

# 9308 a & b

Diag. Cht. No. 4115

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.	RA-5-2-72 & RA-5-5-72
Office No.	H-9308a & b
LOCALITY	
State	HAWAII
General Locality	WEST COAST, HAWAII
Locality	KEALAKEKUA BAY (9308a) KEAUHOU BAY (9308b)
1972	
CHIEF OF PARTY G.E. Haraden	
LIBRARY & ARCHIVES	
DATE	Dec. 11, 1975 (9308a) Nov. 12, 1975 (9308b)

9308 a & b

Area 6

Cat

4115

9308

11

12

9308 b

Diag. Cht. No. 4115

NOAA FORM 76-35A  U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY  <b>DESCRIPTIVE REPORT</b> (HYDROGRAPHIC)	
<i>Type of Survey</i> .....	HYDROGRAPHIC
	RA-5-5-72
<i>Field No.</i> .....	
	H-9308 b
<i>Office No.</i> .....	
<b>LOCALITY</b> HAWAII <i>State</i> .....	
WEST COAST, HAWAII <i>General Locality</i> .....	
KEAUHOU BAY <i>Locality</i> .....	
<hr/> 19 72 <hr/> CHIEF OF PARTY G.E. Haraden	
<b>LIBRARY &amp; ARCHIVES</b>  DATE .....	
November 12, 1975	

9308 b

H-9338<sup>0</sup>B

HYDROGRAPHIC TITLE SHEET

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.

RA-5-5-72

State HAWAII

General locality <sup>WEST</sup> KONA COAST, HAWAII ~~ISLAND~~

Locality KEAUHOU BAY

Scale 1:5,000 Date of survey 27 SEP - 5 OCT 1972

Instructions dated 20 JUNE 1972 Project No. OPR-419-RA-72

Vessel NOAA Ship RAINIER and Launches RA-3 and RA-4

Chief of party CAPT. G.E. HARADEN  
LTJG R.A. SCHIRO, ENS. R.G. HENDERSHOT, ENS. M. McCASLIN

Surveyed by CST. P. WOODARD

Soundings taken by echo sounder, ~~hand lead, pole~~ RATHEON Model DE-723 (SN: 834)  
XXXXXXXXXROSS Model 5000 (SN: 1041)

Graphic record scaled by Ship's Personnel

Graphic record checked by Ship's Personnel

Positions verified  
Plotted by F.L. ROSARIO Automated plot by Gerber Digital Plotter

Soundings <sup>verified</sup> ~~plotted~~ by F.L. ROSARIO

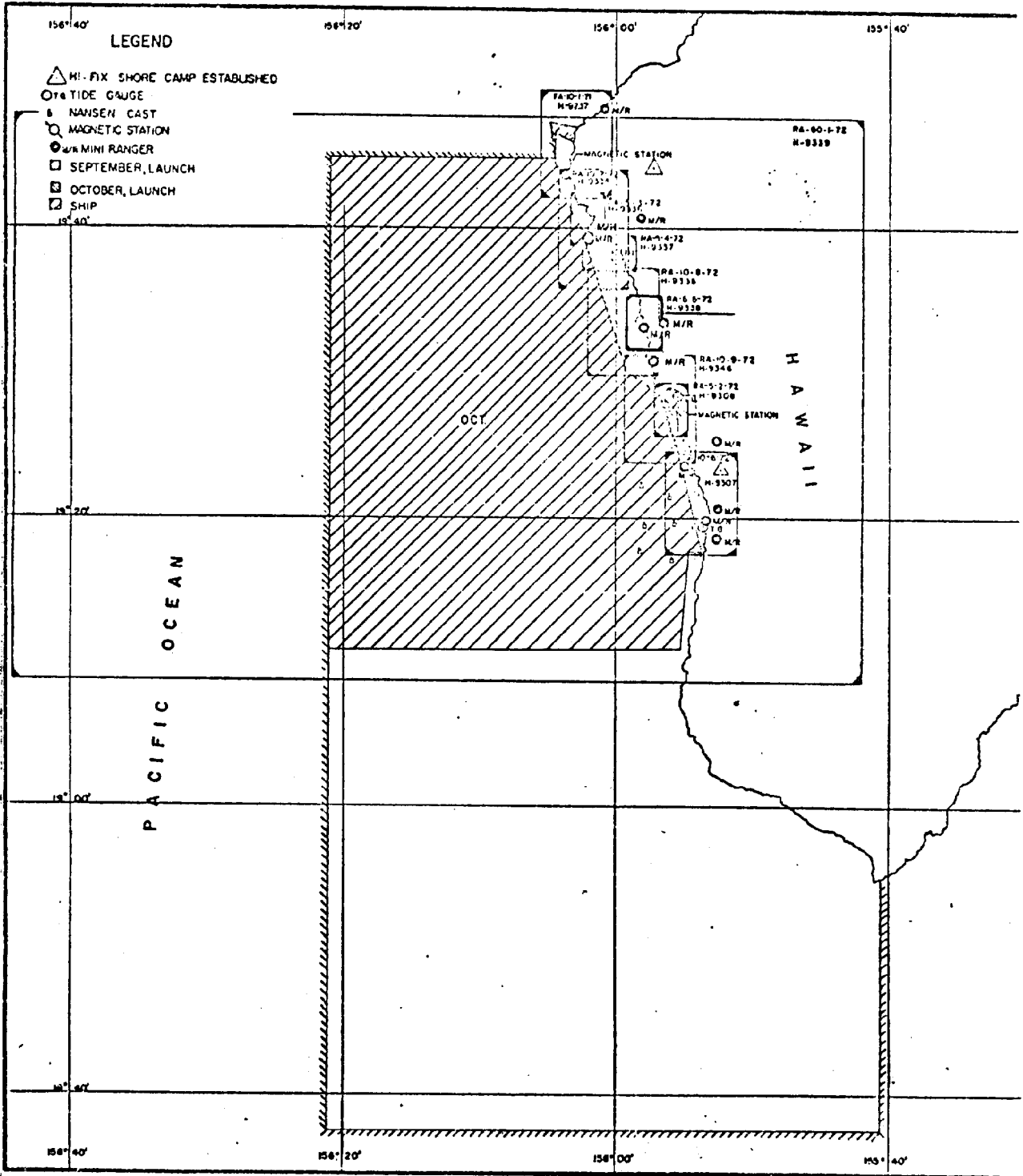
Soundings in ~~fathoms~~ feet at ~~MLW~~ MLLW

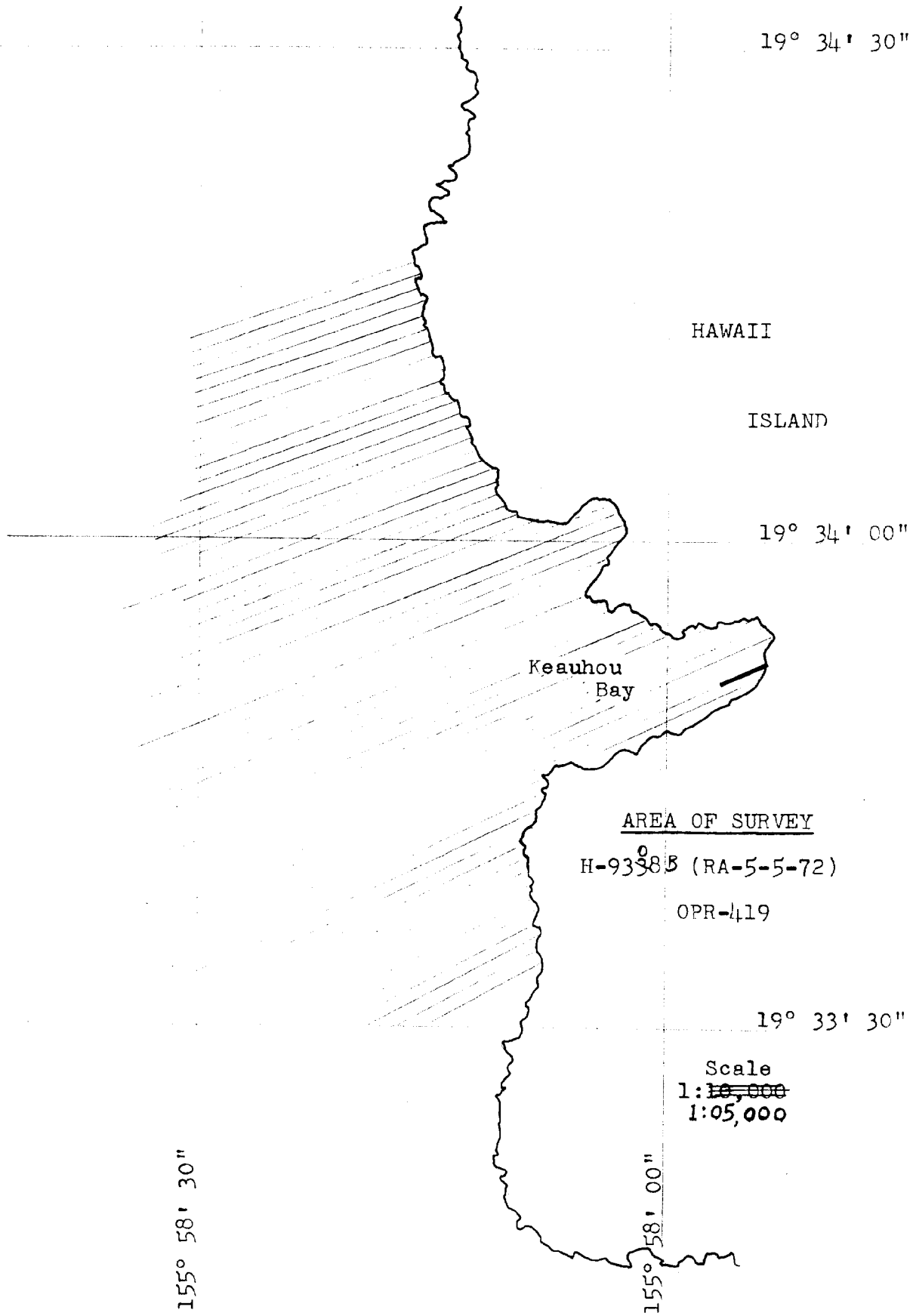
REMARKS: Survey H-9338 (RA-5-5-72) was plotted on the PDP 8/e

Hydroplot/Hydrolog System using AM 205 and visual data.

