

# 8919

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-10-8-66 Office No. H-8919

### LOCALITY

State HAWAII  
Molokai  
General locality ~~Hawaiian Islands~~  
Molokai Island - South Coast  
Locality ~~South Coast Molokai Island~~

1967

### CHIEF OF PARTY

Ronald L. Newson, CDR, USN

### LIBRARY & ARCHIVES

DATE OCT 11 1972

USCOMM-DC 87022-P66

8919

(1,000,000) Charts 4102  
(1,250,000) 4116 ✓  
(1,500,000) 4120 ✓  
(1,500,000) 4121 ✓  
(1,800,000) 4130 ✓  
(1,675,000) 4179  
(1,675,000) 4180

**HYDROGRAPHIC TITLE SHEET**

H-8919

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-10-08-66

State Hawaii

General locality Molokai Island - South Coast

Locality Kawela to Kaunakakai  
~~South Central Coast, Molokai Island~~

Scale 1:10,000 Date of survey 14 April-27 July 1966  
28 Sept.- 3 Nov. 1967

Instructions dated 7 June 1967 Project No. OPR-119  
(ML # 2,3) (ML# 6)

Vessel USC&GS Mc ARTHUR, Launch AR-1, Skiff, USC&GSS PATHFINDER and SURVEYOR

Chief of party Ronald L. Newsom, CDR, USESSA

Surveyed by McArthur, Surveyor and Pathfinder personnel

Soundings taken by echo sounder, ~~beam~~ pole DE 723 #'s 918, 931, 938, 552, 910

Graphic record scaled by McArthur, Surveyor, Pathfinder personnel

Graphic record checked by McArthur, Surveyor, Pathfinder personnel  
Positions verified

~~Positions~~ verified by F.L. Rosario Automated plot by Gerber plotter

Soundings provided by F.L. Rosario

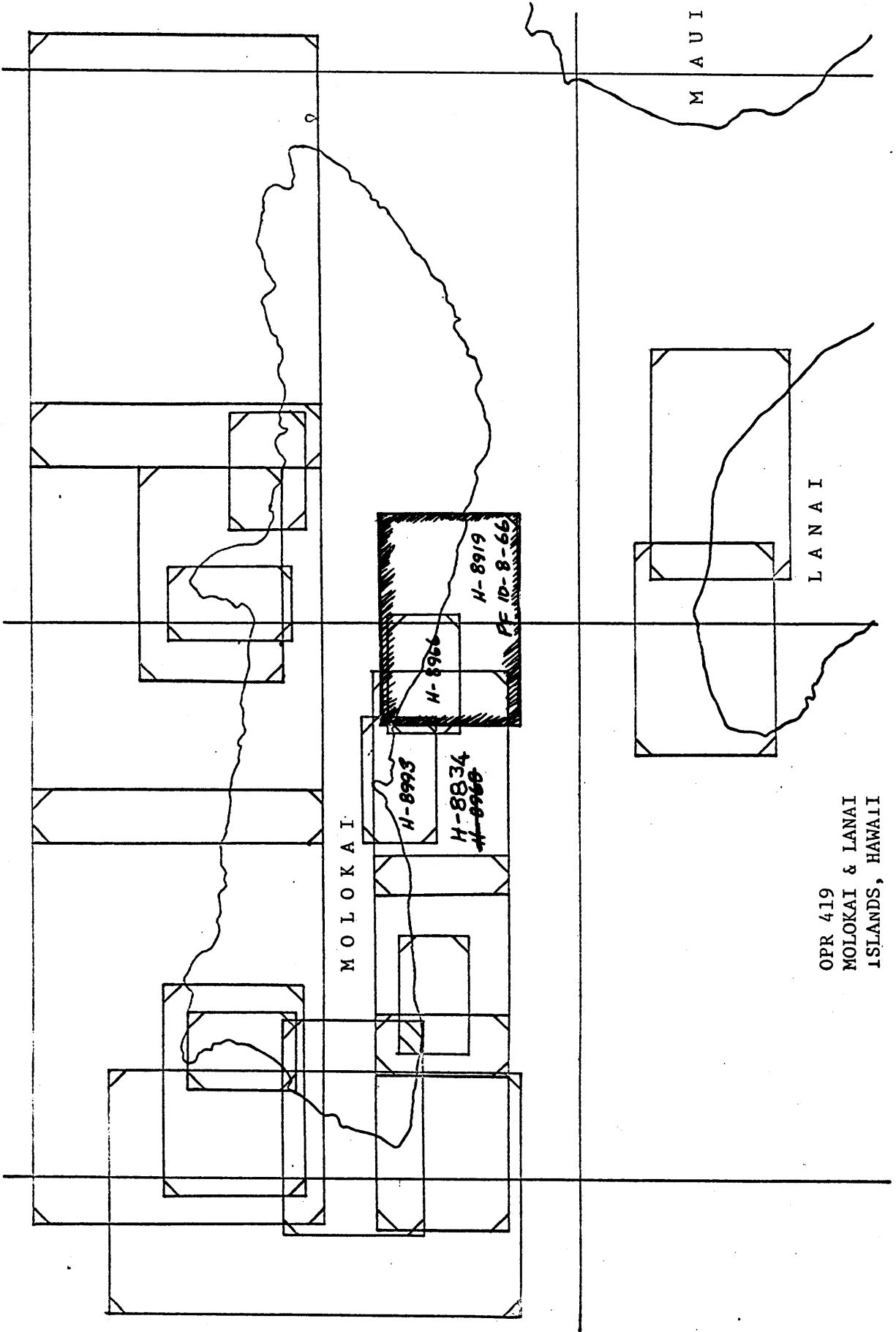
Soundings in fathoms ~~feet~~ at ~~MLLW~~ MLLW

REMARKS: Verifier's report regarding 1966 field work was prepared and incorporated  
into this descriptive report with whatever information was available.

*Applied to state 11/2/72*

*Examined for Notice to Mariners - No Notice needed  
11-16-72 PAB*

*R.W.W. 647-91*



MOLOKAI

H-8923

H-8834

H-8968

H-8968

H-8919

PF 10-8-66

MAUI

LANAI

OPR 419  
MOLOKAI & LANAI  
ISLANDS, HAWAII

DESCRIPTIVE REPORT

to Accompany

BOATSHEET PF-10-8-66

(H-8919)

USC&GSS McARTHUR  
LCDR Ronald L. Newsom

Scale - 1:10,000  
Chief Of Party

A. PROJECT

This sheet is part of OPR 419, Lanai & Molokai Islands, Hawaiian Islands. The work was accomplished under Project Instructions CFS2 4060/02, dated 7 June 1967. The C&GS ships PATHFINDER and SURVEYOR each did a small amount of hydro on the eastern end of the sheet (PF-10-8-66) during 1966 and the McARTHUR was assigned completion of it. This report covers only that part of the survey which was completed by vessels of the McARTHUR. Refer to previous descriptive reports for information on work done by the PATHFINDER and SURVEYOR.

*See Verifiers Report*

B. AREA SURVEYED

This sheet encompasses an area along the southern coast of Molokai Island from 156° 56' 00" West to 157° 03' 30" West, and from the shoreline south to junction with a 1:20,000 sheet (H-8834) done by the PATHFINDER. The area is bordered by four contemporary surveys. On the west by PF-20-1-66 (H-8883) and AR-5-3-67 (H-8966, Kaunakakai Harbor), on the east by PF-10-5-65 (H-8882) and on the south by PF-20-1-65 (H-8834).  
*Also, H-8884 (AR-10-1-67) (1967) on the west.*

8884 (AR-10-1-67) (1967)

There are two prior surveys in this area. H-5310 of 1930-31 is a 1:20,000 survey which includes the entire area of PF-10-8-66. H-4458 of 1925 is a 1:5,000 survey of Kaunakakai Harbor.

*See Verifiers Report*

C. SOUNDING VESSELS

A list of the vessels involved in this survey and their colors follows:

<u>Vessel</u>	<u>Color</u>
Ship	Green
Launch AR-1	Carmine
Skiff	Red

All hydro in other colors was done by previous vessels.

