9911

Diagram No. 4115-2

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. FA-10-3-80

Office No. H-9911

LOCALITY

State Hawaii

General Locality Island of Hawaii

Locality Vicinity of Leleiwi Point

19 80

CHIEF OF PARTY
CAPT A.J. Patrick

LIBRARY & ARCHIVES

DATE May 10, 1984

☆U.S. GOV. PRINTING OFFICE: 1980—766-230

AREA 6
CHTS
19320
19004
19324
19010
540
} to sign off see Record of Application

NOAA FORM 77-28 (11-72) | U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION | REGISTER NO.

HYDROGRAPHIC TITLE SHEET

H-9911

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. FA-10-3-80

State Hawaii

General locality Island of Hawaii

Locality Vicinity of Leleiwi Point

Scale 1:10,000 Date of survey Oct 22 - Nov 17, 1980

Instructions dated August 4, 1980 Project No. OPR-T126-RA, FA-80

Vessel Launches 2023, 2024, 2025

Chief of party CAPT A. J. Patrick

Surveyed by LT D. G. Hennick, LT T. A. Baxter, LT(jg), C. P. Hancock, ENS A. F. Trimble

Soundings taken by echo sounder, hand lead, pole Ross Fineline Model 5000

Graphic record scaled by Ship's Personnel

Graphic record checked by Ship's Personnel

Verification ~~Protracted~~ by G. E. Kay, A. A. Luceno Automated plot by PMC Xynetics Plotter

Evaluation ~~Verification~~ by Gordon E. Kay

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

REMARKS: Marginal notes and revisions in black were made by the evaluator.

AN015-5/18/84

NOAA FORM 77-28 SUPERSEDES FORM C&GS-537.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1976—665-661/1222 REGION NO. 6

PROGRESS SKETCH
OPR-T126-FA-80
NOAA SHIP FAIRWEATHER S-220
HAWAII ISLAND, HAWAII

CAPT. A. J. PATRICK, CMDG

SCALE OF NOS CHART 19320

–1980–

	SEPT	OCT	NOV
LNM SOUNDING LINE	36	1031	594
SQ NM SOUNDING LINE	3	1237	44
BOTTOM SAMPLE	0	92	75
NANSEN CTD CAST	0	4	3
LNM FIELD EDIT	20	20	0

△ STA. ESTABLISHED

◎ STA. RECOVERED

⊖ TIDE GAGE

NANSEN CTD CAST

STATIONS
RECOVERED & ESTABLISHED

SEPTEMBER

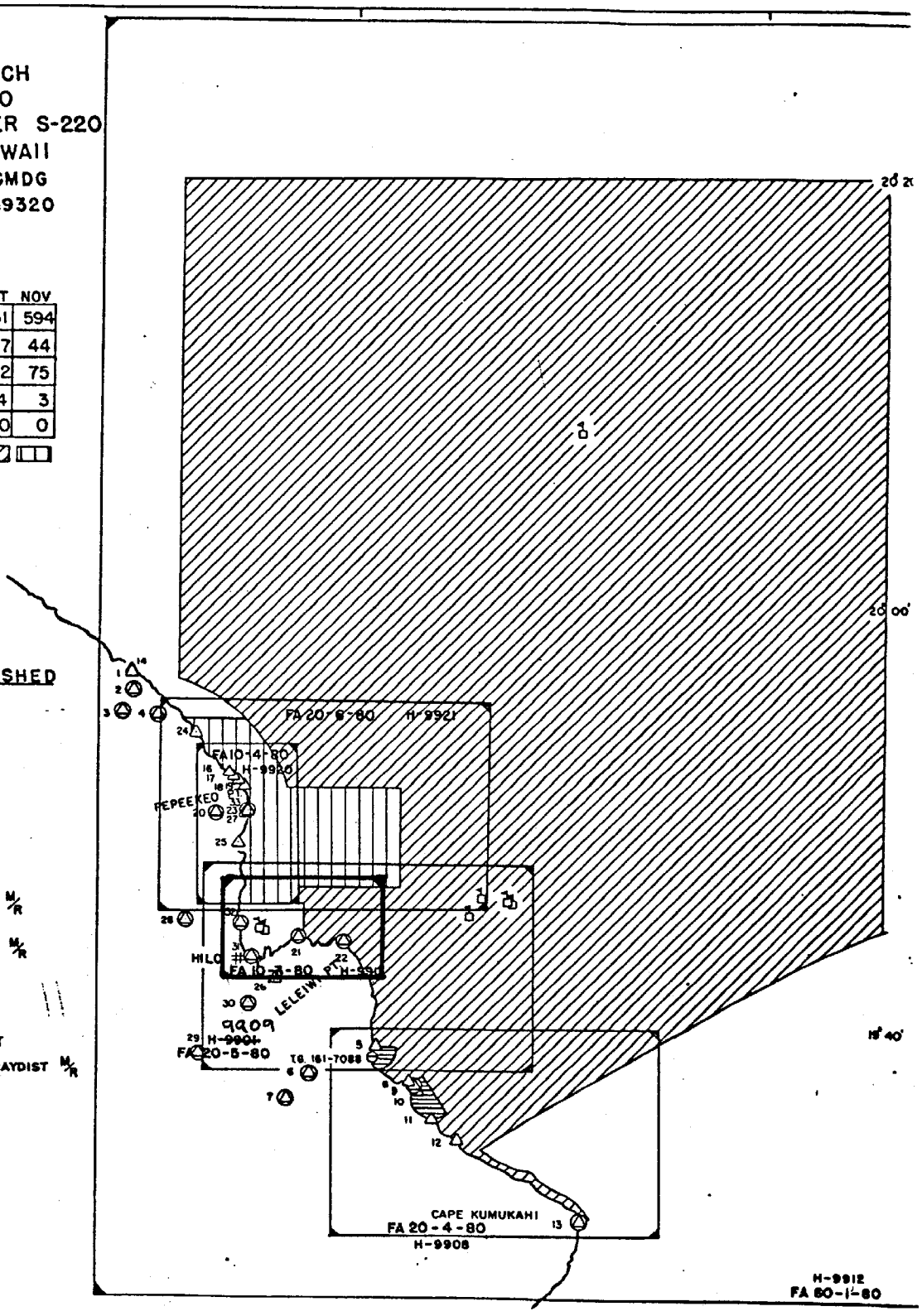
1 KAYDIST, 1980
2 HAIKU, 1877
3 COOK HGS, 1949
4 HONOHINA, 1877
5 WAHINII, 1980 M/R
6 OLAA STACK
7 KEAAU, 1949
8 KALOLI 2, 1949 - RM 3, 1980 M/R
9 KALOLI 2, 1949 M/R
10 KALOLI 2, 1949 - RM 4, 1980 M/R
11 POOL, 1980 M/R
12 OPIHI RK, 1980 M/R
13 CAPE KUMUKAHI LT.
14 KAYDIST RM 1, 1980 RAYDIST
15 KALOLI 2, 1949 - RM 5, 1980 RAYDIST M/R

OCTOBER

16 KAHOLA, 1980 M/R
17 WAIEHU, 1980 M/R
18 HAIPO, 1980 M/R
19 LOEA, 1980 M/R
20 ALALA HGS, 1877 M/R
21 KEOKEA 2, 1951 M/R
22 LELEIWI USGS, 1912 M/R

