

8982

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. **AR 20-3-68** Office No. **H 8982**

LOCALITY

State **Hawaii**

North Coast of Molokai

General locality **Hawaiian Island**

110 Pt. to Paualala Pt.

Locality **North Coast Molokai Island**

1968

CHIEF OF PARTY

Ronald L. Newson, CDR, USESSA

LIBRARY & ARCHIVES

17 FEB 1971
17 FEB 1971

DATE

USCOMM-DC 37022-P66

CHTS
4102
4120
4116
4179
4180

category 1

8982

HYDROGRAPHIC TITLE SHEET

H 8982

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 20-3-68

State Hawaii

General locality North Coast of Molokai
Hawaiian Islands

Locality Ilio Pt. to Paualoa Pt.
North Coast Molokai Island

Scale 1:20,000 Date of survey 17 May thru 23 Oct. 1968

Instructions dated 15 Feb. & 2 Apr. 1968 Project No. OPR-419

Vessel USC&GSS McARTHUR, Launch AR-1

Chief of party Ronald L. Newsom, CDR, USESSA

Surveyed by R.L. Newsom, J.A. Lyons, J.R. Carr, R.G. Kraynick, J.C. Albright
R.C. Husted

Soundings taken by echo sounder, ~~1000, 2000~~ DE 723 #918, 920, EDO#161 with PFR#010

Graphic record scaled by McARTHUR Personnel

Graphic record checked by McARTHUR Personnel

Protracted by _____ Automated plot by P.M.C.

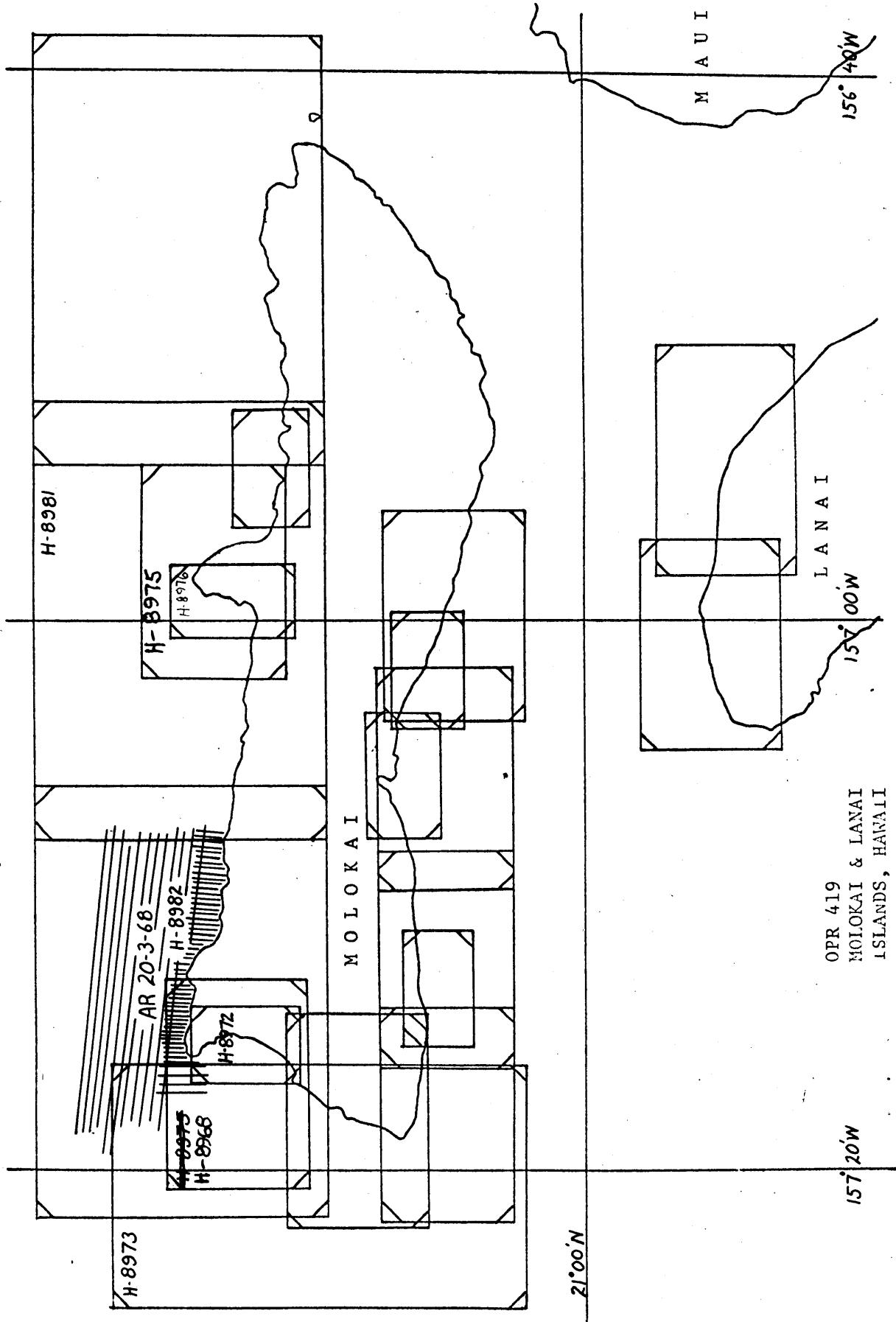
^{VERIFIED} Soundings penciled by NICHOLAS LESTENKOF

Soundings in fathoms ~~xxx~~ at ~~MLLW~~ MLLW _____

REMARKS:

Checked for 1/11/71 M. Coen 3/1/71 J. Coen

*Applied to Stds
2-19-71 CAG*



OPR 419
 MOLOKAI & LANAI
 ISLANDS, HAWAII

Descriptive Report
to Accompany
Hydrographic Survey H 8982 (AR 20-3-68)