*See Verifiers Report*

D. SOUNDING EQUIPMENT

Raytheon type DE-723 fathometers were used by the Ship and the launch for all soundings. The skiff was used inside the reef as it was too shallow for the launch. A sounding pole marked in feet was used for all soundings taken by the skiff. A list of the sounding equipment,

their serial numbers and the approximate range of depth in which each was used follows:

<u>Vessel</u>	<u>Serial Number</u>	<u>Depth Range</u>
Ship	918	10-50 fms
Launch AR-1	931	0-20 fms
Skiff	Pole	0-1 fm

Bar checks for the launch were taken at depths of 1, 2, and 4 fathoms. The corrections (averaged) are as follows:

<u>DEPTH</u>	<u>CORRECTIONS</u>
0-2.8 fm	+ 0.2 fm
2.9-3.8	0.3
3.9-4.0	0.4

A table of all bar checks is appended to this report.

The bar checks were coupled with the Nansen cast results from the Ship's velocity curve to make a continuous curve to depth.

A Nansen cast was taken to determine the velocity corrections for the Ship's soundings. The resulting curve and table of correction is appended to this report along with the curve for the Launch.

*See Verifier's Report*

#### F. CONTROL

Horizontal control was furnished by existing triangulation, photo-hydro signals, and rebuilt signals constructed by the PATHFINDER and SURVEYOR in 1966.

The hydro was controlled by visual methods using three-point sextant fixes.

#### G. SHORELINE

The shoreline was verified by inspection. The shoreline delineated on the manuscripts (T11959 and T11960) was found to be accurate except for a few details as noted on the boat sheet in red. The changes were also made on the field edit ozalid prints and Field Edit Reports submitted to Photogrammetry Division in accordance with section 727 of the Topographic Manual.

*H-8966*

The channel buoys at the entrance to Kaunakakai are located on AR-5-3-67.

The low water line was not completely defined by the soundings. It was decided that it was economically unfeasible and unnecessary to delineate the shoreline hydrographically. A live coral reef extends approximately

three-eighths of a mile out from the shoreline. The entire reef area is not navigable by anything except outboard skiffs and they can only be used during periods of high tide. The general depth of the area is one to four feet. The area is only used by fishermen who walk or pole their skiffs.

*See Verifiers Report*

#### H. CROSSLINES

There were 281.7 nautical miles of hydrography run of which 42.8 were crosslines. The crosslines amounted to 15.2% of the total hydrography. There were no discrepancies. ✓

#### I. JUNCTIONS

The survey junctions very well with adjoining surveys. No adjustment is necessary. ✓

#### J. COMPARISON WITH PRIOR SURVEYS

The survey compares with prior survey of the area (H-5310) quite well. There is some disagreement at the western end. There are two small 10 fathom shoals close to the reef at Kawela. These were not found. Instead, the entire area around these two shoals was found to be about 10 fathoms deep. It appears that the coral may have built up in this area. The area was well covered with soundings and developed adequately to dispell any doubts as to the bottom configuration.

*See Verifiers Report*

#### K. COMPARISON WITH CHART

The survey was compared with chart number 4120, the largest scale chart of the area, and found to agree very well with it except as noted in the preceeding paragraph. ✓

#### L. ADEQUACY OF SURVEY

This survey is now complete and is adequate to supersede previous surveys for charting of the area. ✓

#### M. AIDS TO NAVIGATION

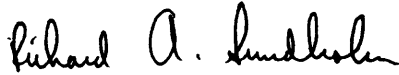
All aids to navigation on this sheet are in the immediate vicinity of Kaunakakai Harbor and are located on AR-5-3-67 (H-8966) a 1:5,000 sheet of the harbor itself and are covered in the descriptive report of that sheet. ✓

N. STATISTICS

Total number of positions ..... 1689  
Total miles of sounding lines ..... 281.7 n.m.  
Total number of bottom samples ..... 46  
Area covered by soundings ..... Approx 17 sq n.m.

See Verifier's Report

Submitted by:



Richard A. Sundholm  
LTJG, USESSA

Approved and Forwarded:

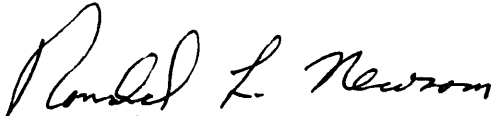


Ronald L. Newsom  
LCDR, USESSA  
Commanding Officer

Approval Sheet  
for  
H-8919 (PF 10-8-66)

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. The foregoing applies only to that portion of the survey conducted by the McARTHUR.

4 February 1969

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



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 8919

Locality: Molokai Island, Hawaii

Chief of Party: R. L. Newsom, 1967

Plane of reference is mean lower low water

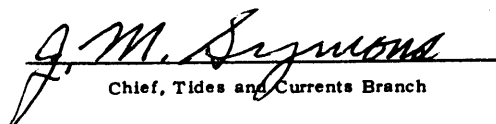
Tide Station Used (Form C&GS-681):

Kamalo, Molokai Island, Hawaii

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

1.7 feet

Remarks

  
Chief, Tides and Currents Branch

Additional Tide Note  
to accompany  
H-8919 (PF 10-8-66)

Tide station	Kolo Kolo Harbor Molokai, Island, Hawaii
	Lat. 21°05.6'N Long. 157°11.8'W
Plane of Reference:	MLLW=2.8ft on 1967 staff
Time Meridian:	150°W
Time Correction:	None
Height Correction:	None
Time of Coverage:	Oct. 31, 1967
Area of Coverage:	Entire Survey this refers to that por- tion of PF 10-8-66 surveyed by the McARTHUR

Tide Note  
to Accompany  
H-8919 (PF 10-8-66)

Tide Station:

Kamalo  
Kamalo Harbor  
Molokai, Island, Hawaii

Latitude: 21°02.9'N  
Longitude: 156°52.5'W

Plane of Reference:

MLLW=2.4' on 1967 staff  
150°W

Time Meridian:

None

Time Correction:

None

Height Correction:

Time Covered:

Entire survey PF 10-8-66  
Sept. 28 when the Wash-  
ington Office supplied  
hourly heights from  
the standard gage at  
Kahului, Maui Island  
and October 31 when  
the gage at Kolo Har-  
bor was used.

Area Covered:

Entire survey PF 10-8-66  
This refers to that por-  
tion of PF 10-8-66  
surveyed by the McARTHUR

Portabel<sup>12</sup> Automatic Tide Gage No. 57-38 was installed at  
Kamalo.

TIDES REPORT - OPR-419 - HAWAII 1966

Three tide gages were installed in Hawaii this year. Their respective locations are as follows:

- a. Kaunakakai, Molokai Island
- b. Kamalo, Molokai Island
- c. Kaunalapau, Lanai Island

a. The gage at Kaunakakai Harbor served to control the shoran hydrography of sheets PF 20-1-66 and PF 20-2-66. The gage ran continuously for a period of 44 days with a loss of data of five hours. The loss was attributed to the failure of winding the chart drive. The missing data was inferred from a comparison of predicted with actual tides. Two new tidal bench marks were established at Kaunakakai. Levels were run to these bench marks as well as to the old ones. A preliminary height of MLLW above the staff zero was determined. This value should be confirmed by the Washington Office. The determination was as follows:

		APRIL 20	APRIL 26	MEAN
El. of BM above staff zero	BM#2	8.338	NONE	
El. of BM above MLLW		5.450		
El. of MLLW above staff zero		<u>2.888</u>		2.888
	BM#4	8.672	NONE	
		5.750		
		<u>2.922</u>		2.922
	BM#5	8.558	8.559	
		6.310	6.310	
		<u>2.248</u>	<u>2.249</u>	2.248

		APRIL 20	APRIL 26	MEAN
El. of BM above staff zero	BM#6	8.930	8.931	
El. of BM above MLLW		NONE	NONE	
El. of MLLW above staff zero				
	BM#7	9.348	9.347	
		NONE	NONE	

The value corresponding to the height of MLLW above staff zero was 2.9<sup>+</sup>.

