

9914

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. RA-20-4-80 ..
Office No..... H-9914 ..

LOCALITY

State Hawaii ..
General Locality SE Coast of Hawaii ..
Locality Kaaha to Palima Point ..

1980

CHIEF OF PARTY
CAPT. W.L. Mobley

LIBRARY & ARCHIVES

DATE July 16, 1982 ..

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

9914

19320
19004
19010
19007

TO SIGN OFF SEE
RECORD OF APPLICATION TO CHARTS

540-NC

HYDROGRAPHIC TITLE SHEET

H-9914

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-20-4-80

State Hawaii

General locality SE Coast Island of Hawaii

Locality Palma Point to Naliikakani Point Kaaha to Palma Point

Scale 1:20,000 Date of survey Oct. 7 - Nov. 5, 1980

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

Vessel NOAA Ship RAINIER

Chief of party CAPT W. L. Mobley

Surveyed by LCDR A. Anderson, ENS J. Gordon, ENS R. Fleischman (USN),
ENS F. Ohlinger, SST R. Hastings

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

Graphic record scaled by Ship's Personnel

Graphic record checked by Ship's Personnel
Verification

~~Plotted~~ by Thelma O. Jones Automated plot by PMC Xynetics Plotter

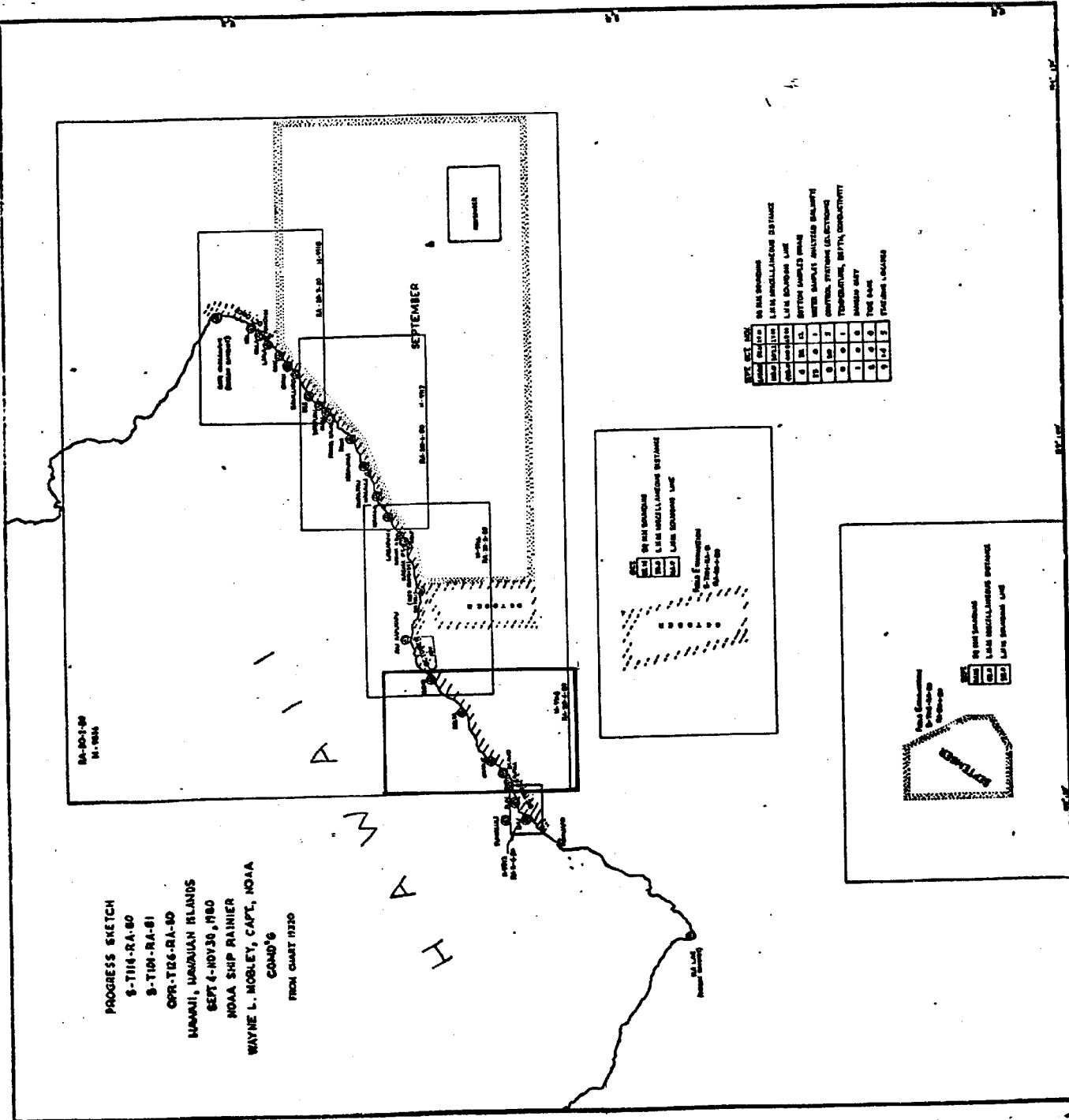
Evaluated
~~Verified~~ by Gordon E. Kay

Soundings in fathoms ^{and tenths} 1 feet at MLW MLLW

REMARKS: Time Meridian: 0° (GMT)

ANUS / SURF 2/28/86 AAAA

STANDARDS CK'D 4-2-86
C. Kay



A. PROJECT

This survey was accomplished in accordance with Project Instructions OPR-T126-RA/FA-80, dated August 4, 1980; Change No. 1, Supplement to Instructions dated August 8, 1980; Change No. 2, Supplement to Instructions dated August 15, 1980; Change No. 3, Supplement to Instructions dated September 9, 1980; and ~~Change No. 4, Supplement to Instructions dated November 28, 1980.~~

B. AREA

