

9339

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-80-1-72.....  
Office No. H-9339.....

LOCALITY

State Hawaii.....  
General Locality Hawaii - Kona Coast.....  
Locality Off Hoopuloa Pt. to Keahole Pt......

19 72

CHIEF OF PARTY

G. E. Haraden.....

LIBRARY & ARCHIVES

DATE 6-27-75.....

9339

Chart 4123 / Nos / Hydro + Topo /  $19^{\circ} 29' 32''$  - south edge  
 $155^{\circ} 55' - 155^{\circ} 58'$

Revised shoreline, soundings + curves

KANIS

HYDROGRAPHIC TITLE SHEET

H-9339

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-80-1-72

State HAWAII

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

Locality POINT OFF HOOPULO<sup>POINT</sup>A TO KEAHOLE POINT

Scale 1:80,000 Date of survey 10-13 October 1972

Instructions dated 15 June 1972 Project No. OPR-419-RA-72

Vessel NOAA Ship RAINIER

Chief of party CAPT. G.E. Haraden <sup>J.W.</sup> <sup>R.D.</sup> <sup>R.G.</sup>  
LCDR GELB, LT MORDOCK, LTJG MCCABE, LTJG BAACK, LTJG HENDERSHOT,

Surveyed by LTJG SCHIRO, LTJG HOLLINSHEAD

Soundings taken by echo sounder, ~~EDO 1200 PDR~~ <sup>R.A.</sup> <sup>S.J.</sup> Ross Model 5000 (SN:1042), PDR (SN:324), PDR  
(SN:417), EDO Transceiver Model 248 (SN:202&217)

Graphic record scaled by Ship's Personnel

Graphic record checked by Ship's Personnel

Positions verified

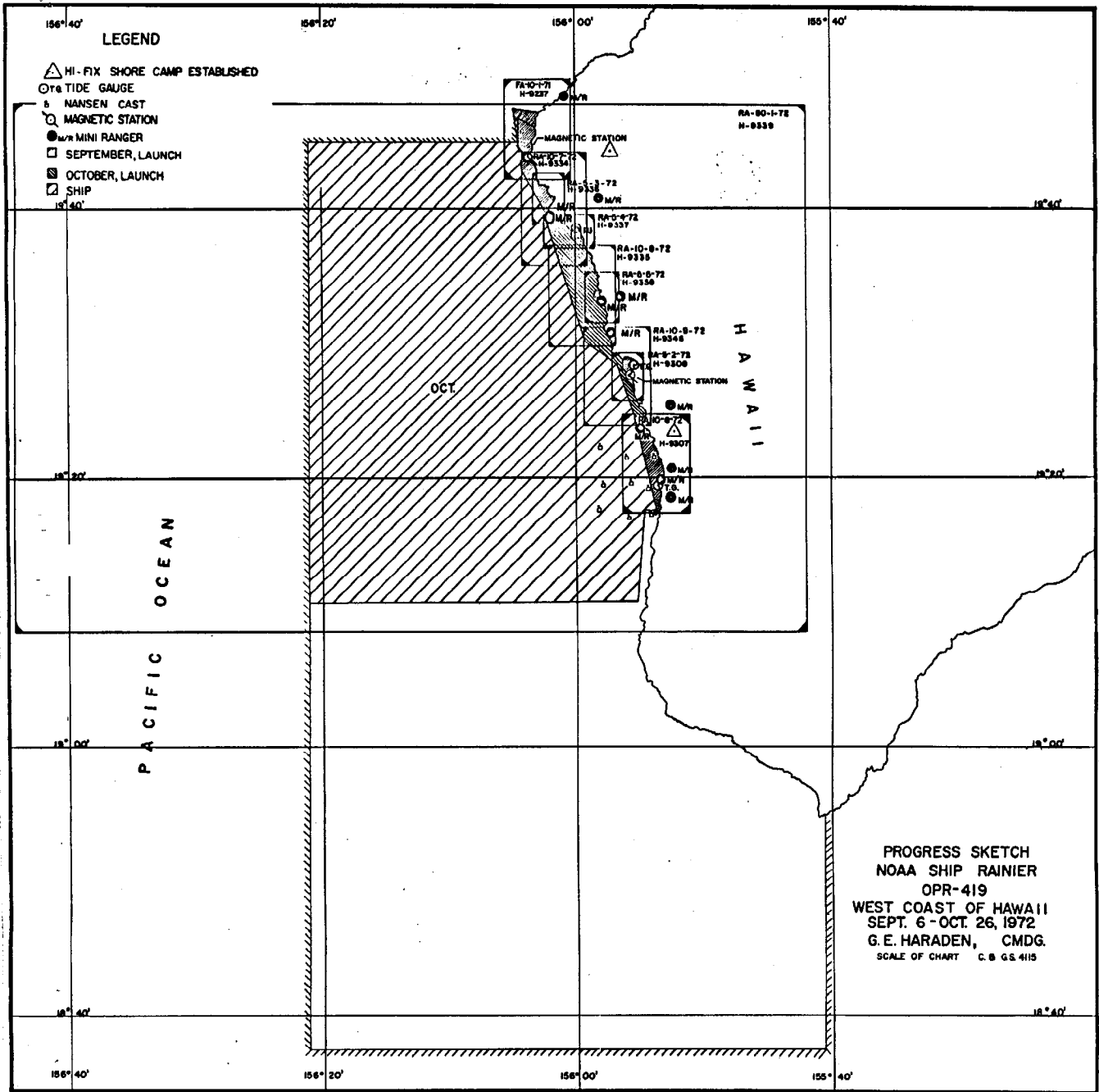
~~checked~~ by F.L. Rosario Automated plot by Xynetics Plotter-PMC

Soundings ~~checked~~ <sup>verified</sup> by F.L. Rosario

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

REMARKS: The Modified Transverse Mercator Projection, soundings and position numbers on the boatsheet were plotted by the RAINIER's PDP 8/e computer and COMLOT plotter.

*Applied to atlas 8/18/75*  
*CR*



✓

DESCRIPTIVE REPORT  
TO ACCOMPANY HYDROGRAPHIC SURVEY

RA-80-1-72

H-9339

Scale 1:80,000

1972

NOAA Ship RAINIER

CAPT G.E. HARADEN  
Commanding

#### A. PROJECT

The survey was conducted in accordance with PROJECT INSTRUCTIONS: OPR-419-RA-72, dated 15 June 1972 and Change Number 1, dated 11 September 1972.

#### B. AREA SURVEYED

The 850 square nautical mile area surveyed is centered approximately ten nautical miles west of Napoopoo. The survey is bounded north and south by latitudes  $19^{\circ} 45' N$  and  $19^{\circ} 10' N$  and east and west by the Kona Coast and longitude  $156^{\circ} 21' W$ .

The survey began on 10 October, and was completed by 13 October 1972.

Prior surveys of this area are H-4957 (1:80,000 - 1929), H-4798 (1:20,000 - 1928), and H-5054 (1:250,000 - 1929), AR-80-1-69 (1:80,000 - 1969), and AR-40-1-69 (1:40,000 - 1969).

Junctions were made with the following surveys: H-9237, (FA-<sup>10</sup>1-71), H-9334 (RA-10-7-72), H-9335 (RA-10-8-72), H-9346 (RA-10-9-72), H-9307 (RA-10-6-72). See Review-section 4

See Verifier's Report

#### C. SOUNDING VESSEL

Soundings were obtained by the NOAA Ship RAINIER (2120). The soundings along main scheme lines are shown on the boat sheet in black ink and crosslines are shown in red ink.

