4542 & a

4542 & a

Form 504

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

*State:* Hawaiian Islands

11—5613

# DESCRIPTIVE REPORT.

Hydrographic *Sheet No.* 4542

LOCALITY:

Molokai I.-NW. Coast

~~Northwest Coast of Molokai~~ I.

off

~~and~~ Ilio Point.

~~Territory of Hawaii.~~

1936

CHIEF OF PARTY:

Clem L. Garner, Lieut. Comdr.

Form 537
11—6612

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

# HYDROGRAPHIC TITLE SHEET

4542

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.

U. S. Coast and Geodetic Survey.

Register No. 4542

State Hawaiian Islands

General locality Molokai I.~NW. Coast ~~N. W. Coast Molokai Id.~~

Locality . Off Ilio Point.

Chief of party . Clem L. Garner

Surveyed by . Str. DISCOVERER

Date of survey Feb. 1st. to Feb. 5th. 1926

Scale . 1;40,000

Soundings in . Fathoms.

Plane of reference . M. L. L. W.

Protracted by W. J. Chovan. Soundings in pencil by W. J. C

Inked by . . . . . Verified by . . . . . .

Records accompanying sheet (check those forwarded):

Des. report✓, ..... Tide books, ..... Marigrams, ..2.. Boat sheets,

..3.. Sounding books, ..... Wire-drag books, ..... Photographs.

Data from other sources affecting sheet . . . . . .

Remarks:

DESCRIPTIVE REPORT

Covering Hydrographic Sheet off Ilio Point,
Northwest Coast of Molokai Island .

Instructions dated October 23, 1925.

* * * * * * *

LIMITS: This sheet, scale 1:40,000 includes the hydrography off Ilio Point on the northwest coast of Molokai Island and extends from Kaichu Point on the east to about 2 miles south of Ilio Point on the west where junction is made with former work. The hydrography extends for a distance of about five miles off the coast and outside of the 100 fathom curve.

GENERAL DESCRIPTION: The west end of the Island is low as compared with the eastern end, having a maximum elevation of about 1400 feet near the middle of the west end and sloping gradually toward the sea in nearly all directions. The exception to this is about two miles of the north coast just east of Ilio Point where there are black and abrupt cliffs 200 to 400 feet in height and very conspicuous when north of and near the coast. There are no trees on this section of the coast and from the distance it appears to be barren. However, a large pineapple plantation is now under cultivation and covers a considerable portion of the higher areas of the west end of the island.

The stations KAEO and KAA are on the two outstanding elevations in this locality and form the most conspicuous objects when at all away from the coast. These are not much above the land around and between them but from the proximity of the coast appear as two distinct bumps; KAA showing as the more defined, and were used almost constantly in the hydrography of Penguin Bank. From the north, especially if any distance from the coast, these merge into the background and are not distinct from the main part of the Island.

The shore line varies from sand beach to rocky bluff and precipitous cliffs, though the sand beach is confined to a section about 1½ miles at the extreme east end of the sheet and a small section on the West end.

DANGERS: There are no outlying dangers on this section of Molokai. The only detached rock is the one shown on the sheet as Rock #1 and used as a hydrographic signal. This, however, is only about 100 meters from the shore. It is about 40 feet high. Ilio Point consisting of broken rocky bluffs still in the course of disintegration, is low and should not be approached closer than 1/2 mile. During heavy weather breakers have been observed to extend about ½ mile out to the northwest. From all indications the coast is clear and contains no dangers outside of the breakers.

METHOD OF SURVEY AND CONTROL: All work included on this sheet was done with hand lead, tube, or up and down wire soundings up to the depths of 15, 15 to 100, and all above 100 fathoms respectively, the sounding lines being spaced sonsiderably closer than were really required by the instructions. This, however, was only because due to the depths of water the time of executing the work was not materially increased.

The control was by sextant angles on suitable triangulation stations or other objects on land all of which were determined with a degree of accuracy fitting the work. Because of the necessity of hydrography near the coast line it was necessary to determine the positions of points for this purpose. This was done by sextant cuts which in every case out one had the customary third cut all in satisfactory agreement. This one signal was SPOT which was determined by only one intersection. This was used on one position only.

The projection is from positions reduced to the Hawaiian Standard Datum.

CURRENTS: No observations of currents were made and in practically all cases of drift the wind was so strong that it rendered any current analysis impossible. Currents were observed during the work and were mainly to the westward though there seems to be a slight tidal effect in that the strength varied considerably and at times was very small. This was partly due to eddies in near the coast.

ANCHORAGES: The DISCOVERER anchored one mile northwest true from station DERRICK in 15 fathoms, sandy bottom, and 1 1/3 miles 58° true from station LAINO in 20 fathoms, which are good under suitable conditions but are entirely untenable during heavy northerly weather. A heavy swell is to be expected at any time, though there are a very few days during Kona weather when it may be smooth.

There are no landings on this section of the coast and as mentioned above there are only a few rare days during the year when it would be possible to attempt it.

The usual statistical sheet is attached hereto.

