

8829

ORIGINAL

Diag. Cht. No. 4116-2

FORM C&GS-504

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. PF-5-2-65 Office No. H-8829

LOCALITY

State HAWAII

General locality MŌLŌKAI ISLAND SE COAST

Locality PUKŌO HARBOR

19 65

CHIEF OF PARTY

CAPT L. F. WOODCOCK

LIBRARY & ARCHIVES

DATE 25 SEP 1970

USCOMM-DC 37022-P66

8829

HYDROGRAPHIC TITLE SHEET

H-8829

INSTRUCTIONS - 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.

PF-5-2-65

State Hawaii

General locality S.E. Molokai Island

Locality Pukoo Harbor

Scale 1:5,000 Date of survey 25-29 March

Instructions dated 10/25/60 thru 2/15/65 Project No. _____

Vessel Motor Launch # 2

Chief of party L.F. Woodcock, CAPT USC&GSS PATHFINDER

Surveyed by R.V. O'Connell, R.H. Kerley

Soundings taken by echo sounder, ~~mark lead~~ pole _____

Graphic record scaled by various personnel

Graphic record checked by various personnel

Protracted by N. Lestenkof Automated plot by _____

Soundings penciled by N. Lestenkof

Soundings in ~~fathoms~~ feet at ~~MSL~~ MLLW _____

REMARKS: _____

Handwritten initials/signature

Descriptive Report
to
Accompany Hydrographic Survey

(PF 5-2-65)
H-8829

A. PROJECT OPR 419

Combined operations: Maui, Molokai, Lanai, & Kahoolawe Islands
Original Instructions: 25 October 1960 (Ship Surveyor)
Amended Instructions: 14 March 1961 (Ship Surveyor) /
Supplemental Instructions: 9 January 1962 (Ship Pathfinder)
3 January 1963 (Ship Pathfinder)
Amended Instructions: 19 January 1963 (Ship Pathfinder)
Supplemental Instructions: 17 December 1963 (Ship Pathfinder)
Revised Instructions: 9 November 1964 (Ship Pathfinder)
Amended Instructions: 15 February 1965 (Ship Pathfinder) ✓

B AREA SURVEYED

The survey area of this sheet includes Pukoo Harbor, its approaches, and the protecting reef. The harbor is situated about midway between the small villages of Kaluaaha and Kainahu, about one mile distant from each. It is easily reached by motor vehicle along Hawaii Rte. 45, the improved coastal highway. The approximate

limits of the sheet are: North: ~~Long.~~ ^{LAT.} 21 04' 15" N
South: ~~Long.~~ ^{LAT.} 21 03' 30" N
East: ~~Lat.~~ ^{LONG.} 156 47' 30" W
West: ~~Lat.~~ ^{LONG.} 156 48' 25" W

This survey ^{overlaps} ~~junctions~~ with the following prior and contemporary surveys

- 1) C&GS 4121 (1:5,000, Sept., 1951)
- 2) C&GS 4130 (1:80,000, 4th Ed., Aug. 1964)
- 3) H-44456
- 4) ^{joins} PF 10-3-65 (H-8835)

C SOUNDING VESSEL

Soundings on this sheet were collected by launch # 2 and all position numbers appear in violet ink. The Pathfinder's port skiff & sounding pole were employed in reconnaissance of the reef.

D SOUNDING EQUIPMENT

The soundings were obtained by fathometer and sounding pole. The fathometer was a Raytheon DE-723, serial # 552, calibrated for a velocity of 800 feet per second. Velocity and draft corrections will be computed from bar-check data. This instrument was used in depths ranging from the maximum on the sheet (90 feet) to about 4 feet at the fringe of the reef. A summary of its operation:

- a day - satisfactory operation, jagged profile caused by seas
- b day - poor operation, weak or missing trace due to needle out-of-adjustment
- c day - poor operation, weak or missing trace due to needle out-of-adjustment
- d day - operates well, but bar checks have been neglected
- e day - satisfactory operation throughout most of the day

For sounding the shoal limits of the harbor and for the several reconnaissance lines run on the reef a 12-foot sounding pole was used. This was constructed of a hollow aluminum tube 3/4 inch in diameter marked with alternate 1-foot segments of black and white. Orange bands marked the 5 and 10 foot depths. Pole soundings were taken over the bow of the skiff, and reported to the recorder in feet and tenths when the pole was vertical.

