

# 8580

Diag. Cht. No. 4116-2

NOAA FORM 76-35A

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

## DESCRIPTIVE REPORT (HYDROGRAPHIC)

Type of Survey ..... **HYDROGRAPHIC**  
Field No. .... **SU-10-5-61**  
Office No. .... **H-8580**

### LOCALITY

State ..... **HAWAII**  
General Locality ... **MAUI**  
Locality ..... **VICINITY OF HEKILI POINT**

1961

CHIEF OF PARTY  
**Wilbur R. Porter**

### LIBRARY & ARCHIVES

DATE ..... **February 8, 1962**

# 8580

*See 6*  
*CHT*  
4192-19004  
4115-19320  
4116-19340  
4130-19357  
4179-19010  
4180-19013

To C322

*reviewed HDEG*

This ~~Q.S.~~ survey H- 8580  
is submitted for final indication  
on the Standards and examination  
for chart corrections and should  
be returned to Vault. Area Chief,  
please send chargeout slip to  
Vault.

Chief, Marine Surveys Division

**OUT FOR SIGNATURE**

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

REGISTER No. H-8580

Field No. SU-10-5-61

State Hawaii

General locality Maui Island

Locality ~~Southwest Side~~ Vicinity of Hekili Point

Scale 1:10,000 Date of survey 3 - 11 June 1961

Instructions dated 25 October 1960

Vessel Launch #<sup>3</sup>, Launch #6, Motor Whaleboat #2 of the Ship  
SURVEYOR

Chief of party Wilbur R. Porter, CAPT, C&GS

Surveyed by ICDR Holmes, LT Moses, LT Franklin, LTJG Swanson,  
LTJG Collins

Soundings taken by fathometer, graphic recorder, hand lead, wire

Fathograms scaled by Ship's Personnel

Fathograms checked by Ship's Personnel

Protracted by ENS McKee

Soundings penciled by ENS McKee

Soundings in fathoms feet at MLW MLLW

REMARKS:

*Applied to stds 12-72  
CAS.*

*James  
R. G.*

DESCRIPTIVE REPORT  
TO ACCOMPANY  
HYDROGRAPHIC SURVEY H-8580  
(FIELD NO. SU-10-5-61)  
CAPT W. R. PORTER COMDG USC&GSS SURVEYOR  
SCALE 1:10,000  
1961

# # #

A. PROJECT: This survey is part of Project OPR-419. The Original Instructions were dated 25 October 1960 and amended on 14 March 1961.

B. AREA SURVEYED: This survey is located on the South-western side of Maui Island in the State of Hawaii. The central portion of the coast is sandy, while the northern and southern extremes are rocky with the southern portion consisting of rocky bluffs.

The survey incorporates an area along the coast from Latitude 20° 50' 30" to Latitude 20° 47' 09" and varies in width from one and three quarters to one and one half nautical miles.

The survey was begun on 3 June and completed on 11 June 1961.

Junction was made with H-8577<sup>(1961)</sup>, (SU-10-2-61).

C. SOUNDING VESSELS: The sounding vessels for this survey area were obtained as listed by the following data:

Launch #3 of the Ship SURVEYOR - Position 1a thru Position 206c. Color designation - purple

Launch #6 of the Ship SURVEYOR - Position 1-a thru Position 226-c. Color designation - blue

C. SOUNDING VESSELS (Contin.):

Motor Whaleboat #2 of the Ship SURVEYOR - Position 1-a thru Position 188-a. Color designation - red.

D. SOUNDING EQUIPMENT: All soundings were taken by 808A ✓ type fathometers and/or lead lines.

808 Fathometers Used:

Launch #6 - 808 #116

Launch #3 - 808 #67

Motor Whale Boat #2 - 808 #116

Lead lines were used on Launches #3 and #6 only for bottom samples. The soundings obtained by Motor Whale Boat #2 were with lead line and 808 fathometer.

Echo sounder corrections were obtained from bar checks and phase comparisons. No inaccuracies were apparent in the operation of the equipment. see attached letter of Feb. 1, 1962 for correction change

E. SMOOTH SHEET: The smooth sheet for Survey H-8580<sup>(1961)</sup> was drawn and inked by the Washington, D.C., main office, ✓ with a ruling machine. This projection is polyconic. No boat-smooth sheet method of plotting was used.

F. CONTROL: The survey was controlled entirely by visual fixes. The locations of the hydrographic signals were established by means of sextant cuts using triangulation ✓ and topographic stations. Triangulation stations were established by plotting of geographic positions, and topographic stations were established by Topographic Sheets T-11918, T-11919 and T-11920.

The Hydrographic Stations DRY and LOW were established by sextant cuts. These cuts failed to produce a precise position. Each of these positions was established by the smooth plotter on the basis of strength of the cut, logical position and checking the position with the boat sheet.

F. CONTROL (Contin.)

Hydrographic Signals ANA, DIF, PUT, and SAX were established by launch and field cuts. The field and launch cuts were in disagreement. The accepted position was chosen by the smooth plotter on the basis that the field cuts were stronger.

- G. SHORELINE: <sup>See Review</sup> Shoreline detail was established <sup>\* Reviewed surveys applied by verifier</sup> from advanced\*topographic sheets, dated: 12-5-61, T-11918, T-11919, and T-11920. Shoreline and photogrammetric points were verified and no excessive discrepancies were found, except the changes of the reef line and location of coral heads, as shown on the smooth sheet. ✓

The low water line is not <sup>at all</sup> ~~entirely~~ defined because of surf conditions and the control established was not compatible with inshore hydrography. Some work was rejected because of weak fixes in the inshore work.

Motor Whale Boat #2 executed the beach line hydrography because of the shoal water. A complete development was impossible because of the short period the necessary personnel were available. see review report sec. 3

- H. CROSSLINES: The percentage of crosslines run was approximately 14.1%. All crossings, except in one instance, checked within the allowable tolerance of 3% in disagreement and/or acceptable horizontal displacement. \*The one exception is at Latitude 20° 48' 54", Longitude 156° 37' 54". This sounding of 5.7 fathoms looks doubtful. The sounding moves the 6-fathom curve in the opposite direction in relation to the configuration of the 3, 4, 5, and 10 fathom curves. The fathogram was checked for this sounding, Position 106-b, third out of Launch 3, and it agreed with the recorded data. Since the bottom in this area is coral, it is quite possible that the sounding is correct.

