

3433 and Additional

Diag. Cht. No. 4116 & 4100

3433 and Additional

Form 504 DEPARTMENT OF COMMERCE U. S. COAST AND GEODETIC SURVEY Director	
<div style="border: 1px solid black; padding: 5px; display: inline-block;">U. S. SURVEY L. & A. Acc. No.</div>	
State: Hawaiian Is.	
DESCRIPTIVE REPORT	
Topographic Hydrographic	} Sheet No. ³⁴³³ 3433 and Add'l. Work-1926 - (Sheet only)
LOCALITY	
S.W. of Molokai	
Penguin Bank	
..... 1913 and 1926	
CHIEF OF PARTY	
J.B. Miller-1913, C.L. Garner-1926	

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Department of Commerce and Labor
COAST AND GEODETIC SURVEY

Superintendent.

State: A.I.

DESCRIPTIVE REPORT.

Hyd Sheet No. 3433

LOCALITY:

Molokai - S. H. Coast
Penguin Bank

1913

CHIEF OF PARTY:

J. B. Miller

11-4045

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DEPARTMENT OF COMMERCE
Coast and Geodetic Survey,
O. H. Tittmann, Superintendent

Hydrographic Sheet No. "C"

HAWAIIAN ISLANDS

Penguin Bank

Hydrography by party of James B. Miller, Assistant,
Commanding Steamer PATTERSON

From January 17th, 1913
To
March 9, 1913

James B. Miller, Assistant,
Chief of Party

James B. Miller, Assistant,
Hydrographer

Scale 1: 60 000

3433

Assistant in Charge

DEPARTMENT OF COMMERCE AND LABOR
COAST AND GEODETIC SURVEY.

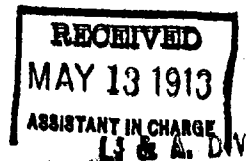
O. H. Tittmann, Supt.



HAWAIIAN ISLANDS

A DESCRIPTIVE REPORT ON HYDROGRAPHIC SHEET C.

PENGUIN BANK, SCALE: 1:60000



Surveyed in January, February and March, 1913, by the Steamer PATTERSON.

1. REPORT, LIMITS, METHODS, INTERVALS.

I have the honor to report as follows on Hydrographic Sheet C, surveyed in January, February and March, 1913, by the Steamer PATTERSON; and showing a partial development of Penguin Bank, off the southwest point of Molokai Island in the Hawaiian Group. The sounding which was done extends $\frac{5}{2}$ miles westward from the longitude of Ka Lae o Ka Laau Point and 6 miles southward from the latitude of that point. The hydrography was done as the ship was enroute between Maui Island and Honolulu, at various times, and consists of lines at $\frac{1}{2}$ mile and 1 mile intervals, forming what was intended to be the skeleton of a closer development later on. The soundings are spaced at $\frac{1}{3}$ mile intervals along the lines, and were made with the Bassnett and Tanner-Blish pressure tubes, to a depth of 50 to 70 fathoms, and by vertical casts in greater depths. The pressure tubes were verified by a vertical cast at each tenth sounding, and gave excellent results. All corrections to the tube readings, such as the addition for length of stray line, are shown by the sounding records.

2. GENERAL FORM OF THE SEA BOTTOM: ESPECIAL FEATURES.

The sea bottom on Penguin Bank is flat and sandy, 24 to 40 fathoms in depth, with small irregularities of 2 to 4 fathoms, and a moderate slope to deep water all round. No striking features were found; the reported 7 fathom spot near the western side was not found, and no indication of it appeared; it probably does not exist in the reported locality, although there was no time available for an exhaustive search. A part of the western edge of the bank was definitely located, and falls in places $\frac{1}{2}$ mile to $1\frac{1}{2}$ miles from the limit shown on chart 4116; in other places on the bank a fair agreement with this chart was found.

3. TIDES AND CURRENTS.

Tidal reducers for the soundings are obtained from the automatic gauge at Kahului, Maui Island, as there is little difference of time between the two places. Current observations were made at only one place on Penguin Bank, viz: at Ka Lae o Ka Laau Point on Molokai Island; here a strong continuous current was observed, flowing west along the south shore of Molokai, and turning sharply to north as it rounds the point; there is a strong tide rip west and north of the point, forming breakers when the wind is northerly. During the sounding on Penguin Bank a strong current was also observed setting

Begin

northeast over the entire bank, and joining the current just mentioned as it flows north along the west coast of Molokai. This current is not felt in the deep water west of Penguin Bank, but is apparent at once at the edge of the bank, as soon as one passes inside the 100 fathom curve. No connection between this current and the tides was observed; and the trade winds appear to have little effect upon it, although it appears to be stronger or weaker according as there is a barometric depression north or south of the Islands.