E SMOOTH SHEET

(by smooth plotter)

F CONTROL

The positions are controlled by visual three-point sextant fixes. All signals used were photo-hydro stations derived from photogrammetric compilations T-11963 and T-11964 (advance manuscripts, 1:5,000). Three of the stations were passpoints and were pricked directly to the boat sheet. They were signal Red (T-11963) and signals Tan and Top (T-11964). All other station-locations were established by Ltjg. Schidrich's shore party, and radially plotted on these manuscripts. The following should be of interest to the smooth plotter:

a) The location of Kaluaaha Church Spire (red) on the boat sheet is photogrammetric. This is an intersection station established in 1925 and should appear on the smooth sheet as "KALUAAHA CHURCH SPIRE, 1925-62".. Its GP's ~~are~~ ^{LAT.} long. 21 04' 14.06" N, ^{LONG.} ~~lat.~~ 156 49' 23.37" (See spec. pub. no. 156 "Triangulation in Hawaii" p. 67).

b) In overlaying the manuscript to the boat sheet it was found that a less-than-satisfactory matching was the case. Photo-hydro signals were pricked while holding the nearest grid-intersection firmly fixed. Even so, it is not unlikely that several locations might be as much as 2 mm. out of position. *Smooth Sheet plotting of Signals Ok.*

G SHORELINE

The source of the shoreline is blue-line copies of manuscripts T-11963 & T-11964. The principal features were verified in the course of the survey. Two necessary changes are evident, however.

a) The limits of the reef are in need of revision. On the east side of the harbor the changes are relatively minor, requiring only

that the reef be extended into the harbor area in the vicinity of ~~LONG.~~ ^{LAT.} 21 04' 12" ~~lat.~~ ^{LONG.} 156 47' 52". On the west side, however, some rather extensive changes are called for. The fathogram trace on lines crossing the harbor (ex. 54a-56a) shows abrupt shoalings which could reasonably define the reef limits. Aerial photo 24 Sept. 61-W-0995 was examined by the hydrographer and he concludes (1) that the seaward reef limit is fairly well defined by breakers and corresponds closely to the reef as shown. (2) that within the harbor area itself there is very little guidance on this black & white photo for drawing in a reef configuration. Consequently, the reef line must be extended into the harbor by means of soundings. When the appropriate corrections are applied to the launch & skiff soundings so that they may be readily compared this will be a simple matter for the smooth-plotter's interpretation. *Proper symbolization and conflicts with hydro yet to be resolved. ENC 11/70*

b) A line of submerged pilings was found extending out from signal box. See boat sheet overlay. Position 49^b & 50^b represent the outermost which could be found. Our purpose was merely to confirm their existence and linearity and not their density and extent which is shown on C&GS chart 4121

H CROSSLINES

Crosslines comprise 5.4 miles of sounding line, or about 13.5% of the total mileage. Discrepancies at crossings do not in any case exceed two feet which is accountable by tide correction alone.

I JUNCTIONS

The survey junctions very satisfactorily with PF 10-3-65. Maximum discrepancy noted was three feet.

J COMPARISON WITH PRIOR SURVEY

a) This survey compares well with prior survey H-4456 (1:5,000, 1925). The only large departure is at lat. 21 03' 49" long. 156 47' 40" where the prior survey shows 50 feet opposed to about 42 feet on this survey. This prior survey shows a pier, the submerged remains of which were found during this survey. It is shown to extend out as far as lat. 21 04' 14". Our outermost piling was found at lat. 21 04' 12". *50 ft sounding within 100 meters away (between 41 ft & 52 ft)*

b) This survey compares reasonably well with prior survey H-5311 (1:20,000 Jan.-Feb., 1931). Of the twelve scattered soundings which were selected for comparison, seven agreed within two feet and the largest departure noted was at lat. 21 03' 33" long. 156 47' 51" where the prior survey shows 72 feet and this survey 66 feet. *72 ft sounding within 50 meters away. (between 67 ft & 74 ft)*

K. COMPARISON WITH CHARTS

a) C&GS 4130 (4th Ed., Aug. 1964, 1:80,000) - compares as well as could be expected in view of the greatly different scales.

b) C&GS 4121 (1:5,000) it is rather difficult to compare these two surveys at this time since final reductions have not been applied to the soundings. In general the agreement seems to be good. The older survey shows a six-foot shoal at lat. 21 04' 05" long. 156 47' 34" which was not found in this survey although a line (1e-8e) was passed right over its charted location. The fathogram gives no indication of any shoaling on this location so no attempt was made to develop it. *See Smooth plotter's note.*

L. ADEQUACY OF SURVEY

The survey is complete and adequate to supercede prior surveys for charting.