\* Sounding agrees with ~~the~~ another 5.7 position 15a blue directly adjacent

I. JUNCTIONS: <sup>See Review</sup> This survey makes a junction with Hydrographic Survey H-8577, <sup>(1961)</sup> (SU-10-2-61). This junction was examined and no excessive discrepancies were found. ✓

J. COMPARISON WITH PRIOR SURVEYS: <sup>See Review</sup> There were no items in the presurvey review within the limits of this survey. ✓  
 The completed smooth sheet was compared with the following prior surveys:

<u>SURVEY</u>	<u>YEAR</u>	<u>SCALE</u>
H-4317	1923	1:10,000
H-4320	1923	1:10,000
H-4461	1925	1:5,000 & 1:1000

The comparison between the smooth sheet and prior surveys H-4320 and H-4461 were in acceptable agreement. The prior survey, H-4317, was in disagreement with the datum and triangulation on the smooth sheet. Holding the corrected datum, (Old Hawaiian) and Triangulation Station KILEA, 1950, on H-4317, a good agreement can be accomplished with the smooth sheet. But in doing the preceding, Station LAUNIUPOKO, 1950 on the smooth sheet will not check its position with the survey H-4317. The triangulation on the smooth sheet was rechecked by the smooth plotter, and no errors were found.

In comparing the depth curves on the smooth sheet, a fair agreement between the 3, 6, and 10 fathom curves was evidenced. In all instances, the 20-fathom curve of the prior survey lay about 1/10 of a mile inside the corresponding curve on the smooth sheet. The breaker and reef lines were in fair agreement.

K. COMPARISON WITH THE CHART: The completed smooth sheet was compared with C&GS Chart #4130 (revised 6/2/58). A good agreement was found in this comparison. <sup>See Review</sup> ✓

L. ADEQUACY OF SURVEY: The survey is complete and adequate ✓  
for charting

M. AIDS TO NAVIGATION: None.

N. STATISTICS:

Total Number of Positions	1827 ✓
Total nautical miles sounding lines	216.52
Total area in square nautical miles	12.74
Total number of sextant cuts	73
Total number of bottom samples	23

Q. REFERENCES TO REPORTS:

1. Special Report - Correction to Echo Soundings, mailed 12 July 1961 ✓
2. Special Report - Oceanography, mailed 25 Oct. 1961

X. MISCELLANEOUS: It is felt that the low water line is inadequate because of stated reasons in Section "G", Shoreline.

In the area of Latitude 20° 47' 29", Longitude 156° 34' 15", a complete definition of the 4, 5, 6 and 10 fathom curves is needed. *Delineation is adequate for present charting purposes.*  
RDS.

Y. MISCELLANEOUS: Hydrography accomplished by Motor Whale Boat #2 on Sheet H-8580 (SU-10-5-61), is labeled on the Boat Sheet as "d" day. This day letter is in error. Motor Whale Boat #2 worked only one day on Sheet H-8580. The correct day letter designated "a" day is shown correctly in the proper sounding volume and on the fathogram and smooth sheet.

Respectfully submitted,

*James E. McKee*  
James E. McKee  
ENS, C&GS  
USC&GS SURVEYOR



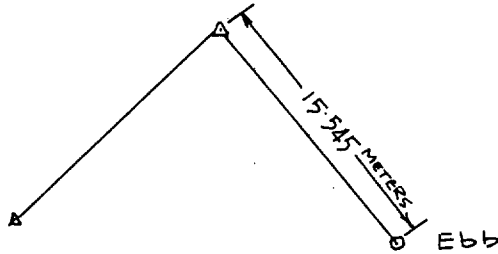
LIST OF SIGNALS ON H-8580, SU-10-5-61

Names Used in Hydrographic Survey

NAME	REFERENCE
LAHAINA SE BASE, 1950	G. P. Old Hawaiian Datum
LAUNIUPOKO, 1950	G. P. Old Hawaiian Datum
KILEA, 1950	G. P. Old Hawaiian Datum
SEW (Hydro Signal, 1950)	G. P. Old Hawaiian Datum
EBB (See note at end of	this list on following page)
ANA	Launch #6, Vol. 1
RIM	T-11918, #1802, W. corner Bridge Rail
PUT	Launch #6, Vol. 1
DIF	Launch #6, Vol. 1
PAW	T-11918, #1801, Lone Palm
SAX	Launch #6, Vol. 1
HEK	T-11919, HEKILI POINT, Pass Point
TIN	T-11919, #1912, SW Gable, Metal-roofed Shed
TIE	Launch #6, Vol. 1
RAP	T-11919, #1910, NW end Guard Rail
AUD	T-11919, End of Pier
COR	T-11919, #1908, East End Concrete Seawall
MOK	T-11919, #1907
TRE	Launch #6, Vol. II
ROD	Launch #6, Vol. II
LAR	Launch #6, Vol. II
END	Launch #6, Vol. II
JIM	T-11919, #1903, NW Corner of Guard Rail
NOZ	Launch #6, Vol. II
WET	Launch #3, Vol. III & IV
POR	T-11920, #2015, NW Corner of Tunnel Portal
DRY	Launch #3, Vol. III & IV
LOW	Launch #3, Vol. III & IV

NOTE:

Location of EBB  
Survey H-8580, SU-10-5-61  
Sextant Cut and Taped Distance  
Lahaina SE Base, 1950



PIONEER STACK, 1950

The G. P. of EBB was computed by calculating the inverse position and azimuth from LAHAINA SE BASE to PIONEER STACK. Then subtracting  $87^{\circ} 07'$  from the azimuth results in an azimuth from LAHAINA SE BASE to EBB.

Using the G. P. of LAHAINA SE BASE and this azimuth, the G.P. of EBB was computed and plotted on the smooth sheet.

These computations are included.