The area surveyed on H-9914 is located on the southeast coast of the Island of Hawaii. The eastern boundary of the survey is longitude $155^{\circ} 19'$ west and the western boundary is longitude $155^{\circ} 27'$ west. The north-south boundary was from about the 150 fathom curve inward to the shoreline of the island.

C. SOUNDING VESSELS

All soundings were obtained with RAINIER launches RA-3 (2123) and RA-6 (2126). Bottom samples were obtained from the ship (2120). The conical Ross transducer on RA-6 (2126) was temporarily replaced with a rectangular ($5^{\circ} \times 10^{\circ}$) transducer between JD 281 and JD 288. No other visual vessel configurations or problems were encountered.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

Sounding Equipment

Echo soundings obtained during RA-20-4-80 were taken with survey launches (RA-3 and RA-6) using the Ross fineline fathometer system, which includes the following components: Ross model 400 transceiver, Ross model 5000 analog recorder, Ross model 6000 digitizer and a 100 kHz transducer. Table I summarizes the serial numbers of the components used in each vessel.

Table I

<u>Component</u>	<u>RA-3 (2123)</u>	<u>RA-6 (2126)</u>
Transceiver	1041	1042
Analog Recorder	1070	1042,1071
Digitizer	1080	----

Correction To Echo Soundings

The following corrections to echo soundings are discussed: Sound velocity corrections, draft corrections, settlement and squat corrections, and instrument corrections. Sea and swell corrections were not applied due to the insignificance of the seas versus the depth of water encountered in this project.

Sound Velocity Corrections

Sound velocity corrections for echo soundings were derived from data obtained from 1 Martek TDC and 1 Nansen cast performed in the survey area during this project. The details of these casts are presented in Table II.