M. AIDS TO NAVIGATION

None in the survey area

N. STATISTICS

Vessel	# of days	# of positions (launch hydro)	# of positions (skiff & Sdg. pole)	Miles Sdg. Line	Bottom Samples
ML#2	5	424	318	40.0	11

Total area of survey: 0.75 sq. mi.

O. MISCELLANEOUS

Great difficulty was encountered in the skiff & sounding pole operations on the reef. Coral heads submerged just below the surface are numerous, and where large concentrations of them impeded the progress of the skiff lines were broken, and the approximate limits of such foul areas sketched in. It must be recognized, therefore, that depth curves in the reef zone are very generalized. Skiff work was curtailed by breakers when trying to delineate the reef in the vicinity of lat. 21 03' 45" long. 156 48' 15".

P. RECOMMENDATIONS

1) If color photographs of this area are available they would be of great help in outlining the reef and associated shoals.

2) I strongly recommend that the reef areas be designated foul. Local sportsmen were observed during the course of the survey negotiating the reef by poling their skiffs. Hazards to small craft are too numerous to attempt to chart, especially on the east side of the harbor.

3) That the 6-foot shoal mentioned under section K, part (b) be eliminated from future charts of the area. *No - See Verifier's Note*

8 April, 1965

Richard V O'Connell
Ens. C&GS

List of Stations on PF 5-2-65

Name Used in Survey	Type of Station	Source
ABE	Photo-Hydro	T-11963
BAT	"	"
BLU	"	"
BOB	"	"
BOX	"	T-11964
LUV	"	"
NOK	"	T-11963
PIN	"	"
RED	Triangulation	Kaluaaha Church Spire 1925
SUB	Photo-Hydro	T-11963
TAN	"	T-11964
TOP	"	"
ZOO	"	T-11963

TRANSMITTAL SHEET

H-8829

PF-5-2-65

The field work, completion and examination of records and plotting of smooth sheet were completed under previous commanding officers. The assembling of data in this descriptive report and transmittal of records to the Pacific Marine Center have been effected by this command.

G.L. SHORT
Cdr. USESSA
Comdg., PATHFINDER

G.L. Short

TIDE NOTE

The Kamalo tide station used for this survey is the portable gage located on the warf in Kamalo Harbor, Molokai Island at Latitude $21^{\circ}02.9'$ N and Longitude $156^{\circ}52.6'$ W. In 1965, the height on the tide staff at MLLW is 0.00 feet and at MHW 1.60 feet.

The plane of reference was checked and approved by the Division of Tides and Currents on 11/9/66.

It is assumed that: no corrections for time or height were applied to the observed tides.

The time meridian used is 150° W.

TIDE NOTE FOR HYDROGRAPHIC SHEET

November 10, 1966

~~NAVAL OCEANOGRAPHIC CENTER~~ Pacific Marine Center

Plane of reference approved in
3 volumes of sounding records for

HYDROGRAPHIC SHEET 8829

Locality: Kamalo Harbor, Molokai Island, Hawaii

Chief of Party: L. F. Woodcock, 1965

Plane of reference is mean lower low water

Tide Station Used (Form C&GS-681):

Kamalo Harbor

Height of Mean High Water above Plane of Reference is as follows:

1.6 feet

Remarks


Chief, Tides and Currents Branch

H-8829

GEOGRAPHIC NAMES

Pencilled on H-8826

KALUAAHA

KUPEKE FISHPOND

MOLOKAI ISLAND

NIAUPALA FISH POND

PAILOLO CHANNEL

PIPIO FISHPOND

PUKOO

PUKOO FISHPOND

PUKOO HARBOR

USC&GSS PATHFINDER
Capt. L. F. Woodcock, Comdg.

Velocity Corrections

Hawaiian Islands - 1965

Corrections to be applied to Sheet Nos. PF 5-2-65 (H-8829)
and PF 5-3-65. (H-8835)

<u>Correction</u>	<u>to depth</u>
+0.0 feet	15.1 feet
0.2	19.6
0.4	24.0
0.6	28.2
0.8	32.7
1.0	37.0
1.2	41.2
1.4	45.7
1.6	50.0
1.8	54.4
2.0	58.8
2.2	63.2
2.4	67.6
2.6	72.0
2.8	76.0
3.0	96.0
4.0	119.0

USC&GSS PATHFINDER
Capt. L. F. Woodcock, Comdg.