Form 1  
(1-30-56)

POSITION COMPUTATION, FIRST-ORDER TRIANGULATION  
(For calculating machine computation)

$\alpha$	2	SE Base	to 3	Pioneer Stack	148	01	30.21	$\alpha$	3	to 2
$247$				$+ 84$		07	00	$347$		
$\alpha$	2	SE Base	to 1	EBB	63	54	30	$\alpha$	3	to 1
$\Delta\alpha$								$\Delta\alpha$		
$\alpha'$	1		to 2		180	00	00.00	$\alpha'$	1	to 3
First Angle of Triangle										
$\phi$	20	50	26.725	2	SE Base	$\lambda$	156	39	07.390	$\phi$
$\phi'$	20	50	26.503	1	EBB	$\Delta\lambda$			0.483	$\phi'$
$\Delta\phi$						$\lambda'$	156	39	07.873	$\phi'$
$\Delta\phi$										
$\sin \alpha$										
$\cos \alpha$										
$x = s \sin \alpha$										
$y = -s \cos \alpha$										
$s = (x'/10,000)^2$										
$y \text{ cor.} = +fs$										
$y_0$										
$y'$										
$y_1$										
$V_0$										
$y_2$										
$V$										
$K (V_0/1,000)^2 +$										

INVERSE POSITION COMPUTATION  
(By calculating machine)

50

$\phi$	20 56 26.725	1. LAHAINA SE BASE	$\lambda$	156 39 07.390
$\phi'$	20 52 54.096	2. LAHAINA PIONEER STACK	$\lambda'$	156 40 45.278
$\Delta\phi$	+ 02 27.371		$\Delta\lambda$	+ 01 37.888
$\phi_m$	20 51 40.410		$\Delta\lambda$ (in secs.)	97.888
$\Delta\phi$ (in sec.)	147.371		Arc-sin cor. ( $\Delta\lambda$ )	-
$v$	2,305,309.843		$H_m$	.034592826
$v'$	2,309,841.899		$s_1 \sin A$	28 29.7207
$\Delta v$	4,532.056		$s_1$	5342.925
Arc-sin cor. ( $\Delta\phi$ )	- .213* - .495*		$\sin A$	+ .52962001
$\cos \frac{\Delta\lambda}{2}$	- .282*		$\cos A$	- .84823500
$s_1 \cos A$	4,532.056		$A$	31 58 47.22
$\Delta\lambda$ (in sec.)	97.888		$\alpha_m$	148 01 12.78
$\sin \phi_m$	.35610569	$\frac{\Delta\alpha}{2}$	00 00 17.43	
$\sec \frac{\Delta\phi}{2}$	+ *	$\alpha$ (1-2)	148 01 30.21	
$\Delta\alpha$ (approx.)	34.858	$\alpha'$ ( <del>2-1</del> )	328 00 55.35	
$F(\Delta\lambda)^2$	+	$\sin$ -arc cor. ( $s_1$ )	+	
$\Delta\alpha$	34.858	$s$	*	
$\frac{\Delta\alpha}{2}$	00 00 17.43			

Formulas:

$$s_1 \sin A = \frac{\Delta\lambda_1}{H_m}, \quad s_1 \cos A = (\Delta v_1) \cos \frac{\Delta\lambda}{2}, \quad s_1 = \sqrt{(s_1 \sin A)^2 + (s_1 \cos A)^2}$$

$$\Delta\lambda_1 = \Delta\lambda + \text{arc-sin cor.}, \quad \Delta v_1 = \Delta v + \text{arc-sin cor. (for } \Delta\phi)$$

A is mean acute angle with meridian.

$$\text{Arc-sin cor. for } \Delta\phi = -\left(\frac{\Delta\phi}{100}\right)^2 / 10.211^*, \quad \text{for } \Delta\lambda = -\left(\frac{\Delta\lambda}{100}\right)^2 / 10.211^*$$

$$\text{sin-arc cor. for } s_1 = +\left(\frac{s_1}{10,000}\right)^2 / 0.9794^*$$

$$\cos \frac{\Delta\lambda}{2} = +3 \times \text{arc-sin cor. for } \Delta\lambda^*$$

$$\sec \frac{\Delta\phi}{2} = -3 \times \text{arc-sin cor. for } \Delta\phi^*$$

$$s = s_1 + \text{sin-arc cor.}$$

Notes:

All correction terms may be omitted for  $\Delta\phi$  or  $\Delta\lambda$  or both up to 6'. That is consistent with maintaining an accuracy of 0.0002 in position. For lines over 100,000 meters long, the computation should be made on the direct form to obtain desirable accuracy.

The angle A should be taken out for  $\sin A$  or  $\cos A$ , whichever is the smaller. The other is used as a check.

The sign of  $\Delta\alpha/2$  is determined from the fact that the easterly station always has the larger angle with the meridian.

\* These values are all expressed as corrections to unity in seventh decimal place.

### TIDE NOTE

The tide gage used for this survey; i.e., H-8580, was the portable automatic type, and was established by the USC&GSS SURVEYOR on 2 May 1961. This gage was located at Lahaina, Maui Island, Hawaii, on the Mala Wharf. Latitude  $20^{\circ} 53.4'$ , Longitude  $156^{\circ} 41.4'$ . The soundings were reduced to MLLW, which was 1.4 feet on the tide gage staff. No time zone or height difference were applied to the station values as per instructions. The time Meridian was  $150^{\circ}$  W.

## APPENDIX "A"

OPR 419

## LAUNCH FATHOMETER FINAL FATHOMETER CORRECTIONS

FATH. NO.	MEAN INDEX CORR (FMS) (1) (From Sheet A)	INITIAL CORRECTION (FMS) (2)	FINAL BAR CHECK CORR (FMS) (3)
67	0.0	-0.1	-0.1
116	-0.2	-0.1	-0.3
55	-0.2	-0.1	-0.3
72-S	+0.1	-0.1	0.0
26	-0.1	-0.1	-0.2

APPENDIX A

PROJECT OPR-419 - HAWAIIAN ISLANDS

LAUNCH FATHOMETER INDEX CORRECTIONS

*Vel corr from abstract applied to all sigs (col. 3 in volumes), subtracted here to depths of bar check, thus cancelling out vel corr. to bar check depths.*

FATH. NO. (808)	(1) BAR CHECK DEPTH FMS	(2) FATHOMETER DEPTH FMS	(3) BAR CHECK CORR (1-2)	(4) VELOCITY CORR FMS	(5) INDEX CORR (3+4)	
67	2	2.051	-0.05	0	-0.05	AVE = 0.0
	4	3.929	+0.07	-0.1	-0.03	
	6	5.782	+0.22	-0.2	+0.02	
	8	7.683	+0.32	-0.3	+0.02	
116	2	2.118	-0.12	0	-0.12	AVE = -0.2
	4	4.100	-0.10	-0.1	-0.20	
	6	5.969	+0.03	-0.2	-0.17	
	8	7.873	+0.13	-0.3	-0.17	
55	2	2.16	-0.16	0	-0.16	AVE = -0.2
	4	4.08	-0.08	-0.1	-0.18	
	6	5.95	+0.05	-0.2	-0.15	
72-S	2	2.012	-0.01	0	-0.01	AVE = +0.1
	4	3.838	+0.16	-0.1	+0.06	
	6	5.662	+0.34	-0.2	+0.14	
	8	7.488	+0.51	-0.3	+0.21	
26	2	2.2	-0.2	0	-0.2	AVE = -0.1
	4	4.0	0	-0.1	-0.1	
	6	5.9	+0.1	-0.2	-0.1	
	8	7.8	+0.2	-0.3	-0.1	

NOTES:

Sheet A-COLUMN No. 2 shows the average of all Fathometer readings at each corresponding Bar Check Depth listed in Column No. 1. The final average correction is shown in Column No. 5.

