

4704

4704

Form 504

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

~~Terr.~~ Hawaiian Islands  
~~State~~

11-5013

U. S. SURVEY  
L. S. A.

Acc. No.

DESCRIPTIVE REPORT.

Hyd. Sheet No. 7 4704

LOCALITY:

ANAHOLA BAY

KAUAI ISLAND, T. H.

1927

CHIEF OF PARTY:

F. G. Engle (Discussed)

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SHEET NO. 7 (field designation) - - ANAHOLA BAY, KAUAI, T. H.  
(Commanding Officers Instructions, dated - - - - - Nov. 23, 1926)

1. LIMITS, SCALE:- This sheet covers the hydrography of Anahola Bay, Kauai, and approaches. The survey was made on a scale of 1:5,000, and connects on the north, south and east with hydrographic surveys on a scale of 1:20,000, executed by parties from the Str. DISCOVERER, during the season of 1927.
2. SURVEY METHODS AND CONTROL:- The control for the hydrographic survey of Anahola Bay was based on triangulation and topographic signals. The high water line was transferred from the topographic sheet, as were also, rocks above high water. The low water line, limits of reefs, and the visible line of breakers were sketched in by the hydrographic party in the field from distances and bearings taken at the inshore ends of sounding lines, and when running parallel to shore. These notes are entered in the sounding volumes under "remarks". At the entrance points, to the north and to the south of the bay, as close approach to reef and line of breakers was made as was safe in a moderately smooth sea. The soundings were taken from a motor sailer with hand lead. The survey was made during the period June 20th., to June 22nd., 1927. Soundings are entered in feet.
3. DANGERS:- No off-shore dangers were found, though the bottom inside the 10 fathoms curve is quite irregular. An extensive reef, partly bare at low water, makes out for 1/2 mile off the northern entrance point. Heavy breakers were noted in moderate weather, on the outer coast south of Kahala Pt.
4. ANCHORAGES:- Anahola Bay is marked on its southerly side by Kahala Pt. Lt. This bay is exposed to the trades, and with strong NE'y winds, a heavy, dangerous swell makes into the bay. In moderately smooth weather anchorage can be had by small vessels well inside the bay in mud bottom. There is a range of two day beacons, painted white, marking a safe sailing course into the bay. From a point not less than 1½ nautical miles off shore, steer this range on a course 227° (true) for desired anchorage inside the bay in 4 - 6 fathoms water. From off-shore, the above range can be picked up approximately by heading in on the above course, with a group of red-roofed buildings on the bluff back of the bay in range with a prominent saddle peak, the southernmost peak of distant mountain range.

Approved and forwarded:

  
Jack Senior  
Hyd. & Geod. Engr.

See attached note  
F. G. Engle  
Chief of Party.

REMARKS BY CHIEF OF PARTY  
ON  
HYD. SHEET (FIELD NO. 7) -- ANAHOLA BAY, KAUAI, T.H.

The first days work on this sheet has numerous instances where at the end or beginning of a line the launch was stopped for some time without the necessary notation in the record of the time of stopping and ahead. In a number of such cases this information was supplied later by Mr. Senior who was in charge of the work and who protracted the positions and plotted the soundings on the smooth sheet. However it was not made clear in the record that the additions were made subsequent to the work and not by the recorder. This has been called to Mr. Senior's attention as it is difficult to see how any reliable estimate of time could be supplied subsequent to the execution of the work. It is thought however that the person checking the sheet will be able to distinguish the additions from the original entries in the record by the difference in pencil and handwriting.

The reason given by Mr. Senior for the frequent stops was that it was the first days launch hydrography he had done for some time, also that the stops were made to enable him to identify signals. Some difficulty was said to be experienced in running the engine slow enough although considerable work was done by the Engineer force on the engine before using it to achieve slow operation with the engine and a bucket drag was towed on the work.

The sounding line or path of the launch as plotted on the smooth sheet in some places apparently does not take into account some rather large changes of course made between positions.