B. The gage at Kamalo Harbor controlled the hydrography of sheets PF 5-3-65, PF 10-5-65 and PF 10-5-66 of Molokai. In addition it also controlled PF 10-2-66 and PF 10-5-66 of Lanai. For the Molokai sheets only one day of data was missing. It corresponds to the day in which the tide gage was removed. Three days of data were missing for the Lanai work. All of them occur before and after the operating period of the gage. The gage operated for 44 days; occasionally the chart drive was allowed to run down with no effect on the collection of data. The missing data will be obtained from the Washington Office. At this station levels were run to five tidal bench marks. The height of MLLW above the staff zero was determined as follows:

		MARCH 14	APRIL 26	MEAN
El. of BM above staff zero	BM#1	6.651	6.679	<del>6.665</del>
El. of BM above MLLW		4.280	4.280	
El. of MLLW above staff zero		<u>2.371</u>	<u>2.399</u>	2.385
	BM#3	8.227	8.288	
		5.890	5.890	
		<u>2.337</u>	<u>2.398</u>	2.368
	BM#5	5.036	5.052	
		2.660	2.660	
		<u>2.374</u>	<u>2.392</u>	2.384

		MARCH 14	APRIL 26	MEAN
El. of BM above staff zero	BM#6	7.821	7.865	
El. of BM above MLLW		5.480	5.480	
El. of MLLL above staff Zero		<u>2.341</u>	<u>2.385</u>	2.363
	BM#7	5.806	5.829	
		3.340	3.340	
		<u>2.466</u>	<u>2.489</u>	2.478

The height of MLLW above staff zero was found to be 2.4ft. This value will be confirmed by the Washington Office.

c. Hydrography of sheets PF 10-1-66, Pf 10-3-66, Pf 10-4-66, PF 10-6-66 and PF 10-7-66 of Kahoolawe was controlled by the tide gage at <sup>Kaunakakai</sup> Kaunakakai. Unfortunately very little data of any value was obtained from this gage. The gage operated for 63 days. Only 19 days of data were necessary. Five days were obtained. The failure to gather tide data at this station can only be attributed to the incompetence of the observer. and to the failure of apparatus used. It has been recommended on the Report of Tide Station that the observer at Kaunakakai be not hired again should that need arise. The missing data will be obtained from the Washington Office. Levels were run to four tidal bench marks. Reference is made to the letter dated 9 April 1966 for the vertical displacement of BM #1. The determination of the height of MLLW above the staff zero was as follows:

	FEBRUARY 25	APRIL 22	MEAN
El. of BM above staff zero	BM#1 17.146	17.177	
El. of BM above MLLW	11.570	11.570	
El. of MLLW above staff zero	<u>5.576</u>	<u>5.607</u>	5.596
	BM#2 14.215	14.230	
	12.470	12.470	
	<u>1.745</u>	<u>1.760</u>	1.752
	BM#5 35.556	35.647	
	33.840	33.840	
	<u>1.716</u>	<u>1.807</u>	1.762
	H.T. 17.198	17.231	
	15.480	15.480	
	<u>1.718</u>	<u>1.751</u>	1.734

The height of MLLW above the staff zero was determined to be 1.7 ft.

This value will be confirmed by thr Washington Office.

*Leonard Larese-Casanova*

Leonard Larese-Casanova

Ensign, USESSA

GEOGRAPHIC NAME LIST

ALII FISHPOND

KAKAHAIA FISHPOND

KALOHI CHANNEL

KALOKOELI FISHPOND

KAMILOLOA

KANOA FISHPOND

KAOAINI FISHPOND

KAUNAKAKAI

KAUNAKAKAI GULCH

KAUNAKAKAI HARBOR

KAWELA

KAWIU FISHPOND

MOKU

MOLOKAI

NAIULUA POINT



1967 ~~1966~~

TIDE TAPE H-8919 (PF 10-8-66)

060000 00 1001 0000 271 0 000000 000000  
074200 00 1002  
091800 00 1003  
134000 00 1004  
160000 00 1003  
170000 00 1002  
070000 00 1001 0000 272 0 000000 000000 29  
083000 00 1001  
095500 00 1002  
113500 00 1003  
142000 00 1004  
161500 00 1003  
170000 00 1002  
070000 00 1000 0000 275 0 000000 000000 2  
093000 00 1000  
105000 00 1001  
115000 00 1002  
130500 00 1003  
160000 00 1004  
171000 00 1003  
060000 00 1002 0000 276 0 000000 000000 3  
063000 00 1002  
081000 00 1001  
095000 00 1000  
111000 00 1001  
124000 00 1002  
145000 00 1003  
160000 00 1004  
173000 00 1003  
183000 00 1002  
064000 00 1003 0000 278 0 000000 000000 5  
073500 00 1003  
090000 00 1002  
122500 00 1001  
145500 00 1002  
170000 00 1003  
070000 00 1004 0000 279 0 000000 000000 4  
081000 00 1004  
091500 00 1003  
180000 00 1002  
070000 00 1003 0000 283 0 000000 000000 10  
080000 00 1003  
120000 00 1004  
143000 00 1003  
164000 00 1002  
190000 00 1001  
070000 00 1002 0000 284 0 000000 000000 13  
080000 00 1002  
093000 00 1003  
131000 00 1004  
151000 00 1003  
170000 00 1002  
190000 00 1001  
070000 00 1002 0000 285 0 000000 000000 12  
080000 00 1002  
104000 00 1003  
141500 00 1004  
160000 00 1003

9/28/67

Plane of Reference Approved  
Datum: Planes Section  
Date 3/6/69 *cit*

174000 00 1002-  
 070000 00 1001 0000 286 0 000000 000000 13  
 080000 00 1001  
 094000 00 1002  
 112000 00 1003  
 150000 00 1004  
 162500 00 1003-  
 173000 00 1002  
 060000 00 1002 0000 304 0 000000 000000 10/31  
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 170000 00 1002 /  
 062000 00 1002 0000 305 0 000000 000000 11/1  
 073000 00 1002 -  
 103000 00 1001 -  
 120000 00 1002 /  
 155000 00 1003 /  
 171000 00 1002 /  
 183000 00 1001 /  
 061000 00 1003 0000 306 0 000000 000000 11/2  
 071000 00 1003  
 090000 00 1002 -  
 111000 00 1001 -  
 133000 00 1002 -  
 161000 00 1003 -  
 173000 00 1002 -  
 065500 00 1003 0000 307 0 000000 000000 11/3  
 070000 00 1003  
 092000 00 1002  
 120000 00 1001 -  
 180000 00 1002 -

Plane of Reference Approved  
 Datum Planes Section  
 Date 3/6/69 at

For Pathfinder Sheets

(Actual tides)

KAMALO HARBOR

5-3-65 - 8881

10-5-65 - 8882

10-2-66 - 8831

10-5-66 - 8889

10-8-66 Time 8919

TIDE REDUCERS 1966

for 135°W Time Meridian

corr  
0-31 fms

corr  
31-101 fms

MARCH 15

0700 - 1000 -

- 0.1 -

- 0.2 -

MARCH 16

0600 - 0700 -

- 0.2 -

- 0.2 -

0700 - 1058 -

- 0.1 -

- 0.2 -

1058 - 1228 -

- 0.2 -

- 0.2 -

1228 - 1452 -

- 0.3 -

- 0.4 -

1452 - 1645 -

- 0.4 -

- 0.4 -

1645 - 1700 -

- 0.3 -

- 0.4 -

MARCH 17

0600 - 0700 -

- 0.2 -

- 0.2 -

0700 - 0900 -

- 0.1 -

- 0.2 -

0900 - 1129 -

- 0.0 -

- 0.0 -

1129 - 1300 -

- 0.1 -

- 0.2 -

1300 - 1413 -

- 0.2 -

- 0.2 -

1413 - 1600 -

- 0.3 -

- 0.4 -

1600 - 1700 -

- 0.4 -

- 0.4 -

Subtract 1 hour from all tides

104 100400 - 152500 APR 14

110 092000 - 152500 APR 20

115 131130 - 141000 APR 25

comp Jmg  
- DMW

①

(actual tides)  
 KAMALO HARBOR  
 TIDE REDUCERS 1966  
 for 135° W Time Meridian