Table II

Nansen & Martek Cast Data

<u>Cast-Type</u>	<u>Date</u>	<u>Location</u>	<u>Velocity Table No.</u>
Nansen	9/20/80	Lat 19 ⁰ 14' 48" Long 154 ⁰ 43' 36"	1 & 2
Martek	11/4/80	Lat 19 ⁰ 09' 42" Long 155 ⁰ 22' 42"	Not Used

The samples collected from the Nansen casts were analyzed for salinity using standard laboratory procedures (see H.O. 607). The salinometer used for these analyses was a Industrial Instruments Model RS-7B, S/N 28298, which was last calibrated in April 1980 by Northwest Regional Calibration Center, Bellevue, Washington. The Martek S/N 758 was also calibrated there in February 1980. The Nansen cast was used to compute the sound velocity correction for all surveys in this project. It was compared to the Martek cast to check its accuracy and the stability of the water column. Two separate tables were made: A Deep Water Table for the ship and a shallow water table for the launches. A copy of the velocity corrector tape listing for the launches and shallow (Table II) is provided in the separates following the text. For more detailed information and raw data records concerning the determination of sound velocity corrections refer to the Correction To Echo Sounding Report for this project (OPR-T126-RA-80).

A comparison of the data collected from NOAA Ship FAIRWEATHER (2020) on November 20, 1980 at latitude 19⁰ 46' 00" north, longitude 154⁰ - 55' 00" west was made. The FAIRWEATHER was working on the Island of Hawaii north of Cape Kumakahi. This comparison indicates a stable water column throughout the area at the time of hydrography.

Launch Draft Corrections

Due to rough water conditions encountered during RA-20-4-80 bar checks were not feasible. Historically 0.3 fathoms has been used as the launch TRA correction. There have been no changes in the launches that would cause a change in draft. Also instrument error was checked before and after the project and was found to be negligible.

All boat, semi-smooth and smooth field sheets were plotted using a launch TRA correction of 0.3 fathoms.

Launch Settlement And Squat Corrections

Settlement and squat characteristics of survey launches RA-3 and RA-6 were measured prior to OPR-T126-RA-80 in Lake Washington, Seattle, Washington on April 11, 1980 (JD 102). ✓

These corrections are not considered necessary for this project in accordance with PMC OORDER 3-03.06x1, page 3-31 "Settlement and squat errors are commonly ignored when operating in areas of irregular bottom at various speeds, as this error is usually insignificant if the sounding unit is fathoms." ✓ ✓

Sounding Instrument Corrections

During survey operations, the "blanking" was normally set at the minimum of the scale that the fathometer is set. i.e. if the fathometer was on 50-100 fathoms, the blanking was set at 50 fathoms. Analog depths were substituted for missed digital soundings during on-line or end of day field record scanning. ✓

The initial trace on the analog recorder was continuously monitored and adjusted to prevent errors due to a drifting initial. ✓

To prevent belt length errors or stylus/paper misalignment on the analog recorders, RAINIER personnel performed "phase calibrations" of the fathometers each day in accordance with calibration procedures contained in the PMC OORDER. ✓ ✓

E. HYDROGRAPHIC SHEETS

The field sheets were prepared utilizing a PDP 8/e Complot system onboard the RAINIER and are based on a modified transverse mercator projection. The field records will be sent to the Pacific Marine Center, Seattle, for verification. A list of parameters used to define the projections is attached in the separates following the text. This survey is complete on one smooth field sheet with one expansion sheet. ✓ ✓

F. CONTROL STATIONS

Horizontal control during this project was provided by the recovery of twenty-one existing stations and the establishment of twenty-three new stations. This survey was controlled using nine of those stations. A copy of the master station list is included in the attachments, the stations used each day are listed in the raw records and check marked on the master station list. ✓ ✓

The new stations were established using Third Order Class I methods, and were monumented and described. All work was performed on the Old Hawaiian Datum. The new stations located in the area of this survey were in arid, isolated areas and were located by intersection methods. Helicopters were used extensively during this work. ✓ ✓

The details concerning the location and recovery of each station, including the field records and processing computations are located in the Horizontal Control Report for this project. ✓

G. HYDROGRAPHIC POSITION CONTROL

Range/azimuth methods were used exclusively for hydrographic position control. A Motorola Miniranger III system was employed. ✓ ✓

Description of Miniranger Shore Stations

There were four shore stations established and one station was recovered for electronic control stations. Data on the use of the stations is as follows: ✓

RA-20-4-80 (H-9914)