# LIMITS OF SURVEY SKETCH

OPR-419  
Kona Coast, Hawaii, 1972





DESCRIPTIVE REPORT  
TO ACCOMPANY HYDROGRAPHIC SURVEY

RA-5-5-72  
H-93~~3~~<sup>8</sup> B H-9308 B

Scale 1:5,000

1972

NOAA Ship RAINIER

CAPT G.E. HARADEN  
Commanding

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A. PROJECT

This survey was conducted in accordance with PROJECT INSTRUCTIONS: OPR-419-RA-72 dated 20 June 1972. Subsequent changes to these instructions do not affect this survey. ✓

B. AREA SURVEYED

This survey covers Keauhou Bay and the immediately adjacent waters on the ~~Kona~~<sup>Kona</sup> Coast of Hawaii Island and is bounded on the north by latitude 19° 34' 15" N; on the west by longitude 155° 58' 35" W; and on the south by latitude 19° 33' 30" N. (See separates)

The survey began on 27 September 1972 and was completed on 5 October 1972. The survey junction with contemporary survey H-9335 (RA-10-8-72) and can be compared with prior surveys as follows:

H-4789	1:2,500	1928
H-4798	1:20,000	1928

 ✓

C. SOUNDING VESSEL

Sounding vessels for the entire survey were the NOAA Ship RAINIER, and Bertram launches RA-3 (2123) and RA-4 (2124). RA-3 used position numbers from 2000 to 3000; RA-4 used position numbers from 0001 to 1999. ✓

D. SOUNDING EQUIPMENT

Soundings for the entire survey were recorded on Raytheon DE-723 fathometer number 834 in launch RA-4 and on Ross fathometer number 1041 in launch RA-3. Both fathometers performed well throughout the survey. ✓

Fine arc and A-F checks were made at frequent intervals during the operation of DE-723 fathometer No. 834. The Transducer Correction (TRA) was obtained by summing the instrument error, initial, and draft. Initial corrections were scanned from the fathograms and an abstract of correctors was prepared. ✓

The Transducer Correction (TRA) for Ross fathometer 1041 was obtained by summing instrument error and draft. In check scanning the Ross analog record, the initial was ✓

considered before reading the depth because initial variations appear only on the analog record and do not affect digitized soundings. Hence, no abstract of initial corrections was required for the Ross system. ✓

Both fathometers were phased electronically prior to the survey and field phase comparisons verified that phase corrections were zero throughout the survey. Correctors were merged into the Transducer Correction/Table Indicator (TC/TI) tape for automated processing (see appendix). ✓

Velocity Corrections were computed from a Nansen cast taken in latitude  $19^{\circ} 17.6' N$ , longitude  $155^{\circ} 58.1' W$ , on 13 October 1972. The resulting velocity table was entered on tape and referenced in the (TC/TI) tape (see separates). ✓

For further sounding correction information, see Special Report, Corrections to Echo Soundings, OPR-419, NOAA Ship RAINIER, 1972. ✓

#### E. SMOOTH SHEET

The smooth sheet will be mechanically produced at PMC from automated processing tapes provided by this vessel. ✓

The boat-sheet was produced aboard the RAINIER by the PDP 8/e Hydroplot/ Hydrolog System and is a Modified Transverse Mercator Projection with the Central Meridian located at  $156^{\circ} 00' 00'' W$  and the Control Latitude at 2,050,000 meters north of latitude zero. The projection was verified in the field. Positions were applied to the launch sheet at the end of each working day by the System's Complot Model DP-3-5 plotter and later smoothed where necessary before plotting on the final copy of the boat-sheet. ✓

All main scheme lines were plotted in black ink; crosslines were plotted in red ink for clarity. See Verifier's Report ✓

#### F. CONTROL

This survey was controlled by three-point sextant fixes on visual objects. Photogrammetric methods were used to establish 15 of the 19 signals used on the survey, with the remaining 4 signals being established over existing triangulation stations (see separates). Map manuscript T-12544 was used for transfer of signals. ✓

See Verifier's Report



### G. SHORELINE

Shoreline details were transferred to the boat-sheet directly from manuscript T-12544. Field edit of the manuscript was completed and verified by the RAINIER in 1972. There were no major differences between the manuscript and the field edit and the shoreline is considered adequate with the minor corrections (in red) as shown on RA-5-5-72. ✓

For further details see Special Report, Field Edit Report, OPR-419, NOAA Ship RAINIER, 1972.

*See Verifier's Report* ✓

### H. CROSSLINES

More than 9% of the main scheme miles run on this survey are crosslines. Comparisons of soundings at crossings are excellent and no adjustments are necessary. All crossings agree within two feet. ✓

### I. JUNCTIONS

This survey junctions with 1:10,000 scale contemporary survey H-9335 (RA-10-8-72). Soundings from this survey have been applied to the boat-sheet in green ink by the PDP 8/e system, and demonstrate very good agreement with 90% of the soundings agreeing within 3 feet and no soundings disagree by more than 1.0 fathom. The larger scale survey (H-9338) should supersede the junction survey in all areas where these slight discrepancies occur. ✓

*See Verifier's Report*

### J. COMPARISON WITH PRIOR SURVEYS

This survey can be compared with the following prior surveys:

H-4789	1:2,500	1928
H-4798	1:20,000	1928

Comparisons with 1:2,500 scale H-4789<sup>(1928)</sup> demonstrate good agreement. Representative soundings agree within three feet, which is considered excellent in view of the irregular character of the bottom. Comparisons with 1:20,000 scale H-4798<sup>(1928)</sup> are also good, with 80% of the soundings agreeing within 1/2 fathom and the remainder agreeing within 1 fathom. In view of the irregular bottom character, the small scale

of the prior survey, and the comparison of fathom soundings to feet soundings, the contemporary survey should supersede the prior survey in all areas of disagreement.

*see Review Report Para. 5*

Eleven Pre-Survey Review items exist within the confines of the survey. These items were investigated and verified as follows:

The 3-fathom sounding in latitude  $19^{\circ} 34' 07''$  N, longitude  $155^{\circ} 58' 22''$  W, was verified with a ~~16~~<sup>13</sup>-foot sounding at position #2015. In addition, a shoal sounding of 10 feet was located at latitude  $19^{\circ} 34' 08''$  N, longitude  $155^{\circ} 58' 21''$  W.

The line spacing in the area of the 4 following pre-survey items (not located) was closely spaced (30 meters or less), and the area thoroughly developed. It can be concluded that these pre-survey items no longer exist.

1) The 1 fathom 4 foot sounding in latitude  $19^{\circ} 34' 01''$  N, longitude  $155^{\circ} 58' 19''$  W ~~does not exist in this location.~~ A 12-foot sounding was located in latitude  $19^{\circ} 34' 01''$  N, longitude  $155^{\circ} 58' 18''$  W.

*Not disproved, Retain as charted*

2) The 2 fathom and 1 fathom 4 foot soundings in latitude  $19^{\circ} 33' 55''$  N, longitude  $155^{\circ} 58' 16''$  W, were verified by 12 foot soundings at position #2130 and first out of that position.

3) The 2 fathom 5 foot sounding and 1 fathom 4 foot sounding in latitude  $19^{\circ} 33' 51''$  N, longitude  $155^{\circ} 58' 07''$  W, ~~do not exist in this area.~~ <sup>from bp 50815</sup> <sup>where</sup> ~~not found, however depths of 14-18 feet were found approx. 30 meters to the east.~~

4) The 1 fathom sounding in latitude  $19^{\circ} 33' 52''$  N, longitude  $155^{\circ} 57' 58''$  W, does not exist in this area. An 8 ft. sdg. ~~was~~ plotted in smooth sheet) was found 15 meters to the east. <sup>form retained</sup> The rock in latitude  $19^{\circ} 33' 41''$  N, longitude  $155^{\circ} 58' 10''$  W, was verified by Field Edit.

The 1 fathom 1 foot sounding in latitude  $19^{\circ} 33' 38''$  N, longitude  $155^{\circ} 58' 10''$  W, ~~does not exist in this area.~~

*disproved, Retain as charted*

The 1 fathom 4 foot sounding in latitude  $19^{\circ} 33' 36''$  N, longitude  $155^{\circ} 58' 09''$  W, was verified by a 120 foot sounding, first out of position #2137.