USC&GS Ship McARTHUR
Ronald L. Newsom, CDR, USESSA

Scale 1:20,000
1968

A. PROJECT

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

B. AREA SURVEYED

The area surveyed consists of the westerly most portion of the North Coast of Molokai Island, and covers an area of 42 square nautical miles. It is bounded by 21°16'N Latitude, 157°06' and 157°17'W Longitudes and by the Molokai coastline. The boatsheet junctions with a survey made by Scripps Institution of Oceanography in 1962 at scale 1:62,500, with prior surveys H 4542a (1926) and H 4542 (1:40,000, 1929) and with contemporary surveys H 8973 (AR 20-2-68), H-8975 (AR-10-2-67), and H 8981 (AR 20-1-68). The survey was accomplished between 17 May and 23 October 1968. *H-8975 does not junction with this sheet, but H-8968 (1967) does.*

C. SOUNDING VESSEL

Hydrography performed by the Ship is shown in red on the boatsheet; that by Launch AR-1 in blue. ✓

D. SOUNDING EQUIPMENT

Ship soundings were taken with a Raytheon model DE-723 Fathometer, serial number 918 in shoal water and an EDO model 185, serial number 161, coupled with a Raytheon PFR model 191, serial number 010 in deep water. Launch soundings were taken with a Raytheon model DE 723 Fathometer, serial number 920. The calibration velocity was identical for each of these instrument; 800 fathoms per second. Bar checks to six fathoms were taken at the beginning and ending of launch hydrography day "b" and at the beginning of day "d". The barcheck data is of insufficient quantity and quality to be amenable to a velocity versus depth determination. The one fathom comparisons were made and a resulting 0.2 fathom correction was applied to all launch soundings for combined ✓

to the ship instrumental error, included

initial, instrument and transducer draft error. A mean transducer draft of 1.8 fathoms was computed for the Ship. No settlement squat, initial or phase corrections were necessary. Velocity corrections were computed in the range zero to 100 fathoms from data collected from a Nansen cast off the North Coast of Molokai Island on 18 October 1968. Corrections for deeper depths were obtained from Hawaii Institute of Geophysics publication 67-18. Tide reducers were obtained from a Bubbler gage at Kalaupapa, 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 signals cut in with sextant angles from the triangulation and photo-hydro signals. The photo-hydro signals were located using advanced manuscripts T-11818 (1:5,000), T-11819 (1:10,000) and T-11820 (1:10,000) and transferred to the boatsheet by scaling latitudes and longitudes.

G. SHORELINE

Shoreline was transferred to the boatsheet by blue-line from a 4:1 reduction of advance manuscript T-11818 and 2:1 reductions of T-11819 and T-11920. The shoreline as shown is correct. Swell conditions prevented the delineation of the low-water line; however, considering the small range of the tide, scale of the survey and sharp drop at the water's edge it is believed that the shoreline and low water line would be coincident except at a few small sand beaches. Even at the beaches the difference is considered to be little more than one millimeter at the scale of the survey.

H. CROSSLINES

There were 393 nautical miles of sounding lines run of which 44 were crosslines. This constitutes 11.2% of the total. There is only one significant unresolved

crossline discrepancy. At 21°14.9'N Latitude and 157°06.4'W Longitude the line between 3381E and 3382E crosses the line between 3794H and 3795H. The depths at the crossing point as indicated on the E and H day fathograms are disagreement by about six fathoms. This was overlooked during the field survey and resolution of the discrepancy is hard to resolve now. It appears as if the first and/or second position (3794H & 3795H) on the crossline may be in error. If this discrepancy cannot be resolved during smooth processing, it is recommended that the first two (2) positions on the crossline (3794H 3795H) be rejected.

(pos 3794-3796 has been corrected.)

I. JUNCTIONS

This survey agrees well in depth with contemporary surveys H 8981 (AR 20-1-68) and ~~H 8975 (AR 10-2-67)~~. In general the junction with H 8973 (AR 20-2-68) is satisfactory. The portion of sounding line between positions 561B and 562B from H 8973 does cross in disagreement with portions of sounding line between 3719H and 3720H and between 3726H and 3727H of this survey. The disagreement is about 5 fathoms. Upon investigation it was found that the line from H 8973 is controlled by range-range mode Hi-Fix which does not meet minimum angle of interception criterion in this region. Position spacing on this portion of H 8973 is also suspicious and it is thought probable that one or more positions on H 8973 are erroneous. Since the records from H 8973 (AR 20-2-68) had already been transferred to PMC, it is recommended that this portion of H 8973 be reviewed at PMC and rejected if necessary.

J. COMPARISON WITH PRIOR SURVEYS

There is poor agreement between the present survey and the 1963 Scripp's Survey mentioned in section B. In most general terms the Scripp's Survey gives deeper soundings, the difference averaging about 10%. With the exception of a 4-3/4 fathom sounding discussed in section K, agreement between the present survey and prior survey H 4542 is good. A copy of prior survey H 4542a was not available to the field hydrographer and hence no comparison is made. Two pre-survey review items taken from H 4542a and H 4542 are discussed in section K.

K. COMPARISON WITH CHART

Results of this survey were compared with C&GS Chart 4120 2nd. Edition December 20, 1965. While agreement is far from exact there were only two major discrepancies. These discrepancies involve soundings which were listed as item 1 and 2 on the pre-survey review:

1. A 4-3/4 fathoms sounding is shown on the chart at 21°13.82'N Latitude and 157°15.67'W Longitude; a position is 600 yards off the NW tip of Ilio Point. A detailed investigation during the present survey gave no indication of a depth less than 9 fathoms in this area, and a five fathom curve paralleling the coast at no more than 300 yards. On the basis of the information available to the field hydrographer it is recommended that the 4-3/4 sounding be deleted from the chart. It is, however, suggested that the entire line from H 4542a be compared with the present survey before a final decision is made.