ECHO CORRECTIONS

Launch # 2

Hawaiian Islands

<u>Sheet No.</u>	<u>Date</u>	<u>Day</u>	<u>Correction</u>
PF 5-1-64	2-25	a	+2.0 ft
PF 5-1-65	3-6	a	+2.0 ft
	3-8	b	2.0
	3-9	c	2.0
	3-10	d	2.0
	3-11	e	2.0
	3-20	f	2.0
	3-21	g	2.0
PF 5-2-65	3-25	a	+2.0 ft
	3-26	b	2.0
	3-27	c	1.5 , +2.0 for depths over 11 fms
	3-28	d	2.0
	3-29	e	2.0
PF 5-3-65	4-14	a	+2.0 ft
	4-15	b	2.0
	4-16	c	2.0

			Correction.	
			<u>0-31 fms</u>	<u>31-101 fms</u>
PF 10-2-63	3-14	e	+0.4 fm	+0.4 fm
PF 10-6-63	2-17	b	+0.2 fm	+0.2 fm
	2-18	c	0.3	0.2
	3-12	d	0.4	0.4
	3-13	e	0.4	0.4
	3-19	f	0.3	0.2
PF 10-7-63	3-19	a	+0.3 fm	+0.2 fm
PF 10-1-64	2-24	a	+0.2 fm	+0.2 fm
	2-25	b	0.3	0.2

CORRECTION TABLE FOR 723 FATHOMETER STYLUS ARM

SHORT ARM POSITIVE CORRECTION
LONG ARM NEGATIVE CORRECTION

0.5%

UNIT	COR.
0 - 5.2	0.0 fms
5.0	0.1
15.0	0.2
50.0	0.5

1.0%

UNIT	COR.
0 - 2.5	0.0 fms
12.5	0.1
22.5	0.2
32.5	0.3
42.5	0.4
50.0	0.5

1.5%

UNIT	COR.
0 - 1.7	0.0 fms
2.3	0.1
11.7	0.2
21.6	0.3
28.3	0.4
32.7	0.5
41.5	0.6
43.3	0.7
50.0	0.8

2.0%

UNIT	COR.
0 - 1.3	0.0 fms
6.3	0.1
11.3	0.2
16.3	0.3
21.3	0.4
26.3	0.5
31.3	0.6
36.3	0.7
41.3	0.8
46.3	0.9
50.0	1.0

2.5%

UNIT	COR.
0 - 1.0	0.0 fms
5.0	0.1
9.0	0.2
13.0	0.3
17.0	0.4
21.0	0.5
25.0	0.6
29.0	0.7
33.0	0.8
37.0	0.9
41.0	1.0
45.0	1.1
49.0	1.2
50.0	1.3

3.0%

UNIT	COR.
0 - 0.9	0.0 fms
4.2	0.1
7.5	0.2
10.8	0.3
14.2	0.4
17.5	0.5
20.8	0.6
24.2	0.7
27.5	0.8
30.8	0.9
34.2	1.0
37.5	1.1
40.8	1.2
44.2	1.3
47.5	1.4
50.0	1.5

STYLUS ARM ERROR SHOULD BE COMPUTED TO THE
NEAREST HALF PERCENT.

H-8829 (PF-5-2-65)

SMOOTH PLOTTER'S NOTE

E. SMOOTH SHEET

The projection was machine drawn in the Washington office and checked by Ship's personnel immediately prior to transferring the hydro signals and shoreline from the manuscripts.

Position plotting of hydrography was commenced (about 5% accomplished) when the survey was transmitted to the Seattle Processing Office for completion.

The hydrographic positions that had been plotted were checked the remaining 95% were accomplished by N Lestenkof who also pencilled the soundings on this smooth sheet.

GEOGRAPHIC NAMES
Survey No. H-8829

Name on Survey	Source of Information										
	A	B	C	D	E	F	G	H	K		
Kaluaaha											1
Kupeke Fishpond											2
Molokai Island											3
Niaupala Fishpond											4
Pailolo Channel											5
Pipio Fishpond											6
Pukeo											7
Pukeo Fishpond											8
Pukeo Harbor											9
											10
											11
											12
											13
											14
											15
											16
											17
											18
											19
											20
											21
											22
											23
											24
											25
											26
											27

PREPARED BY

Frank W. Sidcott
CARTOGRAPHIC TECHNICIAN

APPROVED BY

A. J. Wright
CHIEF GEOGRAPHER

HYDROGRAPHIC SURVEY STATISTICS
HYDROGRAPHIC SURVEY NO. H-8829 (PF-5-2-65)

RECORDS ACCOMPANYING SURVEY: To be completed when survey is registered.