The more prominent parts of the cliffs are indicated on the sheets.

Respectfully submitted

Clem L. Garner

Clem L. Garner, Lieut. Comdr.,
Chief of Party,
Commanding Officer,
Str. DISCOVERER.

N. W. Coast Molokai Id. Hawaiian Islands.

Statistics Sheet No. _____

| Date | 1926 | Letter | Volume | Positions | Soundings | Miles Statute | Vessel |
|---|---|---|---|---|---|---|---|
| Feb. | 1 | A | 1 | 15 | 25 | 7.5 | Str. Discoverer |
| " | 2 | B | 1 | 64 | 140 | 24.2 | " |
| " | 3 | C | 1 | 87 | 156 | 41.7 | " |
| " | 4 | D | 1&2 | 98 | 260 | 50.2 | " |
| " | 5 | E | 2&3 | 109 | 267 | 59.8 | " |
| | | | TOTAL | 373 | 848 | 183.4 | |

AREA - 17.0 Sq. mi.

10-28

December 28, 1926.

~~Return to Hyd. Div. for filing~~ Transferred to Chart Div for filing w/ D. Report

To:- Commanding Officer,
Coast and Geodetic Survey,
under Ship DISCOVERER,
Honolulu, T. H.

From: Director, U. S. Coast and Geodetic Survey.

Subject: Hydrographic sheet Kiip Point, Molokai Island, H 4542.

There are forwarded herewith a photostatic copy of smooth sheet H 4542 in the vicinity of Kiip Point, Molokai Island, and a tracing upon which certain cuts have been plotted from the sounding records. In checking this sheet, considerable confusion was found due to the following: (1) The questionable location of two signals, "Rock off Kaa" and "Rock No. 1"; and (2) The records show confusion of signals on a number of positions. As a result of the latter, several positions were rejected by the field plotter which it is believed can be correctly plotted and the soundings over a considerable area retained. It is also evident that plotting of other positions was in error. As it is customary in making the review of hydrographic sheets to accept the field plotting of the signals used, considerable time was lost in attempting to straighten out the latter confusion before the discrepancies in plotting the cuts were noted.

The following statement appears in the descriptive report (page 1): "The only detached rock is the one shown on the sheet as Rock No. 1 and used as a hydrographic signal. This, however, is only about 100 meters from the shore. It is about 40 ft. high."

This ~~coincides~~ agrees with the position of the rock as plotted by the field party on the smooth sheet, where it is shown as approximately 600 meters from the sketched shoreline. Furthermore, Rock No. 1 was never used as a hydrographic signal, so far as the records show. The rock appears to have been originally shown on the boat sheet, in the smooth sheet position, but subsequently erased.

It is believed that what was intended in the descriptive report was Rock off Kaa which agrees with the description given. However, there still remains uncertainty as to whether or not there

exists an offshore rock at Rock No. 1 as shown on the smooth sheet. This is very much doubted. The accompanying tracing is a plotting of all the cuts taken to locate the two rocks. An analysis of the cuts will show that a very important cut and perhaps one that should be given the greatest weight was entirely ignored in the plotting of Rock No. 1. This cut, marked on the tracing as (a), and noted in the records as "Rock off Kaa", was taken from a position where the relative positions of the point of land below Kaa and the point of land to the westward could be easily discerned. It is therefore safe to assume that any rock that exists below Kaa should be somewhere on this cut.

Cut (b) was also taken from approximately the same boat's position as cut (a), a position of vantage for cutting in rocks along shore. This cut passes through the signal called "Rock off Kaa" on the smooth and boat sheets, although it is called "Sharp Rock" in the records.

Cuts (c), (d), and (e), noted in the records as "Rock off Kaa", were taken from a position to the westward of Ilio Point, where it would be difficult to tell whether the rock just below Kaa or the rock to the westward of Kaa was being cut in.

Cut (f) was taken from a position about 6 miles N.N.W. of Kaa. This cut is not marked in the records as a cut as other cuts are but appears thus: Kiha to Rock Kaa 54-55. It may have been intended as a check angle on the position. It will be noticed that it passes through Kaa.

Cuts (g) and (h) were taken from positions approximately two miles northeast of Kaa. These cuts, although marked Rock No. 1, are evidently cuts on the same rock as cut (a) and called "Rock off Kaa".

Cut (i) was taken from a position about 2 1/2 miles east of Kaa and within 40 minutes of the taking of cuts (g) and (h). It is marked in the records as Rock No. 1. This cut was used by the field party in the plotting of "Rock No. 1" on the smooth sheet. It will be observed, however, that this cut passes through the rock called "Rock off Kaa" on the smooth sheet, and it is believed that this was the rock cut in rather than the rock immediately below Kaa.

A careful study of all the information at hand leads to the conclusion that the probable locations of the two rocks are in the positions as shown on the accompanying tracing. Before this sheet can finally be disposed of, however, a corroborating statement from the field party is desired on this matter. Please examine the sketches forwarded and furnish definite information to clear up these points. The work is of sufficient importance to justify a special visit to this locality with the ship if the correct location of the objects can not be obtained otherwise.

