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Department of Commerce and Labor
COAST AND GEODETIC SURVEY

Superintendent.

State: *Hawaiian Islands*

DESCRIPTIVE REPORT.

Hyd. Sheet No. *3514*

See Rept # _____
for Positions

LOCALITY:

Mau
North Coast

1913

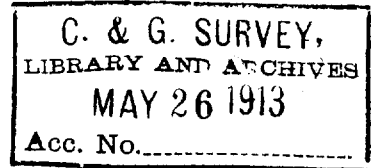
CHIEF OF PARTY:

J. B. Miller

11-4845

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DEPARTMENT OF COMMERCE

Coast and Geodetic Survey

C. H. Tittmann, Superintendent

HAWAIIAN ISLANDS

Maui Island, North Coast

Original Hydrographic Sheet No. 70

KAHAKULOA HEAD TO PAUWELA POINT

Surveyed in January 1913 by the party on the C. & G. Survey

Steamer PATTERSON

James B. Miller, Assistant, C. & G. S., Chief of Party

G. C. Mattison, Aid, C. & G. S., in charge of hydrographic party

Scale: 1: 20 000

Positions plotted by O. W. Swainson, Aid

checked by G. C. Mattison, Aid

DEPARTMENT OF COMMERCE AND LABOR
COAST AND GEODETIC SURVEY,

3514

O. H. Tittmann, Supt.

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HAWAIIAN ISLANDS

NORTH COAST OF MAUI ISLAND

A DESCRIPTIVE REPORT TO ACCOMPANY HYDROGRAPHIC SHEET NO. 70 3514

Survey by the Steamer PATTERSON, January 1913.

REPORT, LIMITS, METHODS, OBSERVER.

I have the honor to report as follows upon hydrographic sheet No. 70, which shows inshore hydrography along the north coast of Maui Island, between Kahakuloa Point and Pauwela Point, as done in January, 1913, by a party from the Steamer PATTERSON. The sounding was done in Launches No. 38 and No. 47, in charge of George C. Mattison, Aid, C. & G. Survey, and was all done with the hand lead. Lines were run at intervals of 1/8 mile.

GENERAL DESCRIPTION

The shore line is very steep at Kahakuloa Point with an elevation of 630 feet, but it gradually decreases in height until at Kahului, the shore line is very low and flat. From Kahului to Pauwela Point, the shore line rises slowly until an elevation to 150 feet is attained at Pauwela Point.

Kahakuloa Point is a bold, rocky headland 634 feet high. The top is covered with grass. The large bight between this point and Mokeekia Rock has steep rocky shore line. The country back from the shore is very irregular and is covered with grass, being thinly wooded in places.

Mokeekia Rock is a detached rock lying off a high rocky point 1 1/2 miles south-east of Kahakuloa Point. It has a conspicuous red tip, below which the rock is almost white, and at the bottom, the rock is black in color. 1/2 mile south of the rock is a bold, steep, rocky point, 430 feet high. Just south of this point is a pebble beach at the foot of the cliffs, with a lone coconut tree and some bushes growing just back of the beach. From Mokeekia Rock to Waihee Point, 2 1/2 miles south-southeast of the rock, the shore line is rocky and irregular. The country back from the shore is very irregular, and is covered with green grass. The bluffs gradually decrease in height until Waihee Point is reached where the height is only 40 feet. Just north of Waihee Point is a native house and cultivated field.

Waihee Point is a rounded, grassy point with low bluffs, at the bottom of which is a pebble beach. 1/2 mile south of the point is a small rice field. 1 mile south of Waihee Point, and 1/3 mile from the shore is a small settlement, a mill and church being the most prominent objects in it. From Waihee Point to Kahului, the shore consists of small bluffs, below which is the beach. Waihee Reef, 1 1/4 miles southwest of Waihee Point is marked by a whistling buoy 3/4 mile southwest of its outer end. From Kahului to Paia, 5 1/2 miles east by north from Kahului, the shore line is low with sandy beach. The country is flat and rises slowly from the beach. All the country back from the shore

line is covered with sugar cane fields. The first 2 miles of shore line east of Kahului is overgrown with bushes and shrubs for a distance of 400 meters from the beach. Beyond this and up to Paia, there are occasional wooded places, but most of the shore consists of sand dunes. 3 miles east by north from Kahului is a settlement and sugar mill.