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET		1	BOAT SHEETS		2	
DESCRIPTIVE REPORT		1	OVERLAYS			
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES						
CAHIERS	1					
VOLUMES	3					
BOXES						
T-SHEET PRINTS (List) <u>T-11963 ; T-11964</u>						
SPECIAL REPORTS (List)						

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS			
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				740
POSITIONS CHECKED		310		
POSITIONS REVISED		31		
DEPTH SOUNDINGS REVISED or added		136		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		30		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED				
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS		2		
JUNCTIONS		15		
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		40		
SPECIAL ADJUSTMENTS				
ALL OTHER WORK		73		
TOTALS		130		
PRE-VERIFICATION BY	BEGINNING DATE		ENDING DATE	
VERIFICATION BY <u>Claremont Lehman</u>	Feb 3, 1970		March 4th 1970	
REVIEW BY	BEGINNING DATE		ENDING DATE	

H-8829 (PF-5-2-65)

VERIFIERS NOTES

G. SHORELINE

Extensive coral reefs front the beaches of the southern shores of Molokai Islands. Pukoo Harbor is one of the several breaks in this coral reef. The hydrography conflicts with the reef limits as delineated on the manuscripts T-11963 and T-11964. The reef lines should be revised and completed. We believe that this could best be done with the aid of photographs. There were no photographs available in the Seattle Processing Office.

Upon completion of the reefs on this 5,000 scale survey, the corrected reefs should be transferred to H-8835 at the scale of 1:10,000.

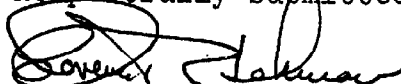
I. JUNCTIONS

This survey joins H-8835 (1965) 1:10,000 scale, to the west, south and east. The 10,000 scale soundings were transferred to this survey. Considerable rescanning of fathograms and replotting and adjusting of hydrographic positions was done to obtain agreement. The junction is complete and appears satisfactory.

K. COMPARISON WITH CHARTS

The six foot shoal at Latitude $21^{\circ}04'05.0''$ and Longitude $156^{\circ}47'34.0''$ as shown on Chart 4121, 5th Ed., June 13, 1966, was not found during the present survey. On the smooth plot, ¹⁻²7e-8e falls some 50 meters to the southeast of this shoal; and does not pass over or indicate any shoal sounding of 6 feet. 35 meters Northwest of the charted shoal is a 7 foot sounding on position 96c and shoaling is indicated on the fathogram. Recommend that the 6 foot sounding on the chart be retained because no attempt was made to disprove this shoal on the modern survey of H-8829.

Respectfully submitted,



Clarence R. Lehman

Approval Sheet

The smooth sheet has been inspected and meets the requirements of the Hydrographic Manual. (Note: Exceptions are noted in the verifier's report.)

Examined and Approved

Cornelius A. J. Pauw
Cornelius A. J. Pauw
Cartograph Technician

Approved for Forwarding

William M. Martin
William M. Martin
Superv. Cartograph Tech.

