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Diag. Cht. No. 4116-2

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

DESCRIPTIVE REPORT
(HYDROGRAPHIC)

Type of Survey ... HYDROGRAPHIC
Field No. PF-10-6-63
Office No. H-8825

LOCALITY

State ... HAWAII
General Locality ... MAUI ISLAND
Locality ... SOUTHEASTERN COAST

1965

CHIEF OF PARTY
L. F. WOODCOCK

LIBRARY & ARCHIVES

DATE ... JUNE 26, 1970

HYDROGRAPHIC TITLE SHEET

H-8825

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 10-6-63

State Hawaii

General locality Maui Island

Locality South ^{eastern} Coast

Scale 1:10,000 Date of survey Oct. 10, 1963-Mar. 13, 1965

Instructions dated Oct. 25, 1960-Feb. 15, 1965 Project No. OPR 419

Vessel Pathfinder, ML#1, ML#2, ML#3

Chief of party H.J. Seaborg, Captain USESSA, L.F. Woodcock, Captain USESSA

Surveyed by Various Personnel

Soundings taken by echo sounder, ~~hand lead, etc.~~

Graphic record scaled by Various Personnel

Graphic record checked by Various Personnel

Protracted by Lt(jg) F.T. Smith, B. Wilhelm Automated plot by Various Personnel

Soundings penciled by _____

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

REMARKS: _____

RWH 2/17/92

The following descriptive report was typed from a rough hand written draft left by Lt.j.g. R.K. Woodruff which was dated April 7, 1965. Additions to Mr. Woodruff's report were made by the smooth plotter when information was available and for that part of the sheet completed.

Smooth plotting was by Lt.j.g. F.T. Smith in December, 1965 and January 1966. The positions are about 90 per cent complete for smooth plotting. Soundings have not been plotted as of yet.

F.T. Smith
F.T. Smith
Lt.j.g. USESSA

DESCRIPTIVE REPORT TO ACCOMPANY

HYDROGRAPHIC SURVEY H-8825 (PF 10-6-63)

SOUTH COAST, MAUI ISLAND, HAWAII

SCALE: 1:10,000
October 10, 1963 - March 13, 1965

L.F. Woodcock
Captain, USC&GS
CO, USC&GSS Pathfinder

A PROJECT

This survey is part of OPR-419, Maui, Molokai, Lanai and Kahoolawe islands, Hawaii according to instructions and changes as listed:

- ↓ Original instructions: October 25, 1960 to ship Surveyor.
- Amended instructions: March 14, 1961 to ship Surveyor. *cancelled*
- ✓ Supplemental instructions: Jan. 9, 1962 to ship Pathfinder. *cancelled*
- ✓ Supplemental instructions: Jan. 3, 1963 to ship Pathfinder.
- Amended instructions: January 19, 1963 to ship Pathfinder. *cancelled*
- ✓ Supplemental instructions: Dec. 17, 1963 to ship Pathfinder.
- ✓ Revised instructions: November 9, 1964 to ship Pathfinder. ←
- ✓ Amended instructions: February 15, 1965 to ship Pathfinder.

Supersedes all previous instructions

✓ B AREA SURVEYED

This survey covers the area along the south coast of Maui Island between Nuu Landing and Kaapahu Bay. The sheet limits are as follows:

On the north 20° 39' 00"
On the south 20° 35' 00"
On the west 156° 04' 00"
On the east 156° 12' 00"

The coast is generally rugged with numerous cliff areas and is accessible by an unimproved road. The adjacent land is sparsely populated and used mostly for cattle grazing. Survey commenced October 10, 1963 and was completed March 13, 1965. Junctions are made with contemporary surveys PF 10-5-63 (H-8793) and PF 5-2-64 (H-8792) on the west and PF 10-7-63 (H-8826) on the east and prior survey H-3517 (1:20,000) and H-3519 (1:60,000) 1913-~~1914~~.