The trouble encountered emphasizes the necessity for determination of objects prior to beginning work, avoidance of confusion in names, constant supervision of the field records during the progress of the work and a careful review of the smooth sheets when plotted by the chief of party.

(Signed) E Lester Jones

Director.

POST OFFICE ADDRESS: Honolulu, Territory of Hawaii.

TELEGRAPH ADDRESS:

EXPRESS OFFICE:

MAR 22 12 41 PM '27

# DEPARTMENT OF COMMERCE

## U. S. COAST AND GEODETIC SURVEY

Ship DISCOVERER.

Honolulu, T. H.
March 11, 1927.

To: The Director,
U.S.Coast & Geodetic Survey,
Washington, D. C.

From: The Commanding Officer.

Subject: Hydrographic sheet H 4542, Ilio Point, Molokai Island.

Reference: Director's letter December 28, 1926, file 10-rs.

1. In compliance with reference I have to state that an examination has been made regarding the discrepancies noted on the Ilio Point hydrographic sheet with the following results.

2. Rock off Kaa is as located on the original sheet and is the detached rock and less than 100 meters from the shore line.

3. Rock No. 1 is a bold projecting point in the position shown in blue on the tracing herewith returned to the Office. There is no rock in the position circled in red on this same tracing and labeled "Rk. #1 as plotted by field party".

4. The statement in the descriptive report as quoted in paragraph 2 of reference should have read "The only detached rock is the one shown on the sheet as Rock off Kaa etc".

5. This change of the position of Rk. #1 was made subsequent to the completion of field work and was not brought to my attention so far as I can recall. It was certainly known that there was no such detached rock, as evidenced by the descriptive report. In any event it should have been noticed on examination of the completed smooth sheet and I regret that it was not as well as the confusion of names in the descriptive report.

6. A trip was made with the ship to Ilio Point in order that this discrepancy might be definitely cleared up and sextant angles which were taken at the time are enclosed. The cuts do not all intersect as well as could be desired but the differences are in all

probility due to high and low signals where the angles are not the true horizontal angle. The elevation of W.C.No.1 is 20 feet, Kaa and Kaeo are each about 800 feet, and Derrick is about 200 feet. (See U. S. Geological Survey topographic sheet).

Glen L. Garner

Glen L. Garner,
Commanding Officer.

November 18, 1926.

Division of Hydrography and Topography:

✓ Division of Charts:

Tide reducers are approved in
3 volumes of sounding records for

HYDROGRAPHIC SHEET NO. 4542

Locality: HAWAIIAN ISLANDS.

Chief of Party: C. L. Garner in 1926.

Plane of reference is M.L.L.W.
2.5 ft. on tide staff at Kolo Landing.

For reduction of soundings, 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.

Hammer

Chief, Division of Tides and Currents.

# Report on Hyd. 4542

## Surveyed in 1926.

The character and completeness of the records accompanying this sheet were found to be satisfactory.

The protracting was correct.

The plotting " "

Trouble was experienced by the field party between positions 650 and 6720 which necessitated rejecting a number of soundings and thus leaves a somewhat larger gap between sounding lines than it was probably intended. The soundings between 690 and 720 were retained, but it involved the change of the name of the right signal "Rock off Kaa" to "Rock #1". The positions of these soundings are in accordance with the surrounding soundings and almost without doubt are in their proper places, thus it appears safe to assume that the wrong signal name was entered in the record.

The day figures in a number of cases are too large but no trouble with them figures was experienced.

The sheet was clean, legible and free from features marking careless draftsmanship.

Respectfully submitted
E Pregari

Dec. 14, 1926.

Supplementary Report on Hyd. 4542 regarding Rk #1 and Rock off Kaa.

Upon the request by the Field Records Sec., the field party furnished new cuts for Rk #1 and Rock off Kaa.

These cuts were plotted on the smooth sheet and also the other cuts originally submitted in the records. All the plotted cuts were then studied for determining the most probable position of the above two objects.

Rk #1 as originally plotted was evidently erroneous, as was suspected. Rock off Kaa as now plotted is about 60 m

(over)

east of its original plotting, but no changes in the soundings involving this signal were deemed necessary.

The positions under consideration involving soundings which appeared erroneously plotted are from Pos. 65 D to Pos. 72 D and these depend on the above signals.

In the final adjustment of the location of the position of soundings, it was plain that a confusion existed in the recording of the objects.

As now recorded in the sounding record all the soundings have been accepted and plotted on smooth sheet except those soundings between Pos. 65 D and Pos. 66 D, which were rejected by authority of F.P. Inst.

The new locations of the soundings plotted appear very satisfactory and agree by time and course, adjacent soundings and crossings.

July 16, 1927 Quaigan

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 July 27, 1927.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4542

Off Ilio Pt., Molokai Island, H. I.

Surveyed in 1926

Instructions dated October 23, 1925 (DISCOVERER)

Chief of Party, C. L. Garner.

Surveyed by C. L. G.

Protracted and soundings plotted by W. J. Chovan.