*point plotted*

The 11 fathom sounding (doubtful) in latitude 19° 33' 42" N, longitude 155° 58' 17" W, falls in a steep slope area between soundings of 51 and 84 feet and appears reasonable for the area. ✓

#### K. COMPARISON WITH CHART

Comparison with the 1:5,000 scale inset to C&GS Chart 4140 (4th edition, 25 October 1969) revealed that the shoreline and soundings are plotted on the unadjusted Old Hawaiian Datum while the Triangulation reference stations SIGNAL 1928, and POINT 1928, are plotted on the adjusted Old Hawaiian Datum. The result is an apparent disagreement between the boat-sheet and the chart; soundings on the chart are shifted approximately  $\frac{1}{4}$  inch to the northeast.

Comparison of soundings demonstrates good agreement, generally within 2 feet (see comparison to H-4789) (928) ✓

#### L. ADEQUACY OF SURVEY

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

#### M. AIDS TO NAVIGATION

Keauhou Bay Light and Keauhou Bay Directional lights are the sole aids to navigation existing within the confines of the survey. Their position was established by photogrammetric methods from manuscript H-12544 and found to agree with the Light List position (Light List, Volume III, Pacific Coast and Pacific Islands, 1972, CG-162). In addition, an approximate position was established on the Kona Surf Hotel near the southern entrance to the bay. For all position information see NOAA Form 76-40. ✓

No floating aids to navigation exist within the confines of the survey. ✓

#### N. STATISTICS

<u>VESSEL</u>	<u>MILES HYDRO</u>	<u>NUMBER OF POSITIONS</u>
RA-3	8.8	111
RA-4	10.4	153
Total	19.2	264

528

The sheet contains 0.31 square nautical miles. Four bottom samples were obtained (see separates for log sheet). ✓

#### O. DATA PROCESSING

Raw data gathered by RA-4 was hand-logged on time aboard the launch using logger format, and later converted to master format using AM-330. Raw data gathered by RA-3 was hand-logged aboard the launch using the PDP 8/e system and RA 174 Visual Logger Program, to generate a master format tape directly. After the initial plot, data tapes were edited to remove rejected data, and corrector tapes were prepared using standard PDP 8/e corrector tape format to correct soundings, include peaks and deeps, and correct errors in angles or signal numbers. ✓

Separate master tapes and corresponding corrector tapes were prepared for each vessel and day. ✓

Standard Formats as specified in the Instruction Manual, Automated Hydrographic Surveys, were used for the TC/TI and Velocity Correction tapes. Note: TRA corrector values and velocity table numbers shown on the Hydroplot/Hydrolog tapes are to be ignored for processing at PMC. The correct data is listed on the TC/TI tape. ✓

Soundings displayed on the boat-sheet have been reduced for predicted tides and assumed launch draft of 2.0 feet. ✓

#### P. RECOMMENDATIONS

It is recommended that the inset to C&GS Chart 4140 be replotted as soon as practicable using the correct, adjusted Old Hawaiian Datum. ✓

#### Q. REFERENCES TO REPORTS

1. Corrections to Echo Soundings, OPR-419, NOAA Ship RAINIER, 1972.
2. Field Edit Report, OPR-419, NOAA Ship RAINIER, 1972. ✓

Respectfully submitted,

*J. Richard Faris*

J. Richard Faris  
LTJG, NOAA



BOTTOM SEDIMENT DATA

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PARAMETER TAPE LISTING

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PARAMETER TAPE LISTING  
H-9338 (RA-5-5-72)

OPR-419  
KEAUHOU BAY, KONA COAST, HAWAII

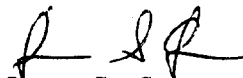
SKEW: 0.17.15

FEST=71000  
CLAT=2050000  
CMER=156/00/00  
GRID=15  
PLSCL=5000  
PLAT=19/33/20  
PLON=155/58/45  
S1LAT=58/23/29.514  
S1LON=153/57/40.528  
S2LAT=58/50/49.119  
S2LON=153/17/47.572  
Q=1799.6  
VESNO=2120  
YR=72

APPROVAL SHEET

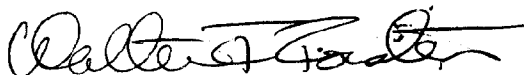
The smooth sheet has been inspected, is complete, and meets the requirements of the General Instructions for automated surveys and the Hydrographic Manual. (Note: All exceptions are listed in the Verifier's Report)

Examined and approved,



James S. Green  
Supervisory Cartographic Technician

Approved and forwarded,



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

APPROVAL SHEET

RA-5-5-72

H-9338

Keauhou Bay, Hawaii 1972

In producing this sheet, hydrographic procedures were observed and the data was examined daily during the execution of the survey.

The data on the boat-sheet and the accompanying records have been examined by me and are considered complete and adequate, and are hereby approved.

*G.E. Haraden*

G.E. HARADEN  
CAPT, NOAA

## TIDE NOTE

The tide station at Kailua Bay, Hawaii Island, Hawaii (latitude  $19^{\circ} 38.52' N$ , longitude  $155^{\circ} 59.97' W$ ), time meridian  $150 W$ , will be used to control soundings on this survey. Hourly heights will be furnished to PMC Processing by this vessel. Reduction to MLLW, copies of the marigrams and verified copies of the hourly heights will be furnished by the Tide Division, Rockville.

Predicted tides at Kailua Bay, Hawaii were used for reduction of boat-sheet soundings and were obtained from the 1972 Tide Tables for the West Coast of North and South America. The predicted tides were machine generated and applied directly to the data when plotted by the computer.

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4/16/74

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Pacific Marine Center

Hourly heights are approved for Form 362

Tide Station Used (NOAA Form 77-12): Kailua Kona

Period: August 16 - November 13, 1972

HYDROGRAPHIC SHEET: H9338

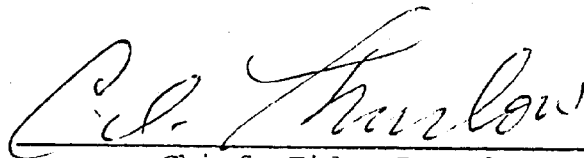
OPR: 419

Locality: West Coast of Hawaii Island

Plane of reference (mean lower low water): 2.5 ft.

Height of Mean High Water above Plane of Reference is 1.6 ft.

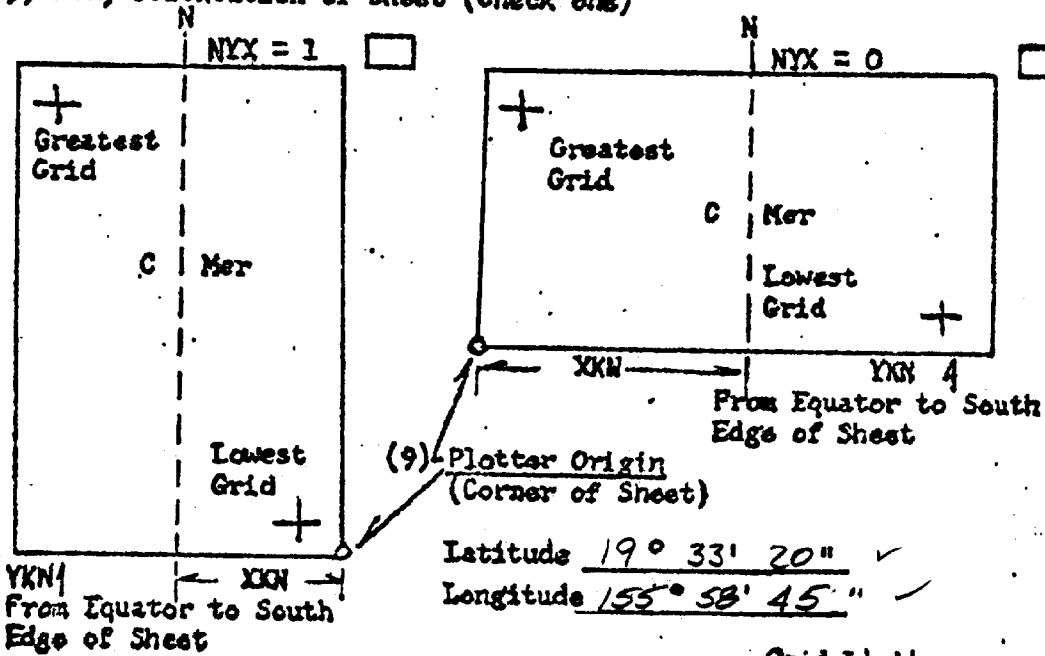
Remarks: Zone direct on Kailua Kona gage.