Paia is a small town marked by several stacks of sugar mills. From Paia to Maliko, 1 1/2 miles from Pauwela Point, the shore line gradually becomes steeper, forming low bluffs. The sugar cane fields come almost to the shore line here. 1 mile northeast from Paia and 300 meters from the end of a grassy point, is a prominent church. The shore line along here is very irregular, having many rocks and shoals inshore. The country back from the shore rises slowly.

Maliko is a cove with steep, rocky sides, 130 feet high. At the head is a gravel beach, back of which is a cocconut grove, and deep, fertile valley. From here to Pauwela Point, the shore line consists of steep, rocky cliffs from 100 to 150 feet high, cut by one valley 1/4 mile west of Pauwela Point. There is a low, flat rock at the east side of the entrance to Maliko. 1/2 mile northeast from this rock is a sloping grassy point. 1/4 mile from this point towards Pauwela Light House is a rocky point. The country back of the shore line is grassy and rises steeper than the country near Kahului.

INSHORE DANGERS.

About 1 mile southeast of Kahakuloa is a pinnacle rock, in the middle of the bight, rising out of 21 fathoms to within a foot or two of the surface. The sea very seldom breaks on this rock. 5/8 mile south of Mokeehia Rock, and 300 meters east and off shore of a pebble beach is a rock awash. The sea breaks on this rock with only a moderate swell. Waihee Reef is well described in the Coast Pilot and was found as described. 2 1/2 miles northeast from Kahului is a reef, which extends along shore to a point about 2 miles from Pauwela Point. The outer limits of the reef are just inshore of the inshore ends of the sounding lines. There is said to be an opening in the reef somewhere west of Paia, through which a launch can safely pass and anchor safely just off the beach near Paia, but this should not be attempted without local knowledge, and is of little value.

CHARACTER OF BOTTOM.

Except close inshore, the bottom is very even. It is mostly hard sand, and usually rocky near shore.

ANCHORAGES.

Just north of Waihee Point, launches can anchor in 7 fathoms, rocky bottom, at some times when the trade winds are blowing. Maliko is an excellent anchorage for launches when the prevailing winds are blowing. The ledge and shoal on the east side of the entrance forms a natural breakwater. Anchor in 4 fathoms, rocky bottom. Just west of the rocks off Pauwela Point, is an anchorage for vessels of some ~~size~~^{size} when the trades are blowing. Anchor according to choice in from 10 to 15 fathoms, 400 meters west of the rocky ledge, which extends off Pauwela Point.

LANDING PLACES.

When the trade winds are blowing, the only landing place besides Kahului Harbor is Maliko.

CURRENTS.

An easterly current flows past Pauwela Point, but no current could be noticed at any other place.

STREAMS.

There are no navigable streams.

KAHULUI (ENTERING)

There are several aids to navigation for entering Kahului, as follows: a red nun whistling buoy 1.8 miles N 12 W (true) from Kahului Breakwater Light, and 0.9 miles S 64 E (true) from the outer end of Waihee Reef; a black cage bell buoy 3.3 miles N 57 E (true) from Kahului Breakwater Light; a range of red and white diamond shaped beacons elevated on high skeleton tripods, on a hill about 1 mile northwest from Kahului, marking the course S 54 W (true) and clearing the reef north of Kahului by 0.5 mile; a red and green lighted range in the town of Kahului, marking the course S 17 1/2 E (true) and passing over the 9 fathom spot on outer edge of Waihee Reef; and a flashing white light about the middle of Kahului Breakwater. All these objects are very difficult to pick up from a few miles offshore, and the two ranges are not reliable until one is within one mile of them; the best marks for Kahului are the twin stacks and the sugar mill at Puunene, and the three large white tanks at the inner end of the breakwater. The courses recommended for entering are South (true) or any course between S 52 W (true) and S 17 E (true) on the end of the breakwater; then round the end of the breakwater at a distance of 50 to 200 yards: there is not less than 7 fathoms on these courses: one may see bottom 0.5 mile S 68 E (true) from the whistling buoy, on the 9 fathom spot there. One may pass the whistling buoy close aboard, but the bell buoy must be given a berth of 0.6 mile to avoid the point of the reef 1.1 miles westward of it.

KAHULUI HARBOR.