Verified and inked by G. Risegari.

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

2. The plan and character of development satisfy the General Instructions.

3. The plan and extent of development satisfy the specific instructions except that practically twice the number of lines were run as called for. On account of the char. of the bottom and importance of the area in making a landfall on Ilio Pt. this departure from instr. is commendable. JO

4. The sounding line crossings are adequate.

5. The information is sufficient for drawing the usual depth curves except for the area inshore, which was doubtless too dangerous for ship work.

6. The field plotting was completed to the extent prescribed in the General Instructions and was well done, except for some of the position numbers and letters being too large.

7. The junction with H. 4459 is satisfactory.

There are no other surveys adjoining this sheet.

8. Some confusion existed relative to the correct location of ⊙Rk No. 1 which was originally plotted by the field party a considerable distance offshore. A thorough study was made in the office of all the cuts taken to locate both Rk. off Kaa and Rk. No. 1 and a tracing with the various cuts plotted was sent to the field party (see Director's letter of Dec. 28, 1926, attached

A special trip was made by the ship from Honolulu to obtain information to correct erroneous plotting of these signals.
to the descriptive report) for confirmation. Additional cuts were taken to Rock off Kaa and Rk. No. 1 (data attached to descriptive report) which verified the office supposition that Rk. No. 1 was erroneously plotted on the smooth sheet by the field party. The present locations of Rk. No. 1 and Rk. off Kaa represent a mean of all the cuts taken originally and subsequently. All the work dependent on Rk. No. 1 was replotted, but that based on Rk. off Kaa was not changed since the change in the location of Rk. off Kaa was only slight and the area affected is deep water.

9. Additional work is necessary to carry the work closer inshore.

10. Character and scope of surveying - good.
Field drafting - good.

11. Reviewed by A. L. Shalowitz, July, 1927.

Approved:

Chief, Section of Field Records (Charts)

L. O. Colbert

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

# Sextant Angles + Cuts

## N.W. Coast Molokai Id. T.H.

Feb. 25, 1927.

1

| | | |
|---|---|---|
| Kaeo | 30-00 | Cuts |
| Kaa | | Pk #1 - Kaa 12-49 |
| W.C. #1 | 73-28 | Pk off Kaa - Kaa 30-00 |

2

| | | |
|---|---|---|
| Kaeo | 45-31 | Cuts |
| Kaa | | Pk. off Kaa - Kaa 31-07 |
| W.C. #1 | 48-40 | Pk. #1 - W.C. #1 52-36 |

3

| | | |
|---|---|---|
| Kaeo | 38-47 | Cuts |
| Kaa | | Kaeo - Pk. off Kaa 33-45 |
| W.C. #1 | 25-12 | Kaeo - Pk #1 43-08 |

| | | | |
|---|---|---|---|
| 14 | Kaeo | 19-07 | Rh off Kaa - Kaa 0-00 |
| | Kaa | | |
| | WC #1 | 12-58 | |
| 15 | Derrick | 34-00 | 49-51 |
| | Kaeo | | |
| | Kaa | 11-20 | |
| 16 | Derrick | 33-52 | Cut |
| | Kaeo | | Derrick - Rh off Kaa 49-45 |
| | Kaa | 11-06 | Derrick - RA #1 49-45 |

4542a

Form 504

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

R. S. Patton, *Director*

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

# DESCRIPTIVE REPORT

~~*Topographic*~~ / *Hydrographic* *Sheet No.* 4542 a

4542a

LOCALITY

Ilio Point, Molokai, ~~T. H.~~

*1929*

CHIEF OF PARTY

K. T. Adams, H.& G.E.

Form 537

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

# HYDROGRAPHIC TITLE SHEET

REG. NO. 45422

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. 4542 2

REGISTER NO. 45422

State ~~Territory of~~ Hawaiian Is.

General locality Molokai Island

Locality Ilio Point

Scale 1/40,000 Date of survey August 9, 19 29

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

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

Surveyed by K.T. Adams and E.B. Quinn

Protracted by G.W. Lovesee

Soundings penciled by G.W. Lovesee

Soundings in fathoms ~~feet~~

Plane of reference M L L W

Subdivision of wire dragged areas by -----

Inked by Warren H Bamford

Verified by WHB.

Instructions dated (Paragraph 10) April 12, 1929

Remarks:

U. S. GOVERNMENT PRINTING OFFICE

DESCRIPTIVE REPORT
to accompany
HYDROGRAPHIC SHEET NO. 4542
Ilio Point, Molokai, T.H.
Scale 1/40,000

DATE OF INSTRUCTIONS: April 12, 1929

OBJECT OF SURVEY: The object of this survey was (1) to obtain additional soundings for hydrographic sheet No 4542, and (2) to prove or disprove the existence of the rock a short distance off Ilio Point as shown on Chart No. 4116. See letter of Supt. of Lighthouses attached to this report.

Note: The office number of hydrographic sheet No. 4542 was used as the field number for this sheet.

LIMITS: This survey takes in an area around Ilio Point reaching approximately two miles offshore and extending from a N W'ly direction to N E 'ly from the point.