GEOGRAPHIC POSITIONS.

Signals for use in the hydrography were obtained from the triangulation records of the Hawaiian Territorial Survey, and are situated on Oahu, Molokai and Lanai Islands. They are all reduced to the datum used for the Coast Survey work in the Hawaiian Islands.

Respectfully submitted,

J. B. Miller

*To the Superintendent of the Coast and Geodetic Survey,
Washington.*

Assistant, C. & G. Survey,

Chief of Party.

At Sea,

March 19, 1913.

3433

C. & G. SURVEY,
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APR 28 1913
Acc. No.

STATISTICS SHEET NO. "C"

Date 1913	Letter	Vol.	Positions	Soundings	Miles Statute	Vessel
Jan. 17	A	1	26	117	30.1	PATTERSON
" 20	B	1	9	30	7.1	"
Feb. 1	C	1	25	103	30.0	"
" 4	D	1	20	69	24.8	"
" 15	E	1	25	125	40.0	"
" 17	F	2	14	79	17.3	"
Mar. 1	G	2	30	154	46.7	"
" 4	H	2	20	82	22.8	"
" 9	I	2	12	61	18.9	"
TOTALS			181	820	237.7	

June 26, 1913.

HYDROGRAPHIC SHEET 3433.

Penguin Bank, 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 MEASUREMENT

Hyd. Sheet #3433 #

This sheet shows a partial development of Penguin Bank, off the S.E. point of Molokai Island, H. I.

Positions and soundings were plotted in the field, and records kept in good shape throughout.

The reported 7 & 10 fathom spots, as shown on Chart 4116, have not been located by the party and the question of the existence of these spots left open. (See Description Report #3433).

J. B. Ireland

Soundings plotted in fathoms.

Oct 15 - 1913

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET
Prepared in Office, (F.R.)

REG. NO. 3433 Add'l. Work

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.

REGISTER NO. 3433 Add'l. W'k.

State Hawaiian Is.

General locality S.W. of Molokai

Locality Penguin Bank

Scale 60,000 Date of survey Feb. 15 - Oct. 27, 1926

Vessel Discoverer

Chief of Party C.L. Garner

Surveyed by C.L. Garner

Protracted by Field Party

Soundings penciled by Not penciled

Soundings in fathoms ~~feet~~

Plane of reference

Subdivision of wire dragged areas by

Inked by

Verified by

Instructions dated, 192

Remarks: Work of 1926 - on original sheet

AND REFER TO NO. 11-DEM

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

WASHINGTON

August 24, 1928.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 3433
(Additional Work)

Surveyed in 1926

Chief of Party, Clem L. Garner.

Surveyed by Field Party.

Protracted by T. B. Reed, E. W. Eickelberg and J. C. Partington.

Soundings plotted by F. B. Kelly.

Verified and inked by H. E. MacEwen.

1. The records conform to the requirements of the General Instructions.
2. The plan and extent of the development satisfy the specific instructions.
3. The plan and character of the development fulfill the requirements of the General Instructions.
4. The sounding line crossings are adequate.
5. The usual depth curves can be completely drawn.
6. The positions only were protracted by the field party. The soundings were penciled in the office.
7. The office draftsman did not have to do over any part of the drafting done by the field party.
8. There are no recent surveys adjacent to this sheet.
9. No further surveying is required to fully develop important areas within the limits of this sheet, unless it is considered necessary to drag the two shoal areas on Penguin Bank to disprove the existence of charted shoals, 21 fathoms being the shoalest water found in the southerly development where 14 fathoms had been reported.

10. Remarks:

a. A check of positions on this sheet shows, with the exception of those near the Island of Molokai, a considerable shift to the southwest. Examination of the sheet shows very bad wrinkling in one section - especially between the sounding work and two signals, \odot Key and \triangle Bol, used throughout the work. A check of the shrinkage in this particular area shows a distortion greatly in excess of the shrinkage in any other portion of the sheet and was found to be greatest in a direction which is approximately at right angles to the general direction of the wrinkles. Check of positions not using either of the above mentioned signals shows good agreement with field protracting.