NOVEMBER

3 PEPEEKEO, 1980
24 HAKALAU, 1980 M/R
25 ONOMEA, 1980
26 GENERAL LYMAN FIELD STACK
27 PEPEEKEO STACK
28 KAIWIKI NEW USGS, 1949
29 WAIAKEA MAUKA USGS, 1949
30 WAIAKEA NEW USGS, 1949
31 COCONUT POINT LIGHT M/R
32 PAUKAA POINT LIGHT
33 PEPEEKEO POINT LIGHT M/R



DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY H-9911
(Field No. FA 10-3-80)
Scale: 1:10,000 Year: 1980
NOAA SHIP FAIRWEATHER
Commanding Officer: Walter F. Forster

A. PROJECT

This survey was conducted in accordance with Project Instructions OPR-T126-RA,FA-80, dated 4 August 1980. Changes are as follows:

Change No. 1, August 8, 1980
Change No. 2, August 15, 1980
Change No. 3, September 9, 1980
Change No. 4, November 28, 1980

There were no supplemental instructions. The PMC OPORDER, Hydrographic Manual and Data Requirements Letter, dated April 11, 1979, also apply.

B. AREA SURVEYED

This survey is centered on Leleiwi Point, a prominent feature approximately two miles due east of Hilo, Hawaii. The area covered extends from the shoreline out to at least the 35 fathom contour and is bounded on the south by latitude 19°42'45"N, and on the north by latitude 19°46'50"N. Junctions on the east and north are with H-9909 (FA 20-5-80), done concurrently by the FAIRWEATHER. Junction on the west is with H-9612 and H-9613, done by RAINIER in 1976.

The area includes rugged lava cliffs and pounding surf from Leleiwi Point south to the limits of the sheet. The shoreline and bottom contours are more gentle to the east and north of Leleiwi Point.

Inclusive dates of the field work were 22 October 1980 (JD 296) to 17 November 1980 (JD 322).

C. SOUNDING VESSELS

Soundings were obtained by launches FA-3 (2023), FA-4 (2024) and FA-5 (2025). All launches were equipped in the usual manner for range/range and range/azimuth hydrography.

See paragraph D for a description of unusual echo sounder configurations.

No other unusual vessel configurations were used, nor were there any other problems.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

Starting on JD 296, launch 2024 was equipped with both a Ross 5000 Fineline echo sounder and a Raytheon DSF-600 echo sounder. The DSF-600 was aboard

for test and evaluation and was later used to collect survey data based upon its ability to reliably digitize deeper depths than the Ross 5000. The two systems were operated simultaneously throughout the project, and analog records from both systems are included in the data package. The system actually used for digital input to the Hydroplot system is specified below in Table I.

The following sounding equipment was used on this survey.

TABLE I

Sounding Equipment Used

Vessel	J.D.	Transceiver	Digitizer	Analog	Inverter	Fathometer Model
2023	273-302	1047	1054	1054	1046	Ross 5000 FL
	303-322	1047	1054	1047	1046	Ross 5000 FL
2024	296-297			B141A		Raytheon DSF 600A
	297-316	1046	1047	1097	1054	Ross 5000 FL
	317-320			B141A		Raytheon DSF 600A
	320-322	1046	1047	1097	1054	Ross 5000 FL
2025	273-322	1054	1046	1036	1053	Ross 200A

No depths were measured by means other than echo sounder.

There were no faults in the equipment which affected the accuracy of the soundings.

Velocity of sound was measured by Nansen cast, MarTek cast and bar check data. TRA corrections were derived by comparing bar check and velocity data. See the Corrections to Echo Soundings Report, OPR-T126-FA-80, for details.

Variations in echo sounder initial were watched for and corrected by launch personnel.

Phase checks were conducted before and after surveying each day and by electronic technicians during evening maintenance.

Settlement and squat figures are from January 1980. Since corrections were less than one tenth of a fathom at all vessel speeds used, no correction was applied for settlement and squat.

MarTek unit S/N 395 was used on this survey and was calibrated by Northwest Regional Calibration Center in September 1979 and March 1980.

Industrial Instruments salinometer RS-7B28298 was used to process Nansen cast samples and it was calibrated by Northwest Regional Calibration Center in April 1980.

not used on this survey

TABLE II

MarTek/Nansen Casts

Date	Depth (fm)	Latitude	Longitude	Inst/SN
~~7 Oct 80~~	~~700~~	~~19°46'24"N~~	~~154°53'36"W~~	~~Nansen~~
~~16 Oct 80~~	~~3000~~	~~20°08'00"N~~	~~154°49'00"W~~	~~Nansen~~
19 Nov 80	8	19°45'30"N	155°02'48"W	MarTek 395
19 Nov 80	8	19°44'28"N	155°05'45"W	MarTek 395
~~20 Nov 80~~	~~600~~	~~19°46'00"N~~	~~154°55'00"W~~	~~Nansen~~

See Corrections to Echo Soundings Report, OPR-T126-FA-80, for more details, pertinent data and computations.

E. HYDROGRAPHIC SHEETS

Field sheets were prepared aboard the FAIRWEATHER using Houston Instrument plotter S/N 6166-22, a PDP 8/e computer, and program RK 201. There are no irregularities.

Field records will be sent to PMC for verification and smooth plotting.

A development of a proposed boat launching site was accomplished at the request of the Army Corps of Engineers. The letter of request is attached to this report as Attachment 1. A preliminary copy of this survey has been forwarded to the Army Corps of Engineers office in Hawaii.

F. CONTROL STATIONS

Monumented control stations on this survey are:

Keokea 2, 1951	STN/N	210
Leleiwi, USGS, 1912	STN/N	211

No unusual survey methods were used for station location.

There are no known photogrammetric problems in the survey area.

A complete list of stations used in this project is appended to this report. See Horizontal Control Report, OPR-T126-FA-80, for more details, pertinent data and computations.

G. HYDROGRAPHIC POSITION CONTROL

Sounding lines were controlled by range/range and range/azimuth methods. Motorola Mini-Ranger III and Teledyne-Hastings Raydist were both used for the range measurements.

There are no known problems which affected accuracy.

Mini-Ranger systems were calibrated on baselines in Hilo Harbor. System checks were made before and after each day's surveying when possible. Methods used for system checks were visual fixes, theodolite cuts and following a range with pre-calculated sextant angle intersections. Raydist was calibrated by three Mini-Ranger rates, sextant fixes or theodolite cuts. See Electronic Control Report, OPR-T126-FA-80, for details.

Calibration data is sufficient throughout the surveyed area. There are no unusual methods of calibration. There were no problems with signal strength or geometry. There are no systematic errors in the data.

TABLE III

Raydist Equipment Used on Vessels

Vessel	JD	Mobile Transmitter	Navigator	Interface	Strip Chart
2023	296	83	021	20	11692
	297-320	28	018	20	11692
2024	303-320	90	016	09	03171
2025	304-322	96	019	10	11315

The Raydist shore station was Kaloli 2, 1949, RM 5 1980, Signal Number 100, frequency 3300.40 KHz, Pattern I, Red.