One may anchor any where between Kahului Breakwater and the whistling buoy in 8 to 16 fathoms, sandy bottom, with fair holding ground, and with an almost continual swell from northeast, north, or northwest. Behind the breakwater there is scanty room for maneuvering, and a vessel more than two hundred feet long must drop her anchors and be assisted by towing boats and lines to the mooring buoys. A large ship is generally moored to four of the buoys; there is room thus for three large ships, lying close beside each other; but they must remain ready to put to sea in case of bad weather, to avoid pounding on the bottom in the swells which run in. The Inter-Island steamers berth at the wharf, but there is not room for a vessel over 200 feet long. A pilot is maintained at Kahului, who attends to mooring and unmooring. Fuel oil, ice and fresh stores may be obtained; but coal for ships cannot be had, except when shipped by special arrangement from Honolulu.

HYDROGRAPHY OF KAHULUI HARBOR.

The hydrography of Kahului Harbor and Waihee Reef was completed in 1900 by another party, and sheet 70 thus shows no sounding inside the breakwater. A blue print is also submitted with sheet 70 showing sounding in 1912 by the Corps of Engineers, U. S. Army, after the recent dredging. Tides were observed with a marigraph by the PATTERSON during January and February, 1913, and the following results obtained: H. W. F. C. 2 h - 24 m., H. W. I. 2h - 18m., L. W. I. 7 h - 55 m, mean range 1.6 feet, extreme range 3.9 feet, lowest tide 0.8 feet below datum plane. This gauge also showed seiches in the harbor, amounting to as much as one foot at times, with a period of 15 to 30 minutes, caused by the impact of the northerly swells on the end of the breakwater and the harbor entrance.

SHIP HYDROGRAPHY.

There is also a small amount of sounding by the ship plotted on sheet 70, for connecting with the launch work and showing special developments.

Respectfully Submitted,

*George C. Mathison,
Aid, C. & G. S.*

*Approved
J. B. Miller
Asst. C. & G. S. Chief of Party*

3514

ACC. NO. 1913 MAY 26 1913
LIBRARY AND ARCHIVES
C. & G. SURVEY

SHEET NO. "70"

Locality: Maui Island, T. H.

Date	Boat	Letter	Vol.	Hours	Positions	Sdgs.	Miles (stat)
(1913)							
Jan. 7	Launch 38	a	1	3.0	36	111	5.5
" 8	PATTERSON	A	1	1.0	12	24	8.3
" 13	"	B	1	5.5	52	111	27.5
" 22	Launch 47	b	1	4.0	76	187	9.8
" 22	PATTERSON	C	1	5.0	37	105	27.0
" 23	Launch 38	c	1&2	10.0	129	348	18.4
" 24	Launch 47	d	2	9.0	126	414	17.5
" 25	" "	e	2	2.5	30	79	5.2
" 27	" "	f	2	5.5	68	138	8.2
" 28	" "	g	3	8.0	112	384	17.8
" 29	" "	h	3		2	3	0.1
				53.5	680	1904	145.3

Square statute Miles 15.3

VEC
June 26, 1913.

HYDROGRAPHIC SHEET 3514.

North Coast of Maui Island, Hawaiian Islands, by
Assistant J. B. Miller in 1913.

TIDES.

	Kahului Maui Island ft.
Mean lower low water, or plane of reference on staff	3.0
Lowest tide observed " "	2.0
Highest " " " "	6.3
Mean range of tide	1.6

~~Coast and Geodetic Survey~~
JUN 26 1913
~~TIDAL MEASUREMENTS~~

Hyd = Sheet 3514.

The work was plotted in the field, verified and inked in the office. In a number of instances, e.g., V_A^{11} , V_A^{12} , V_D^{76} , V_D^{77} ... up to and incl. V_D^{86} the wrong signals were recorded.

During day "B", positions 24B to 32B. incl., were rejected as every one of them is doubtful, due, probably, to the poor register.

During day "C" (Vol. I) numerous stops were made to check the tube, and in every case the readings of the tube and reel differed by a considerable amount. As there is nothing in the record to indicate that the tubes were adjusted, it is safe to assume, that all the intermediate tube readings are wrong, but for lack of information and explanation on the part of the recorder, they were left on the sheet as plotted by the party.

For the development of Kahuhi Harbor consult Eng. Rp. 14249, Hyd = 2458, Chart 4105 & letter 229 of 1912. The work of Hyd = 3514 was later combined with the work of Hyd = 3518 and a tracing of the combined work made.

Soundings plotted in fathoms

J. B. Shklevin

11/3 - 1913.

