

8998

Diagram 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. AR-10-4-68.....
Office No..... H-8998.....

LOCALITY

State Hawaii.....
General Locality Northeast Coast of Lanai.....
Locality Iano to Paopao Point.....

19 68

CHIEF OF PARTY
CDR R.L. Newsom

LIBRARY & ARCHIVES

DATE July 6, 1973.....

Category 1

8998

HYDROGRAPHIC TITLE SHEET

H 8998

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.

AR 10-4-68

State Hawaii

General locality ~~Hawaiian Islands~~ Northeast Coast of Lanai

Locality ~~Northeast Coast Lanai Island~~ Iamo to Paopao Point

Scale 1:10,000 Date of survey Aug 26, 1968 to Oct 5, 1968

Instructions dated 2/15 & 4/2/68 Project No. OPR 419

Vessel USC&GSS McARTHUR

Chief of party Ronald L. Newsom, CDR, USESSA

Surveyed by R.A. Sundholm, R.G. Kraynick, J.R. Carr, J.C. Albright,
R.C. Husted

Soundings taken by echo sounder, ~~XXXXXX~~ pole DE 723 Fathometers #918, 920 and pole

Graphic record scaled by Ship Personnel

Graphic record checked by Ship Personnel

Positions Verified ~~XXXXXXXX~~ by James L. Stringham Automated plot by PMC-EDP Branch

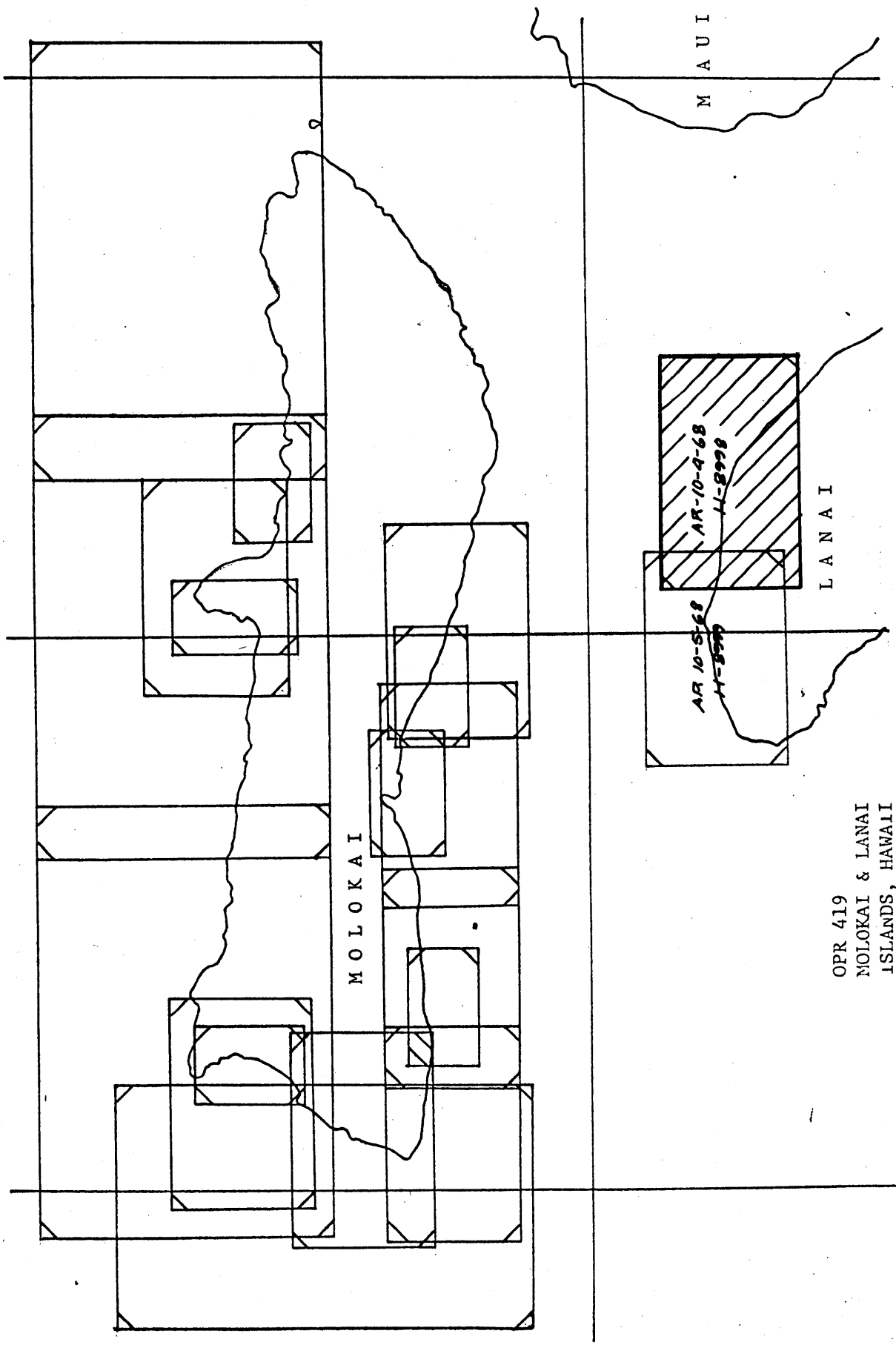
Soundings verified verified penciled by James L. Stringham