TABLE IV

Motorola Mini-Ranger Equipment Used

Vessel	JD	Console/RT	Shore Station		Transponder
2023	303/304	702	L 211	R 212	701, 704
	304/305,308	702	L 210	R 212	702, 704
	320	702	110		704
2024	306	703	L 210	R 212	702, 704
	311/312	703	211		701
	320	703	212		702
2025	305/306	701	212		704
	321	701	211		702

H. SHORELINE

Shoreline was drawn from TP-00070, 1:20,000 scale, enlarged to 1:10,000 scale, and TP-13314, 1:~~10,000~~ scale. Shoreline details on TP-00070 were field edited over the entire sheet and all corrections were transferred to the final field sheet in red ink. They consist of rocks, ledges and foul areas in the coastal surf zone. TP-13314 is a Class I manuscript with field edit previously accomplished and applied.

The zero fathom curve could not be developed due to heavy surf conditions throughout the survey. All sounding lines were broken just outside the surf zone.

There were no discrepancies between photogrammetric and hydrographic positions.

There are no control stations seaward of the shoreline.

I. CROSSLINES

Crosslines constitute 7.5 percent of the total miles of hydrography run on this survey. The same launches were used for main scheme, development and crosslines.

Crosslines agree exactly or within one fathom with the main scheme soundings except in areas of steep contours and rough, uneven bottom. In these areas, adjacent but non-coincident soundings differ by up to 7 fathoms. In such steep bottom areas, the large swells causing violent boat motion and the line orientation relative to the bottom contours can cause large differences in recorded depths as the boat rolls from side to side.

TABLE V

Crossline/Main Scheme Disagreements

Location	MS Depth	XL Depth	Remarks
19°44.8'N 155°01.35'W	22	29	Rough Bottom
19°45.0'N 155°02.0'W	6.5	8.9	Rough Bottom
Leleiwi Point and South	various		Crosslines parallel to steep bottom contours

J. JUNCTIONS

This survey junctions with two concurrent surveys, H-9909 (FA 20-5-80), 1:20,000 scale, and H-9920 (FA 10-4-80), 1:10,000 scale, and two surveys conducted by RAINIER in 1976, H-9612 and H-9613, both 1:5,000. This survey also junctions H-9921 (FA-20-6-80).

Junctions to the south, east and north with H-9909 agree within one fathom in all cases on the areas of smooth bottom, and follow the pattern of contours in areas of rough bottom or steep slope. Coverage is complete.

Junctions to the west with H-9612, H-9613 and H-9920 agree within one fathom in all cases. Coverage is complete. The junction to the east with H-9921 agrees within one fathom.

K. COMPARISONS WITH PRIOR SURVEYS

Prior survey H-2461 (1:40,000, 1900) is the only prior survey to overlap this current survey, but there are no soundings on H-2461 in the area of overlap. see Evaluation Section 6

There are no presurvey review items on this survey.

L. COMPARISONS WITH THE CHART

The entire survey falls within NOS chart 19320, 12th edition, 1:250,000, June 17, 1978. This is the only current chart of the area. Only seven soundings from 19320 fall on this survey and they agree within one fathom with the soundings of this survey in the surrounding area. All other charted information is accurate with the following exceptions:

1. The offshore rock shown at 19°43.6'N, 154°59.6'W, is charted incorrectly. This is probably due to cartographic license and readability, considering the scale of the chart. When literally scaled from its charted position, the rock falls in over 25 fathoms of water. The rock is probably shown to indicate the rocky nature of the shoreline in the foul surf zone nearshore. The entire coastline is rocky and the area where this rock is charted is no more hazardous than the rest of the coastline. It is recommended that this rock symbol be removed from the chart. concur

2. The ~~10~~ 9.9 fathom shoal seen in development A of this survey at 19°44'44.5"N, 155°00'46"W, is not currently charted and should be added to the chart. concur

There are no PA, ED, or PD notes in the area of this survey.

No uncharted hazards were found.

The proposed new chart coverage of the area will be adequate.

Two developments were conducted on this survey. Development A was conducted to detail a 10 fathom shoal area. The Kings Landing development was conducted along the southeast shoreline for the Army Corps of Engineers to detail a possible boat launching area.

M. ADEQUACY OF THE SURVEY

This survey is complete and adequate to supersede prior sources for charted data.

N. AIDS TO NAVIGATION

There are no aids to navigation in the area of this survey. No aids are recommended.

There are no bridges, cables, pipelines or ferry routes in the area.

O. STATISTICS

TABLE VI

Vessel	Positions	Nautical Miles of Hydro	Square Miles of Hydro	Bottom Samples
2023	~~676~~ 632	64.0	10.3	-
2024	~~213~~ 205	19.4	3.1	-
2025	~~456~~ 369	24.7	4.1	25
TOTALS	~~1345~~ 1206	108.1	17.5	25

Three Nansen and two MarTek casts were taken during the project for sound velocity determinations.

P. MISCELLANEOUS

A 1:1,200 development, called Kings Landing, was surveyed at the request of the Army Corps of Engineers. As the attached correspondence indicates, this was to develop information for a possible small boat harbor and landing. Line spacing was reduced to 30 meters. No significant hazards to navigation were found in this area.

R. AUTOMATED DATA PROCESSING

TABLE VII

Computer Programs Utilized

Number	Description	Version
RK 111	R/R Real Time Plot	01-30-76
FA 181	On Line R/Az Logger	02-23-80
RK 201	Grid, Signal, and Lattice Plot	04-18-75
RK 211	R/R Non-Real Time Plot	01-30-76
RK 212	Visual Station Load and Plot	04-01-74
RK 214	R/V Non-Real Time Plot	10-07-80
RK 215	Visual Non-Real Time Plot	08-16-74
RK 216	R/Az Non-Real Time Plot	02-05-78
RK 300	Utility Package	02-01-76
RK 330	Data Reformat and Check	05-04-76
PM 360	Electronic Corrector Abstract	02-02-76
AM 500	Predicted Tide Generator	11-10-72
RK 530	Layer Corrections for Velocity	05-10-76
RK 561	Geodetic Calibration	02-19-75
AM 602	Elinore	05-21-75

ASI loggers were used in addition to Hydroplot system for range/azimuth data recording.

S. REFERRAL TO REPORTS

The following reports pertain to this survey:

OPR-T126-FA-80 Horizontal Control Report ✓
OPR-T126-FA-80 Electronic Control Report ✓
OPR-T126-FA-80 Field Edit Report - TP-00070 ✓
OPR-T126-FA-80 Corrections to Echo Soundings Report ✓
OPR-T126-FA-80 Geographic Names Report ✓
OPR-T126-FA-80 Coast Pilot Report ✓
OPR-T126-FA-80 Tide Gage Reports for Hilo and Shipman Ranch ✓
Special Report on Raytheon DSF-600 Fathometer ✓

SEPARATES FOLLOWING TEXT

A. HYDROGRAPHIC SHEET PROJECTION PARAMETERS ✓

B. FIELD TIDE NOTE AND TIMES OF HYDROGRAPHY ✓

C. GEOGRAPHIC NAMES (approved) ✓

D. ABSTRACTS OF CORRECTIONS TO ECHO SOUNDINGS (VELOCITY ~~AND TC/TI TAPE~~ PRINTOUTS) ✓

E. ABSTRACTS OF CORRECTIONS TO ELECTRONIC POSITION CONTROL ✓

F. LIST OF STATIONS ✓

G. ABSTRACT OF POSITIONS ✓

H. BOTTOM SAMPLES (LOG SHEETS M) ✓

I. LANDMARKS FOR CHARTS (NOAA FORMS 76-40) ✓

J. APPROVAL SHEET ✓

A. PARAMETERS

MAIN SHEET FA 10-3-80 (H-9911)