✓ C SOUNDING VESSEL

All hydrography accomplished by the ship Pathfinder and its launches:

✓ Ship Pathfinder	-	Blue
✓ ML #1	-	Blue
✓ ML #2	-	Purple
✓ ML #3	-	Green

✓ D SOUNDING EQUIPMENT

Raytheon DE 723 sounding units were used by all vessels as listed:

Pathfinder	#557 and #551
✓ ML #1	#143
✓ ML #2	#145 and #142 and #552
✓ ML #3	#141

Ship soundings were recorded from the DE 723 and the PDR was used as a check. Maximum sounding depth was approximately 384 320 Fms. Velocity corrections were obtained by numerical determination according to section 5-117 of the Hydrographic Manual. Temperatures and salinities were obtained by deep sea reversing protected and unprotected thermometers and hydrometers. Instrument corrections for launch fathometers were determined by bar checks at 1, 2 and 4 Fms. once or twice daily. For details refer to 1964 Fathometer Report, dated 1964 and the 1965 Fathometer Report, dated 1965. *No other date given.*

✓ E SMOOTH SHEET

Smooth plotter.

✓ F CONTROL

Sextant fixes on shore signals.

Visual control was used throughout the survey. Advance manuscripts used for plotting control are listed:

T - 11935 - 1962
T - 11936 - 1962
T - 11937 - 1962
T - 11938 - 1962

✓ Signals ORT, SHO, WOO, CAP and ODY were located by cuts from the ship which are recorded in volume number 3 "D" day.

✓ G SHORELINE

Shoreline detail was transferred from blue line copies of the manuscript listed in F. Shoreline detail has been verified on the boat sheet. Refer to notes on boat sheet. All of the rocks awash shown by the manuscript were searched for but most were either nonexistent or actually submerged rocks. In most areas it was impossible to obtain the least depth over submerged rocks because of the heavy surf conditions. All shoreline verification was done from a launch. It is impossible to determine the low water line in this area due to heavy surf conditions.

✓ H CROSSLINES

Smooth plotter. Crosslines agree well on boat sheet.

✓ I JUNCTIONS

Smooth plotter.

J COMPARISON WITH PRIOR SURVEY

There were no presurvey review items to be investigated on this sheet. Comparison by smooth plotter.

✓ K COMPARISON WITH CHART

Smooth plotter.

✓ L ADEQUACY

Smooth plotter.

✓ M AIDS TO NAVIGATION

None.

✓ N STATISTICS

<u>1963</u>	<u>No. position</u>	<u>Miles sounding line</u>	<u>bottom sample</u>
Ship	178	37	13
<u>1964</u>			
Ship	125	30.4	0
ML #1	120	14.9	0
ML #2	44	7.2	0

N STATISTICS (cont'd)

1965	No. position	Miles sounding line	Bottom sample
Ship	6	1.8	0
ML #2	454	528	19
ML #3	276	36.4	0

SHEET TOTALS

Ship	309	69.2	13
ML #1	120	14.9	0
ML #2	498	60.0	19
ML #3	<u>276</u>	<u>36.4</u>	<u>0</u>
TOTALS	1203	180.5	32

O SMOOTH PLOTTER

Note-17 Fm. shoal or peak just offshore from signal TOY.
Two overlays to accompany sheet. (Additional Boatsheet and shoreline inspection by hydrographer.)

P SMOOTH PLOTTER

✓ Q REFERENCES TO REPORTS*

1. Fathometer Report, 1964 field season, Ship Pathfinder. (Forwarded with transmittal letter No. Path 91-64, October 20, 1964).
2. Fathometer Report, 1963 field season, Ship Pathfinder. (Forwarded with transmittal letter No. Path __-__,).
3. Seasons report - 1963 USC&GSS Pathfinder.
- ✓ 4. Seasons report - 1964 USC&GSS Pathfinder. (Forwarded with transmittal letter No. Path 93-64, November 20, 1964).
5. Seasons report - 1965 USC&GSS Pathfinder. (Forwarded with transmittal letter No. Path __-__,).

* A Fathometer Report was not submitted in 1963.

TIDE NOTE

✓ Tide corrections were determined from a portable gage at Hana Bay, Maui Island, Lat ~~20°55'N~~ Long. ~~155°24'W~~. The Washington office computed MLLW to be 0.7 on the tide staff (reference correspondence dated _____). Time was referenced to the 150th meridian. Hourly heights were scaled by ships personnel.