Soundings in and tenths fathoms, ~~XXXX~~ at ~~XXXX~~ MLLW

REMARKS: This survey was accomplished using USC&GSS McARTHUR, Launch
AR-1 and Skiff #2

AWOIS/SURF ✓ 12/16/85 SJ ✓

*Applied to stds 7/30/73.
Exam For NM 9-8-73 C&S C&S*



OPR 419
MOLOKAI & LANAI
ISLANDS, HAWAII

Descriptive Report
to Accompany
Hydrography Survey H 8998 (AR 10-4-68)

USC&GSS McARTHUR
CDR Ronald L. Newsom, USESSA

Scale 1:10,000
1968

A. PROJECT

Hydrography on this boatsheet was accomplished in accordance with Project Instructions OPR 419, Lanai and Molokai Islands, Hawaii date 15 February 1968 (CFS2 4060/02) and with memorandum CFS2 4060/02 dated 2 April 1968.

B. AREA SURVEYED

The area surveyed is located on the northeast coast of Lanai Island, Hawaii. It is bounded by Latitudes 20°57'30"N and the coast line and by Longitudes 156°-51'00"W and 156°58'30"W. The survey was performed between 26 August and 5 October 1968. The survey junctions with prior surveys H 3653 (1:60,000, 1914), H 3582 (1:20,000, 1914) and H 5290 (1:20,000, 1931) and with contemporary surveys H 8999 (AR 10-5-68), H 8889 (PF 10-5-66) and H 8834 (PF 20-1-65), and covers 20.0 square miles.

C. SOUNDING VESSEL

The sounding vessels used, and their corresponding colors on the boatsheet, are as follows:

<u>Vessel</u>	<u>Color</u>
McARTHUR	red
Launch AR-1	blue
Skiff #2	green

D. SOUNDING EQUIPMENT

Raytheon DE 723 fathometers were used throughout the survey, serial number 918 on the Ship and serial number 920 on Launch AR-1. All skiff soundings were taken with a pole. The fathometer initial on the Ship was set at 2.0 fathoms and on the launch at 0.0. Bar checks were taken to a depth of 6 fathoms to determine instrument and transducer draft corrections for the launch. A mean transducer draft of 1.8 fathoms was computed for the Ship. No settlement, squat, or phase corrections were necessary. Required initial corrections were included in the velocity tables. Velocity corrections were obtained from a Nansen cast to 75 fathoms taken *for draft*

on the south coast of Molokai Island on 2 November 1967. Tide reducers were obtained from a portable gage at Kamalo, Molokai.

E. SMOOTH SHEET

The smooth sheet is to be plotted by Gerber Plotter at the Electronic Data Processing Division, Pacific Marine Center. ✓

F. CONTROL

The entire survey was controlled by visual three-point sextant fix methods. Control consisted of existing triangulation stations, photo-hydro signals, and one hydro signal located by sextant cuts. The photo-hydro signals were located on 1:10,000 scale advance manuscripts T-11967, T-11968, and T-11969. ✓

G. SHORELINE

Shoreline was transferred to the boatsheet by blue-line from the above mentioned advance manuscripts. Extensive offshore submerged reef networks are indicated on the manuscripts and were verified to a large extent by Skiff work in those areas. Other transferred shoreline and topographic detail on this boatsheet have been verified. Due to the extensive foul nature of the inshore areas of this sheet and the considerably large surf, the low water line was impossible to delineate. The skiff hydrography on this sheet located several discrepancies between photogrammetry and hydrography. The tri-station "WRECK, ~~1951~~" 1931 r62 (PSR#3) is no longer visible. It is assumed that surf action has broken it apart. One pipe still protrudes from the surface and skiff fix #31 gives its location. A large sea buoy was found to have washed into the general area of "WRECK, ~~1951~~" and its position is given by fix #8 of the Skiff work. ✓
a reef located 370m to the west