#### D. SOUNDING EQUIPMENT

NOAA Ship RAINIER used Ross Fathometer Model 5000 (SN: 1042) and the EDO Transceivers Model 248, (SN: 202 & 217) in depths from 39 to 183 fathoms along the shoreline. The initial value was inspected continuously during the survey. No abstract of initial corrections was compiled since any observed difference in the initial appeared only on the analog record and not on the digitized record. In check scanning the fathogram, the initial correction was considered before reading the analog value. The fathogram was scanned continuously in the field and compared to the Hydrolog digitized value. Judicious use of the blanking function was made in an attempt to eliminate spurious returns.

Internal phase comparisons were routinely made throughout the survey. A 2.5 fathom draft correction was used for on-line plotting purposes.

McKiernan-Terry PDR Mark XVA Recorders (SN: 324 and SN: 417) were used in conjunction with EDO Transceivers Model 248, (SN: 202 and 217) for the remaining soundings, in depths from 100 to 2546 fathoms. The fathogram was inspected continuously while underway, and sounding values were manually entered into the on-line Hydroplot Controller.

A 2.5 fathom draft correction was applied to these soundings for on-line plotting purposes.

All fathometer corrections were compiled on the Transducer Correction/ Table Indicator (TC/TI) tape. Underway measurements determined the draft to be 2.7 fathoms. Velocity corrections were computed from temperature and salinity observations obtained from a Nansen Cast taken on 13 October 1972 at latitude 19° 17.8' N and longitude 155° 58.2' W. The resulting velocity correction table was entered on tape and referenced in the TC/TI tape. For further information on sounding corrections, consult the Oceanography and Sounding Correction Report, OPR-419, NOAA Ship RAINIER, 1972.

The Ross fathometer operated adequately, except when sounding on steep slopes. It was very difficult to determine sounding values for depths greater than 100 fathoms when the bottom dropped off rapidly.

Sounding values were often difficult to determine from PDR analog records. Continuous monitoring of the EDO Transceiver power output and amplifier gain in conjunction with PDR recorder gain was necessary to obtain adequate sounding records. Fathometer operators who were not completely familiar with the operation of the PDR system often lost the bottom trace which made check scanning very difficult.

#### E. SMOOTH SHEET

The smooth sheet will be plotted by the Pacific Marine Center Electronic Data Processing Division.

The boat-sheet was produced aboard the RAINIER via the Digital Equipment Corporation PDP 8/e computer and the COMLOT plotter. A Modified Transverse Mercator Projection was employed. Fixes from electronic control and soundings were plotted via the Complot plotter on a paper boat-sheet using the PDP 8/e Hydroplot system.

#### F. CONTROL

Hi-Fix electronic control, utilizing the two range - Type A mode configuration, transmitting with moderate power on 1799.6 kHz was used for position control.

Slave station 1 was located over reference mark MOANUIAHEA RM 3, 1972 latitude 19° 44' 29.641" N and longitude 155° 57' 20.386" W. Slave station 2 was located over triangulation station CAROL 1972 latitude 19° 23' 45.273" N and longitude 155° 52' 19.217" W. Slave station 1 was located 480.0 meters above sea level, and Slave station 2, 427.5 meters above sea level.

Few electronic problems were experienced with the Hi-Fix equipment aboard ship during the survey. Calibration of the Hi-Fix receivers was accomplished by visual three point sextant fixes with check angles on signals located along shore by ground survey methods. For the geographic positions of all signals, see ~~Separates Following Text~~, the appendix. The receivers were calibrated at the beginning and end of each period of hydrography and whenever lock was lost or there was doubt of the whole lane count.

For further information on Hi-Fix control, see Hi-Fix Report, OPR-419, NOAA Ship RAINIER, 1972. ✓

#### G. SHORELINE

*See Verifier's Report*

Shoreline details for the boat-sheet were taken from shoreline manuscripts: T-12547, T-12548, and C&GS Chart 4115. Since this was basically an offshore survey, no attempt was made to verify the shoreline at the scale of the survey. Shoreline verification information is contained in descriptive reports for contemporary inshore surveys, H-9237, H-9334, H-9335, H-9346, H-9307, H-9308, H-9337, H-9336, and H-9338, OPR-419, NOAA Ship RAINIER, 1972. ✓

*See Verifier's Report*

#### H. CROSSLINES

Crosslines amounted to 15% of the mainscheme miles run. In general the crosslines are excellent, agreeing within five fathoms of mainline soundings. The uniform slope affords a good check on soundings. Crosslines are plotted with red ink on the boat-sheet. ✓

#### I. JUNCTIONS

The survey area is joined on the north by survey sheets AR-80-1-69 (H-9016) scale 1:80,000, 1969 and AR-40-1-69<sup>(H-9015)</sup> scale 1:40,000, 1969. Soundings which junction on the north edge of H-9339 agree with no displacement of the depth curves. These comparisons are considered adequate and no adjustments are necessary. Junction soundings from AR-80-1-69 are plotted with special violet ink and soundings from AR-40-1-69 are plotted with special blue ink.

The survey area is junctioned on the <sup>north-</sup>east by H-9237 (FA-10-1-71), on the east by H-9334 (RA-10-7-72), H-9335 (RA-10-8-72), H-9346 (RA-10-9-72), H-9307 (RA-10-6-72).<sup>and H-9336 (1971)</sup> Soundings from these surveys agree within one fathom with soundings on H-9339.

*See Verifier's Report*

#### J. COMPARISON WITH PRIOR SURVEYS

Earlier soundings from H-4957, scale 1:80,000, 1929, H-4798 scale 1:20,000, 1928 and H-5054, scale 1:250,000, 1929 disagree significantly with soundings from H-9339. Over 60% of the soundings from H-4957 are more than 50 fathoms deeper (some are over 100 fathoms deeper) ✓



than soundings from H-9339. The same is true for prior surveys H-4798 and H-5054. It is ~~feasible~~<sup>possible</sup> that due to steep bottom gradients, side lobes of the transducer's acoustic beam are indicating shallower depths than actually exist at a given position. The noted depth differences however, are not considered attributable to such side echoes (See Review-sect.5)

Because of the increased accuracy resulting from more modern surveying techniques, it is recommended that soundings from H-9339 be used in lieu of ~~precedence over~~ soundings from prior surveys H-4957, H-4798, and H-5054 for charting purposes.

#### K. COMPARISON WITH THE CHARTS

This survey compares favorably with soundings from C&GS Chart 4140, 4th Edition, 25 October 1969 (1:80,000). The 1,000 fathom contour on C&GS Chart 4140 is approximately one-half mile closer to shore than on H-9339, and the 500 fathom contour is about one-quarter mile closer to shore than on H-9339. H-9339 agrees favorably with C&GS Chart 4115, 9th edition, 13 June 1970 (1:250,000). The displacement of the depth contours is congruous with the discussion of prior surveys. ✓

There were no new dangers to navigation and no significant shoal areas discovered by this survey.