For 1963 MLLW was 0.7 feet on tide staff
For 1964

{ August 10, 1967
C 3312 - 160 - MC FCE }

USC&GS SHIP PATHFINDER

OSS-30

H. J. Seaborg, Cmdg

VELOCITY CORRECTIONS

Hawaiian Islands

OPR-419

Maui Island

To be applied to all hydrography accomplished during the 1963 season.

RANGE	CORR.	RANGE	CORR.
FROM - TO (fms)	(fms)	FROM - TO (fms)	(fms)
0.0 - 2.9	+0.0	50.0 - 53.5	+2.2
3.0 - 5.3	0.1	54.0 - 58.0	2.4
5.4 - 7.5	0.2	58.5 - 63.0	2.6
7.6 - 9.5	0.3	63.5 - 67.5	2.8
9.6 - 11.6	0.4	68.0 - 72.0	3.0
11.8 - 14.0	0.5	72.5 - 76.5	3.2
14.2 - 16.2	0.6	77.0 - 81.5	3.4
16.4 - 18.4	0.7	82.0 - 86.5	3.6
18.6 - 20.8	0.8	87.0 - 91.5	3.8
21.0 - 23.0	0.9	92.0 - 96.5	4.0
23.2 - 25.2	1.0	97.0 - 102	4.2
25.4 - 27.4	1.1	103 - 114	4.5
27.6 - 29.6	1.2	115 - 128	5.0
29.8 - 31.0	1.3	129 - 144	5.5
31.5 - 36.0	1.4	145 - 172	6.0
36.5 - 40.5	1.6	*174 - 230	7.0
41.0 - 45.0	1.8	232 - 296	8.0
45.5 - 49.5	2.0	298 - 388	9.0

* values from this depth onward are based on values from 1962 velocity curve.

USC&GSS PATHFINDER
OSS-30
H.J. Seaborg, Comdg.

VELOCITY CORRECTIONS
Hawaiian Islands
Maui and Lanai Islands

To be applied to all hydrography accomplished in February and March 1964.

Correction to Depth

+0.0 fm	3.0 fm
0.1	5.5
0.2	7.5
0.3	10.0
0.4	12.0
0.5	14.4
0.6	16.4
0.7	19.0
0.8	21.0
0.9	23.2
1.0	25.4
1.1	27.6
1.2	30.0
1.3	32.0
1.4	36.5
1.6	41.0
1.8	45.5
2.0	50.0
2.2	54.5

Correction to Depth

+2.4 fm	58.5 fm
2.6	63.0
2.8	67.5
3.0	72.0
3.2	76.5
3.4	81.0
3.6	85.5
3.8	90.5
4.0	96.0
4.2	100.0
4.4	104.0
4.5	111.0
5.0	122.0
5.5	144.0
6.0	190.0
7.0	310.0
8.0	366.0
9.0	400.0

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

✓ Velocity Corrections

Hawaiian Islands - 1965

Corrections to be applied to Sheet Nos. PF 10-6-63,
PF 10-7-63, and PF 10-2-63.

<u>Correction</u>	<u>To depth</u>
+0.1 fathoms	3.1-5.3 fathoms
0.2	7.8
0.3	10.0
0.4	12.1
0.5	14.2
0.6	16.3
0.7	18.3
0.8	20.5
0.9	22.9
1.0	25.0
1.1	27.4
1.2	32.0
1.4	36.5
1.6	41.0
1.8	45.8
2.0	50.3
2.2	54.8
2.4	59.4
2.6	63.8

CORRECTION TABLE FOR 123
FATHOMETER STYLUS ARM

↓ SHORT ARM POSITIVE CORRECTION
↑ LONG ARM NEGATIVE CORRECTION

0.5%		1.0%		1.5%	
UNIT	COR.	UNIT	COR.	UNIT	COR.
0 - 5.0	0.0 fms	0 - 2.5	0.0 fms	0 - 1.4	0.0 fms
5.0	0.1	2.5	0.1	1.4	0.1
10.0	0.2	5.0	0.2	1.7	0.2
15.0	0.3	7.5	0.3	2.1	0.3
		10.0	0.4	2.5	0.4
		12.5	0.5	2.9	0.5
				3.3	0.6
				3.7	0.7
				4.1	0.8
				4.5	0.9
				4.9	1.0
				5.3	1.1
				5.7	1.2
				6.1	1.3
				6.5	1.4
				6.9	1.5