Chief, Tides Branch

PARAMETERS FOR DIGITAL COMPUTING  
POLYCONIC PROJECTION

- (1) Project No. OPR-419 (4) Requested by \_\_\_\_\_  
 (2) H No. 9338 (5) Ship or Office \_\_\_\_\_  
 (3) Field No. RA-5-5-72 (6) Date Required \_\_\_\_\_  
 (7) Visual  Ft.(0) or Fathoms (1)  (8) Electronic  (fill out form #3)  
 (10) XKN (SP 5) Distance from CMER to East Edge (NYX = 1) \_\_\_\_\_ Meters  
 or West Edge (NYX = 0). (Origin)  
 (11) YKN (SP 241) Distance from Equator to South Edge \_\_\_\_\_ Meters  
 of Sheet. (Origin)  
 (12) Central Meridian \_\_\_\_\_  
 (13) Survey Scale 1:5,000  
 (14) Size of Sheet (Check one) 36x60  42x60  0, 17, 15  
 (15) NYX, Orientation of sheet (Check one)



(9) Plotter Origin  
(Corner of Sheet)  
 Latitude 19° 33' 20" ✓  
 Longitude 155° 58' 45" ✓

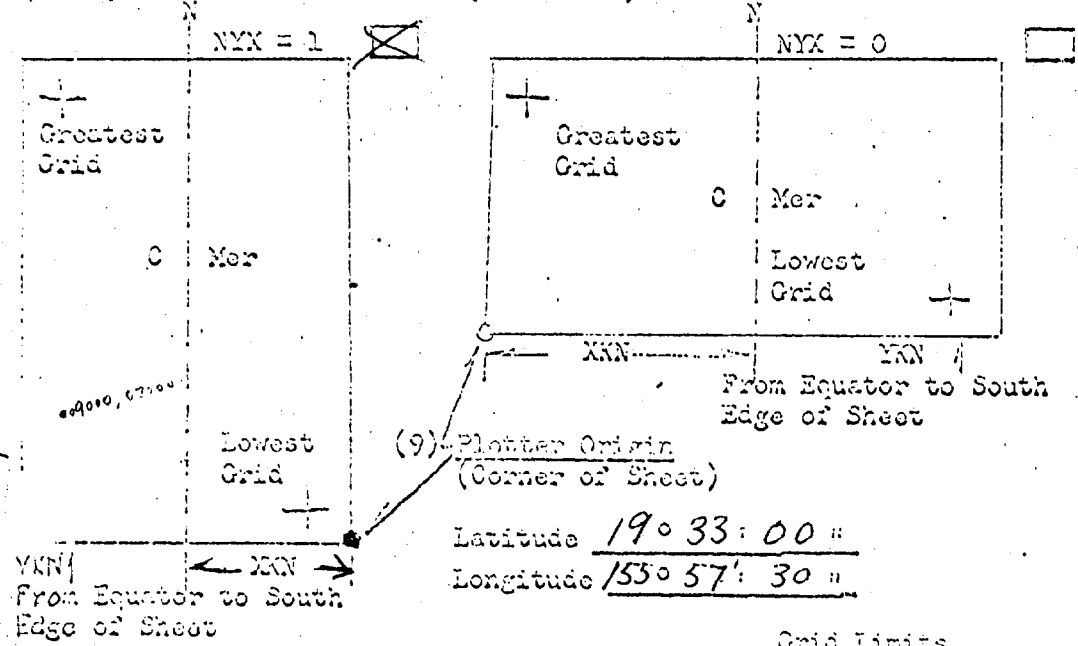
		Grid Limits	
(16) Greatest Latitude	<u>19° 34' 30"</u>	(19)	(Projection Line Interval Page 4 Hydro Manual)
(17) Lowest Latitude	<u>19° 33' 30"</u>	(20)	YSN
(18) Difference	_____	(21)	_____
(21) Greatest Longitude	<u>155° 58' 45"</u>	(22)	_____
(22) Lowest Longitude	<u>155° 57' 45"</u>	(23)	_____
(23) Difference	_____	(24)	_____
		(25)	_____

*C. W. NGE #1*

- (1) Project No. GPR-419 (4) Requested by Verification
- (2) H No. H-~~9338~~ 9308-B (5) Ship or Office \_\_\_\_\_
- (3) Field No. PA-5-5-72 (6) Date Required \_\_\_\_\_
- (7) Visual  Ft. (0)  or Fathoms (1)  (8) Electronic  (fill out form 113)
- (10) XKN (SP 5) Distance from CMER to East Edge (NYX = 1) 1311.64 Meters  
or West Edge (NYX = 0). ~~1311.64~~
- (11) YKN (SP 241) Distance from Equator to South Edge of Sheet. 2,162,421.5 Meters
- (12) Central Meridian 155° 58' 15"
- (13) Survey Scale 1:5,000

Size of Sheet (Check one) 36x60  42x60

(15) NYX, Orientation of sheet (Check one) NYX = 1  NYX = 0



Grid Limits	
(16) Greatest Latitude	<u>19° 35' 15"</u> (Projection Line)
(17) Lowest Latitude	<u>19° 33' 15"</u> Interval Page 4
(18) Difference	<u>0 2' 00"</u> (19) <u>0 01' 15"</u> Hydro Manual)
(21) Greatest Longitude	<u>155° 59' 30"</u> (20) <u>8 XSN</u>
(22) Lowest Longitude	<u>155° 57' 45"</u> (21) <u>00' 15"</u>
(23) Difference	<u>0 1' 45"</u> (25) <u>7 XSN</u>

*M.G.S & H.C.*  
*1 RDL*



1 233B = H-9300-B

Field No. 11-22-73  
Date

PARAMETER CARD II

Semi major axis of the earth	6.378,206.4	PDA	1 2 3 4 5 6 7 8 9 10
X Constant - Distance from central meridian to origin of plotter SP 5	meters	XCN	11 12 13 14 15 16 17 18 19 20
Y Constant - Distance from equator to origin of plotter SP 243	meters	YCN	21 22 23 24 25 26 27 28 29 30
Central Meridian of Projection	155 58 15	CNR	31 32 33 34 35 36 37 38 39 40
Plotter Scale/Survey Scale	REC/98.6876 1:5000	SCA	41 42 43 44 45 46 47 48 49 50
North/south axis of sheet - to correspond to (Y axis - 0)		NTX	51 52 53 54 55 56 57 58 59 60
Feet/Fathom indicator	0 - feet 1 - fathom	FCF	61 62 63 64 65 66 67 68 69 70
H Identification No.		JN	71 72 73 74 75 76 77 78 79 80
		TR	81 82 83 84 85 86 87 88 89 90

FCF - 1

PARAMETER CARD III

Lowest Lat. Intersection	19 33 15	YST	1 2 3 4 5 6 7 8 9 10
Lowest Long. Intersection	155 57 45	XSI	11 12 13 14 15 16 17 18 19 20
Difference between Grid	15	DGI	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 \_\_\_\_\_  
Checked \_\_\_\_\_  
Date \_\_\_\_\_

H- 9338 (H-9308-B) OPR 419 Field No. RA-05-05-72

Requested by F.L. ROSARIO by JTC Date required ASAP

-	H	0	9	3	0	8	B								Alphanumeric Sheet Label.
14	0	4	8												Plotter X Dimension <sup>1</sup> (centimeters)
18	0	6	1												Plotter Y Dimension <sup>1</sup> (centimeters)
22	0	2													Projection Type: Ø1=Merc.; Ø2=Polyconic; Ø3=St. Plane; Ø4=Tr. Mercator
25	0	0	0	5	0	0	0								Scale. (e.g., 40000 for 1:40,000)
33	0	0	0												Skew <sup>2</sup>
37	0	0	0	0											Grid Interval: 0000 for Standard Hydrographic Manual Intervals.
42	0	1	9												Degrees: (- for South)
46	3	3													Minutes
49	0	5	.	0											Seconds
54	0	1	5	5											Degrees: (- for East)
59	5	8													Minutes
62	5	5	.	0											Seconds
67	1	5	5												Degrees
71	5	8													Minutes
74	1	5	.	0											Seconds
77															Control File Source (for EDP use only)
80															3 Inch Hydro Limit Border ( 1 if desired: for ship use only)

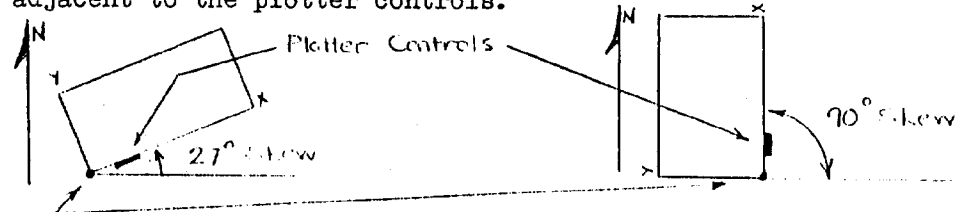
→ Latitude of Plotter Origin<sup>3</sup>

→ Longitude of Plotter Origin<sup>3</sup>

→ Longitude of Central Meridian

<sup>1</sup>Physical size of sheet. Projection will be drawn to within one inch of sheet edges.

<sup>2</sup>Sheet Skew: The angle of skew is the counterclockwise angle, measured at the plotter origin, which the parallel of latitude makes with that edge of the paper which is adjacent to the plotter controls.



<sup>3</sup>Plotter Origin: Physical corner of sheet--and not necessarily a grid intersection.

CONTROL REQUEST attached \_\_\_\_\_ (form CPM32-3)

LATTICE REQUEST attached \_\_\_\_\_ (form CPM32-2)

REMARKS:

offset y = 19 cm  
 offset x = 81 cm

10/21/47

S I G N A L P L O T T E R C A R D S

H-NO.-	LATITUDE	LONGITUDE	X	Y	X
0933872400	72 19352767	155582842	03576	09534	400
0933872501	72 19341746	155581715	02886	05001	501
0933872503	72 19340891	155581431	02712	04449	503
0933872504	72 19340413	155580709	02270	04141	504
0933872505	72 19340117	155580799	02325	03949	505
0933872507	72 19340208	155580460	02118	04008	507
0933872509	72 19335708	155580542	02168	03685	509
0933872511	72 19335613	155580511	02149	03624	511
0933872513	72 19335392	155575921	01788	03482	513
09338 515	72 19335382	155575338	01431	03475	515
0933872517	72 19335142	155575671	01635	03320	517
0933872519	72 19334943	155575791	01708	03191	519
0933872521	72 19334765	155580261	01996	03077	521
0933872523	72 19334618	155580748	02294	02982	523
0933872524	72 19334233	155580821	02339	02733	524
0933872525	72 19334013	155580964	02426	02591	525
0933872527	72 19333636	155580854	02359	02348	527
0933872529	72 19332885	155581063	02487	01863	529
0933872530	72 19332339	155581019	02460	01510	530

000000

GEOGRAPHIC NAMES

Survey No.