*See Verifiers Report*

#### L. ADEQUACY OF SURVEY

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

#### M. AIDS TO NAVIGATION

Long range navigation aids included by this survey area are Milolii Point Light (latitude 19° 11.5' N, longitude 155° 54.6' W), Napoopoo Light (latitude 19° 28.9' N, longitude 155° 56.3' W), Keauhou Bay and Keauhou Bay Entrance Directional Lights (latitude 19° 33.9' N, longitude 155° 57.9' W), Kailua Light (latitude 19° 38.5' N, longitude 156° 00.2' W), Honokahau Harbor Entrance Channel Directional Light (latitude 19° 40.4' N, longitude 156° 01.7' W), Honokahau Harbor Entrance Channel Light 3, Channel Light 4, and Channel Light 5 (latitude 19° 40' 22.4" N, longitude 156° 01' 47.9" W, latitude 19° 40' 20.4" N, longitude 156° 01' 45.9" W, and latitude 19° 40' 20.7" N, longitude 156° 01' 43.2" W, respectively), and Keahole Point Light (latitude 19° 43.9' N, longitude 156° 03.8' W). These navigational aids are adequately described in the 1972 Coast Guard Light List. A new aid to navigation is the Kona Hilton Hotel facade (two curved lines of yellow lights at latitude 19° 38' 05.50" N, longitude 155° 59' 36.04" W), and should be charted on charts C&GS 4140 and 4164. The Aero Beacon at latitude 19° 38' 45.30" N, longitude 156° 00' 26.25" W has been discontinued and should be deleted from all charts. Keahole Aero Light, listed at latitude 19° 44.3' N, longitude 156° 02.3' W in the ✓

1972 Coast Guard Light List, was accurately located by field work during Project OPR-419, 1971 by NOAA Ship FAIRWEATHER. It is an important navigational aid and should be plotted on all charts of this area. ✓

All other shorter range aids to navigation are covered in the descriptive reports for the contemporary surveys of the shoreline area adjacent to this survey. See Descriptive Report for H-9237, H-9334, H-9335, H-9346, OPR-419, NOAA Ship RAINIER, 1972. ✓

*See Verifier's Report*

#### N. STATISTICS

Sheet H-9339 (RA-80-1-72) contains 636 nautical miles of sounding lines and approximately 850 square miles. The total number of positions is 534. Fifteen nansen casts and no bottom samples were taken. All hydrography was run by NOAA Ship RAINIER. ✓

#### O. DATA PROCESSING

NOAA Ship RAINIER used the NOS Hydrolog system to plot soundings, punch a master tape and generate a listing while on-line. An edited master tape, corrected for slope distance to horizontal distance from Hi-Fix stations, was prepared for all positions using program RA 810. ✓

Corrector tapes were prepared using the standard Hydroplot/ Hydrolog format for all peaks, deeps, sounding and control changes.

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. ✓

*See Verifier's Report*

P. REFERENCES TO REPORTS

1. Oceanography and Sounding Corrections, OPR-419, NOAA Ship RAINIER, 1972
2. Hi-Fix Report, OPR-419, NOAA Ship RAINIER, 1972
3. Descriptive Report, FA-10-1-71, H-9237, OPR-419, NOAA Ship RAINIER, 1972
4. Descriptive Report, RA-10-7-72, H-9334, OPR-419, NOAA Ship RAINIER, 1972
5. Descriptive Report, RA-10-8-72, H-9335, OPR-419, NOAA Ship RAINIER, 1972
6. Descriptive Report, RA-10-9-72, H-9346, OPR-419, NOAA Ship RAINIER, 1972
7. Descriptive Report, RA-10-6-72, H-9307, OPR-419, NOAA Ship RAINIER, 1972
8. Descriptive Report, RA-5-2-72, H-9308, OPR-419, NOAA Ship RAINIER, 1972
9. Descriptive Report, RA-5-3-72, H-9336, OPR-419, NOAA Ship RAINIER, 1972
10. Descriptive Report, RA-5-4-72, H-9337, OPR-419, NOAA Ship RAINIER, 1972
11. Descriptive Report, RA-5-5-72, H-9338, OPR-419, NOAA Ship RAINIER, 1972

Respectively submitted,

*R. David Black*

R. David Black  
LTJG, NOAA

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APPENDIX  
~~SEPARATES FOLLOWING THE TEXT~~

1. Tide Note
  2. Abstract of Corrections to Echo Soundings
  3. Electronic Control Abstract
  4. List of Calibration Signals
  5. Index to survey sheets and Hi-Fix station locations
  6. Parameter Tape Listings
  7. Abstract of Position Numbers
  8. EDAT Form I
  9. Approval Sheet
-

TIDE NOTE

It is recommended that the tide station at Kailua, Hawaii (latitude  $19^{\circ} 38.52'$  N and longitude  $155^{\circ} 59.97'$  W) be used to control the soundings on this survey. Hourly heights will be furnished to the PMC Processing Division by the ship. Reduction to MLLW, and copies of the marigrams will be furnished by Tides Division, Rockville. Hourly heights are complete for this sheet. ✓

Predicted tides for boat-sheet control were obtained from the Tide Tables, 1972, West Coast of North and South America using the Kailua subordinate station. The tides were machine generated, and applied directly to the data when plotted by the computer.

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ABSTRACT OF CORRECTIONS TO ECHO SOUNDINGS

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0.2 0.6 (Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.) 1.0 1.4 1.8 2.2 2.6 3.0 3.4 3.8 4.2 4.6 5.0

CORRECTIONS IN  FATHOMS

FORM C&GS-117  
(4-62)

U.S. DEPARTMENT OF COMMERCE  
COAST AND GEODETIC SURVEY

VELOCITY CORRECTIONS

Ship RAINIER  
G. E. HARADEN Comdg.  
These corrections are to be used  
between 10 OCT 1972 and 13 OCT 1972  
in the locality KONA COAST  
for hydrographic surveys Nos. RA-80-1-72

(For deep water add a 0 to these figures)

DEPTHS IN FATHOMS

DEEP WATER CURVE #2  
DEEP WATER CURVE #1 - MULTIPLY UPPER 1/2 SIDE SCALE BY 10  
ADD 200.0 TO BOTTOM SCALE  
DEEP WATER CURVE #2  
DEEP WATER CURVE #1 - MULTIPLY UPPER 1/2 SIDE SCALE BY 10

TABLE NO. 9

CORRECTION TO DEPTHS (fms-fms)

Correction	Depth	Correction	Depth
1.2	287	2.4	53.0
1.4	33.0	2.6	57.0
1.6	37.0	2.8	61.5
1.8	41.0	3.0	66.0
2.0	45.0	3.2	70.5
2.2	49.0	3.4	75.0
		3.6	79.5
		3.8	84.5
		4.0	90.0
		4.2	95.5
		4.4	101
		4.6	110
		5.0	124
		5.5	143
		6.0	200
		8.0	340
		10.0	495
		12.0	645
		14.0	795
		16.0	910
		18.0	1020
		20.0	1135
		22.0	1250
		24.0	1355
		26.0	1465
		28.0	1585

For Depths 100-200,  
Add 4.0 to Correction

358-1017  
MADE IN U.S.A.

