and 62c (Port. Motor-sailer volumes). The locations of positions 60c and 61c are seemingly correct. The soundings between 60c and 62c are doubtful.

5. The field plotting was completed to the extent prescribed in the General Instructions. The plotting done by J. C. Partington was very good. That done by E. M. Buckingham had to be almost entirely replotted, probably owing to the fact that

his protractor was out of adjustment when using the extension arms.

no. of positions - 1178

" " " checked - 887

" " " corrected - 315

no. of soundings - 3618

6. The junctions with adjacent sheets are very good.

7. Character and Scope of surveying - good.
Field drafting - fair.

Respectfully submitted,
D. R. Rounds.



March 18⁴, 1927.

11

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
7 volumes of sounding records for

HYDROGRAPHIC SHEET 4600

Locality:

HAWAIIAN ISLANDS

Chief of Party: Clem L. Garner
Plane of reference is M L L W
2.0 ft. on tide staff at Waimea

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 each 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.

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 January 13, 1928.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4600

Approaches to Waimea and Makaweli Landings, Kauai Island, Hawaii

Surveyed in 1926

Instructions dated November 23, 1925

Chief of Party, Clem L. Garner.

Surveyed by C. L. G., Jack Senior, R. W. Knox, and J. C. Partington.

Protracted by J. C. P. and E. M. Buckingham.

Soundings plotted by E. M. B.

Inked and verified by D. R. Rounds.

1. The records conform to the requirements of the General Instructions except that on the first day (green) the time of starting ahead was not given in all cases.
2. The plan and character of development conform to the requirements of the General Instructions.
3. The plan and extent of development satisfy the specific instructions except that there are a few small areas that should have had a few more lines to make the work conform to the spacing requirements. This was due to the fact that the position of one of the signals was changed after the hydrography was completed.
4. The usual depth curves can be drawn.
5. The sounding line crossings are adequate. However, there are pairs of soundings in the following positions where the agreement is not good:

Lat. 21° 55' 1300 m. Discrepancy 10 fathoms
Long. 159° 40' 350 m.

Lat. 21° 55' 1230 m. Discrepancy 16 fathoms
Long. 159° 40' 450 m.

Lat. 21° 56' 1650 m. Discrepancy 6 fathoms
Long. 159° 42' 750 m.

In the above cases, everything has been checked and no errors or reasons for the discrepancies were found. The first two cases were close together. There was a sounding of 14 fathoms 2 feet taken with a hand lead without any notation of a stop or slowing of speed. The sounding preceding it was a miss. The sounding following it was a stop sounding with a change to the machine. In the third case positions were taken for both soundings.

The agreement between soundings on adjacent lines is good except in a few places where there is a comparison between soundings with the hand lead and machine. Also there are a few instances where the depth curves are unnatural but no discrepancies could be found to account for them.

6. The junction with sheet 4630 is good except in a few places where the ship's soundings are three feet less than the launches' inside the 10 fathom curve and in one instance where there is a disagreement of about 3 fathoms. At this point the 10 fathom curve makes an unnatural bend.

The junction with sheet 4605 is very good.

Connections between the work of different launches and the ship on this sheet are very good.

7. Further surveying is not required.
8. Rating:
 - a. Character and scope of surveying, good.
 - b. Field drafting, good.
9. Reviewed by Casper M. Durgin.

Approved:

Chief, Section of Field Records (Charts)

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

There does not appear to be any error in the location of the pairs of soundings noted in par 5 and if such steep slopes occur there is a possibility that dangerous shoals or detached rocks exist within the area of this sheet. The work inside the 20 fm curve is too open. Further development is needed in this area and to prove the nonexistence of under rock mentioned in para 2 of the D.R. L & Coll. R. S. Sect. F. W.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

The finished Hydrographic Sheet is to be accompanied by the following title sheet, filled in as completely as possible, when the sheet is forwarded to the Office.

4600

U. S. Coast and Geodetic Survey.

Register No. 4600

State ~~Territory of~~ Hawaiian Is.

General locality ~~Kauai Island~~

Locality Waimea Bay and Approaches
~~Waimea and Makaweli Landings.~~

Chief of party Clem L. Garner

Surveyed by Clem L. Garner, Jack Senior, R.W. Knox, J.C. Partington.

Date of survey January-June, 1926

Scale 10,000
~~20,000~~

Soundings in Fathoms

Plane of reference M.L.L.W.

J.C. Partington
Protracted by E.M. Buckingham Soundings in pencil by E.M. Buckingham

Inked by D. R. Rounds. Verified by D. R. Rounds.

Records accompanying sheet (check those forwarded):

Des. report, 7 Tide books, Marigrams, Boat sheets,

. Sounding books, Wire-drag books, Photographs.

Data from other sources affecting sheet

Remarks:

Applied to chart 4100 then count 4114 692W. 11/7/58

70 Nov 18 (685)
1905

B.A. dt 1490