<u>Station No.</u>	<u>Name</u>	<u>M/R Code</u>	<u>Transponder S/N</u>	<u>Dates</u>
116	Bravo	B	775	281
117	Charlie	C	776	281-283
		B	775	310
124	Puu Kapukapu	B	775	292-293
		A	001	310
125	Charlie Eccentric	D	777	282-283

The electronic stations were positioned over Third Order Class I geodetic control stations. The Miniranger transponders were two to four feet above the stations. One transponder station, No. 125 Charlie Eccentric, was a temporary station, eccentric of station Charlie. It was established to allow two azimuth shooters to operate in the same area. Power for the shore stations was provided by two 12 volt auto batteries in series to provide 24 volts DC. ✓

Miniranger Shore Station Performance

There were no transponder failures during this survey. ✓ ✓

Miniranger Mobile Station Performance

There were two vessels involved in the hydrographic operations. ✓

<u>Vessel</u>	<u>Console</u>	<u>R/T Unit</u>
2123	720	720
2126	711	727

Signal strengths were generally well above the cutoff values. In the areas where signal strength did drop and rates became erratic work was halted until readjustment of the Miniranger or its transfer to another station eliminated the problem. ✓

Description Of The Baseline Calibrations

Two Miniranger baseline calibrations were performed during OPR-T126-RA-80. Both took place at Hilo Municipal Airport. The first was on JD 248 and the second on JD 329.

The initial calibration determined initial correctors and the low signal strength cut off values for each Miniranger console, R/T unit and transponder combination. The ending correctors from the second calibration were meaned with the initial correctors to determine the final correctors used to plot the smooth field sheet. This smooth field sheet was mistakenly plotted with the Miniranger correctors having the wrong signs. The sheet was not replotted because the resulting error is insignificant at the scale of the survey. All field data contains accurate correctors.

The details of these calibrations and the raw data and graphs are included in the Electronic Control Report for this project.

Description Of Daily Calibrations

Visual sextant fixes were used to systems check Miniranger accuracy. Signals for these fixes were positioned over Third Order Class I stations. This check was done twice a day, morning and evening, weather permitting and each check was performed in accordance with the PMC OPORDER, Appendix M. A 45 (forty-five) meter error in the original horizontal control position for station Charlie was discovered by daily systems check and later corrected by horizontal control.

H. SHORELINE

Shoreline detail for this survey was obtained from Class III photo manuscripts (TP-00378, TP-00379). The shoreline details have been field edited along the entire sheet, and all corrections have been transferred to the field edit manuscripts and the smooth field sheet.

I. CROSSLINES

Crosslines for the survey totaled twenty miles and comprised thirty-one percent of the mainscheme mileage. Crosslines were run at between ~~forty-five percent~~ ^{forty} and ~~ninety percent~~ ^{ninety} to the mainscheme lines. _{degrees} _{degrees}

Crossline agreement for this survey, as could be predicted, was poor. The ~~fourth~~ ^{fourth} weather, steep, jagged slopes, and non-coincidence of the ^{fourth} comparison sounding pairs combined to cause these results. In addition, a transducer failure on RA-6 necessitated replacing the standard conical shaped transducer with a rectangular transducer referred to as a 5° x 10° transducer. This transducer has a drastically different effective athwart ships beam width which at certain depths could reach to 60° as graphed by Ross Laboratories in 1971 (copies attached). This transducer was used to collect soundings for fixes 6000 through 6176. During that time crosslines were run, with RA-6 in deep water

parallel to the steep contours. The results were soundings which were up to fifteen fathoms shoaler than the main scheme work. These soundings were retained and plotted, however, it is recommended that significant discrepancies with crossline agreement in this area be resolved by taking the deeper depth from the standard conical transducers. ✓

Crossline comparisons were made involving the remainder of the survey not covered by the above transducer problem. Fourteen comparisons were made with the following discrepancies noted. ✓

<u>Depth (Fathoms)</u>	<u>No. of Comparisons</u>
0	3
2	1
3	3
4	1
5	3
7	1
8	1
15	1