20 X 20 TO THE INCH  
KEUFFEL & ESSER CO.



1349, 352  
349 VELOCITY CORRECTION TAPE  
350 RA-80-1-72  
351 2120  
352 TABLE NO. 0009

\*

1353, 393

353	000287	0	0012	0009	000	000000	000000
354	000330	0	0014				
355	000370	0	0016				
356	000410	0	0018				
357	000450	0	0020				
358	000490	0	0022				
359	000530	0	0024				
360	000570	0	0026				
361	000615	0	0028				
362	000660	0	0030				
363	000705	0	0032				
364	000750	0	0034				
365	000795	0	0036				
366	000845	0	0038				
367	000900	0	0040				
368	000955	0	0042				
369	001010	0	0044				
370	001100	0	0046				
371	001240	0	0050				
372	001430	0	0055				
373	002000	0	0060				
374	003400	0	0080				
375	004950	0	0100				
376	006450	0	0120				
377	007950	0	0140				
378	009100	0	0160				
379	010200	0	0180				
380	011350	0	0200				
381	012500	0	0220				
382	013550	0	0240				
383	014690	0	0260				
384	015850	0	0280				
385	017000	0	0300				
386	018150	0	0320				
387	019280	0	0340				
388	020380	0	0360				
389	021550	0	0380				
390	022680	0	0400				
391	023800	0	0420				
392	024950	0	0440				
393	026100	0	0460				

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See Verifier's Report



TC/PI TAPE  
BA-83-1-72  
FATH: PURZEDO, ROSS 1042  
2120

111800 0 0027 0009 284 000000 000000  
000036 0 0027 0009 285 000000 000000  
000100 0 0027 0009 286 000000 000000

ELECTRONIC CONTROL ABSTRACT

## ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2120

SHEET : RA-80-1A-72

TIME	DAY	PATTERN 1	PATTERN 2
111800	284	+00048	+00034
150501		+00044	+00032
155000		+00044	+00032
143300	285	-00256	+00232
144030		-00256	+00232
162231		-00256	+00232
163001		-00256	+00232
180430		-00256	+00232
181200		-00256	+00232
200017		-00256	+00232
200747		-00256	+00232
213601		-00256	+00232
214331		-00256	+00232
223731		-00156	+00132
224801		-00256	+00132
231130		-00256	+00132
231730		-00156	+00232
231900		-00156	+00232
233700		-00156	+00332
000100	286	-00156	+00332
013200		-00156	+00332
013800		-00156	+00332
014230		-00156	+00232
020500		-00156	+00332
024700		-00156	+00432
025730		-00156	+00432
031230		-00156	+00432
032300		-00056	+00632
040500		-00056	+00729
042430		-00056	+00629
042730		-00056	+00629
043500		-00056	+00629
045600		+00044	+00629
054231		+00044	+00629
055131		+00044	+00629
060031		+00044	+00529
065901		+00044	+00529
070631		+00044	+00529
084358		+00044	+00332
110530		+00056	+00040
133032		+00056	+00040

## ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2120

SHEET : RA-80-1B-72

TIME	DAY	PATTERN 1	PATTERN 2
160116	284	+00044	+00032
171746		+00044	+00032
180116		+00144	+00032
182816		+00044	+00032
184146		-00056	+00032
185216		-00156	+00032
191231		-00156	+00032
191701		-00156	+00132
192131		-00156	+00132
211016		-00156	+00132
211746		-00156	+00132
222216		-00256	+00132
222246		-00356	+00132
231106		-00356	+00132
231836		-00356	+00132
020036	285	-00356	+00132
010614		-00356	+00132
011344		-00356	+00132
021044		-00356	+00232
022544		-00356	+00332
030614		-00356	+00332
031301		-00356	+00232
035201		-00356	+00332
043531		-00256	+00332
050404		-00256	+00332
050704		-00256	+00332
052936		-00256	+00332
053706		-00256	+00332
054906		-00256	+00232
055938		-00256	+00232
060408		-00256	+00232
080023		-00256	+00232
080753		-00256	+00232
095253		-00256	+00232
095647		-00256	+00232
102248		-00256	+00232
103018		-00256	+00232
104720		-00256	+00232
104850		-00256	+00232
124206		-00256	+00232
124636		-00256	+00232
142537		-00256	+00232
133931	286	+00056	+00040
145131		+00056	+00040
164233		+00056	+00040

LIST OF CALIBRATION SIGNALS

CALIBRATION STATION LISTING  
RA-80-1-72  
Kona Coast, Hawaii, 1972

101	19 43 5128	156 03 4982	KEAHOLE PT LIGHTHOUSE, 1928
102	19 43 3986	156 03 3892	
103	19 43 2792	156 03 3256	
104	19 43 1220	156 03 0918	
105	19 40 0925	156 01 5422	
106	19 40 0810	156 01 5902	
107	19 39 4036	156 02 0326	KAIWI, 1972
108	19 39 0837	156 01 4822	KEAHUOLU PT SW RANGE MARKER, 1948
109	19 39 2701	156 01 3934	
110	19 39 0980	156 01 4220	
111	19 39 0979	156 01 4193	KEAHUOLU R.M. 1, 1928 - 1948
112	19 38 2706	156 00 1328	KAILUA LT (PHOTO LOCATION)
113	19 38 3385	155 59 4760	KAILUA, MOKUAIKACA CHURCH, SPIRE, 1913
114	19 37 2348	155 59 1691	KAHELO (H.G.S.), 1882
115	19 35 2767	155 58 2842	
116	19 34 0413	155 58 0709	
117	19 33 4233	155 58 0821	
118	19 33 2339	155 58 1019	
119	19 30 5253	155 57 2084	
120	19 29 2575	155 57 0916	
121	19 29 1460	155 57 0377	
122	19 28 5588	155 56 2159	
123	19 29 0335	155 56 1008	
124	19 28 2118	155 55 0580	
125	19 27 4315	155 55 4827	
601	19 24 0366	155 54 4726	
602	19 23 4609	155 54 4104	
603	19 23 0068	155 54 1034	
604	19 22 4067	155 53 5275	PUIWA, 1972
606	19 22 5727	155 53 5955	
607	19 22 5285	155 53 5753	
608	19 22 4823	155 53 5554	
609	19 22 3883	155 53 5654	
610	19 22 3600	155 53 5818	
611	19 19 3160	155 53 2966	KAULUOA, 1972
612	19 19 0250	155 53 1247	KAHOE, 1972
613	19 18 3412	155 53 2420	KUKU, 1972
614	19 18 1379	155 53 3022	AUAU, 1972
630	19 21 5435	155 53 4211	
3			
641	19 20 1158	155 53 1453	
642	19 20 0462	155 53 1713	
643	19 19 5249	155 53 1898	
644	19 19 4690	155 53 2412	
645	19 19 4004	155 53 3148	
646	19 19 3178	155 53 3412	(PHOTO PICK)

NOTE: Only those positions underlined were used for calibration purposes.

# 900 MORNUIAHEA RM 3, 1972 } See Parameter Tape Listing for G.P.'s  
# 901 CAROL, 1972 }

INDEX TO SURVEY SHEETS AND HI-FIX STATION LOCATIONS

*Precedes the text of the D.R.*

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PARAMETER TAPE LISTINGS

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RA-80-1-72 PARAMETER TAPE LISTINGS

FEST=71000  
CLAT=2050000  
CMER=156/00/00  
GRID=300  
PLSCL=80000  
PLAT=19/23/50  
PLON=156/23/00  
S1LAT=19/44/29.641 } = 0 #900 MOANUIAHER RM 3, 1972  
S1LON=155/57/20.386 }  
S2LAT=19/23/45.273 } = 0 #901 CAROL, 1972  
S2LON=155/52/19.217 }  
Q=1799.6  
VESNO=2120  
YR=72

FEST=71000  
CLAT=2050000  
CMER=156/00/00  
GRID=300  
PLSCL=80000  
PLAT=19/08/30  
PLON=156/23/00  
S1LAT=19/44/29.641  
S1LON=155/57/20.386  
S2LAT=19/23/45.273  
S2LON=155/52/19.217  
Q=1799.6  
VESNO=2120  
YR=72

✓

ABSTRACT OF POSITION NUMBERS

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ABSTRACT OF POSITIONS  
RA-80-1-72  
Kona Coast, Hawaii, 1972