~~H-9200~~ - X

H-9309 B

Name on Survey

On Chart No.  
 On previous Survey No.  
 On U.S. Quadrang. Maps  
 From local information  
 On local Maps  
 P. O. Guide or Map  
 Rand McNally Atlas  
 U. S. Light List

	A	B	C	D	E	F	G	H	K	
✓ HAIKUUA ✓										1
✓ HEELIA BAY ✓										2
✓ KAUKALAE LAE POINT ✓										3
✓ KEAUHOU ✓										4
✓ KEAUHOU BAY ✓										5
✓ PACIFIC OCEAN ✓										6
✓ HAWAII ✓										7
										8
										9
										10
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										25
										26

Approved  
 Chas. E. Harrington  
 Staff Geographer  
 5 Feb. 1975

HYDROGRAPHIC SURVEY STATISTICS Orig. H-9338  
HYDROGRAPHIC SURVEY NO. H-9308 - B (RA-05-05-72)

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET & <del>PN</del> Combined		1	BOAT SHEETS		1	
DESCRIPTIVE REPORT		1	OVERLAYS		4	
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES	1		<del>1</del> 1-Combined			
CAHIERS						
VOLUMES						
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				264
POSITIONS CHECKED		264	30	
POSITIONS REVISED		7		
DEPTH SOUNDINGS REVISED		305	12	
DEPTH SOUNDINGS ERRONEOUSLY SPACED		60		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED				
	TIME (MANHOURS)			
Verification of Control		1		
Verification of Positions		3		
Verification of Soundings		57	30	
Smooth Sheet Compilation		39		
ALL OTHER WORK		20	82	
TOTALS		120	112	
PRE-VERIFICATION BY J. Greene	BEGINNING DATE 1/12/74	ENDING DATE 1/21/74		
VERIFICATION BY <i>Felipe L. Rosario</i> F.L. Rosario	BEGINNING DATE 1/25/74	ENDING DATE 11/8/74		
REVIEW BY <i>L. Guntan</i>	BEGINNING DATE 12 May 75	ENDING DATE 15 Jun 75		

OFFICE OF MARINE SURVEYS AND MAPS

MARINE SURVEYS DIVISION

MODIFIED HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-9308B

FIELD NO. RA-5-5-72

Hawaii, West Coast Hawaii, Keauhoa Bay

SURVEYED: September 27 - October 5, 1972

SCALE: 1:5,000

PROJECT NO.: OPR-419

SOUNDINGS: Ross Fathometer  
DE-723 Depth Recorder

CONTROL: Sextant Fixes on  
Shore Signals

Chief of Party .....	G. Haraden
Surveyed by .....	R. A. Schiro
.....	R. G. Hendershot
.....	M. McCaslin
.....	P. T. Woodard
Automated Plot by .....	Gerber Digital Plotter (PMC)
Verified by .....	F. L. Rosario
Reviewed by .....	L. Quinlan
	Date: June 16, 1975
Cursory inspection made--survey	D. J. Romesburg
processing considered complete .....	June 15, 1977

1. Control and Shoreline

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

The shoreline originates with Class I Photogrammetric Manuscript T-12544 of 1963-1973.

The mean high water line is shown for guidance only as its true position is shown on the topographic survey previously mentioned.

2. Hydrography

a. Depths at crossings are in very good agreement.

b. Inshore the usual depth curves were not completely delineated because of the foul, irregular bottom and heavy surf.

c. The development of the bottom configuration is considered adequate except as noted in section 3.b of this review.

### 3. Condition of Survey

The field work, survey records, automated plotting, and the Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual as amended by the Instruction Manual - Automated Hydrographic Surveys except as follows:

a. Signals which fall outside the high water line were not described.

b. Many soundings were brought forward from prior survey H-4789 (1928) to better define the bottom configuration and reveal coral heads in the inshore areas.

c. There was little or no specific investigation of the many coral heads scattered through Keauhoa Bay. These were not considered disproved by soundings on the line spacing run in this area.

d. Bottom samples on the present survey were supplemented by bottom samples from prior survey H-4789 (1928).

### 4. Junctions

An adequate junction was effected with H-9335 (1972) to the west and south.

### 5. Comparison with Prior Survey

H-4789 (1928) 1:2,500

Prior survey H-4789 (1928) covers the entire area of the present survey. A comparison between the prior and present survey revealed minor differences in depth.

Numerous foul areas, breaker areas, soundings, rocks, and coral heads were carried forward from the larger scale prior survey. Many of these soundings and rocks were substantiated or verified by traces on the fathograms on the present survey.

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

### 6. Comparison with Chart 4140, 6th Edition, December 29, 1973

a. Hydrography

The charted hydrography originates with the previously discussed prior survey, which requires no further consideration, and is supplemented by the boat sheet of the present survey and the Hawaii Board of Harbor Commissioners (Bp-50815, 1953--Bp-53095, 1955). It should be noted that the chart is on an old datum used on the prior surveys and not the Old Hawaiian Datum.

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

b. Aids to Navigation

There is no disagreement between the position of the charted aid to navigation and the position on the survey.

7. Compliance with Instructions


The survey adequately complies with the project instructions except as noted in paragraph 3.b.

8. Additional Field Work

This survey is considered to be a basic survey and no additional work is recommended.

Examined and Approved:

  
\_\_\_\_\_  
Chief  
Marine Surveys Division

  
\_\_\_\_\_  
Associate Director  
Office of Marine Surveys  
and Maps



H-9308B

Information for Future Presurvey Reviews

Except for changes that may occur as the result of volcanic or earthquake activity the bottom in this area is quite stable.

<u>Position Index</u>		<u>Bottom Change</u>	<u>Use</u>	<u>Resurvey</u>
<u>Lat.</u>	<u>Long.</u>	<u>Index</u>	<u>Index</u>	<u>Cycle</u>
193	155	0	1	50 years

---

Reg. No. 493086

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

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

CARDS CORRECTED

DATE \_\_\_\_\_ TIME REQ'D \_\_\_\_\_ INITIALS \_\_\_\_\_

REMARKS:

Reg. No. \_\_\_\_\_

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

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

MAGNETIC TAPE CORRECTED

DATE \_\_\_\_\_ TIME REQ'D \_\_\_\_\_ INITIALS \_\_\_\_\_

REMARKS:





HYDROGRAPHIC TITLE SHEET

H-9308-A

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.  
RA-5-2-72

HAWAII

State HAWAII

General locality ~~WEST~~ KONA COAST, HAWAII ~~ISLAND~~

Locality KEALAKAKUA BAY

Scale 1:5,000 Date of survey 11-14 Sept., 1972

Instructions dated 20 June, 1972 Project No. OPR-419-RA-72

Vessel NOAA Ship RAINIER Launch RA-4 (2124)

Chief of party CAPT. G. E. HARADEN

Surveyed by CST Woodard, ENS McCaslin, ENS Hendershot

Soundings taken by echo sounder, ~~RAYTHEON DE-723~~ RAYTHEON DE-723 S.N. 834 & 256

Graphic record scaled by Ship's Personnel

Graphic record checked by Ship's Personnel

Protracted by --- Automated plot by COMPILOT DP-3  
Garber Digital  
Plotter

Soundings penciled by ---

Soundings in ~~meters~~ feet at ~~LOW~~ MLLW

REMARKS: Survey H-9308 (RA-5-2-72) was plotted on the PDP 8/e  
Hydroplot/Hydrolog system, using AM 205 and visual data.