Approved and Forwarded

K. William Jeffers
K. William Jeffers, CDR, USESSA
Chief, Processing Division, PMC

VERIFIER'S REPORT
HYDROGRAPHIC SURVEY, H -829

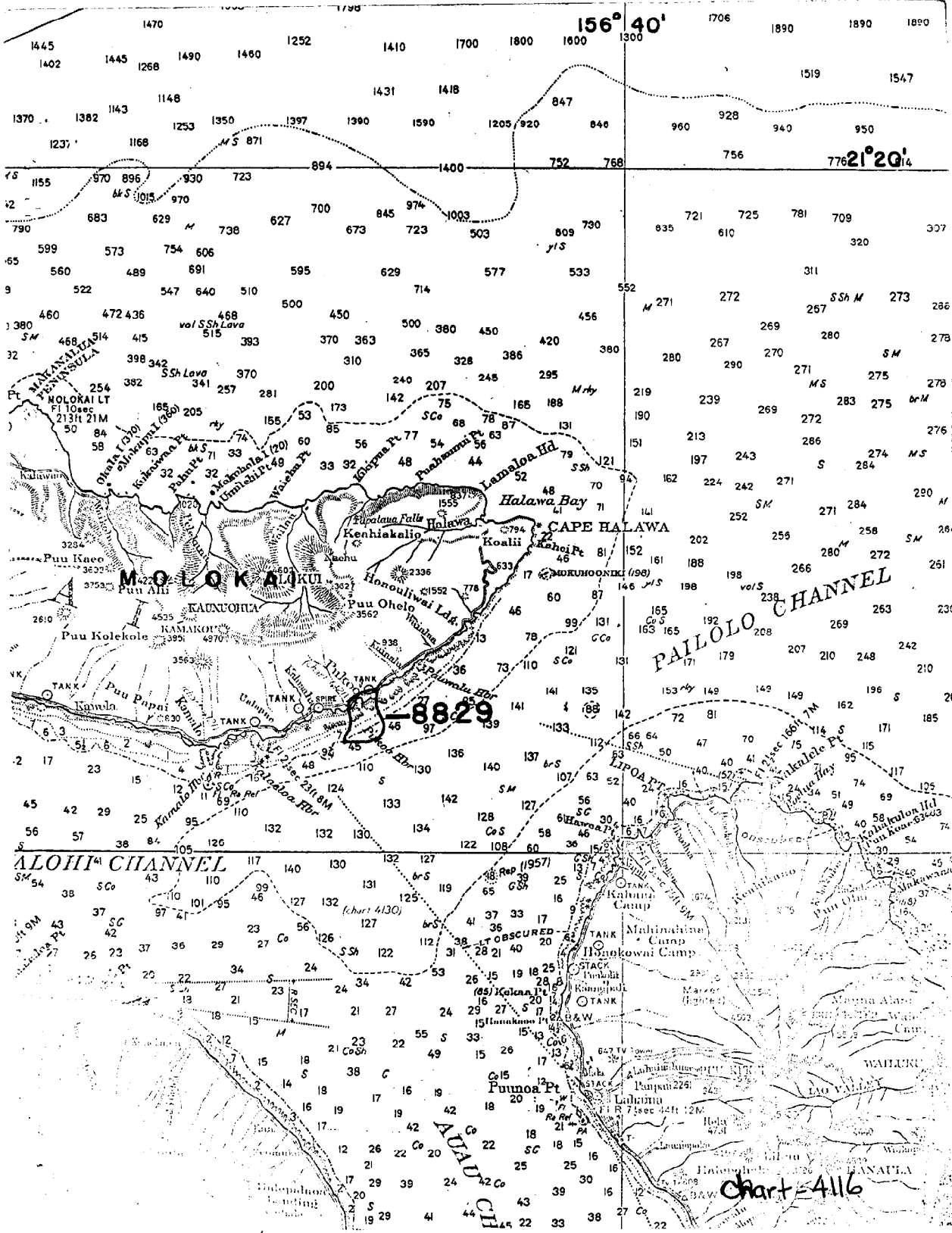
INSTRUCTIONS - This form serves to identify items of a check list in verification together with items which are separately reported to the Reviewer. The form is not to be forwarded to the Reviewer. A report, which is prepared for the Reviewer, should identify items by number and letter and will be filed in the Descriptive Report until the survey is reviewed.

CL - Check List Items: should be checked as having been completed during the verification processes.

R - Report Item: This column refers to those items reported to the reviewer and is used to indicate the items discussed.