2. A 4-3/4 fathoms sounding is shown on the chart at 21°12.78'N latitude and 157°09.92'W longitude. This is 200 yards further off shore than comparable depths are shown on the present survey. A detailed investigation (see fathogram) failed to disclose any depths less than 8 fathoms in the area in question, and it is recommended that the 4-3/4 fathom sounding be deleted from the chart.

The foregoing recommendation is based upon the assumption that the source line as give by H 4542 terminates with the 4-3/4 fathom sounding. There exists an alternate possibility that the 10 fathom sounding shown just south of the 4-3/4 one did not come solely from the east-west line as is presently assumed by the field hydrographer but came from the north-south line containing the 3-3/5 fathom sounding. It is impossible to resolve this question by use of the photo copy of H 4542 which is available in the field and the original records should be consulted before a final decision is made.

L. ADEQUACY OF SURVEY

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

M. AIDS TO NAVIGATION

None

N. STATISTICS

Ship	
nautical miles of sounding line	314.1
positions	677
Launch AR-1	
nautical miles of sounding line	78.4
positions	469
Area in square nautical miles	42
bottom samples	44

P. RECOMMENDATIONS

It is recommended that original sounding records for the lines containing the soundings mentioned in the presurvey review be studied to find the nature of these shoals.

Q. REFERENCE TO REPORTS

None

Submitted by:

Robert A. Ganse

Robert A. Ganse
LCDR, 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

Tide Note
to Accompany H 8982 (AR 20-3-68)

Tide Station	Kalaupapa Wharf Kalaupapa Molokai, Hawaii
	Latitude 21°12'22"N Longitude 156°59'29"W
Plane of Reference	MLLW 3.8 ft. on tide staff
Time Meridian	150°W
Time Correction	None
Height Correction	None
Area Covered	Entire Survey area of AR 20-3-68
Time of Coverage	17 May thru 18 Sept. & 23 Sept. thru 23 Oct. 68

Note: Hourly heights as observed at standard tide gage, Kahului Maui were applied on 19 Sept., 1968. The Kahului to Kalaupapa correction as furnished by Tides and Currents Section: was applied to Kahului observations. That is one-half ($\frac{1}{2}$) hour was subtracted from the time of high at Kahului and one-tenth ($\frac{1}{10}$) foot from the height of high. Times and height of low did not require a correction.

TIDE NOTE FOR HYDROGRAPHIC SHEET

March 12, 1969

~~XXXXXXXXXXXXXXXXXXXX~~ Pacific Marine Center

Plane of reference approved ~~ix~~
~~XXXXXXXXXXXXXXXXXXXX~~ for

HYDROGRAPHIC SHEET 8982

Locality: Molokai Island, Hawaii

Chief of Party: R. L. Newson, 1968

Plane of reference is mean lower low water

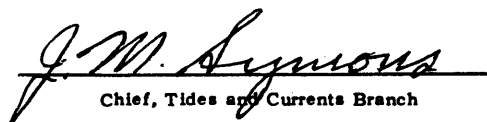
Tide Station Used (Form C&GS-681):

Kalaupapa, Molokai Island, Hawaii

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

1.7 feet.

Remarks


Chief, Tides and Currents Branch

060000	00	1001	0000	138	0	000000	000000	5/17
082000	00	1001						
130000	00	1000						
150000	00	1001						
163000	00	1002						
180000	00	1003						
060000	00	1000	0000	144	0	000000	000000	23
082000	00	1000						
094000	00	1001						
142000	00	1002						
180000	00	1001						
060000	00	1001	0000	233	0	000000	000000	8/20
085000	00	1001						
095000	00	1002						
110000	00	1003						
124000	00	1004						
150000	00	1005						
164000	00	1004						
180000	00	1003						
060000	00	1000	0000	234	0	000000	000000	21
074000	00	1000						
091000	00	1001						
102000	00	1002						
112000	00	1003						
124000	00	1004						
153000	00	1005						
170000	00	1004						
061000	00	1000	0000	236	0	000000	000000	23
090000	00	1000						
103000	00	1001						
112000	00	1002						
121000	00	1003						
132000	00	1004						
150000	00	1005						
173000	00	1004						
060000	00	1004	0000	242	0	000000	000000	29
094000	00	1004						
180000	00	1003						
060000	00	1003	0000	256	0	000000	000000	9/12
173000	00	1003						
064000	00	1002	0000	261	0	000000	000000	17
082000	00	1002						
095000	00	1003						
152000	00	1004						
170000	00	1003						
060000	00	1001	0000	262	0	000000	000000	18
072000	00	1001						
084000	00	1002						
095000	00	1003						
153000	00	1004						
170000	00	1003						
031000	00	1001	0000	263	0	000000	000000	19
073000	00	1001						
085000	00	1002						
101000	00	1003						
114000	00	1004						
141000	00	1005						
155000	00	1004						
172000	00	1003						

Plane of Reference Approved
 Datum Planes Section
 Date 3/10/69 cit

060000	00	1002	0000	267	0	000000	000000	23
110000	00	1002						
122000	00	1003						
162000	00	1004						
173000	00	1003						
060000	00	1002	0000	290	0	000000	000000	10/16
074000	00	1002						
094000	00	1003						
130000	00	1004						
152000	00	1003						
180000	00	1002						
060000	00	1002	0000	291	0	000000	000000	17
083000	00	1002						
095000	00	1003						
142000	00	1004						
160000	00	1003						
180000	00	1002						
060000	00	1003	0000	296	0	000000	000000	22
070000	00	1003						
110000	00	1002						
130000	00	1003						
145000	00	1004						
162000	00	1003						
173000	00	1002						
070000	00	1003	0000	297	0	000000	000000	23
083000	00	1003						
115000	00	1002						
162000	00	1003						
174000	00	1002						

Plane of Reference Approved
Datum Planes Section
Date 3/10/69

ABSTRACT OF VELOCITY CORRECTIONS H-8982 (AR-20-3-68)

VELOCITY TAPE-TYPE-NO. 2

All depths and corrections are in fathoms. These corrections apply to all soundings of the survey. The corrections include a correction for transducer draft.