*Revised to state 11/16/75*

DESCRIPTIVE REPORT  
TO ACCOMPANY HYDROGRAPHIC SURVEY

H-9308

RA-5-2-72

SCALE 1:5000

1972

NOAA SHIP RAINIER

G. E. HARADEN  
CAPT., NOAA

COMMANDING

---



#### A. PROJECT

This survey was conducted in accordance with PROJECT INSTRUCTIONS: OPR-419-RA-72 dated 20 June 1972. Subsequent changes to these instructions do not affect this survey. ✓

#### B. AREA SURVEYED

This survey covers Kealakakua Bay and the immediately adjacent waters on the <sup>West</sup> Kona Coast of Hawaii Island and is bounded on the north by latitude 19° 29' 08"; on the west by longitude 155° 56' 20"; and on the south by latitude 19° 28' 20". ✓

The survey began on September 11, 1972 and was completed on September 14, 1972. The survey junctions with contemporary survey H-9346 (RA-10-9-72) and can be compared with the following prior survey:

H-4768	1:5,000	1928
--------	---------	------

#### C. SOUNDING VESSEL

The sounding vessel for the entire survey was Bertram launch RA-4 (2124). Inclusive position numbers were 001 to 359. ✓

#### D. SOUNDING EQUIPMENT

Soundings for the entire survey were recorded on Raytheon DE-723 Fathometers, serial numbers 834 and 256. Fine arc and A-F checks were made at frequent intervals during the operation of the fathometers. The transducer correction TRA was obtained by summing the instrument error, initial, and draft. Initial corrections were scanned from the fathograms and an abstract of correctors was prepared. ✓

Both fathometers were phased electronically prior to the survey and field phase comparisons verified that phase corrections were zero throughout the survey. Correctors were merged into the Transducer Correction/ Table Indicator (TC/TI) tape for automated processing (see separates). ✓

Velocity corrections were computed from a Nansen Cast taken in latitude 19° 17.6'N, longitude 155° 58.1'W, on 13 October 1972. The resulting velocity table was entered on tape and referenced in the TC/TI tape (see separates). ✓



For further sounding correction information, see Special Report, Corrections to Echo Soundings, OPR-419, NOAA Ship RAINIER, 1972. ✓

#### E. SMOOTH SHEET

The smooth sheet ~~will be~~<sup>was</sup> mechanically produced at PMC from automated processing tapes provided by this vessel. ✓

The boat sheet was produced aboard the RAINIER by the PDP 8/e Hydroplot/Hydrolog System and is a Modified Transverse Mercator Projection with the Central Meridian located at 156° 00' 00"W and the Control Latitude at 2,050,000 meters north of latitude zero. The projection was verified in the field. Positions were applied to the launch sheet manually in real time, and at the end of each working day by the Systems Complot Model DP-3-5 plotter for smoothing prior to plotting the final copy of the boat sheet. ✓

All main scheme lines were plotted in black ink; crosslines were plotted in red ink for clarity. ✓

#### F. CONTROL

*See Verifier's Report*

This survey was controlled by three-point sextant fixes on visual objects. Photogrammetric methods were used to establish 11 of the 13 signals used on the survey, with the remaining 2 signals being established over existing triangulation stations (see separates). Map manuscript T-11796 was used for transfer of signals. ✓

#### G. SHORELINE

Shoreline details were transferred to the boat sheet directly from manuscript T-11796. Field edit of the manuscript was completed and verified by the RAINIER in 1972. There were no major differences between the manuscript and the field edit and the shoreline is considered adequate. ✓

For further details see Special Report, Field Edit Report, OPR-419, NOAA Ship RAINIER, 1972.

*See Verifier's Report*

#### H. CROSSLINES

More than 10% of the main scheme miles run on this survey are crosslines. Comparisons of soundings at crossings are excellent and no adjustments are necessary. All crossings agree within three (3) feet. ✓

## I. JUNCTIONS

This survey junctions with 1:10,000 scale contemporary survey H-9346 (RA-10-9-72). Soundings demonstrate very good agreement with 95% of the soundings agreeing within 3 feet and no soundings disagree by more than 1.0 fathom. The larger scale survey (H-9308) should supersede the junction survey in all areas where these slight discrepancies occur.

*See Verifier's Report.*

## J. COMPARISON WITH PRIOR SURVEYS

This survey can be compared with the following prior survey: H-4768, 1:5,000, 1928. Comparison demonstrates very good agreement. Representative soundings agree to within 2 feet.

Four pre-survey review items exist within the confines of this survey. These items were investigated and verified as follows:

Presurvey review item number 3, a rock awash at latitude 19° 28' 44.2"N, longitude 155° 55' 22.0"W was <sup>not</sup> verified by field edit. *Present survey information is adequate*

The ~~rock~~ <sup>shoal</sup> at 19° 28' 32.0"N, 155° 55' 24.0"W ~~does not exist~~ <sup>was not located</sup> in this area. A skin diver went down and visually searched the area. *Retain on chart, diver investigated area, bottom very irregular*

The ~~shoal~~ <sup>2.0</sup> at 19° 28' 31.1"N, 155° 55' 26.0"W ~~does not exist~~ <sup>was</sup> in this area. Again, a skin diver went down and visually searched the area. *However, an 11 ft. obj. was found 25 m to the north*

The rock at 19° 28' 56.0"N, 155° 55' 35.6"W was verified by field edit position #357.

## K. COMPARISON WITH THE CHART

Comparison with the C&GS Chart #4140 demonstrates good agreement, with most soundings agreeing within 3 feet.

*The chart is on an old datum prior to the Old Hawaiian Datum*

## L. ADEQUACY OF THE SURVEY

The survey is considered complete and adequate to supersede prior surveys for charting.

## M. AIDS TO NAVIGATION

Napoopoo light is the sole navigational aid existing within the confines of the survey. Its position was established

by photogrametric methods from manuscript T-11796 and was found to agree with the Light List position. (Light List, Volume III, Pacific Coast and Pacific Islands, 1972, CG-162). For all position information see NOAA Form 76-40 in the separates. ✓

No floating aids to navigation exist within the confines of the survey. ✓

#### N. STATISTICS

VESSEL	MILES HYDRO	NUMBER OF POS.
RA-4	28.5	359 (Inc 7 Btm. Samples)
RAINIER (MSS-21)	----	1 Btm. Sample

The sheet contains 28.5 square nautical miles. Eight bottom samples were obtained. (See separates for log sheets). ✓

#### O. DATA PROCESSING

Raw data gathered by RA-4 was hand logged on time aboard the launch using logger format, and later converted to master format using AM 330. After the initial plot, data tapes were edited to remove rejected data, and corrector tapes were prepared using standard PDP 8/e corrector tape format to correct soundings, include peaks and deeps, and correct errors in angles or signal numbers. ✓

Separate master tapes and corresponding corrector tapes were prepared for each vessel and day. ✓

Standard formats as specified in the Instruction Manual, Automated Hydrographic Surveys, were used for the TC/TI and Velocity Correction tapes. Note: TRA corrector values and velocity table numbers shown on the Hydroplot/Hydrolog tapes are to be ignored for processing at PMC. The correct data is listed on the TC/TI tape. ✓

Soundings displayed on the boat sheet have been reduced for predicted tides and a launch draft of 2.0 feet. ✓

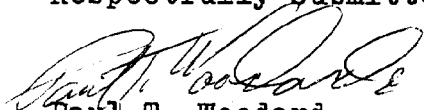
#### P. RECOMMENDATIONS

None. ✓

#### Q. REFERENCES TO REPORTS

1. Corrections to Echo Soundings, OPR-419, NOAA Ship RAINIER, 1972. ✓
2. Field Edit Report, OPR-419, NOAA Ship RAINIER, 1972. ✓

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Paul T. Woodard".

Paul T. Woodard  
CST

APPROVAL SHEET

H-9308

RA-5-2-72

KEALAKAKUA BAY, Hawaii 1972

In producing this sheet, hydrographic procedures were observed and the data was examined daily during the execution of the survey.

The data on the boat sheet and the accompanying records have been examined by me and are considered complete and adequate, and are hereby approved.

*G. E. Haraden*

G. E. HARADEN  
CAPT, NOAA

## TIDE NOTE

The tide station at Napoopoo, Hawaii Island, Hawaii (latitude  $19^{\circ} 28.60'N$ , longitude  $155^{\circ} 55.32'W$ ), time meridian 150W, will be used to control soundings on this survey. Hourly heights will be furnished to PMC Processing by this vessel. Reduction to MLLW, copies of the marigrams and verified copies of the hourly heights will be furnished by the Tides Division, Rockville.

Predicted tides at Napoopoo were used for reduction of boat sheet soundings and were obtained from the 1972 Tide Tables for the West Coast of North and South America. The predicted tides were machine generated and applied directly to the data when plotted by the computer.

4/16/74

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Pacific Marine Center

Hourly heights are approved for Form 362

Tide Station Used (NOAA Form 77-12): Napoopoo

Period: Sept. 12 - Oct. 28, 1972

HYDROGRAPHIC SHEET: H9308

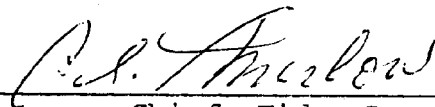
OPR: 419

Locality: West Coast of Hawaii Islands

Plane of reference (mean lower low water): 3.0 ft.

Height of Mean High Water above Plane of Reference is 1.6 ft.

Remarks: Zone direct on Napoopoo gage.

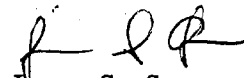


Chief, Tides Branch

APPROVAL SHEET

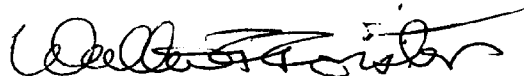
The smooth sheet has been inspected, is complete, and meets the requirements of the General Instructions for automated surveys and the Hydrographic Manual. (Note: All exceptions are listed in the Verifier's Report)

Examined and approved,



James S. Green  
Supervisory Cartographic Technician

Approved and forwarded,



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



GEOGRAPHIC NAMES

Survey No.