SURVEY METHODS: The offshore lines were run by the ship in charge of the Commanding Officer. Visual control was used and red-light soundings were taken with the fathometer. Hand lead soundings were compared with the fathometer before and after the sounding lines were run in order to get the constant correction for the fathometer. Serial temperatures taken 10 miles S W from Aloha Tower, Honolulu, were used for the velocity corrections on fathometer soundings. The value of salinity used was 34.5 ‰. This was decided upon by comparing the salinities obtained from seventy two water samples taken between January 3 and July 14, 1929. Abstracts of these have been sent to the office by Scripps Institute. No slope corrections were necessary for this sheet.

The inshore soundings were taken with hand machines from the motorsailer and gig. The motorsailer developed engine trouble and the work was carried on by the same party in the gig. The party consisted of; one officer in charge, taking right angle and plotting; one officer taking left angle and steering; one recorder; one launchengineer; and three leadsmen.

A system of parallel lines was run to fill in the gaps in the previous survey, and numerous soundings were taken over the area showing the shoal sounding.

GENERAL INFORMATION: No unusually shoal depth was found at the place indicated on the chart, but a 5 - fathom sounding was obtained closer to shore and outside of 8 and 9 fathom soundings. At this distance offshore the swells make up heavy all around the point, particularly north and northwest of it. The shoal sounding is closer to shore than any ship has occasion to approach in this vicinity. The shore line on the photostats sent from the office shows in dotted lines giving the appearance of having been sketched. When signal "LEO" was located by topographic methods, it plotted offshore. This would indicate that the shoreline was in error at this location.

No shoreline or other topographic detail was run in at the time of this survey.

STATISTICS:

| Date 1929 | Day | No. of Soundings. | No. of Positions | Statute Miles | Boat used. |
|---|---|---|---|---|---|
| Aug. 9 | A | 104 | 28 | 15.0 | GUIDE. |
| 9 | a | 16 | 16 | 3.2 | motorsailer |
| 9 | a | 41 | 41 | 6.1 | gig |
| Summary | | 161 | 85 | 24.3 | |

Respectfully submitted

Francis B. Quinn

F. B. Quinn, Jr. H & G E

Forwarded, Approved,

K. T. Adams

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

C O P Y

DEPARTMENT OF COMMERCE
Lighthouse Service

Office of Superintendent,
19th District,
Honolulu, Hawaii
October 23, 1928.

DIRECTOR,
U. S. Coast and Geodetic Survey,
Washington, D. C.

Sir:

On C. & G. S. Chart 4116 some distance off Ilio Point, northwest end of Molokai Island, a submerged rock is indicated. Captain A. A. Sawyer, SS CALAWAII, Los Angeles Steamship Co., has inquired of this office for evidence of the existence of this rock which he states he has been unable to locate. He claims also that he has been unable to learn from any shipmasters in these waters of anyone who has verified the existence of this rock. The matter is of some importance to the shipmasters of the Los Angeles Steamship Company who pass this point weekly enroute from Honolulu to Hilo, Hawaii, via the north coast of Molokai and Maui.

This inquiry is referred to you with the suggestion that possibly the Coast and Geodetic Survey Steamer DISCOVERER or GUIDE may have checked the position of this rock in connection with their surveys in this vicinity during the last year or two.