H. CROSSLINES

10.5% crosslines were run on this boatsheet. Agreement between hydrography on this sheet and the crosslines run was found to be excellent with no discrepancies indicated. ✓

I. JUNCTIONS

Agreement was ^{good} excellent between this sheet and surveys H 8999, H 8889, and H 8834 with no discrepancies indicated. ✓

J. COMPARISON WITH PRIOR SURVEYS

The results of this survey (H 8998) were compared ✓ with the three prior surveys carried out in the vicinity of this boatsheet, H 3653, H 3582 and H 5290. The comparison showed generally good correspondence between H 8998 and prior surveys. There were several discrepancies of 1-2 fathoms but consideration of the positioning accuracy and irregular bottom led to the decision that these differences were acceptable. ~~Several~~ Pre-survey review items (PSR#3) were applicable to this boatsheet. The wreck ✓ in Latitude 20°55.52' Longitude 156°55.03' (Tri-station "WRECK, 1962") was investigated during this survey. It was found that since last observation it had broken apart and all that remained was one metal pipe protruding from the surface, therefore discrepancies could not be investigated. Its present position is given by fix #31 of Skiff work which indicates that its ~~basic~~ position is relatively unchanged. The tri-station Kuahua Beach shipwreck (lat. 20°55'28"N.) (long 156°54'47"W.) sternhouse flagpole 1962, was checked with random sextant cuts ~~to it~~ during our survey. From these cuts it was determined that its present position agreed with those derived from 1962 triangulation and 1960 photography, indicating that the wreck has not moved since then. All other wrecks along the coastline of this boatsheet were verified as previously positioned. SEE REVIEW

K. COMPARISON WITH CHART

This survey was compared with C&GS Chart 4130, scale ✓ 1:80,000, printed 8 May 1967 and agreement between the two was very good. KALOHI channel reef lighted buoy "1" Fl 4 sec was removed and discontinued during the month of November, 1968. NOT MENTIONED IN SURVEY RECORDS

L. ADEQUACY OF SURVEY

This survey is complete and adequate to supersede ✓ prior surveys for charting.

M. AIDS TO NAVIGATION

Correspondence with the U.S. Coast Guard indicated ✓ that the Kalohi reef lighted buoy has been removed as indicated in section "K" of this report. (see notice to mariners #5, 1969, Section IV P. 86.)

N. STATISTICS ✓

Total square miles surveyed 20.0

McARTHUR

nautical miles sounding lines 345.0
number positions 1260
bottom samples 58

Launch AR-1

nautical miles sounding lines 83.0
number positions 740
bottom samples 5

Skiff

nautical miles sounding lines 2.5
number positions 76
bottom samples 8

Total

nautical miles sounding lines 430.5
number positions 2076
bottom samples 71

O. MISCELLANEOUS ✓

None

P. RECOMMENDATIONS ✓

None

Q. REFERENCE TO REPORT ✓

None

Submitted by:

John C. Albright
John C. Albright
ENS, USESSA

Approved and Forwarded:

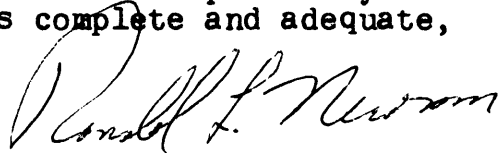
Ronald L. Newsom
Ronald L. Newsom, CDR, USESSA
Commanding Officer, USC&GSS McARTHUR

Enclosures:

Tide Note
Abstract of Corrections to Echo Soundings (table & curve)
List of Signals
Abstract of Position Numbers
List of Basic Field Records
Approval Sheet

Approval Sheet
for H 8998 (AR 10-4-68)

Field work on this survey was accomplished under my general supervision. Frequent inspections of the Field Data and Boatsheet were made by me as the survey progressed. The sounding records have been inspected by me and are approved. This survey is complete and adequate, and is hereby approved.