<u>DATE</u>	<u>Time</u>	<u>corr</u> <u>0-31 fms</u>	<u>corr.</u> <u>31-101 fms</u>
APRIL 12	0600 - 1700 -	-0.1 -	-0.2 -
	0700 - 0735 -	-0.2 -	-0.2 -
APRIL 13	<del>0600</del> 0735 - 1800 -	-0.1 -	-0.2 -
APRIL 14 ✓	0800 - <del>1200</del> <sup>1200</sup> -	-0.1 -	-0.2 -
	1200 - 1700 -	-0.2 ✓	-0.2 -
	1700 - 1900 -	-0.1 -	-0.2 -
APRIL 20 ✓	0800 - 0840 -	-0.1 -	-0.2 -
	<del>0840</del> 0840 - 1215 -	0.0 -	0.0 -
	1215 - 1324 -	-0.1 -	-0.2 -
	1324 - 1433 -	-0.2 -	-0.2 -
	1433 <sup>1944</sup> <del>1700</del> -	-0.3 -	-0.4 -
	1944 2100 -	-0.2 -	-0.2 -
APRIL 21	<sup>5</sup> 0800 - 0641 -	-0.2 -	0.2 -
	0641 - 0837 -	-0.1 -	-0.2 -

~~APRIL 22~~

~~APRIL 22~~

comp *[Signature]*  
 DMW

②  
 ≡

(actual tides)  
KAMALO HARBOR

TIDE REDUCERS 1966

for 135°W Time Meridian

<u>DATE</u>	<u>TIME</u>	<u>CORR</u> <u>0-31 fms</u>	<u>CORR</u> <u>31-101 fms</u>
APRIL 22	0800-0827 ✓	-0.1 ✓	-0.2 ✓
	0827-1328 ✓	0.0 ✓	0.0 ✓
	1328-1431 ✓	-0.1 ✓	-0.2 ✓
	1431-1542 ✓	-0.2 ✓	-0.2 ✓
	1542-2100 ✓	-0.3 ✓	-0.4 ✓
APRIL 23	0800-0900 ✓	-0.1 ✓	-0.2 ✓
	0900-1258 ✓	0.0 ✓	0.0 ✓
	1258-1418 ✓	-0.1 ✓	-0.2 ✓
	1418-1542 ✓	-0.2 ✓	-0.2 ✓
	1542-2100 ✓	-0.3 ✓	-0.4 ✓
APRIL 24	0900-1400 ✓	0.0 ✓	0.0 ✓
	1400-1527 ✓	-0.1 ✓	-0.2 ✓
	1527-1600 ✓	-0.2 ✓	-0.2 ✓
APRIL 25 ✓	0800-0900 ✓	-0.1 ✓	-0.2 ✓
	0900-1418 ✓	0.0 ✓	0.0 ✓
	1418-1600 ✓	-0.1 ✓	-0.2 ✓

Comp. J. G.  
- DMW

(actual tides)  
HAMALO HARBOR  
TIDE REDUCERS 1966  
for 135°W Time meridian

<u>DATE</u>	<u>TIME</u>	<u>Corr</u> <u>0-31 fm</u>	<u>Corr</u> <u>31-101 fms</u>
APR 26	0700-1540 -	0.0 -	0.0 -
	1540-1740 -	- 0.1 -	- 0.2 -
	1740-1930 -	- 0.2 -	- 0.2 -
	1930-2300 -	- 0.3 -	- 0.4 -

- DMW

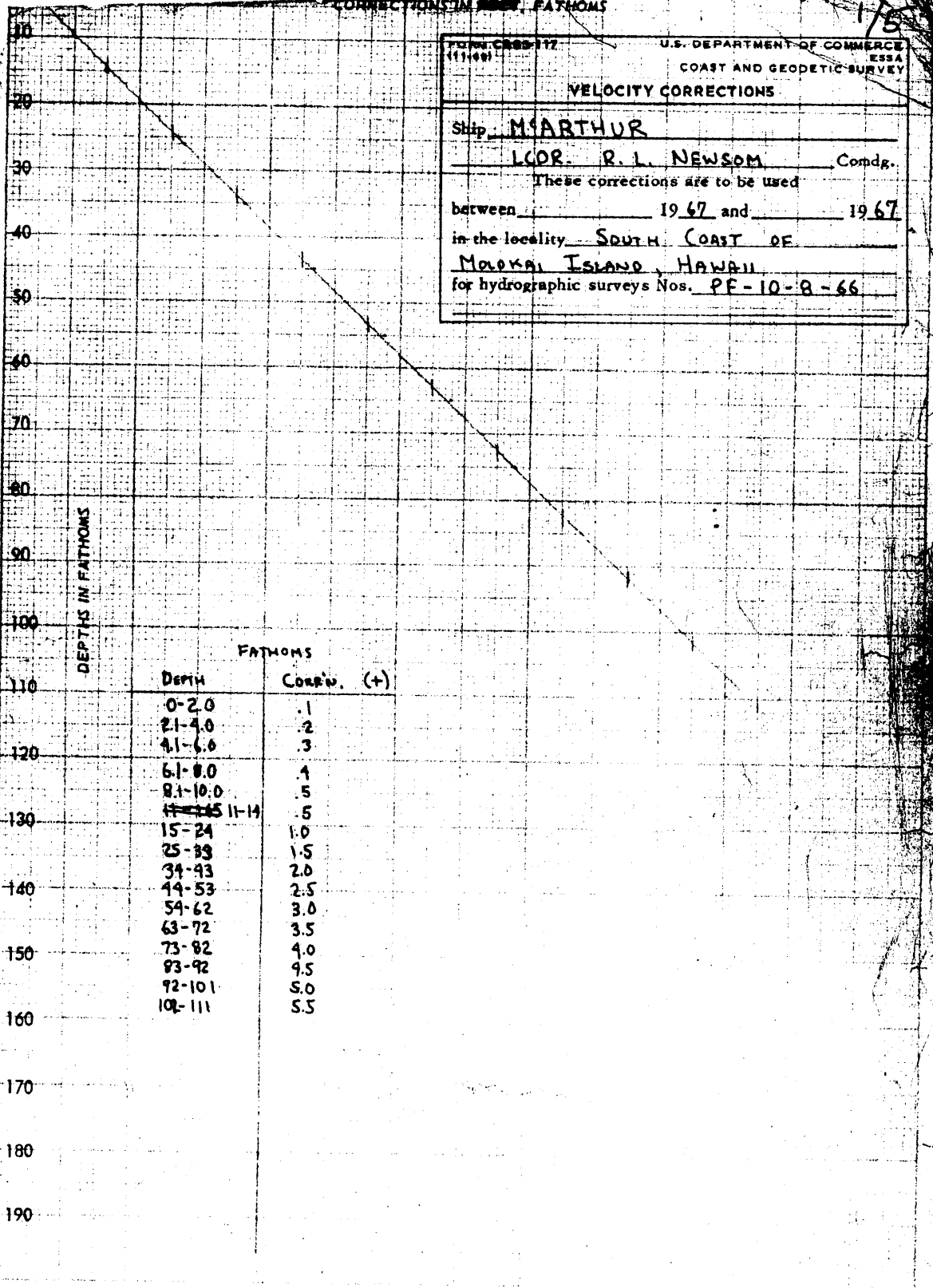


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Form CGS-117 (11-66) U.S. DEPARTMENT OF COMMERCE  
 COAST AND GEODETIC SURVEY  
 VELOCITY CORRECTIONS

Ship M. ARTHUR  
LCOR. R. L. NEWSOM Comdg.  
 These corrections are to be used  
 between 19 67 and 19 67  
 in the locality SOUTH COAST OF  
MOLOKAI ISLAND, HAWAII  
 for hydrographic surveys Nos. PF-10-8-66

(For deep water add a 0 to these figures)



DEPTH	FATHOMS	CORRV. (+)
0-2.0		.1
2.1-4.0		.2
4.1-6.0		.3
6.1-8.0		.4
8.1-10.0		.5
<del>10.1-12.0</del> 11-14		.5
15-24		1.0
25-33		1.5
34-43		2.0
44-53		2.5
54-62		3.0
63-72		3.5
73-82		4.0
83-92		4.5
92-101		5.0
102-111		5.5

FOR INFORMATION THE INCH  
 TO THE INCHES  
 KEUFFEL & ESSER CO.