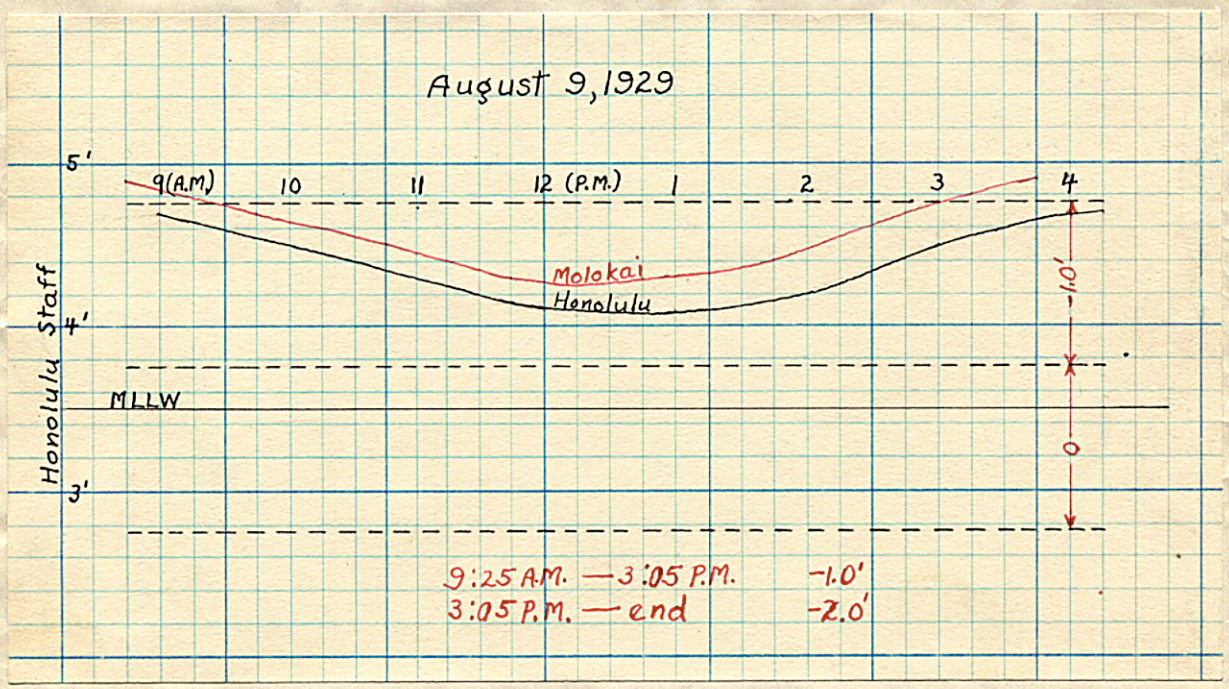
Respectfully,

(Sgd.) R. R. TINKHAM,
Superintendent of Lighthouses.

Tidal Note

Hydrographic Sheet No. 4542
Ilio Point, Molokai, T. H.

Honolulu tides were used for reduction of soundings on this sheet. A correction of 15 minutes earlier and 0.2 feet higher was applied to the Honolulu tides. This value was obtained from the tide tables for two harbors at Molokai.



# Abstract of Serial Temperatures
## Used for Determination of
## Velocity Corrections of Fathometer Soundings
## Hydrographic Sheet #4542, (1929) 4542-a
## Ilio Point, Molokai, T.H.

Department of Commerce and Labor
COAST AND GEODETIC SURVEY
Form 377

*COAST AND GEODETIC SURVEY STEAMER* "GUIDE"

*Locality,* Abt. 10.0 miles SxW of Aloha Tower Honolulu, T.H. *Date,* Nov. 12, *1929*

*Sounding No.* ____ *Line* Sheet 2 (Ship) X-day

Lat. 21°-09.8' N. Long. 157°-56.0' W

| DEPTHS, IN FATHOMS. | TEMPERATURES. Reading. | Correction. | Corrected. | | No. of the Thermometer. | Kind of Thermometer used. | REMARKS. |
|---|---|---|---|---|---|---|---|
| | Deg. | Min. | Min. | Max. | | | |
| | 41 | 10 | 14 | 96 | | | |
| Surface. | | | | | | | Temperature of Air 84.0°F<br>Temperature of Thermometer, Locker ____ |
| 15 | 27.2 | | 27.2 | | | | |
| 30-1/3 | | | 26.4 | | | | Begun at 2:04 PM |
| 35-1/3 | 24.8 | | 24.8 | | | | |
| 40-1/3 | 23.6 | | 23.6 | | | | |
| 50 | 22.6 | | | | | | |
| 60-1/3 | 21.8 | | 21.8 | | | | |
| 70-1/3 | 21.4 | | | | | | |
| 72-1/2 | 21.3 | | 21.3 | | | | |
| 85-1/3 | 20.6 | | 20.6 | | | | 85Y |
| 100-1/2 | 18.5 | | 18.5 | | | | (Bottom) |
| 120- | 16.3 | | 16.3 | | | | Koko Crater 38-53 |
| Bottom 300.5 | 6.5 | | 6.5 | | Bottom Sample | Grey Clay | Aloha Tower Hulu 65-37 |
| | | | | | | | Fathometer - 295 fms. |
| | | | | | | | Lat. 21-09.8 N |
| | | | | | | | Long. 157-56.0 W |

*Signature of the Officer of the Deck:* W.H. Bainbridge, Jr. H & G E

*Signature of the Recorder:* W.H. Bainbridge, Jr. H & G E

11—802

Determinations of Velocity Corrections
from Serial Temperatures 10 miles SW of Honolulu, T.H.,
for use with Sheet #4542, Ilio Point, Molokai, T.H.
August 9, 1929.

(Salinity used :- 34.5 ‰)

| Depth fms. | Temp. °C | Sum | Mean °C for layer | Factor | Correction fms. |
|---|---|---|---|---|---|
| 13-1/3 | 27.2 | — | 27.20 | +0.0298 | +0.39 |
| 26-2/3 | 26.7 | 53.9 | 26.95 | +0.0294 | +0.78 |
| 40 | 23.5 | 77.4 | 25.80 | +0.0277 | +1.11 |
| 53-1/3 | 22.2 | 99.6 | 24.90 | +0.0264 | +1.41 |
| 66-2/3 | 21.4 | 121.0 | 24.20 | +0.0253 | +1.69 |

Summary of Corrections

| Depth fms. | Correction fms. |
|---|---|
| 13.0 - 16.1 | +0.4 |
| 16.1 - 19.7 | +0.5 |
| 19.7 - 23.1 | +0.6 |
| 23.1 - 26.5 | +0.7 |
| 26.5 - 30.5 | +0.8 |
| 30.5 - 34.6 | +0.9 |
| 34.6 - 38.6 | +1.0 |
| 38.6 - 42.9 | +1.1 |
| 42.9 - 47.3 | +1.2 |
| 47.3 - 51.8 | +1.3 |
| 51.8 - 56.4 | +1.4 |
| 56.4 - 61.2 | +1.5 |
| 61.2 - 66.0 | +1.6 |

The following temperatures weretaken at Ilio Point:

| | |
|---|---|
| Surface | 25.9 °C |
| " | 26.5 |
| " | 25.85 |
| 5 fms. | 25.85 |
| 10 | 25.80 |
| 15 | 25.65 |

These were not sufficient to make a separate tabulation of corrections.