SHEET A1 - INITIAL CORRECTION: The Initial for each Launch Fathometer was kept at 0.5 FM. During the entire project. The actual Transducer Depth on all Launches was measured as 0.4 FMs, therefore, a constant initial correction, Column No. 2 \*(-0.1 FM) was applied.

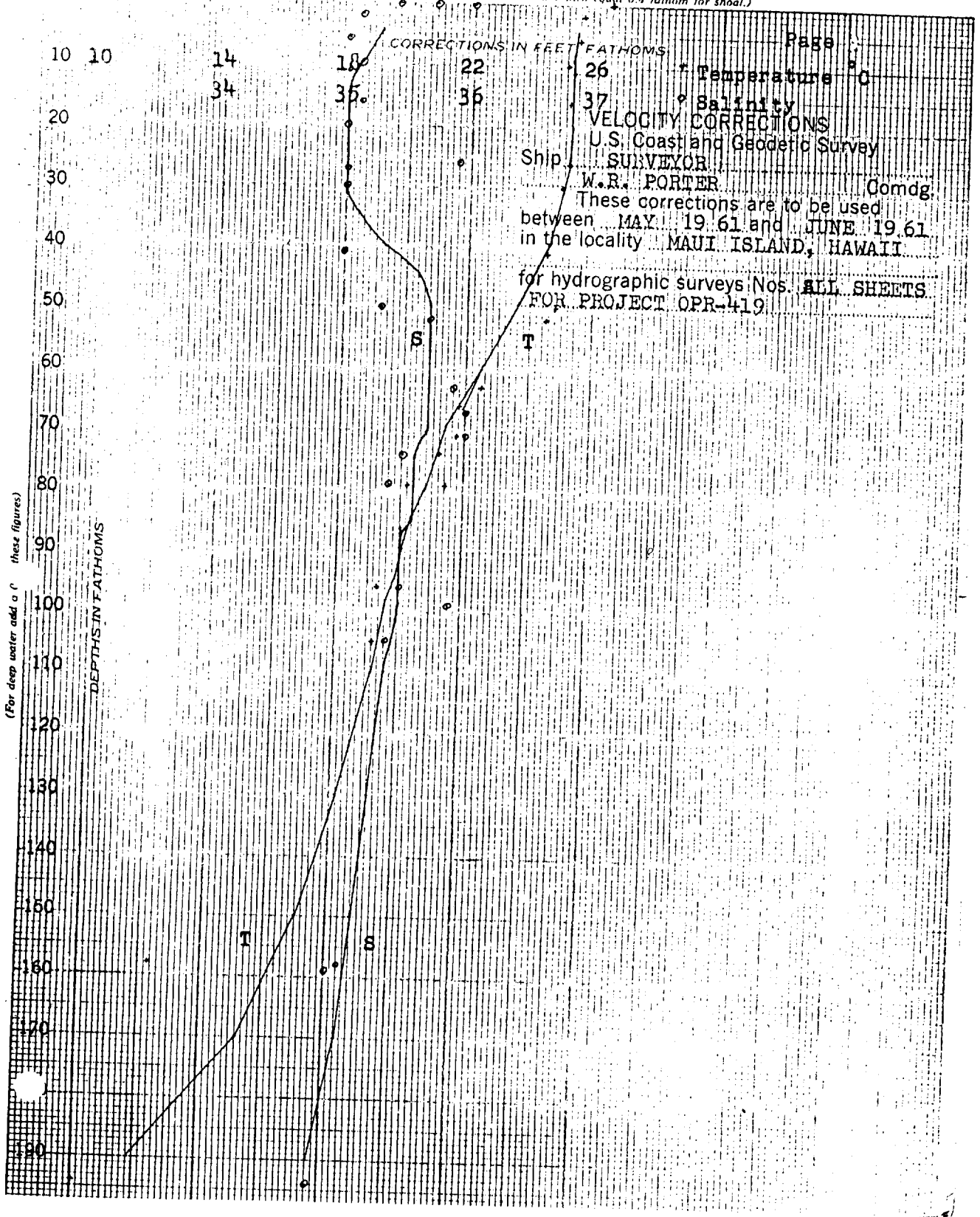
The final Bar Check Correction, Column No. 3, was entered in the record volumes as a constant for each fathometer. this correction was entered in the sounding volume under the heading LEADLINE.

\* should have been applied only to soundings greater than maximum bar check depth. DE.





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



Page

Temperature °C

Salinity

VELOCITY CORRECTIONS

U.S. Coast and Geodetic Survey

Ship SURVEYOR

W.R. PORTER

Comdg.

These corrections are to be used between MAY 19 61 and JUNE 19 61 in the locality MAUI ISLAND, HAWAII.

for hydrographic surveys Nos. ALL SHEETS FOR PROJECT OPR-419

(For deep water add to these figures)