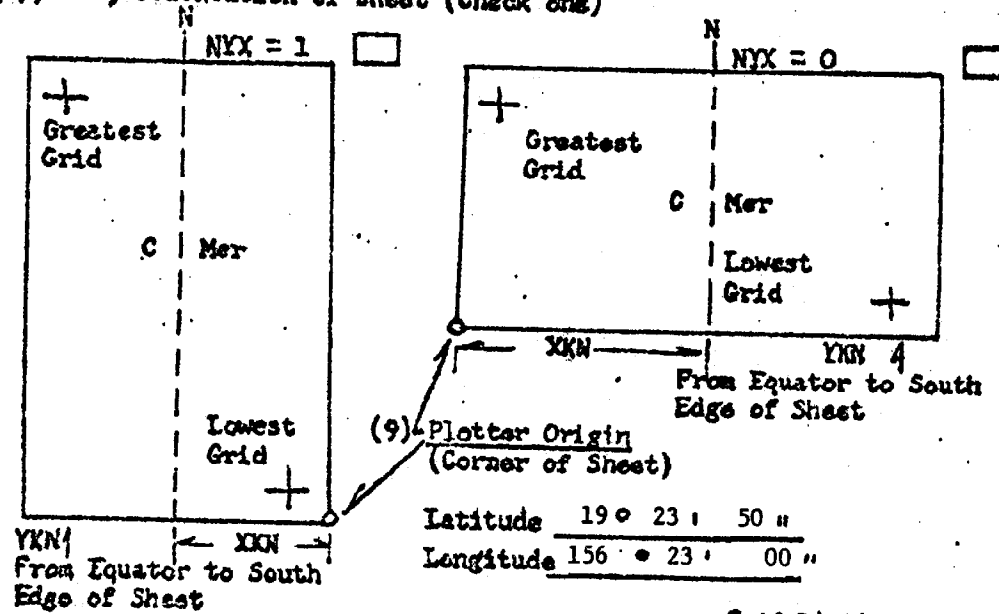
<u>VESSEL</u>	<u>JULIAN DAY</u>	<u>POSITION NUMBERS</u>	<u>REMARKS</u>
MSS-21	284	1 - 13 16 - 112	
MSS-21	285	113 - 365	
MSS-21	286	366 - 523 525 - 526	522 - 523 525 - 526 Nansen Casts
MSS-21	287	527 - 537	527 - 537 Nansen Casts

✓

EDAT FORM I

PART 2  
**PARAMETERS FOR DIGITAL COMPUTING  
 POLYCONIC PROJECTION**

- (1) Project No. OPR-419 (4) Requested by G. E. Haraden  
 (2) H No. 9339 (5) Ship or Office RAINIER  
 (3) Field No. RA-80-1A-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)  
 or West Edge (NYX = 0). (Origin) \_\_\_\_\_ Meters  
 (11) YKN (SP 241) Distance from Equator to South Edge  
 of Sheet. (Origin) \_\_\_\_\_ Meters  
 (12) Central Meridian \_\_\_\_\_  
 (13) Survey Soale \_\_\_\_\_  
 (14) Size of Sheet (Check one) 36x60  42x60   
 (15) NYX, Orientation of sheet (Check one)



Grid Limits	
(16) Greatest Latitude	<u>19° 45' 00"</u> (Projection Line Interval Page 4
(17) Lowest Latitude	<u>19° 25' 00"</u> Hydro Manual)
(18) Difference	<u>20' "</u> (19) _____
(21) Greatest Longitude	<u>156° 20' 00"</u> (20) <u>YKN</u>
(22) Lowest Longitude	<u>155° 50' 00"</u> (24) _____
(23) Difference	<u>30' 00"</u> (25) <u>XKN</u>

APPROVAL SHEET

H-9339 (RA-80-1-72)

OPR-419-RA-72

Kona Coast, Hawaii

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

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

*G.E. Haraden*

G.E. HARADEN  
CAPT, NOAA

GEOGRAPHIC NAMES

H-9339

Name on Survey	A	B	C	D	E	F	G	H	K
	ON CHART NO.	ON PREVIOUS SURVEY NO.	ON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP	GRAND McNALLY ATLAS	U.S. LIGHT LIST	

Keahole Point										1
Kailua Kona										2
Keauhou										3
Napoopoo										4
Hoopuloa										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25

Approved  
*Chas. E. Harrington*  
 Staff Geographer - CS1K2  
 24 March 1976

H 4-9339  
 Field No. \_\_\_\_\_  
 \_\_\_\_\_

H E R O I P A R A M E T E R C A R D S  
 Computer G.P.'s from Electronics Controlled Baseline

Parameter Card I	Deg.Hm. Seconds																								
	FIELD CODES																								
HYDRO NAME <i>McKINLEY</i>	Lab.	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
	LONG	155	57	26	33	86	4																		
Survey Pt	Lab.	19	23	45	27	3	7																		
HYDRO NAME <i>CHICK</i>	LONG	155	52	19	21	7																			
Asimuth IN to R2		347	63	5	1	85																			
Baseline Distance in meters																									
Velocity Code	0 - No Vol. Table	1 - 1 Vol. Table	2 - 2 Vol. Table	3 - 3 Vol. Table	4 - 4 Vol. Table	5 - 5 Vol. Table	6 - 6 Vol. Table	7 - 7 Vol. Table	8 - 8 Vol. Table	9 - 9 Vol. Table	10 - 10 Vol. Table	11 - 11 Vol. Table	12 - 12 Vol. Table	13 - 13 Vol. Table	14 - 14 Vol. Table	15 - 15 Vol. Table	16 - 16 Vol. Table	17 - 17 Vol. Table	18 - 18 Vol. Table	19 - 19 Vol. Table	20 - 20 Vol. Table	21 - 21 Vol. Table	22 - 22 Vol. Table	23 - 23 Vol. Table	24 - 24 Vol. Table
Conversion factor for electronic	Stas. W. M. #	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
K-identification number																									
Location of survey with respect to electronic baseline	- CA = 1	1 - CA = 1	2 - CA = 1	3 - CA = 1	4 - CA = 1	5 - CA = 1	6 - CA = 1	7 - CA = 1	8 - CA = 1	9 - CA = 1	10 - CA = 1	11 - CA = 1	12 - CA = 1	13 - CA = 1	14 - CA = 1	15 - CA = 1	16 - CA = 1	17 - CA = 1	18 - CA = 1	19 - CA = 1	20 - CA = 1	21 - CA = 1	22 - CA = 1	23 - CA = 1	24 - CA = 1
Velocity boundary	IVL = 2	IVL = 3	IVL = 4	IVL = 5	IVL = 6	IVL = 7	IVL = 8	IVL = 9	IVL = 10	IVL = 11	IVL = 12	IVL = 13	IVL = 14	IVL = 15	IVL = 16	IVL = 17	IVL = 18	IVL = 19	IVL = 20	IVL = 21	IVL = 22	IVL = 23	IVL = 24	IVL = 25	IVL = 26
IF SHORT CALIBRATION CORRECTION IS APPLIED BY EQUATION (USE SHERMAN CARD) FURNISH 1 IN COLUMN 80	YR	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93

Sherman Card Format (When calibration correction is applied by a line K x + C)  
 (LINE 5, 11, 17, OR 25 IF RESP. CONSTANT IS NEGATIVE)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25