Approval Note for Hydrographic Sheet #4542. (1929)

Ilio Point, Molokai, T.H.

I hereby certify that I have inspected and approved the finished supplemental hydrographic sheet #4542 and the records pertaining to it.

The ship work on this project was in my personal charge, and the work of the small boat party was gone over with the officer in charge.

K.T. Adams

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

Form 537a

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 Letter J

REGISTER NO. To accompany descriptive report H. 4542a

State T.H.

General locality Molokai Island

Locality Ilio Point

Scale 1/40000 Date of survey August 8-9, 1929

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 Paragraph 10, April 12, 1929

Remarks: Survey accomplished to locate two signals for hydrographic purposes only.

The hydrography in this area is shown on photostat copy of Hydrographic Sheet No. 4542 and no new field number is given the sheet.

DESCRIPTIVE REPORT
to accompany
TOPOGRAHHIC SHEET "J"

Ilio Point, Molokai Island,
Hawaii.

U.S.C. & G. S.S. GUIDE
1929.

K.T. Adams
Chief of Party.

As this sheet (Top.J) was made for the sole purpose of locating signals Cutt and Leo, the sheet has been filed with H.4542a and should be destroyed when H.4245a is completed.
4542

DESCRIPTIVE REPORT
to accompany
TOPOGRAPHIC SHEET
No. "J"-Scale 1/40000

Ilio Point, Molokai Island, Hawaii, T.H.

Date of Instructions: April 12th, 1929.

Date of Survey: August 8-9, 1929.

Chief of Party: K.T. Adams, H & G Engineer.

Topographer: H.C. Warwick.

OBJECT: The object of this survey was merely to locate two signals for hydrographic purposes.

CONTROL: Hawaiian Government Survey Triangulation Stations Puu O Kaiaka, Kaeo, and Laina.

METHOD: Station Puu O Kaiaka was first visited and a signal erected and while another party was building the two signals on Ilio Point the topographic party with plane table went to station Kaeo and set up. Orientation was made on Puu O Kaiaka and check on Laina. The two signals, Leo and Cut, were cut in from Kaeo. A signal was erected over Kaeo. Then the party returned to Puu O Kaiaha and set up over this station and took a cut to Leo. Signal Cut could not be seen from this position so it was necessary the following day to land at Leo and run a plane table traverse from Leo to Cut. This completed the work required for hydrographic control.

Respectfully submitted,
H.C. Warwick
H.C. Warwick
Jr. H & G.E.

Approved:
K.T. Adams
K.T. Adams
Chief of Party.

## LIST OF PLANE TABLE POSITIONS

| Name | Latitude | D.M. | Longitude | D.P. | Remarks |
|---|---|---|---|---|---|
| Leo | 21-13 | (1464.0M)<br>381.0M | 157-15 | (544.0M)<br>1186.0M | Cross<br>Banner |
| Cut | 21-13 | (775.0m)<br>1070.0M | 157-15 | (1108.0M)<br>622.0M | Cross<br>Banner |
| Derrick 21-11 | | (1584.0M)<br>261.0m | 157-15 | (1260.0M)<br>470.0M | Center of<br>loading platform. |

157° 16'

157° 14'

~~157°~~
157°-12'

21°14'

⊙ Cut

⊙ Leo

△ Kaeo
H.G.S.

Laina
H.G.S. △

21°12'

△ Derrick, 1925
△ Puu O Kaiaka
H.G.S.

21°10'

Kaeo Lat. 21°-12' - 1799.7 m.
Long. 157°-13' - 1576.4 m

Scale - 1:40,000

Projection by H.C.W. - 12-31-29.

Signals (△s) plotted by H.C.W. 8-8-29.

Note: Topography was done on blank paper and projection fitted to signals after completion.

(COPY FOR FILES OF FIELD RECORDS SECTION)

March 6, 1930

Division of Hydrography and Topography:

Division of Charts:

Tide Reducers are approved in
2 volumes of sounding records for

HYDROGRAPHIC SHEET 4642 A

Locality: Ilio Point, Molokai I., T. H.

Chief of Party: K. T. Adams, in 1929
Plane of reference is mean lower low water, reading
3.6 ft. on tide staff at Honolulu
ft. below B. M.

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.

Paul C. Whitney

Chief, Division of Tides and Currents.