000010 00 0002 0001 000 0 000000 000000 (Launch AR-1)

000028 00 0003

000047 00 0004

000066 00 0005

000086 00 0006

000106 00 0007

000125 00 0008

000144 00 0009

000163 00 0010

000182 00 0011

000201 00 0012

000221 00 0013

000241 00 0014

000261 00 0015

000280 00 0016

000300 00 0017

000322 00 0018

000344 00 0019

000364 00 0020

000384 00 0021

000404 00 0022

000424 00 0023

000445 00 0024

000466 00 0025

000487 00 0026

000508 00 0027

000047 00 0000 0002 000 0 000000 000000 (Ship)

000066 00 0001

000086 00 0002

000106 00 0003

000125 00 0004

000144 00 0005

000163 00 0006

000182 00 0007

000201 00 0008

000221 00 0009

000241 00 0010

000261 00 0011

000280 00 0012

000300 00 0013

000322 00 0014

000344 00 0015

ABSTRACT OF VELOCITY CORRECTIONS CONTINUED

000364 00 0016
000384 00 0017
000404 00 0018
000424 00 0019
000445 00 0020
000466 00 0021
000487 00 0022
000508 00 0023
000529 00 0024
000550 00 0025
000572 00 0026
000595 00 0027
000620 00 0028
000640 00 0029
000662 00 0030
000684 00 0031
000705 00 0032
000729 00 0033
000751 00 0034
000775 00 0035
000802 00 0036
000822 00 0037
000850 00 0038
000873 00 0039
000901 00 0040
000930 00 0041
000951 00 0042
000985 00 0043
001130 00 0045
001260 00 0050
001410 00 0055
001540 00 0060
001780 00 0065
002020 00 0070
002290 00 0075
002590 00 0080
002960 00 0085
003310 00 0090
003700 00 0095

(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)

CORRECTIONS IN FEET, FATHOMS

FORM C803-117
(11-68)

U.S. DEPARTMENT OF COMMERCE
ESSA
COAST AND GEODETIC SURVEY

VELOCITY CORRECTIONS

Ship USCGC SS McArthur (CSS-30)

CDR Ronald L. Newsom Comdg.

These corrections are to be used
between 17 May 1968 and 23 Oct 1968

in the locality North Coast of Molokai
Island, Hawaii

for hydrographic surveys Nos. H 8982

(For deep water add a 0 to these figures)

DEPTHS IN FATHOMS

Completed from Base Log taken 18 October 1968

Curve from
split 0.5 fathoms to
mid pub 67-16 for 3rd
Quarter in Square 088
Nansen Curve

Continuation of HIG Curve in
30 to 300 Fathom Range

150 Fathoms

300 Fathoms

20 X 20 TO THE INCH 46 1240
7 X 10 INCHES
MADE IN U.S.A.
KEUFFEL & ESSER CO.

List of Signals
H 8982 AR 20-3-68

Name	Number	Origin
ADD	014	T 11820
AMY	010	T 11820
ASK	003	T 11820
BAY	028	T 11819
BED	009	T 11820
BLU	012	T 11820
BOX	017	T 11819
CAL	026	T 11819
CAR	038	T 11818
CAT	020	T 11819
CLI	040	CLIFF 1962
DAR	001	T 11820
GRA	032	Vol.6, p.68,69
GRO	006	T 11818
GUL	024	T 11819
HAM	033	Vol.6, p.68,69
IFF	039	T 11818
ILL	027	T 11819
JAN	021	T 11819
JAZ	016	T 11819
KAA	025	LAINA KAA 1885,1962
KAE	034	KAEO 1925, 1962
LOW	043	T 11818
MIK	031	T 11819
MOO	013	MOOMOMI 1962
MUD	035	T 11818
NED	042	T 11818
ORE	029	T 11819
PAL	022	T 11819
PAT	018	T 11819
PEL	002	PUU KAPELE 1885
POD	045	PUU O KAIKA 1925-62
PRY	007	T 11820
RAP	030	T 11819
RED	037	T 11818
SAN	044	SAND 1950-1962
SET	036	T 11818
SHO	011	T 11820
SID	008	T 11820
SKI	005	T 11818
SUE	019	T 11819
TAM	015	T 11819
TIP	004	T 11820 (called TOP on
TOP	041	T 11818 H 8981)
UNK	023	T 11819

H-NO.-		LATITUDE	LONGITUDE	X	Y	
08982	002	68 21114777	157054049	14651	03096	002
08982	003	68 21115349	157054771	14542	03188	003
08982	004	68 21115407	157060978	14208	03198	004
08982	005	68 21115590	157061425	14140	03227	005
08982	006	68 21115316	157063242	13865	03183	006
08982	007	68 21115385	157065502	13523	03194	007
08982	008	68 21115869	157070780	13329	03272	008
08982	009	68 21120033	157071706	13189	03299	009
08982	010	68 21120563	157074292	12797	03384	010
08982	011	68 21120875	157075568	12604	03435	011
08982	012	68 21120546	157081546	12305	03382	012
08982	013	68 21120533	157083068	12074	03379	013
08982	014	68 21115866	157084504	11857	03272	014
08982	015	68 21120602	157091643	11382	03390	015
08982	016	68 21115973	157091931	11338	03289	016
08982	017	68 21121089	157093394	11117	03469	017
08982	018	68 21121782	157093904	11039	03581	018
08982	019	68 21121353	157100062	10713	03512	019
08982	020	68 21121440	157101793	10451	03526	020
08982	021	68 21122062	157103949	10124	03626	021
08982	022	68 21122240	157105943	09822	03655	022
08982	023	68 21122335	157112313	09463	03670	023
08982	024	68 21123219	157113873	09227	03813	024
08982	025	68 21124237	157120250	08867	03977	025
08982	026	68 21130332	157115791	08937	04315	026
08982	027	68 21131288	157121179	08727	04470	027
08982	028	68 21130432	157121501	08678	04332	028
08982	029	68 21131349	157122663	08502	04480	029
08982	030	68 21131827	157124137	08279	04557	030
08982	031	68 21132822	157125167	08123	04718	031
08982	032	68 21131502	157131127	07826	04504	032
08982	033	68 21131184	157133208	07511	04453	033
08982	034	68 21125850	157135461	07170	04238	034
08982	035	68 21131271	157140371	07032	04467	035
08982	036	68 21132250	157144536	06402	04625	036
08982	037	68 21132679	157145371	06275	04694	037
08982	038	68 21132995	157150648	06082	04745	038
08982	039	68 21133183	157151484	05955	04776	039
08982	040	68 21132822	157152223	05844	04718	040
08982	041	68 21133635	157152476	05805	04849	041
08982	042	68 21132923	157153731	05615	04734	042
08982	043	68 21131824	157154407	05513	04556	043
08982	044	68 21131297	157154133	05554	04471	044
08982	045	68 21110371	157151359	05974	02385	045
08982	001	68 21114276	157051980	14965	03015	001