3 March 1969

Ronald L. Newsom
CDR, USESSA
Commanding Officer
USC&GSS McARTHUR

List of Stations
on H 8998 (AR 10-4-68)

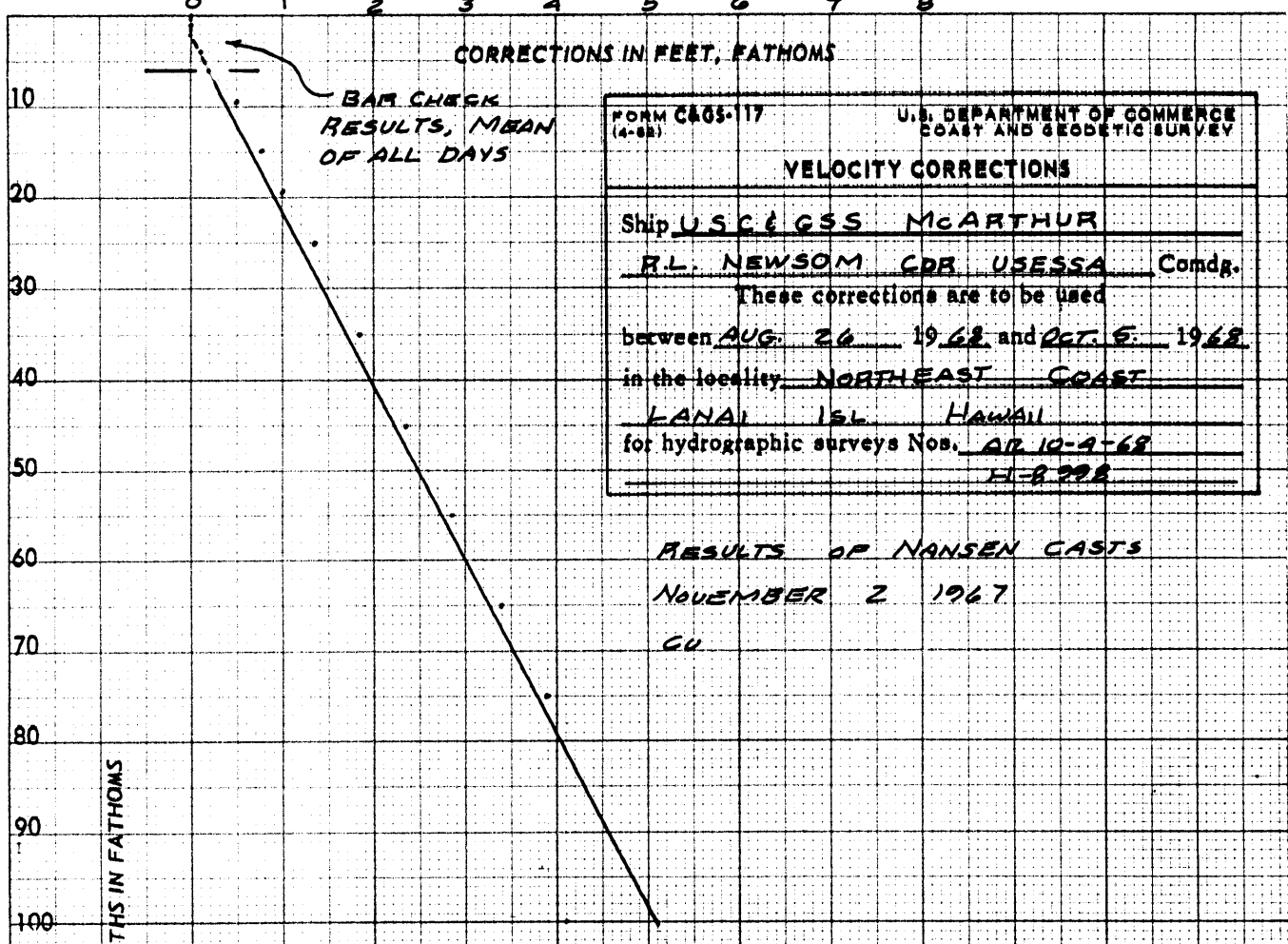
Name	Number	Origin
ARM	014	T-11968
BOB	016	BM 27M 1923 USGS 1962
CRY	017	T-11967
DEB	018	T-11967
GOT	019	T-11967 and Vol.2, p.14-15
HOW	020	Vol.2, p.14-15
KIL	011	T-11968
LAG	008	T-11968
OLD	001	T-11969
PIT	002	T-11969
RAG	003	T-11968
SIC	004	T-11968
TAN	005	T-11968
TED	015	T-11967
UKE	006	T-11968
VAN	007	T-11968
WED	013	T-11968
WOO	009	T-11968
YET	010	GIL 2, 1962
ZIG	012	Kuahua Beach, Shipwreck stern- house, Flagpole 1962

ABSTRACT OF VELOCITY CORRECTIONS
AR 10-4-68 H8998
(INCLUDES TRANSDUCER CORRECTIONS)