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 4542-a

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

| | |
|---|---|
| Number of positions on sheet | 85 |
| Number of positions checked | 24 |
| Number of positions revised | 2 |
| Number of soundings recorded | 161 |
| Number of soundings revised | 29 |
| Number of signals erroneously plotted or transferred | ZERO |

Date: March 14 1930

Cartographer: Warren H Bamford.

# SECTION OF FIELD RECORDS

## REPORT ON SHEET No. H-4542-a.

MARCH-14-1930.

CHIEF OF PARTY – K.T. ADAMS
SURVEYED – AUGUST 9, 1929
PROTRACTED BY – G.W. LOVESEE
SURVEYED BY – K.T. ADAMS, F.B. QUINN.
PLOTTED BY – G.W. LOVESEE
VER & INKED BY – W.H. BAMFORD.

1./ The records were found to conform to the requirements of the General Instructions for Field Work.

2./ The protracting was fairly good, about eight percent of the positions checked were found to be erroneously plotted.

3./ The spacing of soundings was fairly good, but the field man consistently plotted seven tenths of a fathom – as the next whole fathom – All of these soundings had to be changed to agree with the instructions of the Hydrographic Manual.

4./ The sounding line crossings were found to be adequate.

5./ The development of shoals and in channels was sufficient

6./ It was possible to draw the usual depth curves.

7./ The sheet was clean and the work was found to be legible.

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

9./ The "Wire Drag" work on this sheet was not verified by me, but will be verified at a later date by me qualified to do so.

Respectfully Submitted

Warren H Bamford

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

AND REFER TO No. 11-DEM

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

March 20, 1930.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4542a

Off Ilio Pt., Molokai Island, Hawaiian Islands

Surveyed in 1929

Instructions dated April 12, 1929 (GUIDE)

Chief of Party, K. T. Adams.

Surveyed by K. T. A. and F. B. Quinn.

Protracted and soundings plotted by G. W. Lovesee.

Verified and inked by W. H. Bamford.

1. The purpose of this survey was to fill in a gap in the 1926 survey (H. 4542) and to prove or disprove the charted sunken rock off Ilio Point.

2. The new work supplements very satisfactorily the old work and carries the work considerably further inshore toward the point. A very good agreement is had between the soundings on the two sheets and no difficulty should be experienced in combining the two.

3. The sunken rock off Ilio Point.

This rock has been shown on our charts from the very first compilation of 4116 and no reference could be found as to its authority. It was probably a conventional symbol for a breaker observed here. In this connection it should be noted that on the 1926 survey breakers were also observed about the same distance off shore. The new survey shows a 4 5/6 fathom sounding in approximately the same position. It is quite likely that in a heavy sea this shoal would break. The field party should have further developed this spot since it is a definitely detached shoal and less water may exist to the northeast.

For the charts it is recommended that the sunken rock symbol be removed and in its place the 4 5/6 fathom sounding be charted with the notation "Rk" added. No bottom characteristic is shown in the records for this sounding, but a reference to the 1926 survey shows this area to be a rocky formation. Therefore the liberty of adding "Rk" is justifiable in the interest of safe navigation.

4. Note to Compiler:

The shoreline in the vicinity of ⊙ Leo has been modified on H. 4542 to conform to the information contained in the Descriptive Report for H. 4542a. This new shoreline should be used in correcting the charts. No topographic sheet will be found showing this change.

5. No additional work is recommended around this point, although it would have been desirable to have had the least depth on the 4 5/6 fathom shoal.

In regard to the topography around Ilio Point, the shoreline between ⊙ Leo and ⊙ Cut should have been sketched in on the sheet that was used to locate these signals (attached to Descriptive Report H. 4542a) since the report by Mr. Warwick states that a plane table traverse was run from Leo to Cut. In view of the fact that the only information available in this vicinity is a sketched shoreline on H. 4542, which this party found in error, any definite location of the shoreline around this point would have been of value. It may be possible that the surveyor will be able to sketch in the shoreline from the plane table set-ups on the sheet.

6. Reviewed by A. L. Shalowitz, March, 1930.

Approved:

Chief, Section of Field Records (Charts)

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

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

AND REFER TO NO. 11-DPM

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

March 20, 1930.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4542a

Off Ilio Pt., Molokai Island, Hawaiian Islands

Surveyed in 1929

Instructions dated April 12, 1929 (GUIDE)

Chief of Party, E. T. Adams.

Surveyed by E. T. A. and F. B. Quinn.

Protracted and soundings plotted by G. W. Lovesee.

Verified and inked by W. H. Bamford.

1. The purpose of this survey was to fill in a gap in the 1926 survey (H. 4542) and to prove or disprove the charted sunken rock off Ilio Point.

2. The new work supplements very satisfactorily the old work and carries the work considerably further inshore toward the point. A very good agreement is had between the soundings on the two sheets and no difficulty should be experienced in combining the two.

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6. Reviewed by A. L. Shalowitz, March, 1930.

Approved:

Chief, Section of Field Records (Charts)

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

H4542 & H4542a applied to new Chart 4120 - May 3, 1941 - JTW