000000

GEOGRAPHICAL NAMES PENCILED ON H-8982

ANAPUKA

ILIO POINT

KAA

KAA GULCH

KAEO

KAHINA AKALANI

KAIEHU

KAIWI

KAPALAUOA

KAWAALOA (COVE)

KAWAHIHAU COVE

KEONEHANUO

MOKIO POINT

MOLOKAI ISLAND

MOOMOMI

MOOMOMI (COVE)

NAAUKAHIHI

NENEHANAUPO

PAUALAIA POINT

PUEOAO

PUU KA PELE

WAIAKANAPO

Abstract of Position Numbers
H 8982 (AR 20-3-68)

<u>Vessel</u>	<u>Day</u>	<u>Date</u>	<u>Day No.</u>	<u>Positions</u>
Ship	A	17 May 68	138	3000-3026
	B	23 May 68	144	3027-3054
	C	20 Aug. 68	233	3057-3145
	D	21 Aug. 68	234	3146-3370
	E	23 Aug. 68	236	3371-3556
	F	29 Aug. 68	242	3557-3649
	G	12 Sept. 68	256	3650-3704
	H	17 Sept. 68	261	3705-3799
	J	18 Sept. 68	262	3800-3828
	K	19 Sept. 68	263	3829-3851
	Launch AR-1	a	23 Sept. 68	267
b		16 Oct. 68	290	1015-1182
c		17 Oct. 68	291	1183-1289
d		22 Oct. 68	296	1290-1420
e		23 Oct. 68	297	1421-1488

List of Basic Field Records
H 8982 AR 20-3-68

- 1 Boatsheet
- 1 Signal Overlay
- 9 Form #275 Sounding Volumes
- 15 Envelopes of Fathograms in accordian file
- 1 Advanced Manuscript T-11819 (1:10,000)
- 1 Advanced Manuscript T-11820 (1:10,000)
- 1 Advanced Manuscript T-11818 4:1 reduction at (1:20,000)
- 1 Advance Manuscript T-11819 2:1 reduction at (1:20,000)
- 1 Advanced Manuscript T-11820 2:1 reduction at (1:20,000)
- 1 Velocity tape type No. 2 with instrument initial and transducer correction included w/2 pages of printout
- 1 Signal List 1 page
- 1 Abstract of Bar checks
- 3 Form 733M Oceanographic Log Sheet M
- 1 Tide Tape with 2 pages printout
- 1 Form 733A Oceanographic Log Sheet A with 1 page of curve and 2 pages of computations.

HYDROGRAPHIC SURVEY CONTROL RECORD

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

PF CCE-419

H-Sheet dd		DATE	GEO. POSITION			PRO-GRAM IDENTITY	PUNCHED MACHINE										
FIELD NO. 8782			DEGREE	MIN.	SECONDS			1	2	3	4	5	6	7	8	9	10
MASTER R1 HYDRO NAME	SEC. PL.	LAT.				RPD	11	12	13	14	15	16	17	18	19	20	
	SEC. PL.	LONG.				RBD											
	SLAVE R2 HYDRO NAME	LAT.															
		LONG.															
	AZIMUTH FROM R1 TO R2	SEC. PL.				RAD	21	22	23	24	25	26	27	28	29	30	
	AZIMUTH FROM R2 TO R1																
	BASELINE DISTANCE IN METERS	FL	METERS				SMP	31	32	33	34	35	36	37	38	39	40
	VELOCITY CODE D: NO VEL CORN.	1: 1 VEL TABLE 2: 2 VEL TABLES (W-E) 3: 2 VEL TABLES (N-S)					IVL										41
	ARC OF DISTANCE MEASUREMENT ARC INTERVAL FOR S/S	FL	METERS				CNV	42	43	44	45	46	47	48	49	50	51
	H- IDENTIFICATION NUMBER	F					JN						52	53	54	55	56
LOCATION OF SURVEY IN RESPECT TO THE ELECTRONIC BASELINE		- A+ OR + A- 0				AAA										57	
VELOCITY CHANGE AT	LAT. LONG.					VLE	58	59	60	61	62	63	64	65	66		
YEAR						YR									67	68	69