Part I - DESCRIPTIVE REPORT	CL	R	Part III - JUNCTIONS (Continued)	CL	R
<p>Note: The verifier should first read the Descriptive Report for general information and problems.</p> <p>1. The Descriptive Report was consulted, paragraphs checked if found satisfactory, and notations were made in soft black pencil regarding action taken. Remarks Required: -- None</p>	✓		<p>10. Junctions with contemporary surveys were satisfactory except as follows: Remarks Required: -- Consider conditions after adjustments have been made; note adjustments made. Make special notes of Butt junctions and areas which are SUPERSEDED.</p>	✓	
<p>2. Soundings originating with the survey and mentioned in the Descriptive Report have been verified and checked in soft black pencil, including latitude and longitude, together with position identification. Remarks Required: -- None</p>	✓		<p>Part IV - VOLUMES</p> <p>11. All items affecting the plotting of the survey which are entered in the remarks columns of the sounding records were noted and check marked. In all cases appropriate action was taken and exceptions noted in the volumes. Remarks Required: -- None</p>	✓	
<p>3. All reference to survey sheets mentioned in the Descriptive Report should include registry number and year. Remarks Required: -- None</p>	✓				
<p>Part II - SHORELINE AND SIGNALS</p> <p>4. Source of shoreline signals Remarks Required: -- List all surveys <i>T-11963, T-11964</i></p> <p>a. Give earliest and latest dates of photographs <i>Oct. 1960 & Sept. 1961</i></p> <p>b. Field inspection date <i>May 1962</i></p> <p>c. Field Edit date <i>Completion date 4/24/64 for Hydro.</i></p> <p>d. Reviewed-Unreviewed</p>	✓		<p>12. Condition of sounding records was satisfactory except as follows: Remarks Required: -- Mention deficiencies in completeness of notes or actions for the following: (a) rocks ✓ (b) line turns ✓ (c) position values of beginning and ending of lines <i>Added by Verifier</i> ✓ (d) bar check or velocity correctors ✓ (e) time recording ✓ (f) notes or markings on fathograms ✓ (g) was reduction of soundings accurately done? <i>for the most part, yes.</i> ✓ (h) was scanning accurate? <i>most part, yes.</i> ✓ (i) were peaks at uneven intervals missed? <i>Some were.</i> ✓ (j) were stamps completed? <i>yes</i> ✓ (k) references to adjacent features ✓</p>	✓	
<p>5. The transfer of contemporary topographic information was carefully examined and reconciled with the hydrography. Remarks Required: -- Discuss remaining differences. <i>Notes Verifiers Report</i></p>	✓				
<p>6. The plotting of all triangulation stations, topographic stations and hydrographic signals has been checked and noted in processing stamp No. 42 on the smooth sheet. Remarks Required: -- None</p>	✓				
<p>7. Objects on which signals are located and which fall outside of the high-water line have been described on the sheet. Remarks Required: -- List those signals still unidentified.</p>	✓		<p>Part V - PROTRACTING</p> <p>13. All positions verified instrumentally were check marked in color in the sounding records, and verifier initialed the processing stamp. Remarks Required: -- None</p>	✓	
<p>Part III - JUNCTIONS</p> <p>Note: Make a cursory comparison preliminary to inking soundings in area of overlap.</p> <p>8. All junctions of contemporary or overlapping sheets were transferred in colored ink and overlapping curves were made identical. Remarks Required: -- None</p>	✓		<p>14. The protracting and plotting of all unsatisfactory crossings were verified. Remarks Required: -- None</p>	✓	
<p>9. The notation in slanted lettering "JOINS H---- (19)" was added in colored ink for all verified contemporary adjoining or overlapping sheets. Those not verified are shown in pencil. Remarks Required: -- None</p>	✓		<p>15. All detached positions locating critical soundings, rocks, buoys, breakers, obstructions, kelp, etc., were verified and the position numbers are legible. Remarks Required: -- None</p>	✓	