VELOCITY TAPE TYPE #2
ALL DEPTHS AND CORRECTIONS IN FATHOMS
CORRECTIONS APPLY TO ALL SOUNDINGS OF THIS SURVEY

000030 00 0002 0001 000 0 000000 000000 LAUNCH AR-1
000070 00 0004
000110 00 0006
000150 00 0008
000195 00 0010
000220 00 0012
000260 00 0014
000300 00 0016
000340 00 0018
000380 00 0020
000420 00 0022
000450 00 0024
000490 00 0026
000070 00 0000 0002 000 0 000000 000000 SHIP
000110 00 0002
000150 00 0004
000195 00 0006
000220 00 0008
000260 00 0010
000300 00 0012
000340 00 0014
000380 00 0016
000420 00 0018
000450 00 0020
000490 00 0022
000530 00 0024
000570 00 0026
000610 00 0028
000640 00 0030
000680 00 0032
000720 00 0034
000760 00 0036
000800 00 0038
000835 00 0040
000875 00 0042
000910 00 0044
000950 00 0046
000990 00 0048
000100 00 0000 0003 000 0 000000 000000 SKIFF

(Let 1 inch equal 2 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)



FORM C&GS-17 (4-62) U.S. DEPARTMENT OF COMMERCE COAST AND GEODETIC SURVEY

VELOCITY CORRECTIONS

Ship U.S.C.G.S. McARTHUR

R.L. NEWSOM CDR USESSA Comdr.

These corrections are to be used between AUG. 26 1968 and OCT. 6 1968 in the locality NORTHEAST COAST LANAI ISL HAWAII for hydrographic surveys Nos. AD 10-9-68 HI-899B

RESULTS OF NANSEN CASTS
NOVEMBER 2 1967
GU

(For deep water add a 0 to these figures)

DEPTH (fms)	CORR (fms)	CORR (fms) - SHIP	CORR (fms) - LAUNCH
3	0.0	—	.2
7	.2	0	.4
11	.4	.2	.6
15	.6	.4	.8
19.5	.8	.6	1.0
22	1.0	.8	1.2
26	1.2	1.0	1.4
30	1.4	1.2	1.6
34	1.6	1.4	1.8
38	1.8	1.6	2.0
42	2.0	1.8	2.2
46	2.2	2.0	2.4
49	2.4	2.2	2.6
53	2.6	2.4	2.8
57	2.8	2.6	—
61	3.0	2.8	—
64	3.2	3.0	—
68	3.4	3.2	—
72	3.6	3.4	—
76	3.8	3.6	—
80	4.0	3.8	—
83.5	4.2	4.0	—
87.5	4.4	4.2	—
91	4.6	4.4	—
95	4.8	4.6	—
99	5.0	4.8	—

NOTE: TRANSDUCER DRAFT CORRECTIONS (SHIP - 0.2 fms LAUNCHES + 0.2 fms) ARE INCLUDED IN TAPE

TRA CORRECTORS FOR INITIAL. CORRECTIONS ARE FOR THE SHIP McARTHUR
SURVEY H-8998 (1968)

080000 00 0000 000² 239 1 000000 000000 ✓

111915 00 1001 ✓

112116 00 0000 ✓

113430 00 0001 ✓

113900 00 0002 ✓

114146 00 0000 ✓

115100 00 1001 ✓

121535 00 0000 ✓

122700 00 1001 ✓

123305 00 0000 ✓

110000 00 0000 000² 250 1 000000 000000 ✓

110000 00 0000 000² 254 1 000000 000000 ✓

170030 00 1001 ✓

173035 00 0000

070000 00 0000 000² 255 1 000000 000000 ✓

090000 00 0000 000² 266 1 000000 000000 ✓

090000 00 0000 000² 269 1 000000 000000 ✓

080000 00 0000 000² 277 1 000000 000000 ✓

105300 00 0001 ✓

111330 00 0000 ✓

114730 00 0001 ✓

115700 00 0000 ✓

130830 00 0001 ✓

132900 00 0000

~~140330 00 0001~~

~~141100 00 0000~~

~~142730 00 0002~~

~~151200 00 0000~~ 2

~~080300 00 1001 0002 278 1 000000 000000~~

~~081000 00 0000~~

~~100300 00 1001~~

~~100700 00 0000~~

~~102230 00 1001~~

~~102415 00 0000~~ 2

~~100000 00 0000 0001 279 1 000000 000000~~

TRA CORRECTORS FOR LAUNCH AR-1 SURVEY 8998 (1968) FATHOMETER 920

Launch

100000 00 0000 0001 251 1 000000 000000

103700 00 0001

110045 00 0000

112100 00 0001

112415 00 0002

112830 00 0001

122645 00 0002

122830 00 0001

123740 00 0000

125045 00 0001

131715 00 0000

140400 00 1002

142030 00 0000

080000 00 0000 0001 264 1 000000 000000

085200 00 0001

090400 00 0000

123130 00 1001

123945 00 0000

090000 00 0000 0001 265 1 000000 000000

111645 00 0001

113200 00 0000

125800 00 0001

140930 00 0002

141615 00 0000

080000 00 0000 0001 266 1 000000 000000

090000 00 0000 0001 278 1 000000 000000

Tide Note to Accompany
H 8998 (AR 10-4-68)