FEST=40000
CLAT=2147662.6
CMER=154/55/00
GRID=30
PLSCL=10000
PLAT=19/44/54
PLON=155/04/30
VESNO=2020
YR=80
ANDIST=0.0

KINGS LANDING DEVELOPMENT

FEST=40000
CLAT=2147662.6
CMER=154/55/00
GRID=5
PLSCL=1200
PLAT=19/43/18.5
PLON=154/59/40.0
VESNO=2023
YR=80
ANDIST=0.0

DEVELOPMENT A

FEST=40000
CLAT=2147662.6
CMER=154/55/00
GRID=10
PLSCL=2500
PLAT=19/44/30
PLON=155/01/00
VESNO=2020
YR=80
ANDIST=0.0

FIELD TIDE NOTE

OPR-T126-FA-80

Field tide reduction of soundings was based on predicted tides from Honolulu, Hawaii, corrected to Hilo, Hawaii, and were interpolated by PDP 8/E computer utilizing AM500. All times of both predicted and recorded tides are GMT.

Two tide gages were utilized for this project.

SITE	LOCATION	PERIOD
Hilo, #161-7760 (ETG)	19°44'00"N 155°03'31"W	Permanent Secondary Gage
Shipman Ranch, #161-7088 (ADR)	19°38'50"N 154°59'06"W	63 day 16 Sep-17 Nov 1980

HILO

This gage was leveled by RAINIER personnel on September 5 and November 25, 1980 (see Field Tide Note OPR-T126-RA-80). FAIRWEATHER personnel met with the tide observer on September 19 to insure that he contact the ship immediately if the gage should malfunction. Personnel from the Pacific Tide Party visited the Hilo Gage on November 2-5. Leveling and routine maintenance was performed.

SHIPMAN RANCH

Five bench marks were set on 15 September 1980. On 16 September, the tide staff, floatwell and gage were installed. Levels were run to the staff and the gage was started at 234800 GMT. One hour later, it was discovered that the gage had double punched. It was then restarted at 004800 GMT, 17 September. Sometime between the next observation at 223603 GMT, 17 September, and 191815 GMT, 19 September, the gage lost 2 hours 5 minutes 45 seconds. The gage was still punching on the correct six-minute intervals and there is no place on the tape that indicates that the punch had jammed or stopped. The gage was restarted at 192405 GMT, 19 September. The following day at 184810 GMT, 20 September, the gage was again found to be slow by 4 hours 42 minutes 10 seconds. Again, there are no double punches or indications of a jammed punch and it was still punching nearly exactly on the proper six-minute increments. (No hydrography or field edit was conducted during these periods.) The tape was cut at this point. A new motor and punch block were installed; the advance pawl was adjusted and various moving parts were lubricated. The gage was restarted at 201800 GMT, 20 September. The gage ran well throughout the remainder of the installation. The gage was stopped at 190630 GMT, 26 September, at which time the intake on the floatwell was changed from 3/8" diameter to 3/16" diameter in order to improve damping of the swell. The gage was restarted at 200000 GMT, 26 September. The height of the floatwell changed slightly; so two separate average gage-staff differences should be used for the observation prior to the orifice change and for those

following this change. Field edit, but no hydrography, was conducted during this down time. Correctors will have to be interpolated for this period.

The mean gage-staff differences were:

7.08 feet	234800, JD 260 - 190630, JD 270
6.92 feet	200000, JD 270 - 184338, JD 322

Leveling to the staff was performed on 16 September and 17 November 1980. The elevations determined compared very closely between the two runs with a maximum discrepancy of .004 m.

ZONING

Data collected by the Hilo tide gage (#161-7760) will be used in determining correctors for all of the surveys and field edit T-sheets: H-9908, H-9909, H-9911, H-9912, H-9920, H-9921, TP-00822, TP-00070, T-13261, and TP-00069.

Data collected by the Shipman Ranch tide gage (#161-7088) will be used in determining correctors for the following surveys and field edit T-sheets: H-9908, H-9909, H-9912, H-9911 (as far west as 155°01.0'W), H-9921 (as far west as 155°01.0'W), TP-00822, TP-00070 (as far west as 155°01.0'W).

NOAA FORM 76-155
(11-72)

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

SURVEY NUMBER

H-9911

GEOGRAPHIC NAMES

Name on Survey	A ON CHART NO. 19320, 19324	B ON PREVIOUS SURVEY NO. H-2461	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
ANAPUKA			X	X	X					1
HAWAII (Title)	x			x						2
HILO BAY	X	X	X	X	X					3
ISLAND OF HAWAII	X			X						4
KEOKEA POINT			X	X	X					5
LELEIWI POINT	X		X	X	X					6
PAUKUPAHU			X	X						7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
						Approved:				19
										20
						Charles E. Harrington				21
						Chief Geographer - N/CG2x5				22
						29 July 1983				23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

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001 VELOCITY CORRECTOR TAPE LISTING FOR VESSEL 2023
002 HAWAII 1980 SURVEYS
003 000012 1 0002 0002 001 202300 000000
004 000015 1 0001
005 000018 0 0000
006 000035 0 0001
007 000065 0 0002
008 000075 0 0003
009 000080 0 0004
010 000085 0 0005
011 000101 0 0006
012 000120 0 0007
013 000140 0 0008
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028 001396 0 0070
029 001635 0 0075
030 001925 0 0080
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032 002500 0 0090
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058 021400 0 0580
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065 028250 0 0930
066 029000 0 0980
067 029850 0 1030
068 030700 0 1080

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002 HAWAII SURVEYS 1980
003 000015 0 0000 0003 001 202400 000000
004 000035 0 0001
005 000045 0 0002
006 000065 0 0003
007 000075 0 0004
008 000085 0 0005
009 000101 0 0006
010 000120 0 0007
011 000140 0 0008
012 000158 0 0009
013 000178 0 0010
014 000197 0 0011
015 000243 0 0015
016 000328 0 0020
017 000419 0 0025
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019 000610 0 0035
020 000710 0 0040
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026 001396 0 0070
027 001635 0 0075
028 001925 0 0080
029 002200 0 0085
030 002500 0 0090
031 002825 0 0095
032 003200 0 0100
033 003550 0 0105
034 003900 0 0110
035 004265 0 0115
036 004625 0 0120
037 004975 0 0125
038 005325 0 0130
039 005625 0 0135
040 005850 0 0140
```

041	006575	0	0150
042	007150	0	0160
043	007525	0	0170
044	007825	0	0180
045	008075	0	0190
046	008400	0	0200
047	008825	0	0210
048	009325	0	0220
049	009850	0	0230
050	011550	0	0280
051	014000	0	0330
052	015800	0	0380
053	017300	0	0430
054	018750	0	0480
055	020100	0	0530
056	021400	0	0580
057	022550	0	0630
058	023650	0	0680
059	024700	0	0730
060	025700	0	0780
061	026600	0	0830
062	027400	0	0880
063	028250	0	0930
064	029000	0	0980
065	029650	0	1030
066	030700	0	1080