These differences can be attributed to steep contours, non-coincidence of comparison sounding pairs, pointing errors caused by rough weather, and ambiguous fathogram traces caused by multiple returns from the steep slopes. ✓

J. JUNCTIONS

This survey consists of a single field sheet which junctions with contemporary survey H-9916, (1980) at 1:20,000 scale, on the north-eastern border. All soundings agree within one fathom. ✓

It junctions on the southwest with RAINIER survey H-9857 ⁽¹⁹⁷⁹⁾ ~~(RA-20-4-79)~~ at a 1:20,000 scale. Contour line agreement is excellent. Of two coincident sounding pairs, one disagreed by four fathoms and one agreed with zero difference. ✓

This survey also junctions with H-9856 on the southern border. H-9856 (1979) is a 1:80,000 scale survey completed during the 1979 field season. The comparison between soundings from two surveys is as follows: ✓

- 4 agree with the trend of the contour
- 1 agrees within one fathom
- 4 agree within ten fathoms
- 5 agree within twenty fathoms

The discrepancies between the two sets of soundings can be explained by a comparison of the sounding vessels. The sounding vessel for

H-9856 was the Ship RAINIER(2120). The vessels used for soundings on H-9914 was the RAINIER launches RA-6 (2126) and RA-3 (2123). The vertical beam width of the launches is 7.5°, the vertical beam width on the ship is in excess ~~to~~ 30°. Since the ocean bottom slopes steeply in this area, the ships fathometer, with its wider beam width, will pickup shoaler soundings in the same area than the launch fathometer. This effect can cause discrepancies of the magnitude noticed here and it has occurred on every 1:20,000 scale survey completed by this ship in Hawaii for the past two years.

K. COMPARISON WITH PRIOR SURVEYS

Soundings from this survey were compared with those of prior survey H-5008, 1:20,000 scale, 1929. Though no overlap occurred the general trend of the soundings were in agreement. *Should have used H-4655a.*

L. COMPARISON WITH THE CHART

Chart 19320, 12th Edition, dated June 17, 1978. The scale of this chart is 1:250,000 with the soundings tending to be more shallow than was surveyed on this sheet. The trend of the soundings on the chart seem to suggest shoaler water offshore than exists. Experience with the near shore soundings on this chart has suggested that they appear to be approximations. It is recommended that all soundings of this survey supersede those of chart 19320. *CONCUR*

M. ADEQUACY OF SURVEY

Survey H-9914 is complete and adequate to supersede all prior surveys for charting.

N. AIDS TO NAVIGATION

Survey H-9914 had no aids to navigation.

O. STATISTICS

This survey contains 736 fixes with a total of 55.7 linear nautical miles and seven square miles of hydrography.

<u>Vessel</u>	<u>Mainscheme</u>	<u>X-Lines</u>	<u>Development</u>
2123	30	3.2	0
2126	15.5	2.1	4.9
Totals	45.5	5.3	4.9

<u>Vessel</u>	<u>Positions</u>	<u>Bottom Samples</u>
2123	321	0
2126	415	0
2120	10	10
Totals	746 694	10

Two tide gauges were installed for the hydrography. One at Pohoiki Breakwater and one at Honuapo. ✓

P. MISCELLANEOUS

The shoreline of this survey consists of high bluffs. Therefore the term shoreline is used loosely in the Printout. The hydrography tabled "Shoreline" is actually a development of the area near shore. Data was collected as close as possible without putting the launch too close to the dangerous inshore areas. ✓

The rough weather and steep bottom contours in this area combined to produce fathogram traces that were very difficult to interpret. Every effort was made to produce soundings for plotting that are as accurate as possible however crossline comparisons for this survey are still less accurate than could be expected in an area with a smooth bottom. ✓

An alteration to the Ross system was implemented during this project that increased significantly the sounding limits of the system. By essentially halving the pulse repetition rate and increasing the pulse length, the effective depth was extended to 200 fathoms in reasonable weather. This included both the analog and digital performance. ✓