PARAMETER RD NO. 2	SEMI-MAJOR AXIS OF THE EARTH	FL	METERS	6,378,206.4	RDA	6	3	7	8	2	0	6	4	0	7		
	X CONSTANT ADDED TO ADJUST ZERO ORIGIN OF PLOTTER	FL	METERS	13,503.298	XKN	11	12	13	14	15	16	17	18	19	20		
	Y CONSTANT SUBTRACTED TO ADJUST ZERO ORIGIN OF PLOTTER	FL	METERS	2,338,808.509	YKN	21	22	23	24	25	26	27	28	29	30		
	CENTRAL MERIDIAN OF PROJECTION	FL	METERS	1571400	CMR	31	32	33	34	35	36	37	38	39	40		
	PLOTTER SCALE - SURVEY SCALE	FL		10498.6876 1: 20,000	SCA	41	42	43	44	45	46	47	48	49	50		
	NORTH - SOUTH = Y AXIS = 0			0	NYX											51	
	NORTH - SOUTH = X AXIS = 1			0													52
	CONVERT SOUNDINGS TO DESIRED UNITS FEET = 0, FATHOMS = 1			-	FOF												53
	H- IDENTIFICATION NUMBER				JN												54

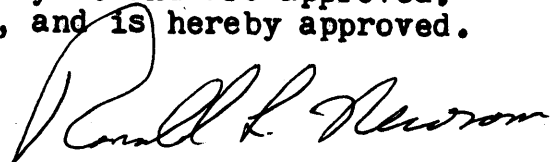
LOWEST VALUE OF	SEC. PL.	LAT.	210900	YST	1	2	3	4	5	6	7	8	9	10		
LOWEST VALUE OF	SEC. PL.	LONG.	1570600	XST	11	12	13	14	15	16	17	18	19	20		
INTERVAL BETWEEN GRIDS	SEC. PL.		1'	DXY	21	22	23	24	25	26	27	28	29	30		
NUMBER OF LINES IN X			15	XSN												31
NUMBER OF LINES IN Y			9	YSN												32

COMPUTATIONS: _____
 PUNCHED : _____
 CHECKED : _____
 DATE : _____

Approval Sheet
for
H 8982 (AR 20-3-68)

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.

4 March 1969



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

GEOGRAPHIC NAMES

Survey No. H-8982

Name on Survey	Source of Information										
	A	B	C	D	E	F	G	H	K		
Anapuka											1
Ilio Point											2
Kaa											3
Kaa Gulch											4
Kaaukahiki											5
Kaao											6
Kahinakaalani											7
Kaiehu Point											8
Kaiwi Channel											9
Kalani											10
Kapalaauoa											11
Kawalaia											12
Kawaihau Cove											13
Keonehau											14
Mokia Point											15
Molokai Island											16
Moomomi (hill)											17
Moomomi (beach)											18
Nenehau											19
Paalala Point											20
Naaukahiki											21
Pacific Ocean											22
Puu Kapele											23
Pueoa											24
Waiakanao											25
											26
											27

PREPARED BY

Frank W. Fickett
CARTOGRAPHIC TECHNICIAN

APPROVED BY

A. Joseph Wraight
CHIEF GEOGRAPHER

VERIFIER'S REPORT
HYDROGRAPHIC SURVEY, H 8982

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>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 (d) bar check or velocity correctors (e) time recording (f) notes or markings on fathograms (g) was reduction of soundings accurately done? (h) was scanning accurate? (i) were peaks at uneven intervals missed? (j) were stamps completed? (k) references to adjacent features</p>	✓	
<p>Part II - SHORELINE AND SIGNALS</p> <p>4. Source of shoreline signals Remarks Required: -- List all surveys a. Give earliest and latest dates of photographs b. Field inspection date c. Field Edit date d. Reviewed-Unreviewed</p>	✓			✓	
<p>5. The transfer of contemporary topographic information was carefully examined and reconciled with the hydrography. Remarks Required: -- Discuss remaining differences.</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: 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. Remarks Required: -- Conflicts of any nature listed.	✓	
17. The protractor has been checked within the last three months. Remarks Required: -- Date of check, type of protractor and number.	✓		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	✓	
Part VI - SOUNDINGS 18. All soundings are clear and legible, and critical soundings are a little larger than adjacent soundings. Remarks Required: -- None	✓		Part IX - BOAT SHEET 28. The boat sheet was constantly compared with the smooth sheet with reference to notes, position of sounding lines and supplemental information. Remarks Required: -- None	✓	
19. Sounding line crossings were satisfactory except as follows: Remarks Required: -- Discuss adjustments.	✓		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 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	✓	
21. The scanning, reduction, spacing, plotting of questionable soundings have been verified. Remarks Required: -- None	✓		31. Unnecessary pencil notes have been removed from the sheet. 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.	✓		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	✓	
Part VII - CURVES 23. The depth curves have been inspected before inking. Remarks Required: -- By whom was the penciled curves inspected.	✓	✓	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 34. Unresolved discrepancies and questionable soundings.	✓	
25. Depth curves were satisfactory except as follows: (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.	✓		35. Notation of discrepancies with photogrammetric survey inserted in report of unreviewed photogrammetric survey or on copy.	✓	
Verified by <i>Nicholas Lestenkof</i>			36. Supplemental information.	✓	
			Date <i>2/7/71</i>		

HYDROGRAPHIC SURVEY STATISTICS
HYDROGRAPHIC SURVEY NO. 8982

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET		1	BOAT SHEETS		1	
DESCRIPTIVE REPORT		1	OVERLAYS		3	
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES ^{OK}			81			
CAMERS ^{bundles}	1		8			
VOLUMES	9					
BOXES						
T-SHEET PRINTS (List)						
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		1333		
POSITIONS REVISED		20		
DEPTH SOUNDINGS REVISED		252		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		4		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		0		
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS		24		
JUNCTIONS		7		
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		79		
SPECIAL ADJUSTMENTS		7		
ALL OTHER WORK		51		
TOTALS		168		
PRE-VERIFICATION BY	BEGINNING DATE		ENDING DATE	
VERIFICATION BY <i>Markus L. Lutz</i>	2/19/70		2/7/71	
REVIEW BY	BEGINNING DATE		ENDING DATE	

VERIFIERS REPORT

AR-20-3-68

H-8982

North Coast Molokai Island, Hawaiian Islands

This sheet was constructed and plotted at Pacific Marine Center, Seattle, Washington. Information relating to this will be noted under the heading by the number and letter as on the Verifier's Report C&GS Form 946A.