```
001 VELOCITY CORRECTOR TAPE LISTING FOR VESSEL 2025
002 HAWAII 1980 SURVEYS
003 000015 0 0000 0004 001 202500 000000
004 000035 0 0001
005 000045 0 0002
006 000075 0 0003
007 000080 0 0004
008 000085 0 0005
009 000101 0 0006
010 000120 0 0007
011 000140 0 0008
012 000158 0 0009
013 000178 0 0010
014 000197 0 0011
015 000243 0 0015
016 000326 0 0020
017 000419 0 0025
018 000515 0 0030
019 000610 0 0035
020 000710 0 0040
021 000821 0 0045
022 000930 0 0050
023 001027 0 0055
024 001133 0 0060
025 001255 0 0065
026 001396 0 0070
027 001535 0 0075
028 001925 0 0080
029 002200 0 0085
030 002500 0 0090
031 002825 0 0095
032 003200 0 0100
033 003550 0 0105
034 003900 0 0110
035 004265 0 0115
036 004625 0 0120
037 004975 0 0125
038 005325 0 0130
039 005625 0 0135
040 005850 0 0140
041 006575 0 0150
```

042 007150 0 0160
043 007525 0 0170
044 007825 0 0180
045 008075 0 0190
046 008400 0 0200
047 008825 0 0210
048 009325 0 0220
049 009850 0 0230
050 011550 0 0280
051 014000 0 0330
052 015800 0 0380
053 017300 0 0430
054 018750 0 0480
055 020100 0 0530
056 021400 0 0580
057 022550 0 0630
058 023650 0 0680
059 024700 0 0730
060 025700 0 0780
061 026600 0 0830
062 027400 0 0880
063 028250 0 0930
064 029000 0 0980
065 029850 0 1030
066 030700 0 1080

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2023 SHEET : H-9911

FA-10-3-80

R/A2

TIME	DAY	PATTERN 1	PATTERN 2
211700	296	-00021	
~~233900~~		~~00021~~	
214945	297	+00014	
001420	299	+00087	
230240	302	+00044	
211800	303	-00002	
193640	320	-00007	
~~195800~~		~~00007~~	
~~202300~~		~~00007~~	
~~202800~~	~~999~~	~~00000~~	

R/R

003705	304	-00002	-00007
190330		-00005	-00007
~~000014~~	~~305~~	~~00005~~	~~00007~~
~~201303~~	~~306~~	~~00005~~	~~00007~~

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2024 SHEET : H-9911

R/A2 FA-10-3-80

TIME	DAY	PATTERN 1	PATTERN 2
231141	305	+00012	
193240	306	-00004	
221248	311	-00002	
~~231506~~		~~-00002~~	
~~235658~~		~~00002~~	
~~000000~~	~~312~~	~~-00002~~	
222707	320	+00002	
~~230300~~	~~999~~	~~+00000~~	

R/R

232131	306	+00002	-00004

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2025 R/Az SHEET : H-9911 FA-10-3-80

TIME	DAY	PATTERN 1	PATTERN 2
192920	305	-00016	
~~000440~~	~~306~~	~~-00016~~	
~~010000~~		~~-00016~~	
183415	309	-00016	
195940	321	-00018	
~~235959~~	~~999~~	~~+00000~~	

No R/R

FA-10-3-86

```
001            HAWAII ISLAND SIGNAL LISTING
002
003 KALOLI 2 1949, RM 5 1980          FAIRWEATHER 1980
004 100 3  19 37 29359 154 56 57468   250 0007 330040
005
006 KAYBIGT RM 1 1980                 FAIRWEATHER 1980
007 101 5  19 56 58839 155 10 50157   250 0072 330040
008
009 FIX 1966                          RAINIER 1980
010 102 0  19 31 09221 154 48 47412   250 0008 330040
011
012 KALOLI 2 1949, RM 5 1980          FAIRWEATHER 1980
013 110 4  19 37 29359 154 56 57468   250 0007 000000
014
015 OPIHI ROCK 1980                   FAIRWEATHER 1980
016 201 5  19 34 54763 154 54 52388   250 0007 000000
017
018 POOL 1980                         FAIRWEATHER 1980
019 202 5  19 35 53298 154 56 02403   250 0005 000000
020
021 KALOLI 2 1949, RM 4 1980          FAIRWEATHER 1980
022 203 7  19 37 21659 154 56 53003   250 0010 000000
023
024 KALOLI 2 1949                     QUAD 191544 QSN 1005
025 204 5  19 37 29474 154 56 56479   250 0007 000000
026
027 KALOLI 2 1949, RM 3 1980          FAIRWEATHER 1980
028 205 3  19 37 34361 154 57 02028   250 0007 000000
029
030 WAHINII 1980                      FAIRWEATHER 1980
031 206 0  19 39 21635 154 58 54865   250 0004 000000
032
033 WAHINII RM 1 1980                 FAIRWEATHER 1980
034 207 5  19 39 21412 154 58 55281   250 0004 000000
035
036 OLA'A SUGAR CO. STACK 1949  QUAD 191551 QSN 1125
037 208 6  19 38 02656 155 02 01518   139 0000 000000
038
039 CAPE KUMUKAHI LT 1949-1980 QUAD 191544 QSN 1002 RAINIER 1980
040 209 3  19 31 09628 154 48 49069   139 0000 000000
041
042 KEOKEA 2 1951                     QUAD 191551 QSN 1092
043 210 0  19 44 25398 155 02 42676   250 0003 000000
044
045 LELEIWI USGS, 1912                QUAD 191551 QSN 1104
046 211 0  19 44 21840 155 00 22968   250 0006 000000
047
048 ALALA 1877                        QUAD 191551 QSN 1007
049 212 0  19 50 18781 155 06 42654   250 0231 000000
```

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051 PEPEEKEO PT LT 1949                    QUAD 191551 QSN 1136
052 213 0  19 51 01041 155 05 07509  139 0045 000000
053
054 PAUKAA PT LT 1975                      QUAD 191551
055 214 0  19 45 54911 155 05 33023  139 0000 000000
056
057 HILO HARBOR COMMISSIONERS WATER TANK 1951 QUAD 191551 QSN 1049
058 215 6  19 43 54526 155 03 26463  139 0060 000000
059
060 KAIWIKI NEW USGS 1949                  QUAD 191551 QSN 1077
061 216 0  19 45 32480 155 08 04161  250 0369 000000
062
063 HILO SUGAR CO STACK 1949               QUAD 191551 QSN 1066
064 217 3  19 44 27677 155 05 33837  139 0060 000000
065
066 COCOANUT PT LT 1976                    QUAD 191551 QSN 1022
067 218 3  19 43 47770 155 05 20208  250 0010 000000
068
069 BREAKWATER LT 1980                     FAIRWEATHER 1980
070 219 6  19 44 45132 155 04 39926  243 0004 000000
071
072 PEPEEKEO STACK 1980                    FAIRWEATHER 1980
073 220 6  19 50 47192 155 05 19362  243 0010 000000
074
075 KOHOLA 1980                            FAIRWEATHER 1980
076 221 4  19 52 16957 155 06 00462  250 0006 000000
077
078 WAIEHU 1980                            FAIRWEATHER 1980
079 222 4  19 52 03837 155 05 42689  250 0005 000000
080
081 HAIPO 1980                             FAIRWEATHER 1980
082 223 4  19 51 55538 155 05 35558  250 0015 000000
083
084 LOEA 1980                              FAIRWEATHER 1980
085 224 4  19 51 45245 155 05 27270  250 0008 000000
086
087 HONOHINA 1877                          QUAD 191551 QSN 1069
088 225 0  19 54 58197 155 09 34978  250 0215 000000
089
090 HAKALAU 1980                           FAIRWEATHER 1980
091 226 0  19 54 12727 155 07 40960  250 0007 000000
092
093 KOHOLA RM2 1980                        FAIRWEATHER 1980
094 227 0  19 52 17744 155 06 02220  250 0008 000000
095
096 NUDE                                   ( PHOTO ) TP-00822
097 300 5  19 33 54366 154 53 31013  243 0006 000000
098
099 N SAND HILL                            ( PHOTO ) TP-00822
100 301 5  19 33 29235 154 52 43259  243 0014 000000
```