DEPTHS IN FATHOMS

CORRECTIONS IN FEET FATHOMS

10 10

14 34

18 35

22 36

26 37

20

30

40

50

60

70

80

90

100

110

120

130

140

160

180

170

190

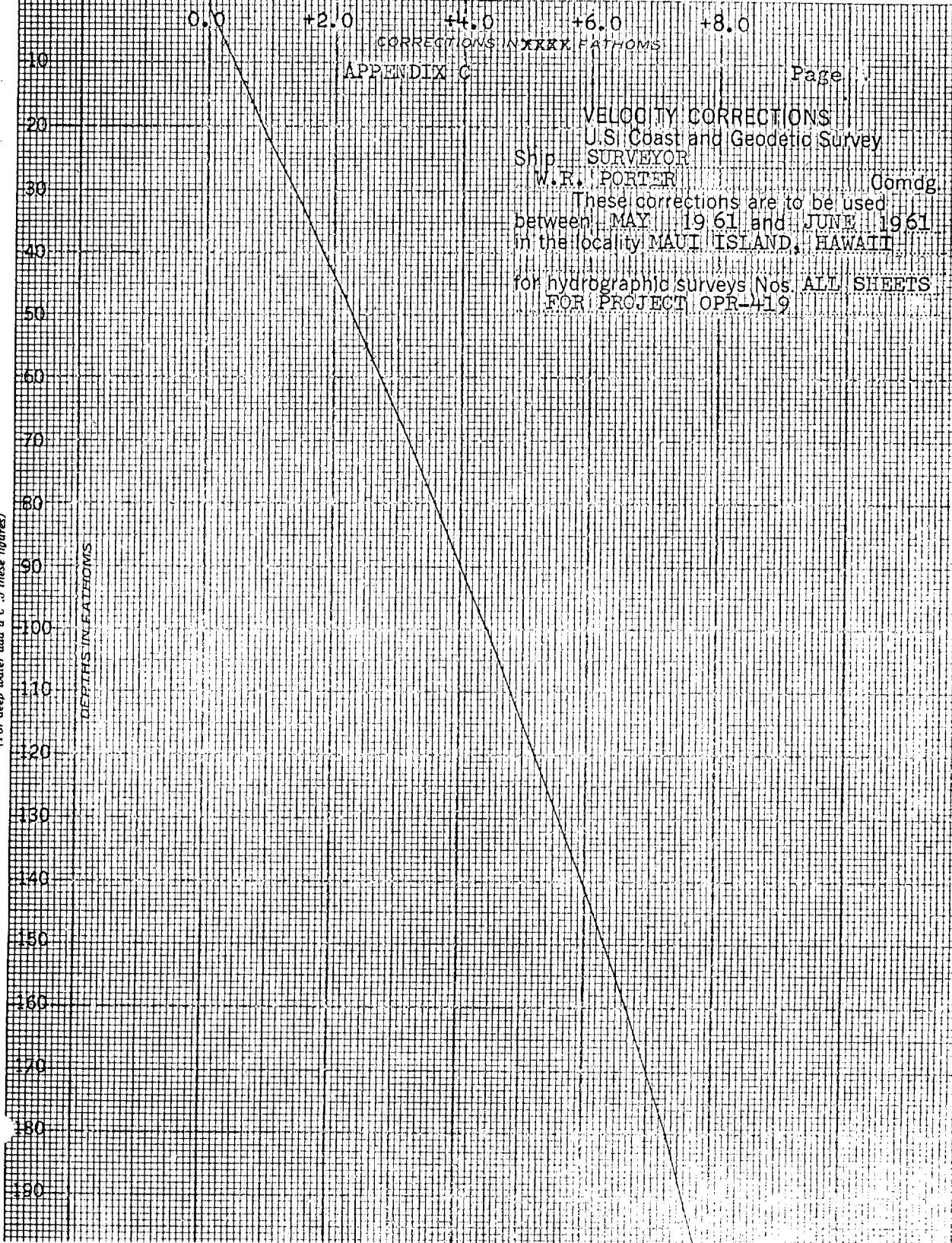
S

T

T

S

(For deep water add a zero to these figures)



APPENDIX C

Page

VELOCITY CORRECTIONS

U.S. Coast and Geodetic Survey

Ship SURVEYOR

W.R. PORTER

Comdg.

These corrections are to be used  
between MAY 1961 and JUNE 1961  
in the locality MAUI ISLAND, HAWAII

for hydrographic surveys Nos. ALL SHEETS  
FOR PROJECT OPR-419

APPENDIX "C"

PROJECT OPR 419

TABLATED VELOCITY CORRECTIONS

ALL LAUNCHES			SHIP		
Recorded Depth (FMS)	Depth	Vel. Corr. (FMS)	Recorded Depth (FMS)	Depth	Vel. Corr. (FMS)
0.0	- 2.0	0.0	0.0	- 18.0	0
2.1	- 4.0	+0.1	18.1	- 40.0	+1
4.1	- 7.0	+0.2	40+	- 60	+2
7.1	- 9.0	+0.3	60+	- 84	+3
9.1	- 11.0	+0.4	84+	- 109	+4
11.1	- 13.0	+0.5	109+	- 135	+5
13.1	- 16.0	+0.6	135+	- 163	+6
16.1	- 18.0	+0.7	163+	- 195	+7
18.1	- 21.0	+0.8			
21+	- 23	+0.9			
23+	- 24	+1.0			
24+	- 27	+1.1			
27+	- 29	+1.2			
29+	- 31	+1.3			
31+	- 33	+1.4			
33+	- 36	+1.5			
36+	- 38	+1.6			
38+	- 40	+1.7			
40+	- 42	+1.8			
42+	- 44	+1.9			
44+	- 47	+2.0			
47+	- 49	+2.1			
49+	- 51	+2.2			
51+	- 52	+2.3			
52+	- 55	+2.4			
55+	- 57	+2.5			

## TIDE REDUCERS - SHEET FIELD NOS:

SU-40-1-61 (Part)

SU-40-2-61 (Part)

SU-10-2-61

SU-10-3-61

SU-10-5-61

SU-05-2-61

ZONE NO. 1 Latitude 20° 45' N. to Latitude 21° 00' N.

GAGE LOCATION: Lahaina, Maui

RANGE FACTOR: None

TIME FACTOR: None

CORR.	FROM	TO	CORR.	FROM	TO
	2 MAY			12 MAY, Contin.	
0	0700	1155	-0.3	1511	1715
-0.1		1315	-0.2		1825
-0.2		1425	-0.1		2320
-0.3		1550		13 MAY	
-0.4		1900	0.0	0610	1020
	3 MAY		-0.1		1125
-0.1	0620	0845	-0.2		1230
0.0		1225	-0.3		1350
-0.1		1350	-0.4		1645
-0.2		1500		15 MAY	
-0.3		1635	-0.1	0445	0650
-0.4		1930	0.0		1115
	4 MAY		-0.1		1220
-0.1	0600	0925	-0.2		1300
0.0		1320	-0.3		1430
-0.1		1440	-0.4		1630+
-0.2		1600		16 MAY	
-0.3		1800	-0.1	0535	0730
	5 MAY		0.0		1140
-0.1	0000	1020	-0.1		1245
0.0		1340	-0.2		1345
-0.1		1530	-0.3		1505
-0.2		1710	-0.4		1935
-0.3		1900		17 MAY	
	6 MAY		-0.2	0100	0720
-0.1	0050	1200	-0.1		0945
0.0		1400	0.0		1100
-0.1		1635	-0.1		1240
-0.2		1835	-0.2		1350
	7 MAY		-0.3		1525
-0.2	0900	1100	-0.4		1800+
-0.1		1745		18 MAY	
	8 MAY		-0.1	0800	1300
-0.1	0650	0940	-0.2		1430
-0.2		1345	-0.3		1620
-0.1		1905	-0.4		2040
	9 MAY			2 JUNE	
0.0	0745	1000	-0.2	0200	0820
-0.2		1540	-0.1		1315
-0.1		2000	-0.2		1430
	10 MAY		-0.3		1605
0.0	0525	0810	-0.4		2115
-0.1		0950		3 JUNE	
-0.2		1135	-0.2	0600	0925
-0.2		1500	-0.1		1420
-0.1		1700	-0.2		1545
	11 MAY		-0.3		1720
0.0	0535	0900		4 JUNE	
-0.1		1020	-0.2	0600	1140
-0.2		1145	-0.1		1440
-0.3		1615	-0.2		1700
-0.2		1800		5 JUNE	
	12 MAY		-0.1	0140	0715
0.0	0535	0950	-0.2		1800+
-0.1		1050		6 JUNE	
-0.2		1155	-0.1	0210	0755
-0.3		1400	-0.2		1020
-0.4		1510	-0.3		1230
			-0.2		1920