PF-10-8-66

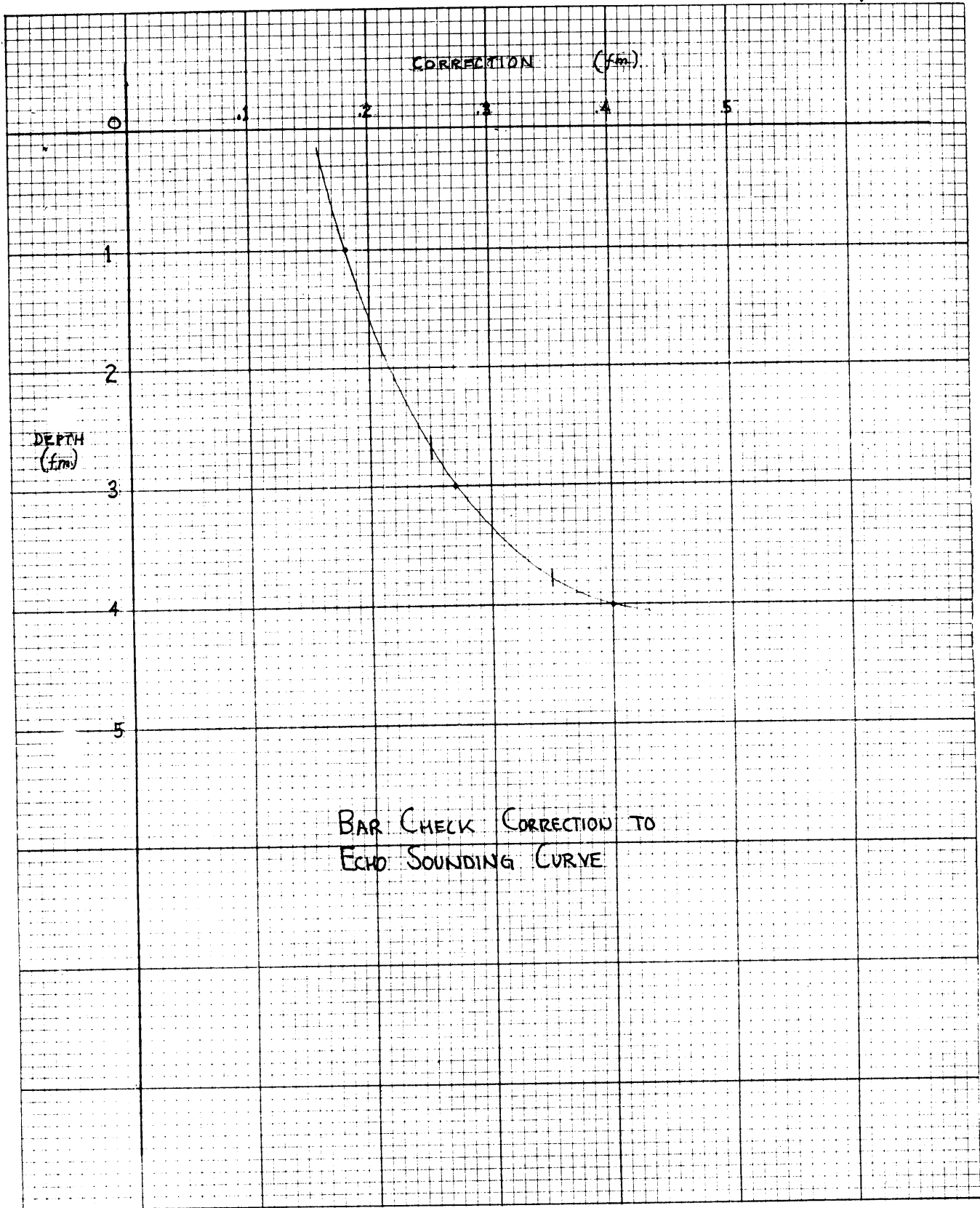
2/5

VELOCITY TABLE		CORRECTION (SHIP HYDRO)	
DEPTH		CORR'N. (f)	
0 - 5.0		0.0	
5.1 - 6.8		.1 fm.	
6.9 - 8.8		.2	
8.9 - 10.7		.3	
10.8 - 12.6		.4	
12.7 - 14.5		.5	
14.6 - 16.5		.6	
16.6 - 18.7		.7	
18.8 - 20.5		.8	
20.6 - 22.3		.9	
22.4 - 24.1		1.0	
24.2 - 26.2		1.1	
26.3 - 28.0		1.2	
28.1 - 30.0		1.3	
30.1 - 33.0		1.4	
33.1 - 36.8		1.6	
36.9 - 40.8		1.8	
40.9 - 44.5		2.0	
44.6 - 48.3		2.2	
48.4 - 52.5		2.4	
52.6 - 56.1		2.6	
56.2 - 60.0		2.8	
60.1 - 64.0		3.0	
64.1 - 67.8		3.2	
67.9 - 71.5		3.4	
71.6 - 75.5		3.6	
75.6 - 79.5		<del>3.8</del>	
79.6 - 83.2		4.0	
83.3 - 87.0		4.2	
87.1 - 91.0		4.4	
91.1 - 94.8		<del>4.6</del>	
94.9 - 98.5		4.8	
98.6 - 102.6		5.0	
102.7 - 106.3		5.2	

by RAS  
 ✓ MEH

### BAR CHECKS

DATE	VOLTS	FREQ.	1 fm	READINGS			<del>4 fm</del>
				2 fm	3 fm		
10-3-67	120	60	.7	1.7	3.7		
10-5-67	120	60	.8	1.7	3.6		
10-5-67	120	60	1.0	1.75	3.67		
10-6-67	120	60	.9	1.75	3.6		
10-6-67	120	60	.9	1.8	3.6		
10-10-67	120	60	.8	1.5	3.4		
10-11-67	120	60	.7	1.7	3.6		
10-11-67	120	60	.8	1.875	3.5		
10-13-67	120	60	.85	1.7	3.6		
10-02-67	120	60	.8	1.7	3.6		
11-02-67	120	60	.8	1.7	3.6		
11-03-67	120	60	.8	1.7	3.6		
			AVG. BAR CHECK				
—	120	60	.82	1.73	3.60		



BAR CHECK CORRECTION TO  
ECHO SOUNDING CURVE

PF-10-8-66

5/5

		VELOCITY CORRECTION TABLE (LAUNCH HYDRO)			
		DEPTH	CORR'N. (+)		
		0-1.0 fm.	0.0 fm.		
		1.0-3.0	.1		
		3.0-5.0	.2		
		5.1-7.0	.3		
		6.9 <del>7.1-9.0</del>	.4		
		8.9 9.1-10.7	.5		
		10.8-12.6	.6		
		12.7-14.5	.7		
		14.6-16.5	.8		
		16.6-18.7	.9		
		18.8-20.5	1.0		
		20.6-22.3	1.1		
		22.4-24.1	1.2		
		24.2-26.2	1.3		
		26.3-28.0	1.4		
		28.1-30.0	1.5		
		30.8- <del>31.0</del> 33.0	1.6		
	33.1	34.1-36.8	1.8		
		36.9-40.8	2.0		
		40.9-44.5	2.2		
		44.6-48.3	2.4		
		48.4-52.5	2.6		
		52.6-56.1	2.8		
		56.2-60.0	3.0		
		60.1-64.0	3.2		
		64.1-67.8	3.4		
		67.9-71.5	3.6		
		71.6-75.5	3.8		
		75.6-79.5	4.0		
		79.6-83.2	4.2		
		83.3-87.0	4.4		
		87.1-91.0	4.6		
		91.1-94.8	4.8		
		94.9-98.5	5.0		
		98.6- <del>102.6</del>	5.2		
		102.7-106.3	5.4		
					plot/sailed: RAS ✓AMS