Normalized Punched MIC H2N Observed H2C



H-9339  
 Field No. RA-80-01-72  
 Date 11-23-73

WPMO TR AND TIT PARAVETER CARD

PARAVETER CARD II

Central major axis of the earth	6.378,206.4	RDA	1	2	3	4	5	6	7	8	9	10
Constant - Distance from central meridian to origin of plotter SP 5		YXV	11	12	13	14	15	16	17	18	19	20
Y Constant - Distance from equator to origin of plotter SP 241		YXN	2	3	4	5	6	7	8	9	10	11
Central Meridian of Projection	156 05 00	CRS	5	6	7	8	9	10	11	12	13	14
Plotter Scale/Survey Scale	1:30,966.6876	SCA	1	2	3	4	5	6	7	8	9	10
North/South axis of sheet - to correspond to (Y axis - 0)		NYX										
Foot/Fathom indicator	0 - feet 1 - fathom	FOI										
Identification No.		JR										
		YR										

FOI - 1

PARAVETER CARD III

Lowest Lat. Intersection	19	00	00	YST	1	2	3	4	5	6	7	8	9	10
Lowest Long. Intersection	155	50	00	XST	11	12	13	14	15	16	17	18	19	20
Difference between Grid				DIF	21	22	23	24	25	26	27	28	29	30
Interval (Long)				XSN										
Interval (Lat)				YSN										

Computed \_\_\_\_\_  
 Punched \_\_\_\_\_  
 Checked \_\_\_\_\_  
 Date \_\_\_\_\_

COMPUTER PARAMETERS FOR ELECTRONICALLY CONTROLLED SURVEYS

(RANGE - RANGE)

(1) Project No. 711 (2) N. No. 911.7 (3) Field No. RA-80.1-72

(4) Type of Control: SHORAN, RAYDIST,  HI-FIX,  RADAR  
Frequency (for conversion of RAYDIST or HI-FIX lanes to meters) 1779.6 KHz

900 (5) RANGE ONE (R1) Latitude 19° 44' 29.641"  
Station Name MEANLINE RD 3 Longitude 155° 57' 20.386"

901 (6) RANGE TWO (R2) Latitude 19° 23' 45.273"  
Station Name CAROL Longitude 155° 52' 19.217"

(7) Azimuth from R1 to R2 347° 03' 51.788"

(8) Baseline Length in Meters 39256.857 M.

(9) Location of survey with respect to Electronic Baseline: CHECK ONE  
(To determine: imagine an observer standing at R1 and looking directly at R2 --- if the survey area is to the observer's LEFT then A is negative; if the survey area is to the observer's RIGHT then A is positive.)

       -A (minus)       +A (plus)

(10) if SHORAN corrections are applied by the equation,  $K(X) + C = D$ , where X is SHORAN distance and D is true distance, enter the Constant Coefficients of the equations here:

K(R1)       , C(R1)       , K(R2)       , C(R2)       .

(11) Number of Velocity Tables to be used:

None,        One,        More than one.

(12)        This form is submitted only as an aid in preparing a boat sheet projection.

This form applies to all data on this survey.

       This form applies to part of the data on this survey -

Time and Date limitations: From        To       

Position Number Limitations: From        To       

This is Form #3 Sheet #        of        Sheets for this survey.

(13) Other Remarks:

4-9339

10-16-73

OFFICE OF THE DIRECTOR OF CONSTRUCTION

PROJECT NO. 700-615

STATION A: MCHUGHAN

LATTICE

LONGITUDE

TO STATION B: CAROL

AZIMUTH

DISTANCE

19 42 09.4100	155 57 20.3000	5	347	3	51.97779	39250.6570
19 28 45.27300	155 52 19.21700	5	107	5	39.45106	

✓

000208 0 0011 0009 000 000000 000000 ✓

000311 0 0017  
000415 0 0022  
000441 0 0024  
000475 0 0026  
000519 0 0028  
000545 0 0030  
000597 0 0032  
000631 0 0034  
000675 0 0036  
000716 0 0038  
000760 0 0040  
000806 0 0042  
000858 0 0044  
000902 0 0046  
000955 0 0048  
001008 0 0050  
001158 0 0055  
001316 0 0060  
001475 0 0065  
001634 0 0070  
001869 0 0075  
002104 0 0080  
002368 0 0085  
002610 0 0090  
002850 0 0095

Velocity Corrector

RA-80-1-72

Ship Rainier.

Table # Nine

003100 0 0100

004220 0 0120

005430 0 0140

006600 0 0160

007720 0 0180

008800 0 0200

009810 0 0220

010780 0 0240

011690 0 0260

012570 0 0280

013420 0 0300

014240 0 0320

015030 0 0340

015800 0 0360

016540 0 0380

017260 0 0400

017970 0 0420

002850 0 0095

003100 0 0100

004220 0 0120

005430 0 0140

006600 0 0160

Velocity Corrections

007720 0 0180

008800 0 0200

009810 0 0220

010780 0 0240

011690 0 0260

012570 0 0280

013420 0 0300

014240 0 0320

015030 0 0340

015800 0 0360

016540 0 0380

017260 0 0400

017970 0 0420

018660 0 0440

019320 0 0460

019970 0 0480

021280 0 0520

022470 0 0560

023620 0 0600

024750 0 0640

025660 0 0680

026980 0 0720

RA-80-01-72

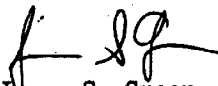
Ship RAINIER

Table # NINE (9)

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

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: Aug. 16 - Nov. 13, 1972

HYDROGRAPHIC SHEET: H-9339

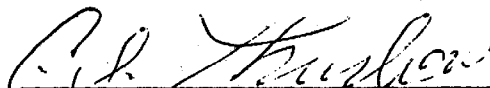
OPR: 419

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

(1) Project No. 419 (4) Requested by Verde

(2) H No. 9339 (5) Ship or Office \_\_\_\_\_

(3) Field No. FA-11-B-112 (6) Date Required \_\_\_\_\_

(7) Visual  Ft.(0) or Fathoms (1)  (8) Electronic  (fill out form #3)

(10) XKN (SP 5) Distance from CNER to East Edge (NYX = 1) or West Edge (NYX = 0). 26336.7 Meters

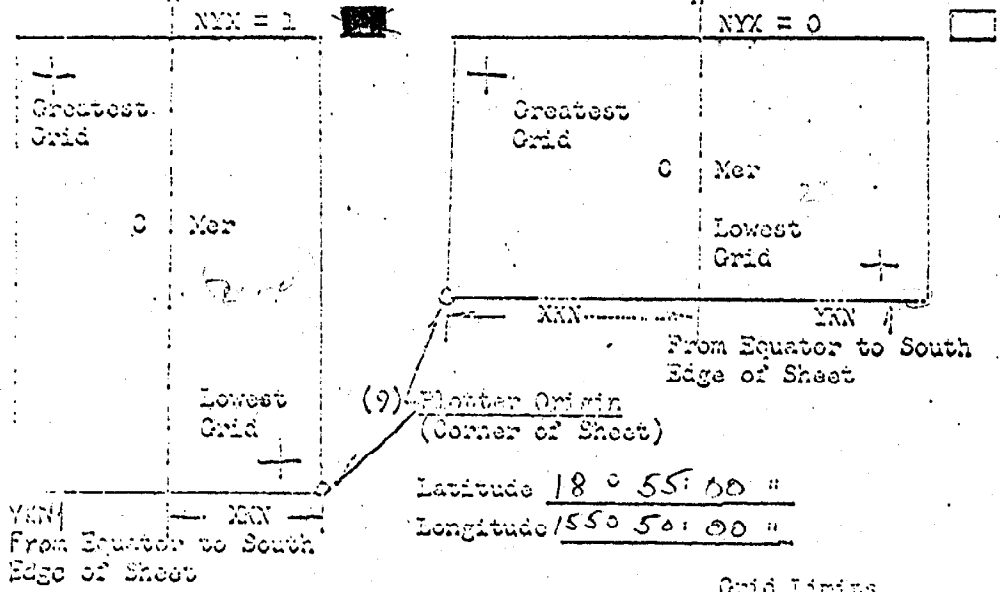
(11) YKN (SP 241) Distance from Equator to South Edge of Sheet. 2,092,318.411 Meters