The expansion sheet was plotted to help clarify the field sheet in an area of very congested soundings. This area was not developed to delineate a special feature. The extra lines were run to complete the work in a Miniranger shadow zone. The inshore ends of the extra lines were plotted using the "course and speed method" necessitating a overlap area with the mainscheme work and ~~is~~ resulting in a congested sounding plot. ✓

Q. RECOMMENDATIONS

In selecting final soundings in this area for charting it is recommended that the shoaler soundings be used when there are crossline or development sound discrepancies between vessels using the same beam width. It is also recommended that the deeper (narrow beam) depth be used when using soundings from vessels with different beam widths. For examples, soundings from data fixes 6000 through 6176 should be suppressed in comparison to narrow beam work, and ship (wide beam) soundings should be suppressed in areas common with the launch work. This latter situation occurs only when junctioning with H-9856, 1:80,000, 1979. ✓

R. AUTOMATED DATA PROCESSING

Data acquisition and processing were accomplished per instructions in the Hydrographic Manual (4th Edition), Manual Automated Hydrographic Surveys and the PMC OORDER. ✓

Soundings and positions were taken by a Hydroplot system using range azimuth program FA 181. There are daily master tapes and corresponding ✓

corrector tapes which include the TRA for the vessel, baseline correctors for the Miniranger consoles and R/T units and all depth corrections. Velocity tapes were generated from Nansen cast data. The following is a list of all computer programs and version dates used for data acquisition or processing:

<u>PDP 8/e</u>	<u>Version Date</u>
FA 181 RANGE AZIMUTH LOGGER	2/23/78
RK 201 GRID, SIGNAL & LATTICE PLOT	4/18/75
RK 212 VISUAL STATION TABLE LOAD	4/01/74
RK 216 RANGE AZIMUTH NON-REAL TIME PLOT	2/05/76
RK 300 UTILITY COMPUTATIONS	0/05/76
RK 330 REFORMAT AND DATA CHECK	5/04/76
PM 360 ELECTRONIC CORRECTOR ABSTRACT	2/02/76
AM 500 PREDICTED TIDE GENERATOR	11/10/72
RK 530 LAYER CORRECTIONS FOR VELOCITY	5/10/76
RK 561 GEODETIC H/R CALIBRATION	2/19/75
AM 602 ELINORE-LINE ORIENTED EDITOR	5/20/75
AM 603 TAPE CONSOLIDATOR	10/10/72
RK 606 TAPE CUPLICATOR	8/22/74

The HP 97 and HP 9815 calculators were used to compute geographic positions of electronic control stations and visual signals for calibration.

S. REFERAL TO REPORTS

The following reports contain information related to this survey:

ELECTRONIC CONTROL REPORT, OPR-T126-RA-80
HORIZONTAL CONTROL REPORT, OPR-T126-RA-80
CORRECTIONS TO ECHO SOUNDINGS, OPR-T126-RA-80
TIDE STATION REPORTS, OPR-T126-RA-80
COAST PILOT REPORTS, OPR-T126-RA-80
FIELD EDIT REPORTS, OPR-T126-RA-80

Respectfully Submitted,


James R. Gordon

James R. Gordon
Ensign, NOAA

APPROVAL SHEET
DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY
H-9914
RA-20-4-80

In producing this sheet, standard procedures were observed in accordance with the Hydrographic Manual, PMC OORDER, and the Instruction Manual for Automated Hydrographic Surveys. The data was examined daily during the execution of the survey.

The boatsheet and accompanying records have been examined and are complete and adequate for charting purposes and are approved.