2.0%		2.5%		3.0%	
UNIT	COR.	UNIT	COR.	UNIT	COR.
0 - 1.3	0.0 fms	0 - 1.0	0.0 fms	0 - 0.9	0.0 fms
1.3	0.1	1.0	0.1	0.9	0.1
2.6	0.2	2.0	0.2	1.8	0.2
3.9	0.3	3.0	0.3	2.7	0.3
5.2	0.4	4.0	0.4	3.6	0.4
6.5	0.5	5.0	0.5	4.5	0.5
7.8	0.6	6.0	0.6	5.4	0.6
9.1	0.7	7.0	0.7	6.3	0.7
10.4	0.8	8.0	0.8	7.2	0.8
11.7	0.9	9.0	0.9	8.1	0.9
13.0	1.0	10.0	1.0	9.0	1.0
		11.0	1.1	9.9	1.1
		12.0	1.2	10.8	1.2
		13.0	1.3	11.7	1.3
				12.6	1.4
				13.5	1.5

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

GEOGRAPHIC NAMES

Pencilled on H-8825 (PF-10-6-63)

- ✓ Apole Point
- ✓ Halekii Point
- ✓ Kaapahu Bay
- ~~✓ Kailua Point~~
- ✓ Kailio Point
- ✓ Kakanoni Point
- ✓ Kalepa Point
- ✓ Kamilo Point
- ✓ Kepio Point
- ✓ Lapehu Point
- ✓ Makaakini Point
- ✓ Mamalu Bay
- ✓ Maulili Bay
- ✓ Maui Island
- ✓ Mokulau
- ✓ Mokuia Point
- ✓ Nuu Landing
- ✓ Piilani Papa

✓ LIST OF STATIONS ON H-8825 (PF-10-6-63) ✓

<u>Name used in</u> <u>Hydrographic Survey</u>	<u>Origin of station</u>
ADD	T-11937
ART	T-11938
AXE	T-11936
BEE	T-11938
BOB	T-11936
BON	T-11937
CAP	Vol. III, Page 4
COD	T-11937
CON	T-11938
DIM	T-11938
DOC	T-11937
DOG	T-11938
ELI	T-11938
EVA	T-11937
FIG	T-11938
FOR	T-11937
GAB	T-11936
GEO	T-11936
GOO	T-11936
ION	T-11938
JOB	T-11938
JOY	T-11935
KUI	Triangulation Station Mokuia 2, 1950
LUG	T-11938
NIX	T-11938
NOR	T-11938
ODY	Vol. III, Page 5
ORT	Vol. III Pages 3 and 4
PAU	T-11938
PEN	T-11938
PIL	T-11937
POI	T-11938
RIP	T-11937
ROC	T-11938
SHO	Vol. III, Pages 3 and 5
TAN	T-11937
TOY	T-11938
UPO	Triangulation Station Kaupo, Catholic Church
WES	T-11938 Steeple, 1950.
WIZ	T-11938
WOO	Vol. III, Page 4

✓ Transmittal Sheet

H-8825

PF 10-6-63

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 incomplete descriptive report and transmittal of records to the Pacific Marine Center have been effected by this command.



G. L. Short
CDR USESSA
Comdg. PATHFINDER

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

✓ TIDE NOTE FOR HYDROGRAPHIC SHEET

October 24, 1966

~~Nautical Chart Division~~ Pacific Marine Center

Plane of reference approved in
10 volumes of sounding records for

HYDROGRAPHIC SHEET 8825

Locality: Hana Bay, Maui Island, T. H.