TIDE REDUCERS - SHEET FIELD NOS: SU-40-1-61 (part), SU-40-2-61 (part),  
 SU-10-2-61, SU-10-3-61, SU-10-5-61,  
 SU-05-2-61

CORR.	FROM	TO	CORR.	FROM	TO
	7 JUNE				
-0.1	0300	0820			
-0.2		1025			
-0.3		1510			
-0.2		1900+			
	8 JUNE			12 JUNE	
-0.1	0500	0910	-0.1	0605	1115
-0.2		1040	-0.2		1220
-0.3		1630	-0.3		1325
-0.2		2240	-0.4		1445
	9 JUNE		-0.5		1710
0.0	0530	0800		13 JUNE	
-0.1		0945	-0.1	0645	1135
-0.2		1100	-0.2		1240
-0.3		1230	-0.3		1350
-0.4		1545	-0.4		1530
-0.3		1730	-0.5		1730
-0.2		1900	-0.4		1915
	10 JUNE			14 JUNE	
-0.1	0430	0950	-0.2	0000	0740
-0.2		1100	-0.1		1140
-0.3		1220	-0.2		1310
-0.4		1645	-0.3		1415
-0.3		1820	-0.4		1600
	11 JUNE		-0.5		1800
-0.1	0440	1010		15 JUNE	
-0.2		1120	-0.2	0000	0820
-0.3		1230	-0.1		1200
-0.4		1410	-0.2		1330
-0.5		1600+	-0.3		1500
			-0.4		1700
				16 JUNE	
			-0.2	0230	0900
			-0.1		1240
			-0.2		1420
			-0.3		1545
			-0.4		1735

REDUCERS TAKEN FROM MAKENA STATION  
 12 - 16 JUNE (TIME & RANGE FACTORS  
 APPLIED)

APPROVAL SHEET

This smooth sheet and all accompanying records have been inspected by me and are approved. I consider this survey adequate and complete, and no additional field work is recommended.



Wilbur R. Porter  
CAPT, C&GS  
Commanding

# Memorandum

*John*  
*214*  
832  
22

TO : The Director

DATE: Feb. 1, 1962

FROM : C. O., USC&GSS SURVEYOR

SUBJECT: Leadline Corrections OPR-419

Upon completion of putting the soundings on Sheet H-8581, it was realized that the inshore soundings determined by MWB No. 2 were in error. The Soundings indicate that the reef around Lahaina, Maui became bare at low tide. This was not observed at anytime during the process of hydrography.

The situation was investigated and it was found that the fathometer correction (including initial correction, draft correction and machine error) were computed on the basis that the fathometer was installed in a launch. This would not be correct primarily because of the difference in the draft of the launch and whaleboat. The following bar check was found in MWB No. 2's sounding volumes to verify our beliefs:

Fath. No. 116	TRUE DEPTH	RECORDED DEPTH	✓
	12.0'	12.5'	

Using this comparison the correction entered under Leadline Correction (initial correction, draft correction and machine error) in the volumes should be -0.5 feet or -0.1 fathom instead of the recorded -0.3 fathom. This makes the soundings which were in question more reasonable.

It is the purpose of this memorandum to bring to your attention that Sheet Number H-8580 already sent for verification has the same error in the work done by MWB No. 2. This should be corrected in the record book and on the smooth sheet.

*Corrected by Verifier*

Wilbur R. Porter  
CAPT, C&GS  
Commanding

GEOGRAPHIC NAMES

Survey No. H-8580

Name on Survey											BGN	
	A	B	C	D	E	F	G	H	K			
LAUNIUPOKO POINT	✓											1
OLOWALU	✓									✓		2
HEKILI POINT	✓											3
MOPUA												4
												5
												6
												7
												8
												9
												10
												11
												12
												13
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												26
												27

*George M. Bane*  
*Geographic Names*  
*April 19, 1862*



Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. 8580.....

Records accompanying survey: Smooth sheets <sup>✓</sup> 1....;  
 boat sheets 1...; sounding vols. 7.....; wire drag vols. ....;  
 Descriptive Reports 1...; graphic recorder envelopes 3...;  
 special reports, etc. ~~Buoys 11918, 11919 & 11920;~~.....  
 1. Cahier. 17 folders, Velocity of Sound Correction Data filed  
 with H-8578.

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

Number of positions on sheet	.....	1827
Number of positions checked	.....	390
Number of positions revised	.....	100
Number of soundings revised (refers to depth only)	.....	25
Number of soundings erroneously spaced	.....	20
Number of signals erroneously plotted or transferred	.....	5
Topographic details	Time	4
Junctions	Time	24
Verification of soundings from graphic record	Time	30
Special adjustments	Time	100

Verification by *Jeanette McCannor* Total time 300 Date 8/14/70  
*D.R. Engle* 8 8-18-70

Reviewed by *Kuss Larson* Time 76 Date 12/12/72  
*Fannie B. Powers* 53 hrs 4-13-73

Inspected by *R. D. S. ...* 40 hrs 5 Nov 1976  
*D. R. Engle* 19 hrs 5-5-78

# TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Coastal Surveys~~

May 14, 1962

Division of Charts: R. H. Carstens

Plane of reference approved in  
7 volumes of sounding records for

HYDROGRAPHIC SHEET 8580

Locality Maui Island, Hawaii

Chief of Party: W. R. Porter (1961)  
Plane of reference is mean lower low water reading  
1.4 ft. on tide staff at Lahaina, Maui Island  
9.6 ft. below B. M. 1 (1931)

Height of mean high water above plane of reference is: 1.5 feet.