There are frequent alterations in the name of a signal in the record apparently not made on the line by the recorder but by the officer who protracted the smooth sheet, yet such changes were not made in colored pencil or initialed as should have been done.

In protracting the smooth sheet it is apparent that the positions were joined by straight lines ignoring changes of course between positions. In several instances rather large changes of course were made between positions and the actual path of the launch must have deviated considerably from the straight line between positions.

A considerable discrepancy exists between the boat sheet and smooth-sheet on the line from Pos., 76 to 82 A day, due to a difference in plotting positions 77, 78, and 81.

Pos. #81, signals given as Flag - At - Lite, smooth sheet how plotted? Position as given in record pricked through and then pencil marked. On boat sheet plotted with signals Flag, Lite, Nal.

Pos. #78, signals given as Flag - Lite - Nal. On boat sheet plotted with signals Flag, At, Lite. On smooth sheet plotted with Flag, At, Nal.

Pos. #77, signals given as Flag - Lite - Nal and so plotted on boat sheet. On smooth sheet plotted with Rt. angle on line.

Mr. Senior is now unable to give a reason for this and is unable to say how #8 was plotted on the smooth sheet. It would appear that the boat sheet position of the line is more reliable.

Discrepancies between boatsheet and smooth sheet occur also on Pos. 41A and Pos. 21 to 24 A (probably due to the weak fix used); on Pos. 26 A (where the left angle was changed to  $42^{\circ} - 15'$  whereas the boat sheet was plotted with  $41^{\circ} - 15'$ ); on Pos., 35 A, 44 A, 66 A, 84 A, 93 A and 2 B, (probably due to weak fix used); Pos., 8<sup>a</sup> & 9<sup>b</sup> (plotted on boat sheet with Rt. object "Pun" instead of "Can"); Pos., 10<sup>b</sup> plotted on boat sheet with Rt. object "Pun" instead of "Can" and Rt. angle  $74^{\circ} - 10'$  instead of  $78^{\circ} - 10'$ ); Pos. 32 B, 49 B, 15<sup>a</sup> B, 180 B, etc.

Several fixes on B day were quite weak causing a difference between the boat sheet and smooth sheet positions, such as Pos., 64, 65 and 66.

The position of the reef line between signals Flag and At as shown on smooth sheet differs from the boat sheet.

*Because of the above defects the sheet is not approved.*



F. G. Engle,  
H. & G. Engineer.

STATISTICS SHEET NO. 7

ANAHOLA BAY, KAUAI - - - - - SCALE: 1:5,000

<u>DATE, 1927</u>	<u>:</u>	<u>Letter:</u>	<u>:</u>	<u>Volume:</u>	<u>:</u>	<u>Positions:</u>	<u>:</u>	<u>Soundings:</u>	<u>:</u>	<u>Miles,stat:</u>	<u>:</u>	<u>Vessels</u>
June 20	:	a:	:	1	:	106	:	369	:	13.8	:	Port Motorsailer
	:		:		:		:		:		:	
21	:	b	:	1 & 2	:	188	:	745	:	19.9	:	"
	:		:		:		:		:		:	
22	:	c	:	2	:	67	:	262	:	10.0	:	"
	:		:		:		:		:		:	
	:		:		:		:		:		:	
				Totals ----		361		1376		43.7		

January 24, 1928.

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Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in  
2 volumes of sounding records for

HYDROGRAPHIC SHEET 4704

Locality: KAUAI ISLAND, T.H.

Chief of Party: P. G. Eagle

Plane of reference is M L L W

2.3 ft. on tide staff at Hanalei Bay

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.

*G. Wade*

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. 3-DFM

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

WASHINGTON

February 29, 1928.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4704

Anahola Bay, Kauai, Hawaiian Islands

Surveyed in 1927

Instructions dated November 23, 1926 (DISCOVERER)

Chief of Party, F. G. Engle.

Surveyed by Jack Senior.