Part V - PROTRACTING (Continued)	CL	R	Part VIII - AIDS TO NAVIGATION	CL	R
16. The protracting was satisfactory except as follows: <i>several pos. replotting.</i> Remarks Required: -- Refers to protracting in general except for specific faults repeated often, or faults in control information, which required considerable replotting or adjustments.	✓		26. All fixed aids located together with those on the contemporary topographic sheets, have been shown on the survey. <i>Not aids mentioned</i> Remarks Required: -- Conflicts of any nature listed.	✓	
17. The protractor has been checked within the last three months. <i>Yes</i> Remarks Required: -- Date of check, type of protractor and number. <i>Jan 21st 1970 Short & long arm transfer</i>	✓		27. All floating aids listed in the Descriptive Report should be verified and checked in soft black pencil, including latitude and longitude and position identification. Remarks Required: -- None <i>floating aids mentioned</i>	✓	
Part VI - SOUNDINGS			Part IX - BOATSHEET		
18. All soundings are clear and legible, and critical soundings are a little larger than adjacent soundings. Remarks Required: -- None	✓		28. The boat sheet was constantly compared with the smooth sheet with reference to notes, position of sounding lines and supplemental information. <i>Yes</i> Remarks Required: -- None	✓	
19. Sounding line crossings were satisfactory except as follows: <i>adjustment mostly in scanning.</i> Remarks Required: -- Discuss adjustments. <i>Some pos. adjustment (see Part V) 16</i>	✓		29. Heights of rocks awash were correctly reduced and compared with topographic information. Remarks Required: -- Note excessive conflicts with topographic information.	✓	
20. The spacing of soundings as recorded in the records was closely followed; Remarks Required: -- None	✓		Part X - GENERAL		
21. The scanning, reduction, spacing, plotting of questionable soundings have been verified. Remarks Required: -- None	✓		30. All information on the sheet is shown in accordance with figures 82 and 83 in the Hydrographic Manual (Pub. 20-2). Remarks Required: -- None	✓	
22. The smooth plotting of soundings was satisfactory except as follows: Remarks Required: -- Refer to legibility, errors in spacing, and errors in numbers - but not to errors in scanning. <i>good legibility - some spacing adjustment & some pos. re numbering or numbering.</i>	✓		31. Unnecessary pencil notes have been removed from the sheet. Remarks Required: -- None	✓	
Part VII - CURVES			32. Degree, minute values and symbols have been checked; also electronic distance arcs have been properly identified and checked on the smooth sheet. Remarks Required: -- None	✓	
23. The depth curves have been inspected before inking. Remarks Required: -- By whom was the penciled curves inspected. <i>CAIP</i>	✓		33. The bottom characteristics are adequately shown. Remarks Required: -- None	✓	
24. The low-water line and delineation of shoal areas have been properly shown in accordance with the following: a. From T-Sheet in dotted black lines ✓ b. From soundings in orange ✓ c. Approximate position of sketched curve is dashed orange ✓ d. Approximate position of shoal area not sounded in black dashed ✓ Remarks Required: -- None	✓		Part XI - NOTES TO THE REVIEWER		
25. Depth curves were satisfactory except as follows: <i>Shoal areas foul with coral heads</i> (This statement should not refer to the manner in which the curves were drawn). Remarks Required: -- Indicate areas where curves could not be drawn completely because of lack of soundings. For some inshore areas a general statement is sufficient.	✓		34. Unresolved discrepancies and questionable soundings. <i>noted in verifier notes under "K"</i>	✓	
			35. Notation of discrepancies with photogrammetric survey inserted in report of unreviewed photogrammetric survey or on copy. <i>Review of reef line Noted in Verifiers Report</i>	✓	
			36. Supplemental information.		
Verified by <i>Clarence P. Lehman</i>				Date <i>Mar. 4 1970</i>	



156° 40'

77° 21' 20"

8829

Chart 4116

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-8829

INSTRUCTIONS

- A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
 2. In "Remarks" column cross out words that do not apply.
 3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
4121	1-5-74	E. Frey	Full Part Before After Verification ^{before} Review Inspection Signed Via Drawing No. <i>Appl critical corrections only. Revised reef & 18' curve</i>
4130	1-5-74	E. Frey	Full Part Before After Verification ^{before} Review Inspection Signed Via Drawing No. <i>Exam, no critical corrections</i>
4116	4-5-71	J. A. Buchanan	Full Part Before After Verification ^{Before} Review Inspection Signed Via Drawing No. <i>13 Examined thru chrt. 4130 Aug #14 no critical corrections</i>
4179	5/10/71	J. S. Hill	Full Part Before After Verification ^{Before} Review Inspection Signed Via Drawing No. <i>9 No critical corr at this time thru 4116 #16</i>
4124	3/28/75	M. D. Kern	Full Part Before After Verification ^{before} Review Inspection Signed Via Drawing No. <i>EXAMINED Ledge AREAS ONLY</i>
4130	3/28/75	M. D. Kern	Full Part Before After Verification ^{before} Review Inspection Signed Via Drawing No. <i>EXAMINED Ledge Areas only - thru chart 4121</i>
4116	6-3-75	H. J. Bonush	Full Part Before After Verification Review Inspection Signed Via Drawing No. <i>Re-Examined Survey Thru Chrt 4130, Revised Reef Areas!</i>
4180	7/21/76	M. D. Kern	Full Part Before After Verification Review Inspection Signed Via Drawing No. <i>Examined for critical corr. thru Chart #116 - no corrections</i>
4179	12/05/77	C. S. Forber	Full Part Before After Verification Review Inspection Signed Via Drawing No. <i>Consider application as Final. No additional corrections</i>
4130	12/19/77	M. Sauger	Full Part Before After Verification ^{before} Review Inspection Signed Via Drawing No. <i>PROOF No. 18. Re examined - no further corrections. Consider FINAL Application - CAT I.</i>
4116	12/20/77	M. Sauger	<i>CAT-I</i> Full application after verification - before review. Examined thru chart 4130 - no corrections.
4121	10/3/77	C. S. Forber	<i>Re-exam'd verified Cat. #1 Survey, revised (2) PK award symbols to it, zoned several ledges in holiday areas. Consider this a final app.</i>