Chief of Party: H. J. Seaborg, 1963-64
L. F. Woodcock, 1965

Plane of reference is mean lower low water

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

Hana Bay

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

2.0 feet

Remarks


Chief, Tides and Currents Branch

Memorandum

Chief, Processing Division, CFS3
Pacific Marine Center
Coast and Geodetic Survey
1801 Fairview Avenue, East
Seattle, Washington 98102

DATE: August 10, 1967

In reply refer to:
C3312-160-MCFOE

FROM : Chief, Tides Section
Oceanography Division

SUBJECT: Hana Bay, Hawaii, tidal data

Requested hourly heights of the tide are enclosed.
Reference to mean lower low water is noted at the
top of the page.

Martha A. Winn
Martha A. Winn

Enclosure

*Was not included in this report and Tides Section does not have
a copy of correspondence.*



BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

✓ Survey No. H-8825

Name on Survey	Source of Information										
	A	B	C	D	E	F	G	H	K		
	On Chart No.	On previous survey No.	On U. S. quadrangle Maps	From local information	On local Maps	P. O. Guide or Map	Rand McNally Atlas	U. S. Light List			
✓ Apole Point											1
✓ Halekii Point											2
Kaapahu Bay											3
✓ Kailio Point											4
Kakanoni Point											5
✓ Kalepa Point											6
✓ Kepio Point											7
Kamilo Point											8
✓ Lapehu Point											9
Maulili Bay											10
✓ Mamanu Bay											11
✓ Makakini Point											12
Mau Island											13
✓ Mokuia Point											14
✓ Mokuiau											15
Nuu Landing											16
Piilani Papa											17
											18
											19
											20
											21
											22
											23
											24
											25
											26
											27

PREPARED BY

Frank W. Lichten
CARTOGRAPHIC TECHNICIAN

APPROVED BY

A. J. Wraight
CHIEF GEOGRAPHER

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HYDROGRAPHIC SURVEY STATISTICS
HYDROGRAPHIC SURVEY NO. H-8825

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		1	
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES						
CAHIERS	1					
VOLUMES	10 100	100				
BOXES						

T-SHEET PRINTS (List) T-11936, T-11937, T-11938, T-11935

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				1203
POSITIONS CHECKED		539	40	
POSITIONS REVISED		51	12	
DEPTH SOUNDINGS REVISED or added		293	6	
DEPTH SOUNDINGS ERRONEOUSLY SPACED		50	4	
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED			-	
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS		8	80	
JUNCTIONS ^{NY 1016} <u>H-8826 & H-8792</u> <u>H-8793</u>		56	16	
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		26	8	
SPECIAL ADJUSTMENTS ^{depth corrections} _{position adjustments}			80	
ALL OTHER WORK _{misc}		66	32	
TOTALS		156	186	
PRE-VERIFICATION BY	BEGINNING DATE		ENDING DATE	
VERIFICATION BY <u>Clarence R. Lehman</u>	6/23/69		Aug 27/69	
REVIEW BY <u>R.D. Janicki</u>	11/15/73		2/28/73	

Ronsedburg 64605 8/18/74

Parsons RHC 12/15

H-8825

Information for Future Presurvey Reviews

A few isolated shoals on the present survey may warrant extra development on future surveys of this area. Some of these shoals are listed in the survey review, while others have been carried forward from prior surveys.

<u>Position Index</u>		<u>Bottom Change</u>	<u>Use</u>	<u>Resurvey</u>
<u>Lat.</u>	<u>Long.</u>	<u>Index</u>	<u>Index</u>	<u>Cycle</u>
203	1562	0	1	50 years
203	1561	1	1	50 years

OFFICE OF MARINE SURVEYS AND MAPS

MARINE CHART DIVISION

HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-8825

FIELD NO. PF-10-6-63

Hawaii, Maui Island, Southeastern Coast

SURVEYED: October 10, 1963, through March 13, 1965

SCALE: 1:10,000

PROJECT NO.: OPR-419

SOUNDINGS: Raytheon DE-723 Depth
Recorders, Leadline

CONTROL: Sextant Fixes
on Shore
Signals

Chief of Party H. J. Seaborg (1963-64)
Surveyed by L. F. Woodcock (1965)
Protracted by Ship's Officers
..... F. T. Smith
..... B. Wilhelm
Soundings Plotted by Ship's Personnel
Verified and Inked by C. R. Lehman
Reviewed by R. D. Sanocki
..... Date: February 28, 1973
Inspected by D. J. Romesburg

1. Description of the Area

This is a survey of an area on the southeastern coast of Maui Island, Hawaii, between Lapehu Point and Piilani Papa.