H-9308 - A

Name on Survey

	On Chart No.	On previous survey No.	On U. S. Quadrang. Maps	From local information	On local Maps	P. O. Guide or Map	Rand McNally Atlas	U. S. Light List		
	A	B	C	D	E	F	G	H	K	
✓ COOK POINT ✓										1
✓ KAAWALOA ✓										2
✓ KAAWALOA COVE ✓										3
✓ KEALAKEKUA BAY ✓										4
✓ MANINI BEACH ✓										5
✓ NAPOOPOO ✓										6
✓ NAPOOPOO PARK ✓										7
✓ N. PACIFIC OCEAN										8
✓ HAWAII										9
✓ KAHAWLOA										10
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										24
										25
										26

Approved  
 Chas. B. Hamilton  
 Staff Geographer  
 5 Feb 1975

HYDROGRAPHIC SURVEY STATISTICS  
HYDROGRAPHIC SURVEY NO. H-9308 - A (RA-05-02-72)

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET & PNO Combined		1	BOAT SHEETS		1	
DESCRIPTIVE REPORT		1	OVERLAYS		4 <sup>5</sup>	
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES	1		5 1-Combined			
CAHIERS						
VOLUMES	2					
BOXES			2-8-masthead			

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				360
POSITIONS CHECKED		360	36	
POSITIONS REVISED		6		
DEPTH SOUNDINGS REVISED		16	10	
DEPTH SOUNDINGS ERRONEOUSLY SPACED		7		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		0		
	TIME (MANHOURS)			
Verification of Control		2		
Verification of Positions		9		
Verification of Soundings		12	20	
Smooth Sheet Compilation		36		
ALL OTHER WORK		39	88	
<b>TOTALS</b>		<b>98</b>	<b>108</b>	
PRE-VERIFICATION BY J. Greene	BEGINNING DATE 1/12/74	ENDING DATE 1/12/74		
VERIFICATION BY Felipe L. Rosario	BEGINNING DATE 3/11/74	ENDING DATE 11/8/74		
REVIEW BY A. Gunnerson	BEGINNING DATE 12 May 75	ENDING DATE 6 Jun 75		

See map D.S. Romesburg 6-17-77 20 hrs.

Reg. No. \_\_\_\_\_

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

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

CARDS CORRECTED

DATE \_\_\_\_\_ TIME REQ'D \_\_\_\_\_ INITIALS \_\_\_\_\_

REMARKS:

Reg. No. H-9208A

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

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

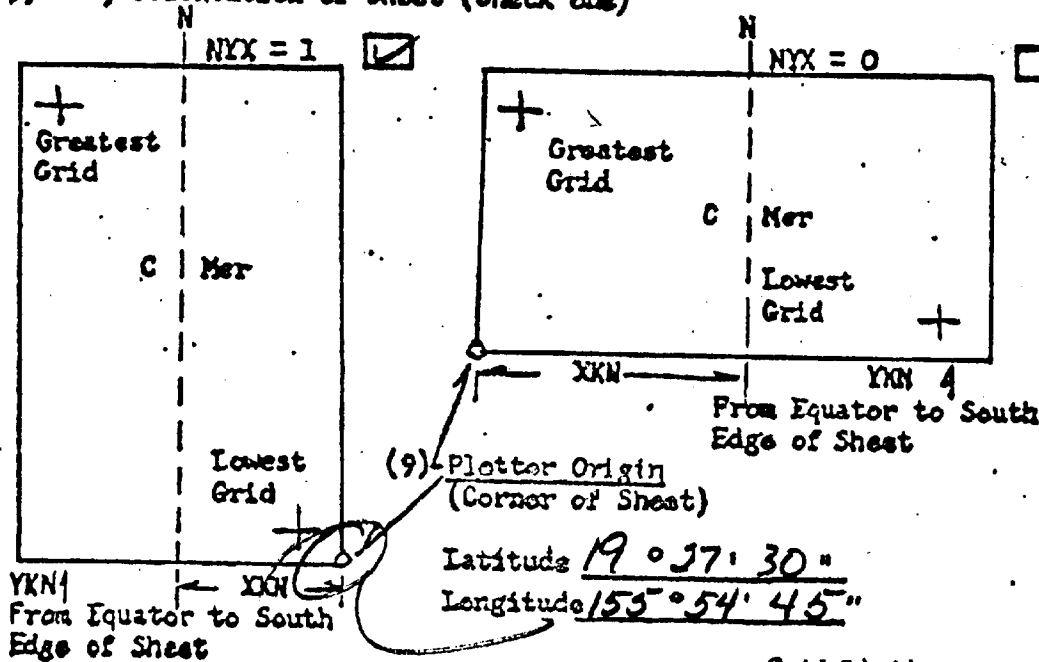
MAGNETIC TAPE CORRECTED

DATE \_\_\_\_\_ TIME REQ'D \_\_\_\_\_ INITIALS \_\_\_\_\_

REMARKS:

PARAMETERS FOR DIGITAL COMPUTING  
POLYCONIC PROJECTION

- (1) Project No. OPR-419 (4) Requested by Processing  
 (2) H No. H-9308 (5) Ship or Office Rainier  
 (3) Field No. RA-5-2-72 (6) Date Required \_\_\_\_\_  
 (7) Visual  Ft.(0) or Fathoms (1)  (8) Electronic  (fill out form #3)  
 (10) XKN (SP 5) Distance from C Mer to East Edge (NYX = 1) or West Edge (NYX = 0). (Origin) 1750.05 Meters  
 (11) YKN (SP 241) Distance from Equator to South Edge of Sheet. (Origin) 2152274.72950 Meters  
 (12) Central Meridian 155°55'45"  
 (13) Survey Scale 1:5,000  
 (14) Size of Sheet (Check one) 36x60  42x60   
 (15) NYX, Orientation of sheet (Check one)



Grid Limits	
(16) Greatest Latitude	<u>19°29'30"</u> (Projection Line Interval Page 4 Hydro Manual)
(17) Lowest Latitude	<u>19°27'45"</u>
(18) Difference	<u>1'45"</u>
(19)	<u>00'30"</u>
(20)	<u>7</u> XSN
(21) Greatest Longitude	<u>155°56'45"</u>
(22) Lowest Longitude	<u>155°55'00"</u>
(23) Difference	<u>1'45"</u>
(24)	<u>00'15"</u>
(25)	<u>7</u> XSN

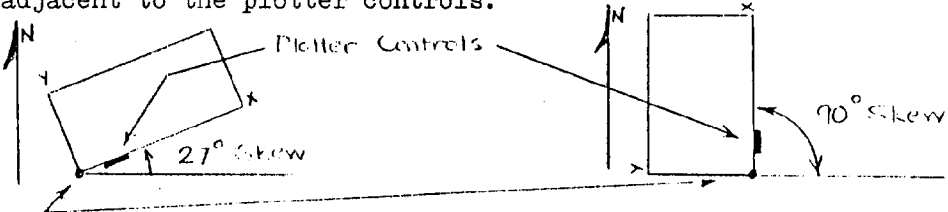


H- H-9308 (A) OPR 419 Field No. RA-05-02-72  
 Requested by F. ROSARIO ✓ by Green Date required ASAP

-	H	0	9	3	0	8	A								Alphanumeric Sheet Label.
14	0	5	8	Plotter X Dimension <sup>1</sup> (centimeters)											
18	0	6	1	Plotter Y Dimension <sup>1</sup> (centimeters)											
22	0	2	Projection Type: 01=Merc.; 02=Polyconic; 03=St. Plane; 04=Tr. Mercator												
25	0	0	0	5	0	0	0	Scale. (e.g., 40000 for 1:40,000)							
33	0	0	0	Skew <sup>2</sup>											
37	0	0	0	0	Grid Interval: 0000 for Standard Hydrographic Manual Intervals.										
42	0	1	9	Degrees: (- for South)											
46	2	7	Minutes → Latitude of Plotter Origin <sup>3</sup>												
49	4	7	0	Seconds											
54	0	1	5	5	Degrees: (- for East)										
59	5	6	Minutes → Longitude of Plotter Origin <sup>3</sup>												
62	2	8	0	Seconds											
67	1	5	5	Degrees											
71	5	6	Minutes → Longitude of Central Meridian												
74	0	0	0	Seconds											
77	Control File Source (for EDP use only)														
80	3 Inch Hydro Limit Border (1 if desired: for ship use only)														

<sup>1</sup>Physical size of sheet. Projection will be drawn to within one inch of sheet edges.

<sup>2</sup>Sheet Skew: The angle of skew is the counterclockwise angle, measured at the plotter origin, which the parallel of latitude makes with that edge of the paper which is adjacent to the plotter controls.



<sup>3</sup>Plotter Origin: Physical corner of sheet--and not necessarily a grid intersection.