Abstract of Velocity Corrections on H-8919 (PF 10-8-66)

These corrections apply only to ship hydro 1967

Depths and corrections are in fathoms

000050	00	0000
000068	00	0001
000088	00	0002
000107	00	0003
000126	00	0004
000145	00	0005
000165	00	0006
000187	00	0007
000205	00	0008
000223	00	0009
000241	00	0010
000262	00	0011
000280	00	0012
000300	00	0013
000330	00	0014
000368	00	0016
000408	00	0018
000445	00	0020
000483	00	0022
000525	00	0024
000561	00	0026
000600	00	0028
000640	00	0030
000678	00	0032
000715	00	0034
000755	00	0036
000795	00	0038
000832	00	0040
000870	00	0042
000910	00	0044
000948	00	0046
000985	00	0048
001026	00	0050
001063	00	0052

Abstract of Velocity Corrections on H-8919 (PF 10-8-66)

These corrections apply only to launch AR-1 hydro 1967  
Depths and corrections are in fathoms

000010	00	0000
000030	00	0001
000050	00	0002
000068	00	0003
000088	00	0004
000107	00	0005
000126	00	0006
000145	00	0007
000165	00	0008
000187	00	0009
000205	00	0010
000223	00	0011
000241	00	0012
000262	00	0013
000280	00	0014
000300	00	0015
000330	00	0016
000368	00	0018
000408	00	0020
000445	00	0022
000483	00	0024
000525	00	0026
000561	00	0028
000600	00	0030
000640	00	0032
000678	00	0034
000715	00	0036
000755	00	0038
000795	00	0040
000832	00	0042
000870	00	0044
000910	00	0046
000948	00	0048
000985	00	0050
001026	00	0052
001063	00	0054


List of Stations on H-8919 (PF 10-8-66)

<u>Name</u>	<u>Number</u>	<u>Origin</u>
ACE	015	T-11960
ART	027	T-11959
BAC	022	KAUNAKAKAI HARBOR ENTRANCE RANGE REAR LT 1962
BAT	017	T-11960
BOX	013	T-11960
CAN	010	TANK 1926
CAR	029	T-11959
COW	012	T-11960
DOT	011	T-11960
ERG	009	T-11960
FEZ	008	T-11960
GAB	001	T-11959
GUM	007	T-11960
HIS	005	T-11960
HOE	030	Vol. 6 p. 16-19
HUB	019	T-11960
ICE	004	T-11959
JIM	032	T-11959
JOB	003	T-11959
KAI	006	T-11960
KEY	002	T-11959
MAX	016	T-11960
NUK	028	T-11959
ONI	031	ONINI 1915
RAN	023	KAUNAKAKAI HARBOR ENTRANCE RANGE FRONT LT 1962
SPI	026	T-11958
TEL	024	T-11959
TIP	018	T-11960
WAL	021	T-11959
YEL	025	T-11959

Abstract of Positions on H-8919 (PF 10-8-66)

<u>Vessel</u>	<u>Day</u>	<u>Date(1967)</u>	<u>Day No.</u>	<u>Positions</u>
McARTHUR	A	28 Sept	271	3000-3243
"	B	29 Sept	272	3244-3303
"	C	2 Oct	275	3305-3394
"	D	3 Oct	276	3400-3532
"	E	6 Oct	279	3538-3606
"	F	1 Nov	305	3607-3669
"	G	2 Nov	306	3670-3692
"	H	3 Nov	307	3693-3774
Launch AR-1	b	28 Sept	271	34-103
"	c	29 Sept	272	104-158
"	d	3 Oct	276	159-192
"	e	5 Oct	278	193-412
"	f	6 Oct	279	413-484
"	g	10 Oct	283	521-536
"	h	11 Oct	284	537-543
"	i	12 Oct	285	544-617
"	j	13 Oct	286	618-659
"	k	1 Nov	305	700-816
"	l	2 Nov	306	817-892
"	m	3 Nov	307	893-965
Skiff #2	a	11 Oct	284	2000-2074
"	b	31 Oct	304	2075-2109
"	c	3 Nov	307	2120-2130

NO  
URL  
OR  
TRI


 Bottom Samples - No Soundings  
 No Soundings at Pos 2109



AUTOMATED PROCESSING NOTE  
PF-10-8-66

The sounding tapes for each of the three vessels in this survey must be processed (run through the computer) separately. All soundings were logged with 0000 in the velocity table column. To get the proper results each vessel will have to be treated as a separate survey with its own velocity table.

H-8919 (PF-10-08-66) 1966 Field Season Work

SURVEYOR ML#6

July 26, 1966	Day 207	Purple	Pos. 6001-6084	214 Surveyor
July 27, 1966	208		6085-6214	

PATHFINDER ML# 2

April 14, 1966	Day 104	Purple	Pos. 4001-4132	317
20, 1966	110		4133-4286	
25, 1966	115		4287-4317	

PATHFINDER ML# 3

April 14, 1966	Day 104	Green	Pos. 7001-7059	59
				<hr/> 376 PATHFINDER

HAWAIIAN ISLANDS  
OPR-419  
USC&GS Ship Pathfinder  
Cdr. G.L. Short, Cmig.  
1966 ECHO CORRECTOR  
PF 10-8-66  
H-8919

Vessel	Date	Day	Corrector	
			1-31fms	31- fms
ML#2	4/14/66	a	0.4	0.4
"	4/20/66	b	0.3	0.2
"	4/25/66	c	0.4	0.4
ML#3	4/14/66	a	0.3	0.2

OPR-419  
 HAWAIIAN ISLANDS  
 USCGSS PATHFINDER  
 G. L. Short, Comdg.  
 1966

Velocity corrections to be applied to all 1966 hydrography on sheets

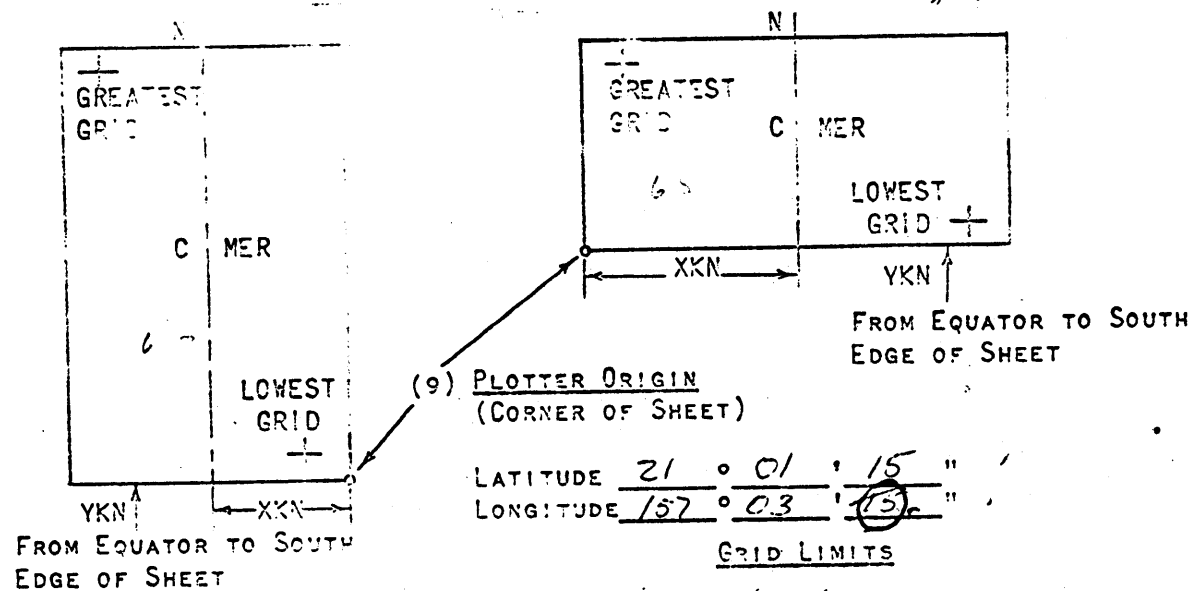
FF 10-5-65, FF 10-1-66, FF 10-2-66, FF 10-3-66, FF 10-4-66,  
 FF 10-5-66, FF 10-6-66, FF 10-7-66, FF 10-8-66, FF 20-1-66, FF 20-2-66  
 H-8919