The bottom configuration in this area is the result of past volcanic activity, weathering, and coral deposits. The near-shore area is strewn with rocks, numerous foul areas, cliffs, and small sand and pebble beaches. Stream cut valleys terminate at the shoreline, adding to the jagged and irregular nature of the coastline. The steeply sloping bottom generally follows the configuration of the shoreline. Survey depths extend slightly beyond the 300-fathom curve, which is approximately 3,500 meters offshore.

The bottom characteristics vary over the survey area and consist of fine black sand, coral, fine brown sand, gravel, hard brown clay, and volcanic ash.

2. Control and Shoreline

The source of the control is adequately described in the Descriptive Report.

The shoreline originates with Final Reviewed Photogrammetric Manuscripts T-11936 (1:5,000), T-11937 (1:5,000), and T-11938 (1:10,000), all of 1960-63. These manuscripts were supplemented, regarding inshore rocks and delineation of foul areas, by the hydrographer's notations on the boat sheets and by several islets from T-3275 (1912) carried forward to the present survey as rocks awash, when supported by data on the aerial photographs.

3. Hydrography

A. Depths at crossings are in good agreement.

B. The usual depth curves were adequately delineated. Curves inshore of 5-fathom depths could not be completely delineated because of numerous foul areas and heavy surf conditions.

C. The development of the bottom configuration and investigation of least depths are considered adequate with the following exceptions:

(1) Detached fixes were not always taken to establish the positions of many inshore rocks.

(2) Several shoals were not fully investigated for least depth, as for example:

(a) The 4.9 fathoms in latitude $20^{\circ}37.58'$, longitude $156^{\circ}09.04'$.

(b) The 5.2 fathoms in latitude $20^{\circ}37.21'$, longitude $156^{\circ}08.51'$.

(c) The 6.9 fathoms in latitude $20^{\circ}37.24'$, longitude $156^{\circ}08.23'$.

(d) The 2.9 fathoms in latitude $20^{\circ}37.66'$, longitude $156^{\circ}07.73'$.

(e) The 5.2 fathoms in latitude $20^{\circ}38.51'$, longitude $156^{\circ}06.65'$.

(f) The 7.4 fathoms in latitude $20^{\circ}38.57'$, longitude $156^{\circ}05.82'$.

(g) The 8.4 fathoms in latitude $20^{\circ}38.88'$, longitude $156^{\circ}04.34'$.

4. Condition of the Survey

The field plotting, survey records, field verification, and the Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual except as follows:

A. Requested hourly heights of tides (reference correspondence dated August 10, 1967, from Tides Section, Oceanography Division) were not enclosed as part of the survey records as stated in the Descriptive Report.

B. The depth curves were inaccurately inked by the verifier, and some detached curves were overlooked.

C. Delineation of foul areas from T-sheets were not considered with regard to the hydrographer's delineation on the boat sheets.

D. Revisions to the inked shoreline were made by the reviewer upon examination of the Final Reviewed Photogrammetric Manuscripts.

E. A positive corrector was added to survey depths to compensate for an error in the stylus arm length of the DE-723 depth recorders.

F. Signal TAN falls outside the high water line and was not described as specified in Paragraph 5-10 of the Hydrographic Manual.

5. Junctions

Adequate junctions were effected with H-8792 (1964) and H-8793 (1963-64) on the west; H-8826 (1963-65) on the east; and H-9016 (1969) on the southwest. No contemporary survey joins the present survey on the southeast, but present survey depths are in harmony with those charted in this area.

6. Comparison with Prior Surveys

H-3517	(1913)	1:20,000
H-3581	(1913-14)	1:20,000
H-3519	(1913)	1:60,000

These surveys taken together comprise the latest prior coverage of the present survey area. A comparison between the prior and present surveys reveals a general agreement in the character of the bottom, with present survey depths generally shoaler by one to six fathoms. These differences can be attributed to the methods of sounding used on the prior surveys versus the present survey. However, some shoaling in bays and coves results from the deposition of stream-carried sediments eroded from the nearby mountainside and from the shifting of bottom materials by alongshore currents.