G. Abstract of Positions H-9911

Vessel: 2023

Day	Positions	Control	S1	S2	Remarks
296-297	2000-2104	R/Az	100		Hydro
297-299	2105-2227	R/Az	100		Kings Landing Dev.*
299-302	2230-2319	R/Az	100		Hydro
303/304	2320-2380	R/Az	211		Hydro
303/304	2381-2433	R/R	211	212	Hydro
304/305	2434-2651	R/R	210	212	Hydro
308	2652-2697	R/R	210	212	Hydro
320	2698-2733	R/Az	110		Hydro

Rejected Positions: 2065,2090-2091,2104,2141,2149-2150,2228-2229, 2232-2233,2236-2300,2381-2384,2654-2657,2665, 2677-2678,2711-2713

Vessel: 2024

Day	Positions	Control	S1	S2	Remarks
305	4000-4043	R/Az	100		Kings Landing Dev.*
305	4044-4054	R/Az	100		Hydro
306	4055-4118	R/Az	212		Hydro
306	4119-4137	R/R	210	212	Hydro
311/312	4138-4176	R/Az	211		Devel. A*
311/312	4177-4195	R/Az	211		Hydro
320	4200-4211	R/Az	212		Hydro
320	4212,4213	R/Az	212		Hydro D. P.'s

Rejected Positions: 4033,4063,4093,4098-4099,4196-4199

Vessel: 2025

Day	Positions	Control	S1	S2	Remarks
281/282	6005-6018	Vis			Bot. Samp.
304	6019-6024	R/R	210	212	Bot. Samp.
305/306	6025-6284	R/Az	212		Hydro
308	6285-6351	R/Az	100		Kings Landing Dev.*
308	6352	R/R	211	212	Bot. Samp.
309	6353-6439	R/Az	212		Hydro
321	6440-6451	R/Az	211		Hydro
321	6451	R/Vis	211		Bot. Samp.
321	6452-6457	R/Az	211		Bot. Samp.

Rejected Positions: 6000-6004,6015-6017 Duplicated Position: 6451

* Congested development work - Do not plot on smooth sheet

NOAA FORM 75-44
(11-72)

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

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

VESSEL	PROJ. NO.	YEAR		CHECKED BY	DATE CHECKED
2025 FA-5	OPR-T126-FA-80	1980	FA 10-3-80 H-9911	R.W.	3-16-81

SERIAL NO.	DATE	SAMPLE POSITION		DEPTH (Fathoms)	WEIGHT OF SAMPLER	APPROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
		LATITUDE	LONGITUDE								
6005	7 OCT '80	19-45 35	154-59-50	51.0				br	fne S		DH
6006	"	19-45-36	155-00-12	57.0				br	fne S		DH
6007	"	19-45-29	155-00-33	56.1				br	fne S		DH
6008	"	19-45-16	155-00-56	43.7				br	crs S brk Sh		DH
6009	"	19-45-07	155-01-18	31.5				br	crs S		DH
6010	"	19-44-58	155-01-35	18.2					Co		DH
6011	"	19-44-49	155-01-53	10.5					crs S brk Co		DH
6012	"	19-44-36	155-02-12	5.5					hrd		DH
6013	8 OCT '80	19-44-34	155-01-39	4.8					Co		DH
6014	"	19-44-39	155-01-31	17.2					crs S brk Sh		DH
6018	"	19-44-53	155-01-04	35.2					crs S		DH
6019	30 OCT '80	19-45-13	155-02-31	15.2					brk Co		DH
6020	"	19-45-12	155-01-47	12.7					Co		DH
6021	"	19-45-51	155-01-50	34.4					brk Sh crs S		DH
6022	"	19-45-50	155-02-31	23.7					brk Sh Co crs S		DH
6023	"	19-46-29	155-02-36	31.8					brk Sh brk Co crs S		DH
6024	"	19-46-21	155-02-01	36.1					brk Sh brk Co crs S		DH

29

Use more than one line per sample if necessary.

☆U.S.GPO:1978-765-092/1190 Region No. 6

NOAA FORM 75-44
(11-72)

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

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

VESSEL	PROJ. NO.	YEAR		CHECKED BY	DATE CHECKED
2025 FA-5	OPR-T126-FA-80	1980	FA 10-3-80 H-9911	B.W.	3-16-81

SERIAL NO.	DATE	SAMPLE POSITION		DEPTH (Fathoms)	WEIGHT OF SAMPLER	APPROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
		LATITUDE	LONGITUDE								
✓6352	3 NOV '80	19-44-56	155-00-21	42.5				lt br	Co Sh		CH
✓6451	16 NOV '80	19-42-59	154-59-16	26.2					Co		CH
✓6452	"	19-43-39	154-59-40	24.4					fne S		CH
✓6453	"	19-44-09	155-00-04	18.2					Co		CH
✓6454	"	19-44-31	155-00-43	19.1				lt br	crs S		CH
✓6455	"	19-44-41	155-00-32	25.0					Co		CH
✓6456	"	19-44-44	155-01-16	24.0				lt br	crs S		CH
✓6457	"	19-46-11	155-02-46	25.3				lt br	crs S brk Sh		CH

Use more than one line per sample if necessary.

☆ U.S.GPO:1978-765-092/1190 Region No. 6

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

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

LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY
- ☐ HYDROGRAPHIC PARTY
- ☐ GEODETIC PARTY
- ☐ PHOTO FIELD PARTY
- ☒ COMPILATION ACTIVITY
- ☐ FINAL REVIEWER
- ☐ QUALITY CONTROL & REVIEW GRP.
- ☐ COAST PILOT BRANCH

(See reverse for responsible personnel)

☒ TO BE CHARTED
☐ TO BE REVISED
☐ TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office): Coastal Mapping Div. AMC. Norfolk VA

STATE: Hawaii

LOCALITY: Hawaii - North Coast

DATE: May 1977

The following objects HAVE ☒ HAVE NOT ☐ been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.:

JOB NUMBER: CM-7712

SURVEY NUMBER: TP-00070

DATUM: Old Hawaiian

POSITION

METHOD AND DATE OF LOCATION (See instructions on reverse side)

CHARTS AFFECTED

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	LATITUDE ° ′	LATITUDE ″ D.M. Meters	LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	OFFICE	FIELD	CHARTS AFFECTED
R TRS	(Hilo, Radio Range, 1949)	19 43	55.317 1700.9	155 01	32.190 937.3	VIS 7765AIASY341 Feb 19, 1977	V-VIS 10-4-80	19320
								31
	Field Inspected from Seaward by Ensign A.F. Trimble							
	NC							