TO DEPTH (fms)	CORRECTION (fms)	TO DEPTH (fms)	CORRECTION (fms)
0.0 - 3.0	0.00	72.6 - 77.2	3.2
3.1 - 5.3	0.1	77.3 - 82.0	3.4
5.4 - 7.8	0.2	82.1 - 86.7	3.6
7.9 - 10.0	0.3	86.8 - 91.3	3.8
10.1 - 12.3	0.4	91.4 - 95.8	4.0
12.4 - 14.5	0.5	95.9 - 100.5	4.2
14.6 - 16.8	0.6	100.6 - 112	4.5
16.9 - 19.5	0.7	113 - 125	5.0
19.6 - 21.5	0.8	126 - 140	5.5
21.6 - 23.8	0.9	141 - 158	6.0
23.9 - 26.0	1.0	159 - 178	6.5
26.1 - 28.3	1.1	179 - 200	7.0
28.4 - 31.6	1.2	201 - 232	7.5
31.7 - 36.2	1.4	233 - 273	8.0
36.3 - 41.0	1.6	274 - 320	8.5
41.1 - 45.3	1.8	321 - 368	9.0
45.4 - 50.0	2.0	369 - 418	9.5
50.1 - 54.5	2.2	419 - 460	10.0
54.6 - 59.0	2.4	461 - 495	10.5
59.1 - 63.5	2.6	496 - 527	11.0
63.6 - 68.0	2.8	528 - 558	11.5
68.1 - 72.5	3.0	559 - 584	12.0

\*All velocity corrections are positive and to be added

G  
I  
P

- (1) PROJECT OPR 419
- (2) L No. 8919 SURVEYOR MCARTHUR
- (3) FIELD PF 10-8-66 DATE REQUIRED \_\_\_\_\_
- (7) VISUAL \_\_\_\_\_ ELECTRONIC \_\_\_\_\_ (FILL OUT FORM #3)
- (10) XKN (SP 241) DISTANCE FROM CENTER TO EAST EDGE (NYX) \_\_\_\_\_ 6497.3 METERS  
OR WEST EDGE (NYX) \_\_\_\_\_
- (11) YKN (SP 241) DISTANCE FROM CENTER TO SOUTH EDGE OF SHEET. \_\_\_\_\_ 2,325,246.214 METERS
- (12) CENTERING \_\_\_\_\_ 156° 59' 30"
- (13) SURVEY SCALE \_\_\_\_\_ 1: 10,000
- (14) SIZE OF SHEET \_\_\_\_\_ 60X 42x60  OTHER
- (15) NYX, OR \_\_\_\_\_ (SEE INSTRUCTIONS ON ONE) NYX = 0



LIST G.P. OF ALL STATIONS TO BE PLOTTED ON THIS PROJECTION ON THE BACK OF THIS FORM. (DEG., MIN., METERS)

- (16) GREATEST LATITUDE 021° 06' 00" (PROJECTION LINE)
- (17) LOWEST LATITUDE 021° 01' 30" INTERVAL, PAGE 4
- (18) DIFFERENCE 00° 04' 30" HYDRO MANUAL)
- (19) 00° 30"
- (20) 9 YSM
- (21) GREATEST LONGITUDE 157° 03' 30"
- (22) LOWEST LONGITUDE 156° 55' 30"
- (23) DIFFERENCE 07' 30"
- (24) 00' 30"
- (25) 1615 XSN

H  
 Field No. PE 10-8-66  
 Date 11/24/68

H-6919

PARAMETER CARD II AND III PARAMETER CARDS

PARAMETER CARD II

Central Meridian of Projection	6,378,206.4	RDA	1	2	3	4	5	6	7	8	9	10
Plotter Scale/Survey Scale	6497.3 meters	YKN	11	12	13	14	15	16	17	18	19	20
North/south axis of sheet - to correspond to (Y axis - 0)	2,325.246.214 meters	YKN	21	22	23	24	25	26	27	28	29	30
Feet/Fathom indicator	0 - feet 1 - fathom	YKN	31	32	33	34	35	36	37	38	39	40
H Identification No.	10498.6876	YKN	41	42	43	44	45	46	47	48	49	50
		YKN	51	52	53	54	55	56	57	58	59	60
		YKN	61	62	63	64	65	66	67	68	69	70
		YKN	71	72	73	74	75	76	77	78	79	80
		YKN	81	82	83	84	85	86	87	88	89	90
		YKN	91	92	93	94	95	96	97	98	99	100

PARAMETER CARD III

Lowest Lat. Intersection	02	11	01	30	YST	1	2	3	4	5	6	7	8	9	10
Lowest Long. Intersection	15	6	55	30	XST	11	12	13	14	15	16	17	18	19	20
Difference between Grid				30	DXT	21	22	23	24	25	26	27	28	29	30
Interval (Long)					XSN	31	32	33	34	35	36	37	38	39	40
Interval (Lat)					YSN	41	42	43	44	45	46	47	48	49	50

Computed \_\_\_\_\_  
 Punched \_\_\_\_\_  
 Checkd \_\_\_\_\_  
 Date \_\_\_\_\_

*JKL*

GEOGRAPHIC NAMES

Survey No. H-8919

Name on Survey	Source of Name										
	A	B	C	D	E	F	G	H	K		
Alii Fishpond											1
Kakahāia Fishpond											2
Kalohi Channel											3
Kamiloloa											4
Kalokoeli Fishpond											5
Kanoa Fishpond											6
Kaozini Fishpond											7
Kaunakakai											8
Kaunakakai Gulch											9
Kaunakakai Harbor											10
Kawela											11
Kawiu Fishpond											12
Maku											13
Molokai											14
Naluluā Point											15
											16
											17
											18
											19
											20
											21
											22
											23
											24
											25
											26
											27

Names checked & approved  
*A. J. Wright*  
 11-29-72

HYDROGRAPHIC SURVEY STATISTICS  
HYDROGRAPHIC SURVEY NO. H-8919

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET & PNO		1	BOAT SHEETS		2	
DESCRIPTIVE REPORT		1	OVERLAYS		0	
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS / SOURCE DOCUMENTS
ENVELOPES	-	-	-	-	-	-
CAHIERS	1	-	-	-	-	-
VOLUMES	13	-	-	-	-	-
BOXES	-	-	1	-	-	-
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				2277
POSITIONS CHECKED		2277		
POSITIONS REVISED		53		
DEPTH SOUNDINGS REVISED		78		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		26		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		0		
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS		49		
JUNCTIONS		22		
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		283		
SPECIAL ADJUSTMENTS				
ALL OTHER WORK		164		
<b>TOTALS</b>				
PRE-VERIFICATION BY	BEGINNING DATE		ENDING DATE	
VERIFICATION BY <u>F.L. ROSARIO, Cart. Tech.</u>	June 2, 1971		7 April, 1972	
REVIEW BY	BEGINNING DATE		ENDING DATE	



VERIFIER'S REPORT

H-8919 (PF-10-8-66)

This report covers the work done in the 1966 and 1967 field seasons.

A. PROJECT

No descriptive report was available from either the PATHFINDER or SURVEYOR for their position of the survey (1966 field season).

B. AREA SURVEYED

Contrary to the hydrographer's Descriptive Report, H-8883 (1966), which is a combination of PF-20-1-66 and PF-20-2-66, does not form a junction with H-8919.