Tide Station	Kamalo Harbor Molokai Is., Hawaii
	Lat. 21°03.0'N Long. 156°52.5'W
Planes of Reference	MLLW=2.4' on 68 Staff
Time Meridian	150°W
Time Correction	None
Height Correction	None
Area Covered	Entire area bounded by limits of AR 10-4-68 (H 8998)
Time of Coverage	8/26/68 - 10/5/68

1968 MLLW was determined for 30 day tidal records.
Portable automatic tide gage no. 57-38 was used
during this period.

TIDE NOTE FOR HYDROGRAPHIC SHEET

March 12, 1969

~~Nautical Chart Division~~ -- PMC Pacific Marine Center

Plane of reference approved in
~~volumes of sounding records~~ for

HYDROGRAPHIC SHEET 8998

Locality: Lanai Island, Hawaii

Chief of Party: R. L. Newsom, 1968

Plane of reference is mean lower low water.

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

Kamalo, Molakai, Hawaii

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

1.7 feet

Remarks


Chief, Tides and Currents Branch

GEOGRAPHIC NAMES

H-8998

Name on Survey	<div style="display: flex; justify-content: space-between;"> A ON CHART NO. B ON PREVIOUS SURVEY NO. C ON U.S. QUADRANGLE MAPS D FROM LOCAL INFORMATION E ON LOCAL MAPS F P.O. GUIDE OR MAP G GRAND MCNALLY ATLAS H U.S. LIGHT LIST </div>										
	A	B	C	D	E	F	G	H	K		
AUAU CHANNEL ✓										1	
HONUAULA POINT ✓										2	
IAMO ✓										3	
KAHOKUNUI ✓										4	
KAILOHIA BAY ✓										5	
KALAKALA ✓										6	
KALOHI CHANNEL ✓										7	
KUAHUA ✓										8	
KUKUI POINT ✓										9	
LAË WAHIE ✓										10	
LAI HI ✓										11	
LANAI ✓										12	
PADPAD POINT ✓										13	
WAIKAPUAA ✓										14	
HAWAII (title) ✓										15	
										16	
										17	
										18	
										19	
										20	
										21	
										22	
										23	
										24	
										25	

PREPARED BY CARTOGRAPHER

Chas. E. Harvigh

staff Geographer (Acting)

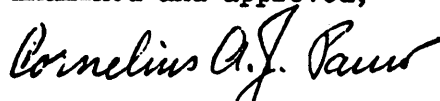
9-11-73

12-06-1983

APPROVAL SHEET

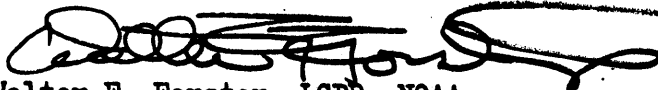
The smooth sheet has been inspected, is complete, and meets the requirements of the General Instructions for automated surveys and the Hydrographic Manual. (Note: All exceptions are listed in the Verifier's Report)

Examined and approved,



Cornelius A. J. Pauw
Supervisory Cartographic Tech.

Approved and forwarded,



Walter F. Forster, LCDR, NOAA
Chief, Processing Division
Pacific Marine Center

HYDROGRAPHIC SURVEY STATISTICS
HYDROGRAPHIC SURVEY NO. H-8998

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET		1	BOAT SHEETS		1	
DESCRIPTIVE REPORT		11	OVERLAYS		5	
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
RECORDS ENVELOPES			*			
CAHIERS	1					
VOLUMES	11					
BOOKS BUNDLE RAW PRINTOUTS			1			
T-SHEET PRINTS (List)						
T-11967, T-11968 & T-11969 Advanced Manuscripts						
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				
POSITIONS CHECKED		1987	198	
POSITIONS REVISED		100	0	
DEPTH SOUNDINGS REVISED		250	25	
DEPTH SOUNDINGS ERRONEOUSLY SPACED		120	0	
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED				
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS		32	10	
JUNCTIONS		30	10	
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		210	20	
SPECIAL ADJUSTMENTS		0		
ALL OTHER WORK		219	14	
TOTALS		491	54	
PRE-VERIFICATION BY	BEGINNING DATE		ENDING DATE	
VERIFICATION BY <i>James L. Stringham</i>	4/24/72		6/27/73	
REVIEW BY <i>Lisa Jordan</i>	20 MAY 81		29 May 81	

Inspected by S. Baumgardner 70 hrs 02/28/1983

Examined: A.K. Myers 3 hrs 11/29/83

REGISTRY NO. 8998

The Computer and Excess Sounding Cards for this survey have not been corrected to reflect the changes made to the Computer Card and Excess Card Printouts at this time of the review.