The constant errors in protracting of fixes are no doubt due to distortion in one general direction due to excessive wrinkling of the sheet in the neighborhood of these controlling points (\odot Key and \triangle Bol). Furthermore, this wrinkling was more than likely done in handling the sheet after the work was done on the sheet. Therefore this constant error was ignored, the original plotting being considered more accurate than a change based on excessive distortion could be, and only those errors which appeared individual were corrected by the office draftsman.

b. Attention is called to the following:

(1) A deep sounding (113 fm.) at 72 Q among shoal soundings (36 and 37 fm.). Also 86 fm. and 73 fm. on Q day (93 A) hard by. Although these soundings are completely surrounded by shoaler soundings, the fact that their controlling fixes check and that they are close together seems to indicate an actual deep on this shelf that might have been caused by volcanic action.

(2) 49 R, position checks. Sounding of 89 fms. on this fix plots out among deeps.

c. Extreme difficulty was encountered in inking the soundings on this sheet for two reasons, chief of which was the quality of paper on which the survey was plotted. The new work on this survey was all plotted on the original sheet. The fifteen years of age and the handling the sheet has received has softened the surface so much that ink is applied with difficulty without spreading. Too, very close development added to this difficulty.

d. A single line of soundings from H. 3653 extending westward from long. 157° 20' which had been transferred to H. 3433 has been erased by order of L. O. Colbert, A. L. Giacomini and A. M. Soberialski. The soundings on this line which were made with Bassnet and Tanner-Blish tubes are uniformly from 2 to 4 fathoms shoaler than the recent work and are clearly in error.

11. Rating of work:

- a. Character and scope of surveying - very good.
- b. Field drafting - very good.

12. Reviewed by H. E. MacEwen, Feb. 21, 1928.

Examined by A. L. Shalant (See supplementary review attached).

Approved:

Chief, Section of Field Records (Charts)

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

DEPARTMENT OF COMMERCE

AND REFER TO No. 11-DHM

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

March 23, 1928.

Supplement to Review for H. 3433 Additional Work

1. The differences between the new work and the old work (distinguished by the large size of the soundings) can be attributed to the greater perfection of the new tubes and the more precise method of applying them to survey use. It is therefore recommended that in all cases of conflict (where it is material) between the new and the old work, the new work be given preference.
2. The charted 14 fathom sounding in lat. $20^{\circ} 54 \frac{3}{4}'$, long. $157^{\circ} 40 \frac{1}{2}'$ is from Fish Commission authority in 1902 (see blueprint 9672). The fact that on the new survey 21 fathoms surrounded by 26 fathoms was found close by and also the fact that this is the only irregularity in an otherwise even bottom, would seem to indicate that the 14 fathom sounding may be correct. It is therefore recommended that the 14 fathom sounding be retained on the charts until such time as further information may definitely disprove its existence.
3. Additional soundings should have been taken in the vicinity of the 67 fathom sounding in latitude $20^{\circ} 56'$, longitude $157^{\circ} 30'$ to develop the finger making out from the bank. *see H 3054*
4. The area between the 50 fathom and the 200 fathom curve at the southern tip of the bank (lat. $20^{\circ} 52'$, long. $157^{\circ} 42'$ to $157^{\circ} 44'$) needs further development to definitely establish the southern limit of the bank. Some of the positions are in doubt and approximations and omissions had to be resorted to.

A. L. Shalowitz

Approved.
Discrepancies noted by Mr. MacEwen have been investigated and best possible solution made on sheet.
A. L. G. P.

H.P.H.

July 14, 1927.

(11)

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
15 volumes of sounding records for

HYDROGRAPHIC SHEET **3433 add'l**

Locality: **HAWAIIAN ISLANDS, PENGUIN BANK.**

Chief of Party: **C. L. Garner, 1926.**

Plane of reference is
2.6 ft. on tide staff at **M L L W**
Keke

3.5 ft. ~~do~~ **Honolulu (Tabulations)**

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.

[Signature]

Chief, Division of Tides and Currents.

This is the only sheet for the additional work of 1926

C.L.B. Oct-3 1927

Applied to new chart 4120 - May 2, 1941 - jrw