C. SOUNDING VESSEL

Refers to 1966 Field Season:

Vessel	Color	Position Nos.
SURVEYOR - Motor Launch #6	Purple	6000 Series
PATHFINDER - Motor Launch #3	Green	7000 Series
PATHFINDER - Motor Launch #2	Purple	4000 Series

D. SOUNDING EQUIPMENT

Refers to 1966 Field Season:

Vessel	Type	Serial Nos.
SURVEYOR - Motor Launch #6	Raytheon DE-723 Fathometer	938
PATHFINDER - Motor Launch #3	Raytheon DE-723 Fathometer	552
PATHFINDER - Motor Launch #2	Raytheon DE-723 Fathometer	940

E. SMOOTH SHEET

The signal overlay was plotted by the Gerber Digital Plotter and verified by ship personnel. The position and sounding data was logged by ship personnel with the final smooth sheet being plotted electronically and verified by PMC personnel.

F. SHORELINE

Sheet T-11958 was also used for shoreline delineation on the smooth sheet. T-11959 was reduced from a 1:5,000 scale manuscript.

I. JUNCTIONS

The junction on the east, H-8882 (1965) and on the south, H-8834 (1965), was not completed due to their stages of verification.

Soundings overlapping with H-8966 (1967) agree reasonably but due to the then dissimilar phase of processing, the "coincident" depth curves were not inked.

J. COMPARISON WITH PRIOR SURVEYS

Comparison with prior survey H-5310 (1930-1931) scale 1:20,000, shows reasonably fair agreement. More sounding lines in the inshore area accomplished in the present survey resulted in a not-too-generalized pattern of depth curves as shown on H-5310.

N. STATISTICS

1966 and 1967 Seasons Combined

Total Number of Positions	2277
Total Miles of Sounding Lines	360.9
Square Nautical Miles	17.9

Q. REFERENCES TO REPORTS

Aside from abstracts of actual tides and bar checks taken in 1966, no other report was forwarded from either the PATHFINDER or SURVEYOR.

Respectfully Submitted,

*Felipe L. Rosario*

Felipe L. Rosario  
Carto. Tech.

VERIFIER'S REPORT

H-8919

Reference to Form C&GS 946A

PART VII CURVES

25. Depth curves for the inshore areas weren't drawn completely due to the nature of the live coral reef indicated on the T-sheets.

PART X GENERAL

33. The limits of the coral reef as indicated on the T-sheets weren't shown on the smooth sheet due to their ever-changing formative nature.

PART XI NOTES TO THE REVIEWER

36. No descriptive Report was available from either the PATHFINDER or SURVEYOR for their 1966 field season portion of the survey.

Respectfully Submitted,

*Felipe L. Rosario*

Felipe L. Rosario  
Carto. Tech.

**VERIFIER'S REPORT**  
**HYDROGRAPHIC SURVEY, H-8919**

**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><b>Note:</b> 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 <b>SUPERSEDED</b>.</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><b>Part IV - VOLUMES</b></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:</p> <p>(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><b>Part II - SHORELINE AND SIGNALS</b></p> <p>4. Source of shoreline signals Remarks Required: -- List all surveys <i>T-11958, 11959, 11960</i> a. Give earliest and latest dates of photographs <i>Oct. 1960 - Feb 1962</i> b. Field inspection date <i>Sept. 1962</i> c. Field Edit date <i>May 1964</i> d. Reviewed-Unreviewed</p>	✓				<p><b>Part V - PROTRACTING</b></p> <p>13. All positions verified instrumentally were check marked in color in the sounding records, and verifier initialed the processing stamp. <i>Machine Plotted</i> Remarks Required: -- None</p>	✓
<p>5. The transfer of contemporary topographic information was carefully examined and reconciled with the hydrography. Remarks Required: -- Discuss remaining differences.</p>	✓		<p>14. The protracting and plotting of all unsatisfactory crossings were verified. <i>Machine plotted</i> Remarks Required: -- None</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>15. All detached positions locating critical soundings, rocks, buoys, breakers, obstructions, kelp, etc., were verified and the position numbers are legible. <i>Machine - plotted</i> 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><b>Part III - JUNCTIONS</b></p> <p><b>Note:</b> 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>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>	✓					

Part V - PROTRACTING (Continued)	CL	R	Part VIII - AIDS TO NAVIGATION	CL	R
16. The protracting was satisfactory, except as follows: <i>Machine Plotted</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.	NA.		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. <i>Plastic - protractor</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	✓	
<b>Part VI - SOUNDINGS</b> 18. All soundings are clear and legible, and critical soundings are a little larger than adjacent soundings. <i>Machine - Plotted</i> Remarks Required: -- None	NA.		<b>Part IX - BOATSHEET</b> 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	✓		<b>Part X - GENERAL</b> 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>Machine-plotted</i>	✓		31. Unnecessary pencil notes have been removed from the sheet.  Remarks Required: -- None	✓	
<b>Part VII - CURVES</b> 23. The depth curves have been inspected before inking. Remarks Required: -- By whom was the penciled curves inspected. <i>C.R. Lehman</i>	✓		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	✓	
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			33. The bottom characteristics are adequately shown.  Remarks Required: -- None		✓
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.		✓	<b>Part XI - NOTES TO THE REVIEWER</b> 34. Unresolved discrepancies and questionable soundings.	✓	
Verified by  F. L. Rosario, Cart. Tech.	Date  5 April, 1972	35. Notation of discrepancies with photogrammetric survey inserted in report of unreviewed photogrammetric survey or on copy.	✓		
		36. Supplemental information.		✓	

APPROVAL SHEET

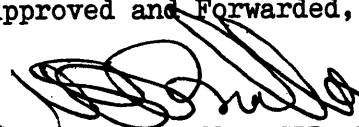
The smooth sheet has been inspected, is complete, and meets the requirements of the General Instructions for automated surveys and the Hydrographic Manual. (Note: All exceptions are listed in the Verifier's Report.)

Examined and approved,

*Cornelius A. J. Paw*

for: William M. Martin  
Supervisory Carto. Tech.

Approved and Forwarded,

  
Walter L. Bradley, CDR, NOAA  
Chief, Processing Division  
Pacific Marine Center



RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-8919

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	5/3/73	C.S. Forber	<del>Full Part Before</del> After Verification <sup>before</sup> Review Inspection Signed Via Drawing No. Examined for critical corrections only
4121	5/31/73	E Frey	<del>Full Part Before</del> After Verification Review Inspection Signed Via Drawing No. Revised several sdgs & depth curves
4102	11/8/73	C.S. Forber	<del>Full Part Before</del> After Verification <sup>before</sup> Review Inspection Signed Via Drawing No. Examined for critical corrections thru 4116 only.
4100	4/19/74	C.S. Forber	<del>Full Part Before</del> After Verification <del>Review Inspection</del> Signed Via Drawing No. Examined for critical corrections thru 4102 - no corrections
4130	10/8/74	E Frey	<del>Full Part Before</del> <del>After Verification</del> Review Inspection Signed Via Drawing No. App'd critical corrections only - Revised same sdgs & depth curves
4130	3/28/75	M.D. KANIS	<del>Full Part Before</del> <del>After Verification</del> Review Inspection Signed Via Drawing No. Re-examined reef AREA - <del>no corrections</del>
4121	9-27-77	C.S. Forbes	Full <del>Part Before</del> After Verification <del>Review</del> Inspection Signed Via Drawing No. Re-examined - added 151 soundings, made minor revisions to curves. Consider final application
4102	11-1-77	C.S. Forbes	Full <del>Part Before</del> After Verification <del>Review</del> Inspection Signed Via Drawing No. Consider application as final.
4179	2-15-77	C.S. Forber	Full <del>Part Before</del> After Verification <del>Review</del> Inspection Signed Via Drawing No. Consider application as final. No additional corrections
4116	1-3-78	M. Sager CAT-I	Full <del>Part Before</del> After Verification <del>Review</del> Inspection Signed Via Drawing No. Examined Verified survey - no corrections consider final application
4120 19851	2-28-84	J. Kull CAT 1	Adequately applied CAT#1 previously only part applied 10-28-81 due to missing DR.