L Williams

J. APPROVAL SHEET ✓

The Commanding Officer at the time of the survey, Captain A. J. Patrick, examined the field sheet and records on a daily basis. He was relieved by Commander Walter F. Forster prior to submission of this report. The survey is complete and adequate to supersede prior sources of charted information. ✓

Submitted by: ✓

Todd A. Baxter
Lieutenant, NOAA

Approved by: ✓

Walter F. Forster
Commander, NOAA

NOAA FORM 77-27 (5-77)

U. S. DEPARTMENT OF COMMERCE NOAA

HYDROGRAPHIC SURVEY NUMBER: H-9911

HYDROGRAPHIC SURVEY STATISTICS

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	BOAT SHEETS & PRELIMINARY OVERLAYS	2
DESCRIPTIVE REPORT	1	SMOOTH OVERLAYS: POS. 5 ARC, 3 EXCESS	8

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES						
CAHIERS	1					
VOLUMES						
BOXES			1			

T-SHEET PRINTS (List)

SPECIAL REPORTS (List)

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS: PRE-VERIFICATION	AMOUNTS: VERIFICATION	AMOUNTS: TOTALS
POSITIONS ON SHEET			
POSITIONS CHECKED		1207	1207
POSITIONS REVISED		461	461
SOUNDINGS REVISED		314	314
SOUNDINGS ERRONEOUSLY SPACED			
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED			

PROCESSING ACTIVITY	TIME – HOURS			
		Ver	Eval	
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	4			4
VERIFICATION OF CONTROL		12	2	14
VERIFICATION OF POSITIONS		101	2	103
VERIFICATION OF SOUNDINGS		118	18	136
COMPILATION OF SMOOTH SHEET		41	8	49
APPLICATION OF TOPOGRAPHY		14	9	23
APPLICATION OF PHOTOBATHYMETRY		-0-	-0-	-0-
JUNCTIONS		12	14	26
COMPARISON WITH PRIOR SURVEYS & CHARTS		-0-	10	10
VERIFIER'S REPORT		7	24	31
OTHER		37	-0-	37
digitization	11			11
TOTALS	15	342	87	444

Pre-Verification by James S. Green	*Beginning Date* 5/14/81	*Ending Date* 5/14/81
Verification by G. E. Kay, A. A. Luceno Evaluation by Gordon E. Kay	*Beginning Date* 12/15/81-9/30/83	*Ending Date* 2/6/84-3/23/84
Verification Check by S. H. Otsubo, J. S. Green	*Time (Hours)* 42	*Date* 3/30/84
Marine Center Inspection by	*Time (Hours)*	*Date*
Quality Control Inspection by	*Time (Hours)*	*Date*
Requirements Evaluation by	*Time (Hours)*	*Date*

PACIFIC MARINE CENTER
EVALUATION REPORT

REGISTRY NO: H-9911 FIELD NO: FA-10-3-80

Hawaii, Island of Hawaii, Vicinity of Leleiwi Point

SURVEYED: October 22 - November 17, 1980
SCALE: 1:10,000
SOUNDINGS: Ross Fineline Model 5000

PROJECT NO OPR-T126-RA,FA-80
CONTROL: Motorola Mini-Ranger III, Teledyne Hastings Raydist
Range/Range
Range/Azimuth

Chief of Party.....Capt. A. J. Patrick
Surveyed By.....Lt. D. G. Hennick
Lt. T. A. Baxter
Lt.(jg) C. P. Hancock
Ens. A. F. Trimble
Automated Plot By.....PMC Xynetics Plotter
Verified By.....G. E. Kay
A. A. Luceno
Evaluated By.....Gordon E. Kay

1. INTRODUCTION

H-9911 is a basic hydrographic survey conducted by the NOAA Ship FAIRWEATHER, in accordance with the following:

- Project Instructions for OPR-T126-RA, FA-80, Hawaii, Hawaiian Islands, dated August 4, 1980
- Change Number 1, August 8, 1980
- Change Number 2, August 15, 1980
- Change Number 3, September 9, 1980
- Change Number 4, November 28, 1980

This survey is situated along the northeast coast of the Island of Hawaii, east and southeast of Hilo Bay.

During verification, the following data was changed:

a. Projection parameters were changed to center the hydrography on the smooth sheet, and to change the projection to polyconic.

b . Tide level values are from observed tides, see Form 712.

2. CONTROL AND SHORELINE

Horizontal control and hydrographic positioning are adequately discussed in the Descriptive Report, paragraphs F and G, and in the Horizontal and Electronic Control Reports for OPR-T126-RA, FA-80.

The smooth sheet was plotted using geographic positions from the published geodetic control station listing of National Geodetic Service on the Old Hawaiian Datum.

The shoreline comes from the following Class I manuscripts:

Sheet Number	Scale	Date of Photography	Field Edit	Review
T-13314	1:5,000	Feb 1975	April, May 1976	May 1978
TP-00070	1:20,000	Dec 1976,Jan 1977	Oct 1980	

The field edit report for TP-00070 mentions an area bounded by the following coordinates:

latitude 19°44'00"N to latitude 19°44'30"N
longitude 155°01'25"W to longitude 155°02'00"W

This area is not covered by the ratioed photography, and contains less detail than the adjoining area.

The dashed line symbology depicting breakers on TP-00070 is further defined on the final field sheet as submerged ledge. Furthermore, several ledges inside that limit are shown on the field sheet as field edit information and are not shown on TP-00070. These ledges have been added to the smooth sheet without supporting positional information. The information note, "foul with submerged ledges", has been added to the smooth sheet. Numerous additional submerged and awash rocks have been plotted on the smooth sheet solely from notations in the survey raw records without supporting positional information.

3. HYDROGRAPHY

Soundings at crosslines are in good agreement. The hydrography contained within this survey is adequate to determine the bottom configuration and least depths.

Standard depth curves were adequately drawn and developed with the exception of the 0, 1, 2, 3, 5-fathom curves, where hydrography was terminated due to the rocky and dangerous shoreline.

4. CONDITION OF SURVEY

The hydrographic records and final reports adequately conform to the requirements of the Hydrographic Manual, 4th Edition, revised through change number 3.

5. JUNCTIONS

H-9911 joins the following:

Survey	Year	Scale	Note	Color	Joins on
H-9612	1976	1:5,000	Adjoins	violet	west
H-9613	1976	1:5,000	Adjoins	red	west
H-9909	1980	1:20,000	Joins	red	east
H-9920	1980	1:10,000	Joins	orange	north
H-9921	1980	1:20,000	Joins	brown	east

The junctions have been satisfactorily effected with the "Joins" surveys.

Soundings in the junctional area of the "Adjoins" survey are in agreement. Refer to H-9911 for depth curves in junction area.

6. COMPARISON WITH PRIOR SURVEY

H-2461 (1900) 1:40,000, five soundings fall within the limits of H-9911, agreement is poor. The differences are attributed to variations in data acquisition and positioning techniques.

H-9911 is adequate to supersede H-2461 over its common areas.

7. COMPARISON WITH CHART

H-9911 was compared to the following two charts:

Chart 19320, 12th Edition, June 17, 1978, 1:250,000

a(1). Hydrography - There are seven charted soundings within the limits of H-9911, only one of them originates from the before mentioned prior survey. All other charted data originates from unknown sources. With the exception of the prior survey sounding, the present survey compares well to the chart.