CONTROL REQUEST attached \_\_\_\_\_ (form CPM32-3)

LATTICE REQUEST attached \_\_\_\_\_ (form CPM32-2)

REMARKS:

Offset y = 19 cm.  
 Offset x = 11 cm

APR 10 1974

S I G N A L P L O T T E R C A R D S

H-NO.		LATITUDE	LONGITUDE	X	Y	X
09308	001	72 19285587	155562160	05916	05344	001
09308	002	72 19285314	155561673	05618	05368	002
09308	003	72 19290335	155561008	05210	06027	003
09308	004	72 19290579	155560456	04872	06185	004
09308	005	72 19290514	155554828	05875	06143	005
09308	006	72 19285317	155552661	02549	05370	006
09308	007	72 19283935	155552013	02152	04478	007
09308	008	72 19283275	155551622	01912	04051	008
09308	009	72 19282829	155552335	02349	03764	009
09308	010	72 19282459	155553082	02806	03525	010
09308	011	72 19282118	155550570	01273	03304	011
09308	012	72 19275200	155553932	03327	01420	012
09308	013	72 19282966	155551896	02030	03852	013

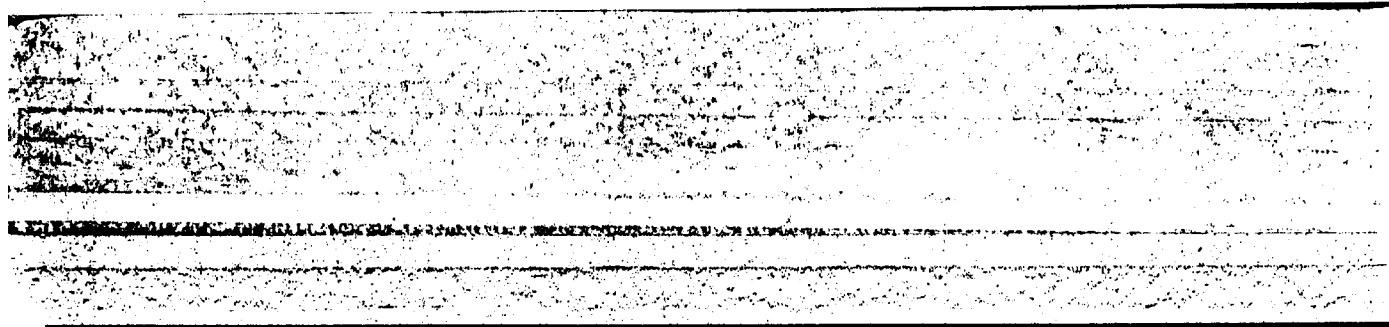
000050

*File Tide Corr. Abstracts with Field Notes*

OPR-419 TIDE REQUIREMENTS SURVEYS H 9338 9308A

DAY	ACTUAL	HYDRO.	HOURLY	HEIGHTS REQUIRED FOR C331 VERIFICATION
***	*****	*****	****	****
271	090200	145657	0700	1700
277	122800	152515	1000	1800
278	091338	150145	0700	1800
279	103445	145415	0800	1700

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OFFICE OF MARINE SURVEYS AND MAPS

MARINE SURVEYS DIVISION

MODIFIED HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-9308A

FIELD NO. RA-5-5-72

Hawaii, West Coast Hawaii, Kealakekua Bay

SURVEYED: September 27 - October 5, 1972

SCALE: 1:5,000

PROJECT NO.: OPR-419

SOUNDINGS: Ross Fathometer  
DE-723 Depth Recorder

CONTROL: Sextant Fixes on  
Shore Signals

Chief of Party .....	G. Haraden
Surveyed by .....	R. A. Schiro
.....	R. G. Hendershot
.....	M. McCaslin
.....	P. T. Woodard
Automated Plot by .....	Gerber Digital Plotter (PMC)
Verified by .....	F. L. Rosario
Reviewed by .....	L. Quinlan
	Date: June 16, 1975
Cursory inspection made--survey	D. J. Romesburg
processing considered complete .....	June 15, 1977

1. Control and Shoreline

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

The shoreline originates with Class I (advanced manuscript) T-11796 of 1963 and 1969 photography and field edited in 1972.

The mean high water line is shown for guidance only as its true position is shown on the topographic survey previously mentioned.

2. Hydrography

a. Depths at crossings are generally in very good agreement.

b. The usual depth curves were adequately delineated seaward of the 20-foot depth curve. Inshore of this curve the foul, irregular bottom and surf precluded complete depth curve delineation.

c. The development of the bottom configuration and determination of least depths are considered adequate except as noted in section 3.a of this Review Report.

### 3. Condition of Survey

The field work, survey records, automated plotting, and the Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual and the Instruction Manual - Automated Hydrographic Surveys except as follows:

a. Line spacing is too wide to adequately define the bottom configuration inshore around some of the points.

b. There were no detached positions on rocks or other foreshore features. Detached positions taken offshore were not identified.

### 4. Junctions

An adequate junction was effected with H-9346 (1972) on the west and south.

### 5. Comparison with Prior Survey

H-4768 (1928) 1:5,000

This survey covers the entire area of the present survey. A comparison between the prior and present surveys revealed minor differences in depth. These differences are attributed to the surveying methods employed.

Several rocks and soundings were carried forward from the prior survey to supplement the present survey in the inshore area.

Some unresolved differences in control may exist in this area. The photogrammetric position of Captain Cook's Monument differs with the triangulation position by about 10 meters. Many identifiable shoreline features and offlying rock islets and rocks awash differ with respect to the triangulation in the area. Items carried forward from the prior survey have been transferred, therefore, relative to shoreline features.

### 6. Comparison with Chart 4123, 15th Edition, December 29, 1973

#### a. Hydrography

The charted hydrography originates with the previously discussed prior survey which requires no further consideration and is supplemented by the boat sheet H-9308a (1972).

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Attention is directed to section J, H-9308a Descriptive Report for information on Presurvey Review items.

It should be noted that the chart is on an old datum which preceded the Old Hawaiian Datum.

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

b. Aids to Navigation

There is one aid to navigation within the common area and it agrees with its charted position.

7. Compliance with Instructions

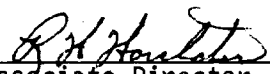
The survey adequately complies with the project instructions except as noted in paragraph 3.a.

8. Additional Field Work

This survey is considered to be a basic survey and no additional work is recommended.

Examined and Approved:

  
\_\_\_\_\_  
Chief  
Marine Surveys Division

  
\_\_\_\_\_  
Associate Director  
Office of Marine Surveys  
and Maps

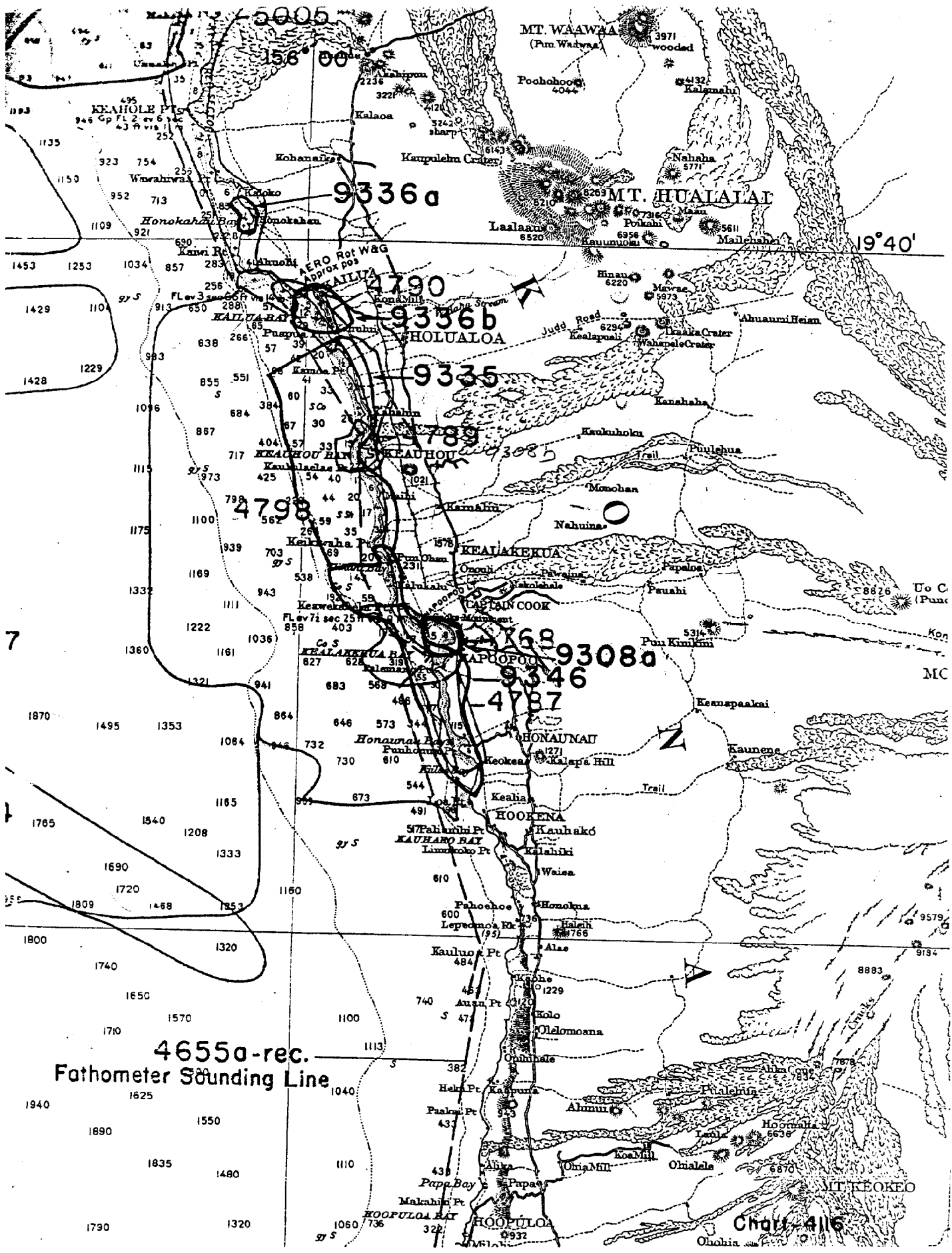
H-9308A

Information for Future Presurvey Reviews

<u>Position Index</u>		<u>Bottom Change</u>	<u>Use</u>	<u>Resurvey</u>
<u>Lat.</u>	<u>Long.</u>	<u>Index</u>	<u>Index</u>	<u>Cycle</u>
192	1560	1	2	50 years

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4655a-rec.  
Fathometer Sounding Line

Chart 4116