PART II SHORELINE AND SIGNALS

6. In the descriptive report signal 003 (ASK) was described as a topographic signal plotted on advanced manuscript T-11820. The boatsheet has it plotted as a hydrographic signal (blue). On the smooth sheet the signal was plotted as a hydrographic signal because we could not find the plot or description on the manuscripts we have available. *'ASK' is a hydrographic signal located by sextant cuts on H-8981(1968) - Vol. 8, pg. 50 xps*

7. There are no signals outside the high water line.

PART III JUNCTIONS

10. Junction with H-8968, (1967), 1:10,000 is in good agreement. Junction with H-8973, (1968), 1:20,000 is also in good agreement.

PART VII CURVES

23. The depth curves were inspected by Richard Lynn, Cartographic Technician.

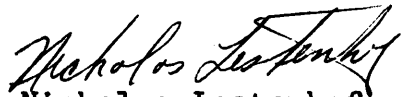
CHART COMPARISON

Comparison was made with C&GS Chart 4120 3rd Edition, October 14, 1968. The comparison made by the hydrographer appears as mentioned in his report. Other differences are noted on the chartlet which is included in this report.

PRIOR SURVEYS

Prior survey H-4542, (1926), 1:40,000; and H-4542A, (1929), 1:40,000; and Scripps Survey (1962) 1:62,500 are not available to make a comparison.

Respectfully Submitted,


A handwritten signature in cursive script, appearing to read "Nicholas Lestenkof".

Nicholas Lestenkof
Cartographic Technician

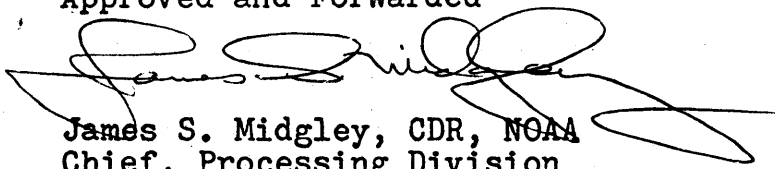
APPROVAL SHEET

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


William M. Martin
Supervisory Carto. Tech.

Approved and Forwarded

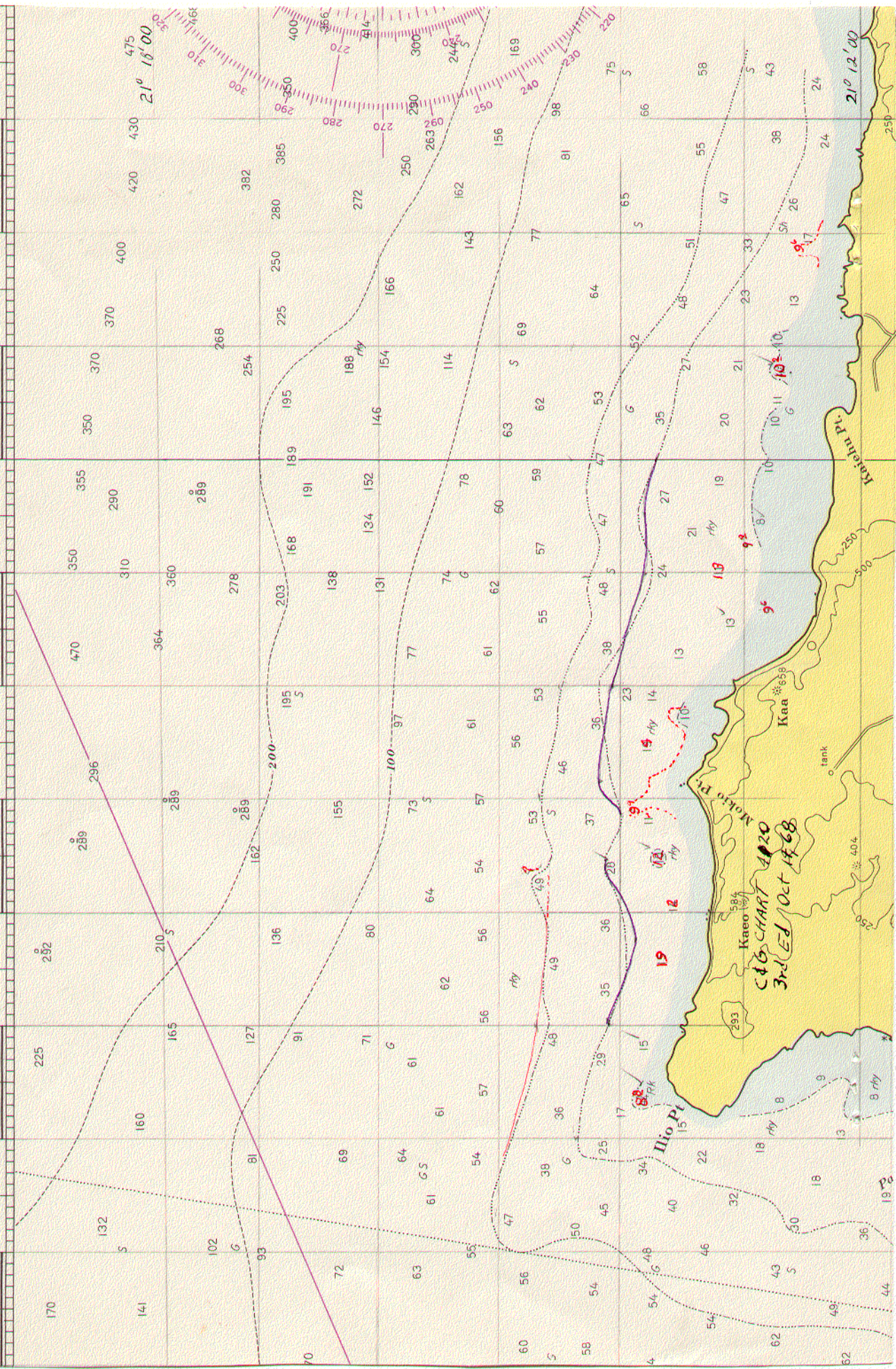

James S. Midgley, CDR, NOAA
Chief, Processing Division
Pacific Marine Center

CONTINUED ON CHART 4116)