Protracted and soundings plotted by Jack Senior.

Verified and inked by G. Risegari.

1. The records failed in a number of cases to conform to the usual practice as outlined in the General Instructions. The information relating to these failures is entered in the "Remarks by Chief of Party" incorporated in the descriptive report for this sheet.
2. The plan and extent of development satisfy the requirements of the General and specific instructions but with the following exceptions:

A shoal spot appears about 450 meters northwest of Kahala Pt. and is surrounded by an 18 foot curve. This area it appears might have been more developed for shoaler soundings.

The part of the range line extending out in the bay apparently is not sufficiently developed on its south side.

An undeveloped area near the shore line appears at the north end of the sheet, opposite signal "And."
3. There was only one sounding line crossing and it crossed satisfactorily except in the following cases: A 46 foot sounding (28c - 29c) adjacent to a 35 foot sounding (10d). These exceptions were studied and it was decided to accept them, as their irregular coral bottoms might suggest the reason for their probable existence.

4. The field plotting was completed to the extent prescribed in the General Instructions.
5. The office draftsman was not required to renew the field draftsman's work except for some small changes which were due to errors in protracting or failures to follow courses as entered in "Remarks by Chief of Party."
6. The sheets adjacent have not yet been inked and the junctions with them will be taken up upon their completion.
7. Except for the cases mentioned under paragraph No. 2, the area covered by this sheet appears to be fully developed.
8. In the "Remarks by Chief of Party" a number of discrepancies are noted. Each case was given due consideration by the Chiefs of Field Work and Field Records and resulted in making the changes where warranted. The position of the reef line as mentioned in the last remark by the Chief of Party was changed to conform to the boat sheet plotting. There was sufficient evidence from the remarks noted in the sounding records to prove that the boat sheet drawing of the line was more correct.

The boat sheet drawing of reef and breakers is identical and should have been shown by two different symbols, and also disagreed with the smooth sheet drawing of them. The smooth sheet drawing of reef and breaker lines was accepted, with the exception in the above paragraph, on the strength of the notes in the records referring to those lines.

9. Character and scope of surveying - <sup>fair</sup> ~~good~~.  
Field drafting - good.
10. Reviewed by G. Risehari, Feb, 15, 1928.

Sheet inspected by A. L. Shalowitz - See supplemental review attached herewith

Approved:

\_\_\_\_\_  
Chief, Section of Field Records (Charts)

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

Supplement to Review of H. 4704 - Anahola Bay, Hawaiian Islands

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The criticism made by the Chief of Party in connection with this sheet seems for the most part justifiable. It should be said, however, in behalf of Mr. Senior, that while the omission of stop and ahead times shows incomplete records, it is not unusual to find such information lacking and it is the uniform practice in the office to space such soundings uniformly or else to interpolate the probable time. In a number of instances on this sheet, such soundings could be plotted by spacing back from the next position.

The serious defect in this survey lies in the fact that the party was experiencing trouble in identifying signals, ~~and in either~~ measuring the angle or reading the sextant, as is evidenced by the numerous corrections that were made. Some of the changes seem rather arbitrary, as for example

At position 12 a,	left angle	changed from	16-30	to	53-30
" "	40 a,	" "	" "	" "	63-08 to 63-28
" "	52 a,	" "	" "	" "	93-25 to 26-25
" "	144 b,	right	" "	" "	54-30 to 62-10

Furthermore, in the protracting of the smooth sheet very little attention seems to have been paid to the boat sheet as changes were made in the signals used when as a matter of fact the original recorded signal agreed with the boat sheet plotting. Such changes are enumerated below.

Greater attention should have been paid in the plotting to the changes in course which in some cases were very considerable, and on 1/5000 scale would affect the plotting of the boat's path.