When the cards have been updated to reflect the final results of the survey, the following shall be completed:

CARDS CORRECTED

DATE _____ TIME REQUIRED _____ INITIALS _____

REMARKS:

REGISTRY NO. _____

The magnetic tape containing the data for this survey has not been corrected to reflect the changes made during evaluation and review.

When the magnetic tape has been updated to reflect the final results of the survey, the following shall be completed:

MAGNETIC TAPE CORRECTED

DATE _____ TIME REQUIRED _____ INITIALS _____

REMARKS:

NAUTICAL CHARTING DIVISION
HYDROGRAPHIC SURVEYS BRANCH
MODIFIED HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-8998

FIELD NO. AR-10-4-68

Hawaii, Northeast Coast of Lanai, Iamo to Paopao Point

SURVEYED: August 26 - October 5, 1968

SCALE: 1:10,000

PROJECT NO.: OPR-419

SOUNDINGS: DE-723 Echo Sounder
Sounding Pole

CONTROL: Sextant Fixes on
Shore Signals

Chief of Party	R. L. Newsom
Surveyed by	R. A. Sundholm
.....	R. G. Kraynick
.....	J. R. Carr
.....	J. C. Albright
.....	R. C. Husted
Automated Plot by	Gerber Digital Plotter (PMC)
Verified by	J. L. Stringham
Reviewed by	L. Quinlan
.....	Date: May 28, 1981
Inspected by	S. R. Baumgardner
.....	Date: October 21, 1983
Examined by	G. K. Myers
.....	Date: November 29, 1983

1. Control and Shoreline

The origin of the control is adequately covered in part F of the Descriptive Report.

The shoreline originates with reviewed Class II photogrammetric maps T-11967, T-11968, and T-11969, all of 1960.

The mean high waterline is shown for guidance only as its true position is shown on the above topographic surveys.

2. Hydrography

a. The depths at crossings are in good agreement.

b. The usual depth curves are adequately delineated seaward of the 2-fathom depth curve. Inshore of this curve the foul, irregular bottom and reefs precluded complete depth curve delineation.

c. The development of the bottom configuration and determination of least depths are considered adequate.

3. Condition of Survey

The field work, survey records, automated plotting, shoreline transfer, Descriptive Report, cartographic presentation of data, and decisions and actions taken by the verifier conform to National Ocean Service standards and requirements except as stated below:

a. Several topographic ledge and reef limits required revision in order to conform with present survey depths.

4. Junctions

Adequate junctions were effected with H-8834 (1965) on the north and northeast and H-8999 (1968) on the west. An adequate junction with H-8889 (1966) on the southeast was accomplished with the review of the survey.

5. Comparison with Prior Surveys

H-3582	(1914)	1:20,000
H-3653	(1914)	1:60,000
H-5290	(1931)	1:20,000
H-5297	(1931-32)	1:40,000

These surveys taken together cover the area of the present survey. A comparison between the prior and present depths reveals minor differences of ± 1 to 2 fathoms. These are attributed to differences in survey methods and natural causes.

The present survey is adequate to supersede the prior surveys within the common area.

6. Comparison with Chart 19347 (latest print date May 5, 1979)

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys which require no further consideration, supplemented by the partial application of the boat sheet (BP-76315) of the present survey.

Presurvey Review items charted in the area of the present survey are discussed in paragraphs G and J of the Descriptive Report.

Attention is directed to the following:

(1) The submerged wreck charted at latitude 20°55'36"N, longitude 156°56'12"W first originated as a visible wreck in the early 1960's from an undetermined source. This wreck is not mentioned on the present survey, but

was later charted as submerged in the 1970's. The submerged wreck should be retained on the chart.

(2) Chart Letter 1290 of 1973, applied to the chart subsequent to the date of the present survey, revised the visible wrecks/wreckage listed below to submerged. These wrecks should be retained as charted.