(12) Central Meridian 156° 05' 00"

(13) Survey Scale 1: 80,000

(14) Size of Sheet (Check one) 36x60  42x60

(15) NYX, Orientation of sheet (Check one)



Grid Limits	
(16) Greatest Latitude	<u>19° 50' 00"</u> (Projection Line Interval Page 4 Hydro Manual)
(17) Lowest Latitude	<u>19° 00' 00"</u>
(18) Difference	<u>0.50.00</u> (19) <u>5' 00"</u>
(22) Greatest Longitude	<u>156° 25' 00"</u> (20) <u>10' YSK</u>
(22) Lowest Longitude	<u>155° 50' 00"</u> (21) <u>5' 00"</u>
(23) Difference	<u>0.35.00</u> (25) <u>7' YSK</u>





**HYDROGRAPHIC SURVEY STATISTICS**  
HYDROGRAPHIC SURVEY NO. H-9339

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	2

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES			1			
CAHIERS	1 Containing P/O & Sawtooth Rec.					
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				521
POSITIONS CHECKED		521		
POSITIONS REVISED		6		
DEPTH SOUNDINGS REVISED		2		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		0		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		0		
	TIME (MANHOURS)			
Verification of Control/Topographic Details		12	0	
Verification of Positions/Junctions		65	30	
Verification of Soundings		130	2	
Smooth Sheet Compilation/Special Adj.		14	0	
All Other Work		87	46	
TOTALS		308	78	

PRE-VERIFICATION BY J. Green, Super. Cart, Tech	BEGINNING DATE 1/4/74	ENDING DATE 1/11/74
VERIFICATION BY F.L. Rosario, Cart. Tech.	BEGINNING DATE 11/11/74	ENDING DATE 6/16/75
REVIEW BY Kenneth W. Wellman	BEGINNING DATE 10-1-75	ENDING DATE 11-10-75

*J. Saulsbury (Cars. Insp)*

REGISTRY NO. H-9339

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

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

CARDS CORRECTED

DATE \_\_\_\_\_ TIME REQUIRED \_\_\_\_\_ INITIALS \_\_\_\_\_

REMARKS:

REGISTRY NO. H-9339

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

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

MAGNETIC TAPE CORRECTED

DATE \_\_\_\_\_ TIME REQUIRED \_\_\_\_\_ INITIALS \_\_\_\_\_

REMARKS:

H-9339

Items for Future Presurvey Reviews

None.

- - - - -

A resurvey cycle of 50 years is indicated by a stable bottom with depths ranging from 44 - 2614 fathoms.

OFFICE OF MARINE SURVEYS AND MAPS  
MARINE SURVEYS DIVISION  
MODIFIED HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-9339

FIELD NO. RA-80-1-72

Hawaii, Hawaii-Kona Coast, Off Hoopuloa Point to Keahole Point

SURVEYED: October 10 - 13, 1972

SCALE: 1:80,000

PROJECT NO.: OPR-419-RA-72

SOUNDINGS: Echo Sounders: Ross  
(Model 5000), EDO Trans-  
ceiver (Model 248), and  
McKiernan-Terry PDR Mark XVA

CONTROL: Hi-Fix  
(Range-Range)

Chief of Party .....	G. E. Haraden
Surveyed by .....	E. M. Gelb
.....	L. M. Mordock
.....	J. W. McCabe
.....	R. D. Black
.....	R. G. Hendershot
.....	R. A. Schiro
.....	S. J. Hollinshead
Automated Plot by .....	Xynetics Plotter (PMC)
Verified by .....	F. L. Rosario
Reviewed by .....	K. W. Wellman
.....	Date: November 10, 1975
Cursory inspection made--survey	F. P. Saulsbury
processing considered complete .....	Date: March 8, 1976

1. Control and Shoreline

The origin of control is given in section F of the Descriptive Report.

No shoreline is delineated on this offshore survey; however, it is adequately delineated on the larger scale inshore surveys.

2. Hydrography

A. Depths at crossings are in good agreement.

B. Except as mentioned below, the delineation of the usual depth curves, development of bottom configuration, and the investigation of least depths are considered adequate. The 100- to 500-fathom depth curves are not adequately delineated. An extension of one additional position at the eastern limit of the east-west sounding lines would have facilitated a better delineation of the depth curves in the area.

### 3. Condition of the Survey

The sounding records, automated plotting, and Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual, supplemented by the Instruction Manual - Automated Hydrographic Surveys with the following exceptions:

A. The verifier did not include the Descriptive Report Data Record as required by section 12-1 of the automated surveys manual.

B. Duplicated position numbers were not indicated on the smooth plot printout or the position overlay in accordance with the requirements of section 12-12b, paragraph 5, of the automated surveys manual.

C. During plotting of the smooth sheet, no distortion points were applied as required by section 11-4 of the automated surveys manual.

D. The smooth sheet is considered unnecessarily large with respect to the area of hydrographic development. The standard sheet size, as specified in section 1-8 of the Hydrographic Manual, would have been more than adequate for the plotting of the present survey.

### 4. Junctions

During review, adequate junctions were effected with H-9015 (1969) and H-9016 (1969) on the north, H-9237 (1971-72) on the northeast, and H-9334 (1972), H-9335 (1972), H-9346 (1972), and H-9307 (1972) on the east. The junctions with H-9355 (1973) on the south and H-9356 (1973) on the east are considered in the reviews of those surveys.

The verifier of the present survey did not effect junctions with the above-listed surveys. The junctional surveys were verified prior to the verification of the present survey, and adequate junctions therefore, according to section 6-91 of the Hydrographic Manual and section 12-8 of the automated surveys manual, should have been effected during verification.

The junction with unverified survey H-9357 (1973) on the southeast will be considered at the time of its review. No contemporary surveys junction with the present survey on the west; however, present survey depths are in general harmony with charted depths in the area.

## 5. Comparison with Prior Surveys

A.	H-4655a	(1927)	1:247,000 (approximate)
	H-4768	(1928)	1:5,000

Small portions of these prior surveys fall within the area of the present survey. The few soundings falling within the common area offer no adequate basis for comparison with the present survey. The present survey is adequate to supersede the prior surveys within the common area.

B.	H-4798	(1928)	1:20,000
	H-4957	(1928-29)	1:80,000
	H-5054	(1928-29)	1:250,000

These prior surveys cover most of the area of the present survey. A comparison between the present and prior surveys reveals generally good agreement, within plus or minus 0 to 3 fathoms, in depths less than 100 fathoms. In depths greater than 100 fathoms, present depths are generally 20 to 100 fathoms shoaler and, in some scattered areas, as much as 200 fathoms deeper. These depth differences are attributed to the less accurate and dead-reckoning control as well as less accurate sounding methods employed on the prior surveys.

The larger scale and/or more completely developed present survey is adequate to supersede the prior surveys within the common area.