Several soundings, bottom samples, and rocks were brought forward, in the inshore area, to supplement the present survey.

With the addition of these items, the present survey is adequate to supersede the prior surveys within the common areas.

7. Comparison with Chart 4116, 15th Ed., August 7, 1971

A. Hydrography

The charted hydrography in the area of the present survey originates with the previously discussed prior surveys, which require no further consideration, supplemented by the partial application of the present survey before review.

The present survey is adequate to supersede the charted hydrography within the common area.

B. Aids to Navigation

There are no charted aids to navigation within the area of this survey.

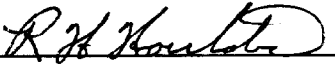
8. Compliance with Instructions

The present survey adequately complies with the Project Instructions.

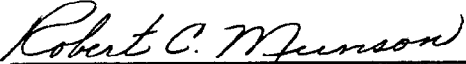
9. Additional Field Work

This is considered to be a good basic survey and no additional field work is recommended. However, additional development and determination of least depths on the shoals listed under Paragraph 3C of this review would be desirable.

Examined and Approved:



Chief
Marine Chart Division



Associate Director
Office of Marine Surveys
and Maps

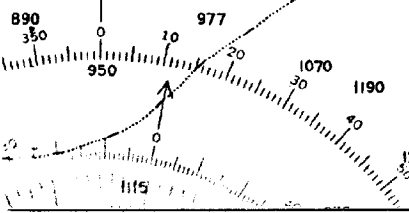
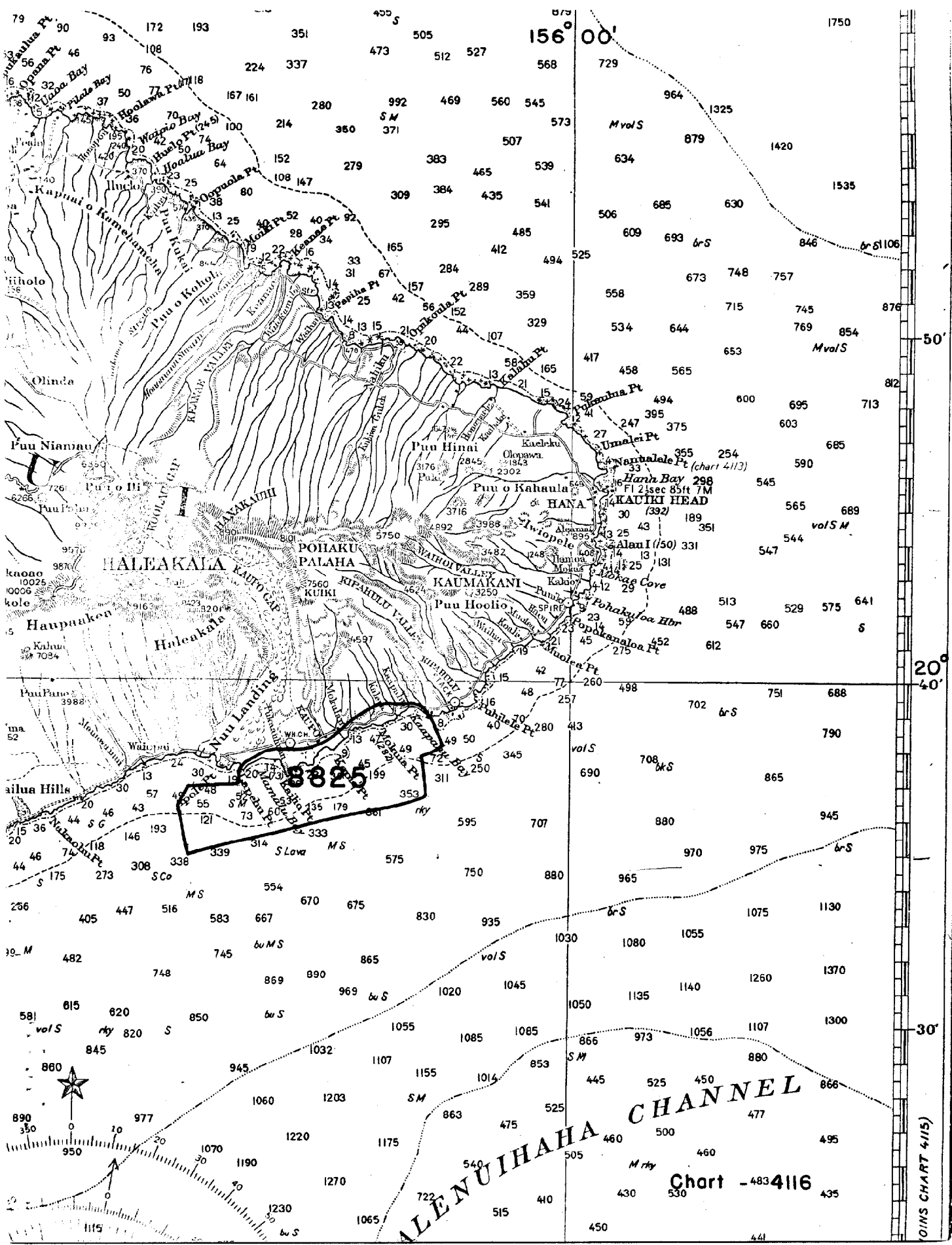