157° 15'

157° 10'

13



SUBMARINE TRANSIT LANE ST-1
PROCEED WITH CAUTION

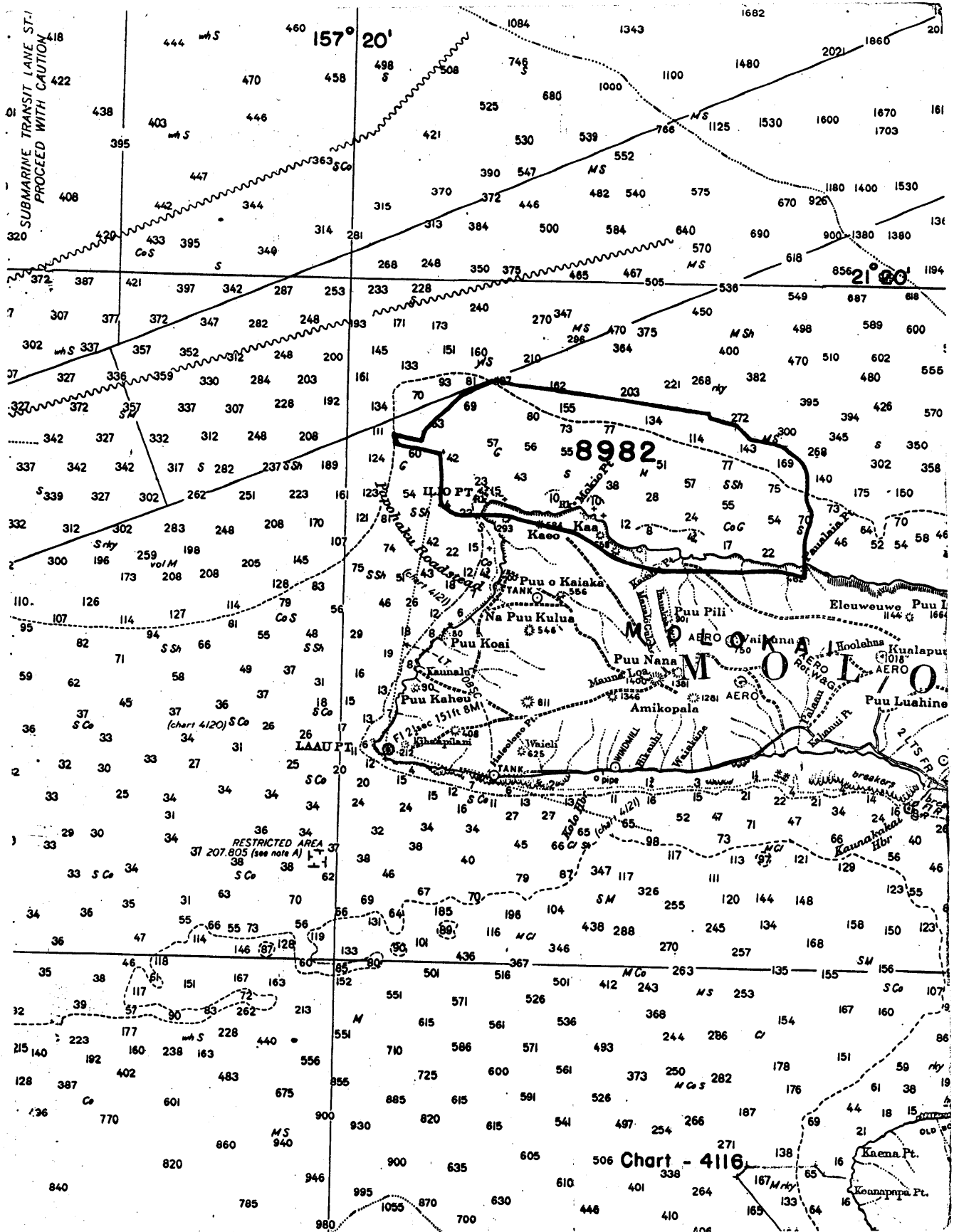


Chart - 4116

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-8982

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
4120	3-31-71	J. A. Graham	Full Part Before After Verification ^{Before} Review Inspection Signed Via Drawing No. 9 App'd misc critical corrections & added fill in snags & curves
4116	3-31-71	J. A. Graham	Full Part Before After Verification ^{Before} Review Inspection Signed Via Drawing No. 10 App'd misc critical corrections only thru chrt. 4120 Aug. 79
4179	5/10/71	J. H. Hillan	Full Part Before After Verification Review Inspection Signed Via Drawing No. 9 No critical corr at this scale at this time thru 4116 & 16
4102	2/14/72	J. Graham	Full Part Before After Verification Review Inspection Signed Via Drawing No. Examined for critical corrections thru chrt 4116
4180	4/3/72	Mis Felt	Full Part Before After Verification Review Inspection Signed Via Drawing No. EXAMINED - no corr.
4179	12/04/77	C. S. Forber	Full Part Before After Verification Review Inspection Signed Via Drawing No. Appl one sdy (2 1/2 m at 2 1/2 S, 15 1/2 W) Consider application as final - No corr
19004	11-5-90	R. A. Lillis	Full Part Before After Verification Review Inspection Signed Via Drawing No. 367 category 1
19351	3-11-94	William J. Phin	^{Adequately App'd} Full Part Before After Verification Review Inspection Signed Via Drawing No. 14 - Cat I
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.