Wayne L. Mobley
Captain NOAA

MASTER STATION LIST
 OPR-T126-RA-80
 HAWAIIAN ISLANDS, HAWAII

FINAL VERSION

101	1	19	16	55404	155	07	27806	250	0000	329649	RA-79
/KAENA PT. RM 3 RED RAYDIST STATION											
102	1	19	31	09221	154	48	47412	250	0000	329649	RA-80
/FIX 1966-1980 GREEN RAYDIST STATION											
103	1	19	27	12889	154	51	03305	250	0000	000000	RA-80
/LAKA 1980											
104	1	19	24	06000	154	55	18553	250	0000	000000	RA-80
/KEE 1980											
105	1	19	20	56109	154	58	54856	250	0000	000000	G-16241
/HAKUMA 1914											
106	1	19	19	54935	155	01	10910	250	0000	000000	G-16241
/KUPAPAU 1914											
107	1	19	18	09600	155	05	22586	250	0000	000000	G-16241
/LAEAPUKI 1914											
108	3	19	16	55404	155	07	27806	250	0000	000000	RA-79
/KAENA PT-1977 RM 3 M/R											
109	1	18	54	56570	155	41	04290	250	0000	329649	G-09279
/KA LAE 2 1948-1949 GREEN RAYDIST PG.27											
110	1	19	07	36455	155	30	48106	250	0000	000000	PG.67 G-446
/LUU 1930											
111	1	19	09	10376	155	30	49687	250	0000	000000	G-09279
/PUNALUU 1949											
112	1	19	08	52349	155	28	07649	250	0000	000000	G-09279 *
/KAMEHAME NEW HTS 1949											
113	1	19	12	24452	155	26	00452	250	0000	000000	G-09279
/PUU ULAULA HTS 1914											
114	1	19	08	26595	155	29	21880	250	0000	000000	PG.67 G-446 * USED FOR CALIBRATION ONLY
/PUN 1930											
115	1	19	08	5338 ⁷	155	27	4432 ³	250	0000	000000	RA-80 *
/ALFA 1980											
116	1	19	09	19447	155	26	5686 ⁸	250	0000	000000	RA-80 *
/BRAVO 1980											

* STATIONS USED FOR THIS SURVEY

117	1	19	10	14 ⁵³² 477	155	25	57 ⁵⁶² 639	250	0000	000000	*
/CHARLIE 198											RA-80
118	1	19	12	280 ⁴⁶ 51	155	21	558 ³ 70	250	0000	000000	*
/DELTA 1980											RA-80
119	1	19	14	476⁴⁷50	155	19	0679⁰7	250	0000	000000	*
/ECHO 1980											RA-80
120	1	19	15	32967	155	11	41090	250	0000	000000	*
/FOXTROT 1980											RA-80
121	1	19	17	40026	155	18	57509	250	0000	000000	*
/HALIMA AZI 1980											RA-80
122	1	19	17	51107	155	18	36324	250	0000	000000	*
/HILINA RESET 1975-1980											RA-80
123	1	19	19	05904	155	09	51023	250	0000	000000	*
/FINNEGAN 1980											RA-80
124	1	19	16	43355	155	15	44461	250	0000	000000	*
/PUU KAPUKAPU 1914											G-16241
125	1	19	10	14231	155	25	57295	254	0000	000000	*
/CHARLIE 1980 ECC.											RA-80
126	1	19	16	34120	155	08	01502	250	0000	000000	*
/GOLF 1980											RA-80
127	1	19	15	35165	155	11	40018	254	0000	000000	*
/FOXTROT ECC. 1980											RA-80
128	1	19	17	06042	155	07	10580	254	0000	000000	*
/KAENA AID 1980											RA-80
129	1	19	19	00739	155	03	42583	250	0000	000000	*
/KAMOA 1980											RA-80
130	1	19	19	37783	155	01	52960	250	0000	000000	*
/WAHAULA 1980											RA-80
131	1	19	21	01936	154	58	45999	250	0000	000000	*
/PANA 1980											RA-80
132	1	19	22	31420	154	57	12839	250	0000	000000	*
/MOANA HAUAE USGS 1978											G-16241
133	1	19	25	06205	154	53	32829	250	0000	000000	*
/KAULUPO 1980											RA-80
134	1	19	26	21328	154	52	02887	250	0000	000000	*
/MAC 1980											RA-80