Chart - 4834116

COINS CHART 4115

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-8825

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
4116	4-5-71	J.A. Graham	Full Part Before ^{before} After Verification Review Inspection Signed Via Drawing No. 16 applied ^{applied} misc. ^{misc.} critical ^{critical} correction ^{correction} only
4174	5/10/71	J.H. Millan	Full Part Before ^{before} After Verification Review Inspection Signed Via Drawing No. 9 no ^{no} critical ^{critical} corr ^{corr} at this time examined thru ^{examined thru} 4116 #16
4102	1/27/72	J. Graham	Full Part Before After Verification Review Inspection Signed Via Drawing No. 28 applied ^{applied} for ^{for} critical ^{critical} corr ^{corr} only thru chrt. 4116 dwg. ^{dwg.} #16
4180	3/15/72	E. Frey	Full Part Before After Verification Review Inspection Signed Via Drawing No. 11 App'd ^{App'd} for ^{for} critical ^{critical} corrections ^{corrections} only thru chrt 4102 dwg ^{dwg} #28
4115	7/29/73	C.S. Forbes	Full Part Before After Verification ^{before} Review Inspection Signed Via Drawing No. App'd ^{App'd} corrections ^{corrections} thru chart 4116, dwg ^{dwg} 16.
4102	11-11-73	L.S. Forbes	Full Part Before After Verification ^{before} Review Inspection Signed Via Drawing No. Examined ^{Examined} for ^{for} critical ^{critical} corrections ^{corrections} only - no ^{no} corrections ^{corrections}
4116	6-5-75	H.P. Bravashi	Full Part Before After Verification ^{Verification} Review Inspection ^{Inspection} Signed Via Drawing No. App'd ^{App'd} several ^{several} sndg's ^{sndg's} and Revised 10fm, 100fm. Curve slightly.
4115	8/8/75	Naitor	Full Part Before After Verification Review Inspection ^{Inspection} Signed Via Drawing No. Revised several sndgs, 10fm and 100fm curves, 6 rocks awash thru 4116
4102	8/11/75	Naitor	Full Part Before After Verification Review Inspection ^{Inspection} Signed Via Drawing No. Revised 10 fm curve, Added 214fm sndg thru 4116.
4000	9/4/75	Kanis	Full Part Before After Verification Review Inspection ^{Inspection} Signed Via Drawing No. Examined ^{Examined} thru chart 4102 - no ^{no} corrections ^{corrections}
4179	9/16/75	HAUSMAN	PART AFTER REVIEW Exam. thru 4102 w/ minor ^{minor} corr ^{corr} Added 214 sndg.
4116	4/20/76	KANIS	Full Part Before Applied After signature
4180	4/20/76	KANIS	Full Part Before Applied After signature thru Chart 4116
4115	1/27/77	KANIS	Part Applied - After signature - critical corr. only