	<u>Latitude (N)</u>	<u>Longitude (W)</u>	<u>Source</u>
(a) visible wreck awash at MHW	20°55'18.8"	156°54'26.5"	present survey
(b) wreckage (iron bar)	20°55'30.4"	156°55'02.2"	present survey
(c) wreckage awash at MHW	20°55'31.5"	156°56'04.0"	present survey

Except as noted above, the present survey is adequate to supersede the charted hydrography within the common area.

c. Aids to Navigation

There are no aids to navigation within the limits of the present survey.

7. Compliance with Instructions

This survey adequately complies with the project instructions.

8. Additional Field Work

This is a good basic survey and requires no additional field work.

Examined and Approved:

Roy Z. Matsushige
Chief
Hydrographic Surveys Branch

L. Keith Yeager
Chief
Nautical Charting Division

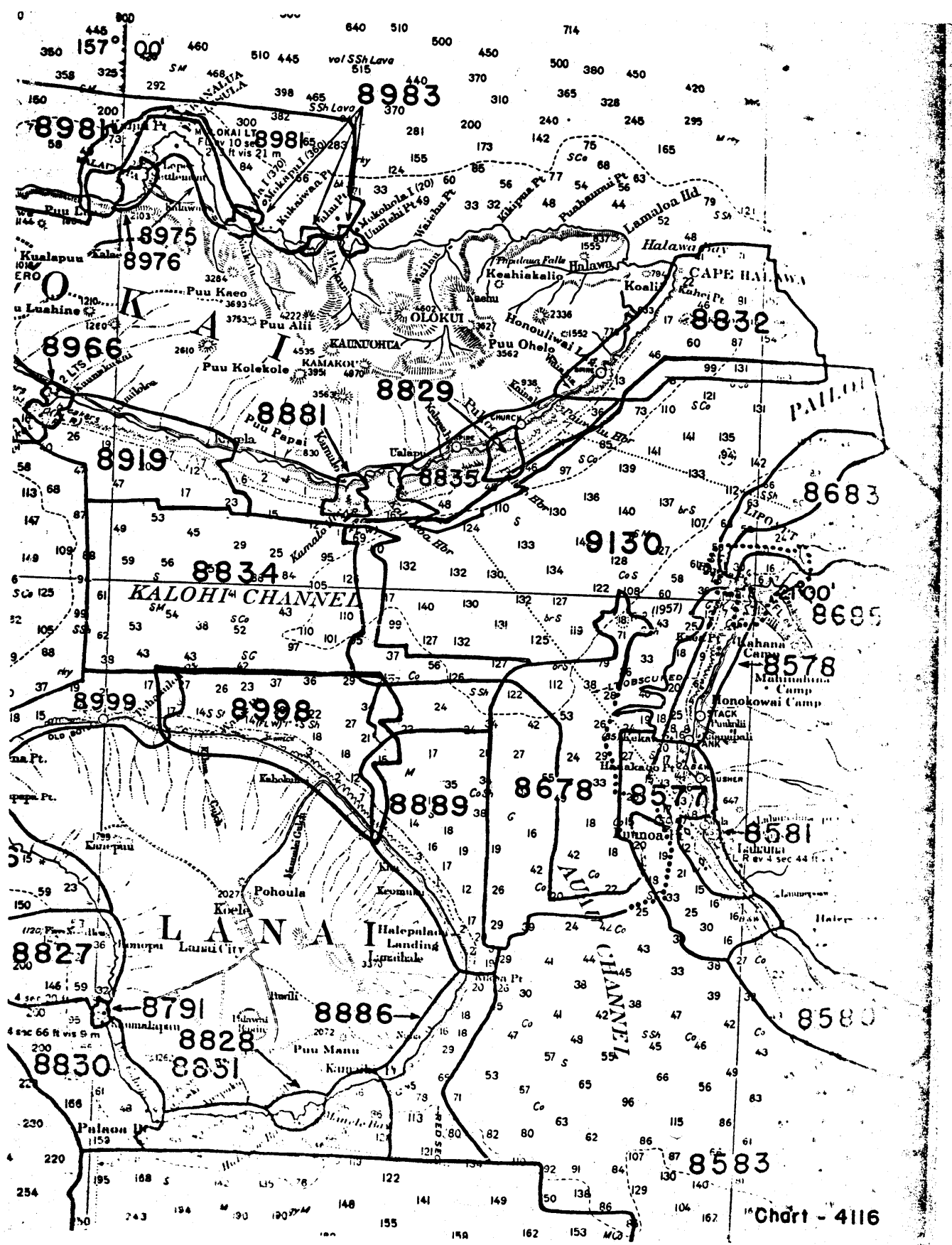


Chart - 4116

76°

W.B.S.

Mill Creek 1930