Chart 19324, 19th Edition, June 9, 1979, 1:10,000

a(2). Hydrography - Presently charted soundings originate from the before mentioned junction surveys H-9612, H-9613. The present survey compares well to the chart.

All charted rocks on both charts have been verified.

There have been no dangers to navigation identified or reports submitted by the NOAA Ship FAIRWEATHER or Pacific Marine Center on this survey.

b. Controlling Depths - There are no controlling depths within the limits of H-9911.

c. Aids to Navigation - There are no fixed aids or floating aids to navigation within the limits of H-9911.

H-9911 is adequate to supersede Chart 19320 and Chart 19324 within the common areas.

8. COMPLIANCE WITH INSTRUCTIONS

H-9911 complies with the instructions and changes listed in section 1 of this report.

9. ADDITIONAL FIELD WORK

H-9911 is a good basic hydrographic survey. Additional field work is not required.

Gordon E. Kay
Cartographer - Evaluation
March 23, 1984

This survey has been verified and evaluated. I have examined this survey and it meets Charting and Geodetic Services survey standards and requirements for use in nautical charting. This survey is recommended for approval.

James S. Green
Supervisory Cartographer

October 8, 1981

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

Tide Station Used (NOAA Form 77-12): 161-7760 Hilo, HI
161-7088 Shipman Ranch, HI

Period: October 1 - November 16, 1980

HYDROGRAPHIC SHEET: H-9911

OPR: T-126

Locality: East Coast of Hawaii

Plane of reference (mean lower low water): 161-7760 = 3.54 ft.
161-7088 = 0.82 ft.

Height of Mean High Water above Plane of Reference is 161-7760 = 1.99 ft.
161-7088 = 1.80 ft.

REMARKS: Recommended Zoning:

1. North of latitude 19°43.0' zone direct on 161-7760, Hilo, Hawaii.
2. South of latitude 19°43.0' zone direct on 161-7088, Shipman Ranch, Hawaii.

for Donald Carrier
Chief, Datums and Information Branch

[illegible] ABSTRACT

ATTACHMENT TO DESCRIPTIVE REPORT FOR H-9911

I have reviewed the smooth sheet, accompanying data, and reports of this hydrographic survey. Except as noted in the Evaluation Report, the hydrographic survey meets or exceeds Charting and Geodetic Services (C&GS) standards, complies with instructions, and is accurately and completely represented by the smooth sheet and digital data file for use in nautical charting.

David W. Yeager 4/18/84
Chief, Nautical Chart Branch (Date)

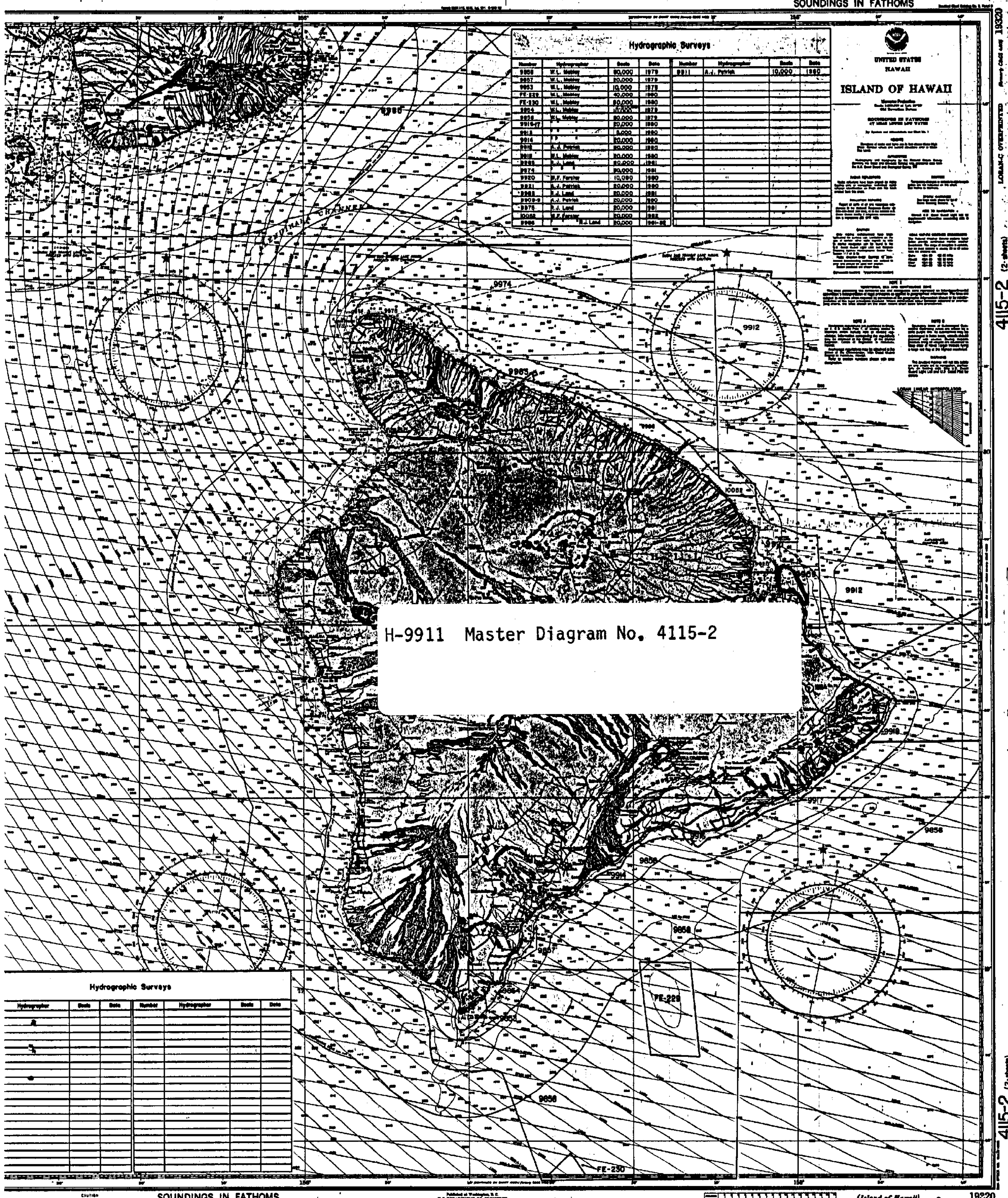
CLEARANCE: SIGNATURE AND DATE:

N/MOP2:LWMordock Larry W. Mordock 4/19/84

After review of the smooth sheet and accompanying reports, I hereby certify this survey is accurate, complete, and meets appropriate standards with only the exceptions as noted above. The above recommendations are forwarded with my concurrence.

Carlos K. Pearson 4/20/84
Director, Pacific Marine Center (Date)

H-9911 Master Diagram No. 4115-2



FORM C&GS-8352
(3-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9911

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
19324	8-15-84	K. VanNess	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 15. fully applied survey in common area.
		RSH	
19320	8-20-84	K VanNess	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 16. fully applied survey
		JO'C	
19010	10·2·84	B Fernanders	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 15
540	5-1-90	[signature]	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 18
19004	10-25-90	R. A. Lillis	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 36
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.

FORM C&GS-8352 SUPERSEDES ALL EDITIONS OF FORM C&GS-978.

USCOMM-DC 8558-P63