6.	Comparison with Charts	19320 (formerly 4115), latest print date Oct. 3, 1973
		19327 (formerly 4140), latest print date Dec. 29, 1973
		19332 (formerly 4123), latest print date Mar. 10, 1973

### A. Hydrography

The charted hydrography originates with the previously discussed prior surveys which require no further consideration supplemented by National Ocean Survey and U.S. Navy blueprints. The source of several soundings could not be readily ascertained. The soundings do not provide information significant to navigation and are adequately superseded by present depths.

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

### B. Aids to Navigation

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

Attention is directed to section M of the Descriptive Report which contains a comprehensive listing of fixed aids to navigation charted within the limits of the smooth sheet of the present survey. Only two of the listed fixed aids to navigation, however, are shown on the smooth sheet of the present survey.

7. Compliance with Instructions

This survey adequately complies with the project instructions.

8. Additional Field Work

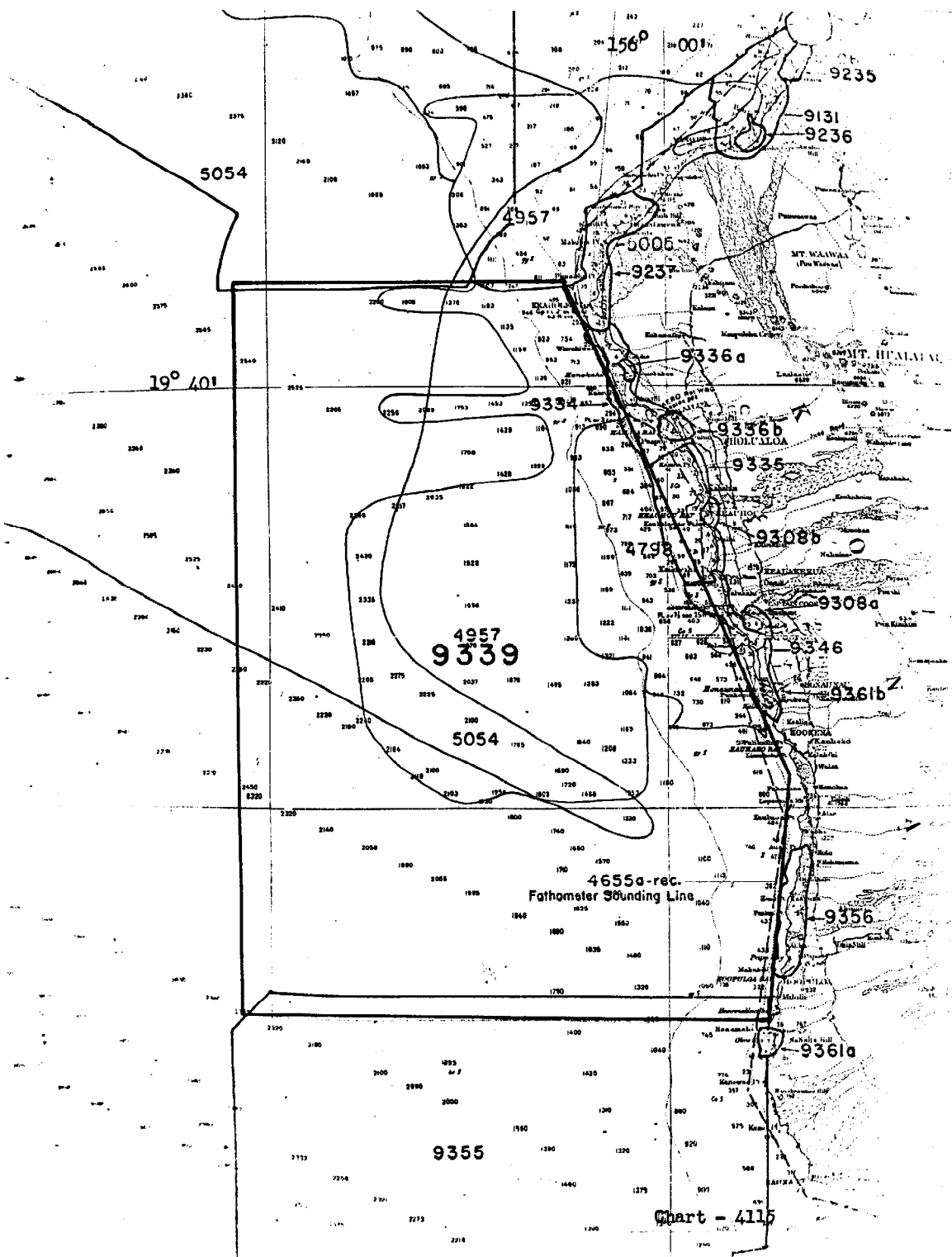
This is an adequate basic survey and no additional field work is recommended. However, additional hydrography, as recommended in section 2-B of this review, would have been useful for a better delineation of the depth curves.

Examined and Approved:

A. J. Patrick  
Chief  
Marine Surveys Division

Robert C. Johnson  
Associate Director  
Office of Marine Surveys  
and Maps





4655a-rec.  
Fathometer Sounding Line

Chart - 4115

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9339

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
4140	8/22/75	Nactor	Full Part Before After Verification Review Inspection Signed Via
4115, 4102			Drawing No. Exam for critical corr only, No corr for Notice to Mariners
4000	9/10/75	KANIS	Full Part Before After Verification Review Inspection Signed Via
	19010		Drawing No. EXAMINED for critical corrections only - no corrections (thru 4102)
4179	9/17/75	HAUSHAN	Full Part Before After Verification Review Inspection Signed Via
	530		Drawing No. Exam for crit corr only thru 4102 No crit corr
9000	9/15/76	KANIS	Full Part Before After Verification Review Inspection Signed Via
			Drawing No. EXAMINED thru CHART 4000 + D. R for critical corrections only - no corrections
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No. 10810A Examined <del>Chart 4179</del> Added 1384 Deleted 1790
4001	11/4/76	J. Graham	Full Part Before After Verification Review Inspection Signed Via
	19327		Drawing No. <del>Chart 4179</del> Added 1384 Deleted 1790 At Lat. 19° 11' At Long. 156° 06'
4140	11/27/77	M. J. Friese	Full Part Before After Verification Review Inspection Signed Via
(19327)	2/24/77	Revised D. J. Korman	Drawing No. Added <sup>NUMEROUS</sup> soundings and revised 1000 fm. curve and 50 fm., 100-500 fm. curves
4115	2/29/77	C. S. Forbe	Full Part Before After Verification Review Inspection Signed Via
(19320)			Drawing No. Revised 1000 fm curve and hydro throughout area. Appl <del>Full</del> south of 19° 30' thru chart 4140
4000	9-21-77	M. Syger	Full Part Before After Verification Review Inspection Signed Via
(540)	1932		Drawing No. 15 Examined for critical corrections <del>thru</del> thru <del>Chart</del> 4140 - NO CORRECTIONS Considered fully appld
4115	11/18/78	M. J. Friese	Full Part Before After Verification Review Inspection Signed Via
(19320)			Drawing No. Consider fully appld throughout comm area thru Chart 4140 (7 <sup>th</sup> ed.)
19004	3/28/80	Stempel	Fully applied (signed) thru chart 19320
(4102)			
19010	10-81		Fully applied (signed) Hydro
19007	4-5-83	L. A. Simmons	Fully applied (signed) Hydro thru 19010 # 14
540	5-1-90	K. J. Wieman	Fully applied Thru 19320 + 19010