Condition of records satisfactory except as noted below:

*J. M. Symons*  
Chief, Tides and Currents Branch  
~~Chief, Division of Tides and Currents~~

H-8580

Items for Future Presurvey Reviews

The bottom is considered adequately developed except for the areas mentioned in part 3 of the Review Report.

<u>Position Index</u>		<u>Bottom Change Index</u>	<u>Use Index</u>	<u>Resurvey Cycle</u>
<u>Lat.</u>	<u>Long.</u>			
204	1564	2	1	50 years

OFFICE OF MARINE SURVEYS AND MAPS

MARINE SURVEYS DIVISION

HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-8580

FIELD NO. SU-10-5-61

Hawaii, Maui, Vicinity of Hekili Point

SURVEYED: June 3-11, 1961

SCALE: 1:10,000

PROJECT NO.: OPR-419

SOUNDINGS: 808A-Depth Recorders,  
Lead Line

CONTROL: Sextant Fixes on  
Shore Signals

Chief of Party .....	W. R. Porter
Surveyed by .....	A. C. Holmes
.....	R. E. Moses
.....	R. W. Franklin
.....	R. L. Swanson
.....	J. Collins
Protracted by .....	J. E. McKee
Soundings Plotted by .....	J. E. McKee
Verified and Inked by .....	J. M. O'Connor
Reviewed by .....	K. A. Larson and F. B. Powers
.....	Date: January 25, 1973
Inspected by .....	R. D. Sanocki

1. Description of the Area

This is an inshore survey located on the west side of Maui, including the coastline between Launiupoko Point on the northwest, longitude 156°33.5' on the southeast, and extending approximately 1.5 to 2 miles offshore.

Coral ledge fringes most of the shoreline in the southern half of the survey area. The bottom slopes gradually from the shoreline to depths of 30 to 40 fathoms at the outer edge of the sheet. Relatively few irregularities in the bottom are evident.

The predominant bottom characteristics are coral and fine sand.

2. Control and Shoreline

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

The shoreline originates with reviewed photogrammetric manuscripts T-11918 (1960-61), T-11919 (1960-61), and T-11920 (1960-62).

### 3. Hydrography

- a. Depths at crossings are in adequate agreement.
- b. The usual depth curves were adequately delineated except the low water line which was not defined because of surf conditions. The verifier added a 35-fathom curve in brown to define some bottom features.
- c. The development of the bottom configuration and the investigation of least depths are considered adequate except in the area along the shoreline between longitude  $156^{\circ}36.5'$  and longitude  $156^{\circ}37.3'$ , outside the indicated reef limits, where coral heads were indicated but the bottom was not developed.
- d. The photogrammetric delineation of the alongshore reef is in conflict with hydrography. However, hydrography is not definitive. Sufficient development along the reef limits would have been desirable.

### 4. Condition of Survey

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

- a. Many weak angles were used for sextant fixes in nearshore areas and consequently many positions were rejected during smooth plotting. However, during verification, some of those positions were found useful and were replotted.
- b. Compass headings were not indicated while running alongshore hydrography. Such headings would have aided the smooth plotter where weak sextant fix angles were observed.
- c. Check angles were not observed as required for detached positions to locate offshore rocks.

### 5. Junctions

Adequate junctions were effected with H-8577 (1961) on the north, with H-8583 (1961) to the west, and with H-8680 (1962) on the southeast.

### 6. Comparison with Prior Surveys

a. H-2459 (1901) 1:60,000

This small-scale reconnaissance survey is considered to be superseded by the prior surveys listed below and further discussion is unnecessary.

b. H-4317 (1923) 1:10,000  
H-4320 (1923) 1:10,000  
H-5297 (1931-32) 1:40,000

These surveys taken together cover the area of the present survey. A comparison between the present and prior surveys reveals a general agreement in the depiction of the bottom configuration. The present survey, however, is generally shoaler from 1/2 to 6 fathoms. The greater amount of shoaling is evident in depths near 30 fathoms and deeper. These differences are attributed to improved survey methods of the present survey and to natural bottom change. Several bottom characteristics and depths were brought forward from the above prior surveys to supplement the present survey. With those additions the present survey is adequate to supersede the prior surveys within the common area.

c. H-4461 (1925) 1:5,000 and 1:1,000

This survey covers the area in the vicinity of Olowalu wharf in considerable detail. A comparison between the prior and present surveys reveals the depths of the 1:5,000-scale portion of the prior survey to be in good agreement with present survey, and the 1:1,000-scale portion in the immediate vicinity of Olowalu wharf to cover an area not developed by the present survey. The present survey should be given precedence for charting and may be supplemented as necessary by soundings from the prior survey.

7. Comparison with Chart 4125, 3rd Edition (latest print date 12/18/71)  
Chart 4130, 7th Edition (latest print date 1/30/71)a. Hydrography

The charted hydrography on chart 4130 originates with the previously discussed prior surveys which require no further consideration, supplemented by the partial application of information from the present survey boat sheet and smooth sheet before verification and review. The charted hydrography on chart 4125 originates entirely with the smooth sheet of the present survey before verification and review. ✓ rtm

(1) The 3 fathoms 3 feet sounding charted on chart 4125 in latitude  $20^{\circ}49'52''$ , longitude  $56^{\circ}38'42''$  is erroneously charted and should be changed to 8 fathoms 5 feet in accordance with the present survey. ✓ rtm

(2) The coral reef between longitude  $56^{\circ}33.75'$  and  $56^{\circ}37.75'$  is symbolized on the photogrammetric manuscript and in some areas on the chart as awash or uncovered at sounding datum. The hydrographic data is in conflict with this inasmuch as no low water depths were found on the reef. The reef was therefore shown on the smooth sheet as submerged and should be charted accordingly.

It is further noted that the sunken rock symbols charted in approximate latitude  $20^{\circ}50.25'$ , longitude  $156^{\circ}39.20'$  and in approximate latitude  $20^{\circ}48.60'$ , longitude  $156^{\circ}34.4'$  to  $37.5'$  symbolize areas of coral heads and are not actual positions of individual heads.

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

b. Aids to Navigation

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

8. Compliance with Instructions

This survey adequately complies with the project instructions.

9. Additional Field Work

This survey is considered to be an adequate basic survey and no additional field work is recommended.