In conclusion it should be said that while the smooth sheet as finally accepted represents perhaps the best that can be obtained from the survey, it cannot be considered a first class survey, if judging it only from the standpoint of the numerous changes made in the records both during the execution of the survey and during the plotting (approximately 74 changes and rejections were made). It should be considered more in the nature of a reconnaissance and in the absence of any other surveys can be used for application to the charts, but it is recommended that it should not be used for charts on a scale 1/10,000 or larger.

A. L. Shalau

Following is a list of additional changes necessary to smooth sheet ~~4~~, and some unjustifiable departures made by the field party in plotting the smooth sheet:

7 a This should be omitted. Party was apparently having trouble. ✓ ←

13-14 a Intermediate sounding can be accepted as corrected by Chief of Party. This practice of spacing uniformly not unusual. ✓ ←

26 a No justification for changing left angle 1° unless this change was made in boat. Original angle of 41-15 agrees with boat sheet as well as the courses. ✓ ←

30-31 a Not necessary to omit soundings. Spacing can be determined by succeeding intervals. ✓ ←

66 a No justification for changing right object from Pun to Can, this change having been made apparently after the field work was done. The original recording agrees with boat sheet plotting and also the course and should be accepted even though the soundings do not cross so well. *Correct* ✓ ←

84 a There appears no justification for changing the left object from Pill to Nal since the boat sheet uses Pill and the change was evidently made subsequent to the field work. The changed angle made apparently on the boat agrees with boat sheet plotting. ✓

A lack of agreement between soundings is not in itself a good enough reason for departing from records and boat sheet. ✓

As far as the time intervals between 84-86 a are concerned, in either case they do not agree. ✓

Rejection of soundings between 83 and 85 is approved. ✓ ←

87 a Change of left object from Nal to At justifiable even though made subsequent to field work since this agrees with boat sheet plotting and an inspection of the relative positions of the signals shows that Nal could hardly have been used. The change should, however, have been made in colored pencil. ✓

93 a No justification for changing left object from Fig to Lat, this change having evidently been made subsequent to field work. Furthermore, original object as recorded agrees with boat sheet plotting and also with time based on plotting of 94 and 95a. Adjacent soundings also agree well. Lat falls off the limits of the boat sheet.

Rejection of soundings between 93 and 94 a is not recommended.

8-11 b Rejection of soundings not recommended. Line should be plotted as recorded even though boat sheet uses Pun on the right instead of Can. A fact to be considered in this connection is that the officer taking the right angle did not do the plotting on the boat sheet and hence the chance for error in misunderstanding the signal used is greater. Furthermore, the time intervals check, the soundings agree fairly well and the course based on positions 93-95a and 68-70a is in agreement.

151 b Boat sheet plotted with 74-05 on rt. instead of 69-05. Since right angle man was not plotting, the recorded angle should be accepted as correct. (So plotted on smooth sheet.)

174 b Plotting this position as recorded and as plotted on smooth sheet by field party not only introduces a 10 foot error in a crossing but it makes the time intervals between 172 and 175 appear absurd.

The position should be plotted with left angle, and time based on 172-173b. This not only makes a perfect crossing, but also makes the time intervals agree on the entire line. The new position of 174b will also check the right angle as recorded if the right object is changed from Papaa to Cut. This seems very probable.

A. P. Shalant.

Approved as ✓

*[Handwritten initials]*

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

REG. NO. 4704

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.

C. & G. SURVEY  
L. & A.  
DEC 30 1927  
Acc. No.

Field No. 7

REGISTER NO. 4704

State Hawaiian Islands

General locality Kauai Id. Northeast Coast

Locality Anahola Bay

Scale 1:5,000 Date of survey June 20 -- 22, 1927.

Vessel DISCOVERER

Chief of Party F. G. Engle

Surveyed by Jack Senior

Protracted by Jack Senior

Soundings penciled by Jack Senior

Soundings in ~~fathoms~~ feet

Plane of reference MLLW

Subdivision of wire dragged areas by

Inked by

Verified by

Instructions dated November 23, 1926

Remarks:

100  
100  
100

Applied to chart 4100

Wittman 11/7/58