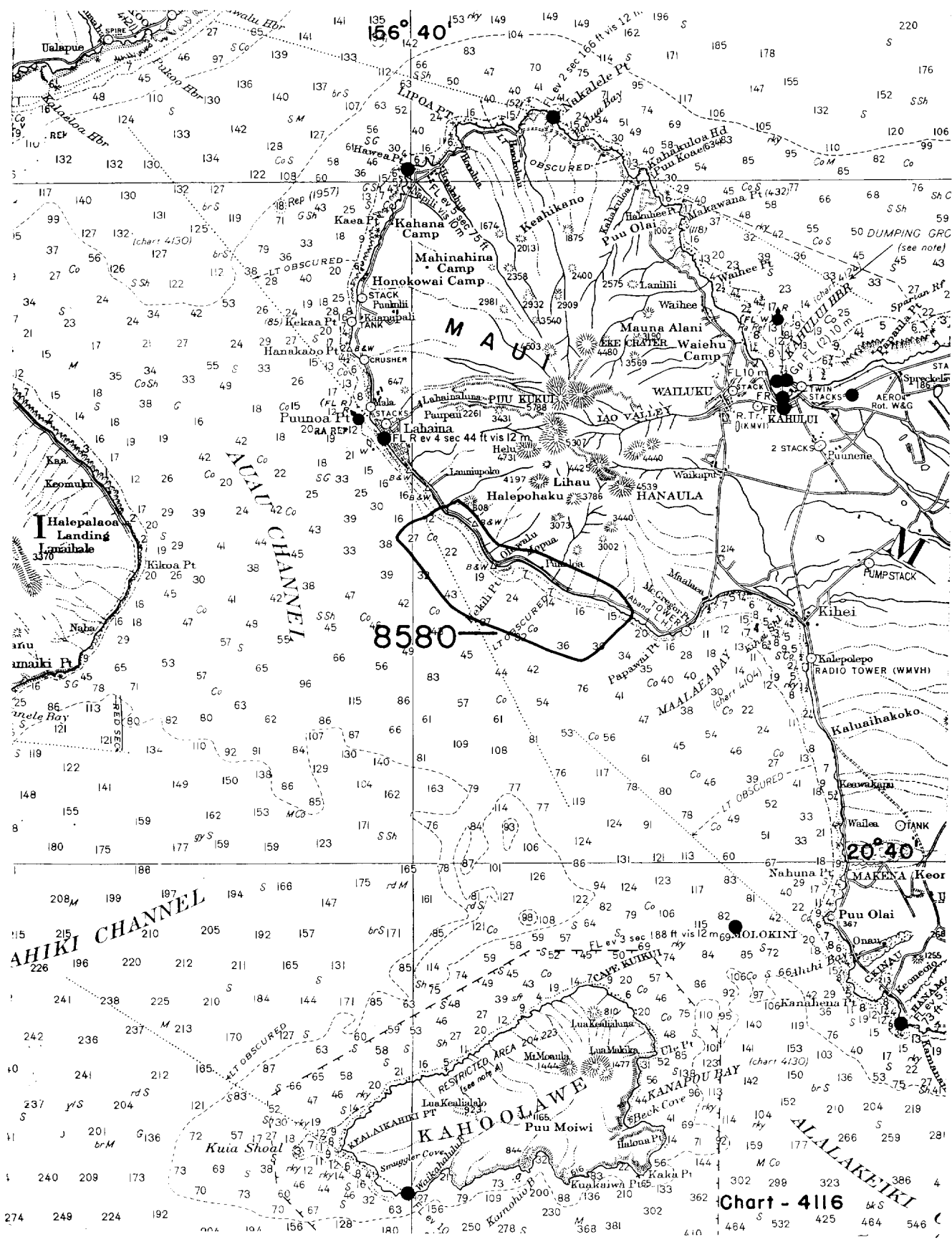
Examined and Approved:



Chief  
Marine Surveys Division



Associate Director  
Office of Marine Surveys  
and Maps





# NAUTICAL CHARTS BRANCH

SURVEY NO. 8580

## Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
2-20-62	4130	<i>E. J. W. Horgan</i>	Before <del>After</del> Verification and Review <i>Exam No 2168</i> <span style="float: right;"><small>3 outside 1955 rev.</small></span>
2-20-62	4116	<i>E. J. W. Horgan</i>	Before <del>After</del> Verification and Review <i>Exam No 2168</i> <i>+ thru ch 4130</i>
3-31-62	4102	<i>J. J. Streifler</i>	Before <del>After</del> Verification and Review <i>Examined only</i>
5-3-62	4179	<i>J. J. Streifler</i>	Before <del>After</del> Verification and Review <i>Examined only</i>
6-14-63	4115	<i>R. R. House</i>	Before <del>After</del> Verification and Review <i>Exam No</i> <i>critical corrections</i>
4-10-64	4180	<i>E. J. W. Horgan</i>	Before <del>After</del> Verification and Review <i>Exam</i> <i>No Corr thru ch 4116 Drug # 13</i>
11-10-73	4102	<i>C. S. Fahn</i>	<del>Before After</del> Verification and Review <i>before inspection</i> <i>No corr</i>
3/28/75	4130	<i>M. D. Kamin</i>	<del>Before After</del> Verification and Review <i>before inspection</i> <i>EXAMINED for reef + ledge only</i>
6-3-75	4116	<i>A. J. Brawski</i>	<del>Before After</del> Verification and Review <i>before inspection</i> <i>Examined Thru ch. 4130! Added Sunken Reef</i>
8/9/75	4115	<i>Nator</i>	<del>Before After</del> Verification and Review <i>Revised 10fm. Curve</i>
8/11/75	4102	<i>Nator</i>	<i>Added sunken reef thru 4116</i> <i>Part After Review Revised 10fm curve thru 4116</i>
<del>4/4/75</del>	<del>4100</del>	<del>Kanis</del>	<del>Part App after Review thru chart 4102</del> <del>No corrections</del>
8/29/75	4179	<i>HAUSMAN</i>	<i>PART After Rev Revised 10fm curve thru 4102</i> <span style="float: right;"><small>Deleted sands, 10</small></span>
4/23/76	4180	<i>Kanis</i>	<i>Part Application After Review - Examined</i> <i>review of chart 4116 for critical corrections - NO COR.</i>
5/1/79	4125	<i>Nator</i>	<i>Full after Signature to Drug 6</i>
6/13/73	<i>(4120) 14347</i>	<i>Lichner</i>	<i>Full after Signed Drug 20.</i> <span style="float: right;"><small>Fully applied hydro through 14346 Drug No 6 in common area applied directly to 14347 outside the common area, m-2168-1</small></span>

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