* off sheet

* STATIONS USED FOR THIS SURVEY

~~135 1 19 27 49995 154 50 20735 250 0000 000000
/HULA 1980 RA-80~~

~~136 1 19 28 29295 154 49 45134 250 0000 000000
/HAL 1980 RA-80~~

~~137 1 19 22 49224 154 56 43746 250 0000 000000
/KIKA 1980 RA-80~~

~~138 1 19 23 21490 154 56 09086 250 0000 000000
/WAIPUKU 1980 RA-80~~

~~139 1 19 25 43275 154 52 53989 250 0000 000000
/OPIHI 1980 RA-80~~

~~140 1 19 30 01441 154 50 31048 250 0000 000000
/KAPOHO HGS 1896 G-16241~~

~~141 1 19 27 37580 154 50 43442 250 0000 000000
/POHOIKI BAY BREAKWATER LIGHT 2 1980 RA-80~~

~~200 1 19 31 09621 154 48 49076 139 0000 000000
/CAPE KUMAKAHI LIGHTHOUSE 1949 RA-80~~

~~201 1 18 55 24119 155 40 24017 139 0000 000000
/DESOLATION 1979 RA-79~~

~~202 1 18 54 54432 155 41 04553 139 0000 000000
/KA LAE LIGHT 1948 G-16108~~

~~203 1 19 27 37932 154 50 42526 139 0000 000000
/NOS BENCHMARK 161-8062-E 1979 RA-80~~

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)

REPORTING UNIT (Field Party, Ship or Office)
 STATE
 LOCALITY
 DATE

Ship RAINIER
 HAWAII
 Hawaii Island
 Southeast Coast
 Oct. 1980

The following objects HAVE NOT been inspected from seaward to determine their value as landmarks.
 SURVEY NUMBER
 DATUM

OPR-T126-RA-80
 H-9914
 Old Hawaiian

CHARTING NAME
 DESCRIPTION
 (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses.)

STACK
 (Pahala Kau Sugar Co. Stack, 1978)
 Snow fence marking western boundary of Hawaii Volcanoes National Park. Fence material is identical to snow fences in colder climates. Approximate G.P.

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

OFFICE
 FIELD

CHARTS AFFECTED
 19320
 19320

LATITUDE
 LONGITUDE
 D.M. Meters
 D.P. Meters

19 12
 155 28
 44.2719

19 11
 155 24
 00

00.49588
 36

00.49588
 36

19 12
 155 28
 44.2719

19 11
 155 24
 00

See L-2A7(86)

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	LTJG DAVID KRUTH
POSITIONS DETERMINED AND/OR VERIFIED	LTJG DAVID KRUTH
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	
ORIGINATOR	
<input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)	
FIELD ACTIVITY REPRESENTATIVE	
OFFICE ACTIVITY REPRESENTATIVE	
<input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE	

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'
 (Consult Photogrammetric Instructions No. 64)

<p>OFFICE</p> <p>I. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75</p> <p>FIELD</p> <p>I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: E - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection 5 - Field Identified 6 - Theodolite 7 - Planetable 8 - Sextant</p> <p>A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75</p> <p>*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.</p>	<p>FIELD (Cont'd)</p> <p>B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982</p> <p>II. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75</p> <p>III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75</p> <p>**PHOTOGAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.</p>
---	--

NOAA FORM 76-40
(8-74)

NONFLOATING AIDS

FOR CHARTS

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

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)

Replaces C&GS Form 567.

REPORTING UNIT
(Field Party, Ship or Office)

TO BE CHARTED

TO BE REVISED

TO BE DELETED

Ship RAINIER

HAWAII

LOCALITY

Hawaii Island
Southeast Coast

DATE

Oct. 1980

DATUM

Old Hawaiian

POSITION

LATITUDE

LONGITUDE

D.P. Meters

D.M. Meters

FIELD

OFFICE

CHARTS AFFECTED

The following objects HAVE ~~XX~~ BEEN inspected from seaward to determine their value as landmarks.

JOB NUMBER

H-9914

SURVEY NUMBER

H-9914

DESCRIPTION

(Record reason for deletion of landmark or aid to navigation.
Show triangulation station names, where applicable, in parentheses)

None.

CHARTING NAME

OPR-T126-RA-80

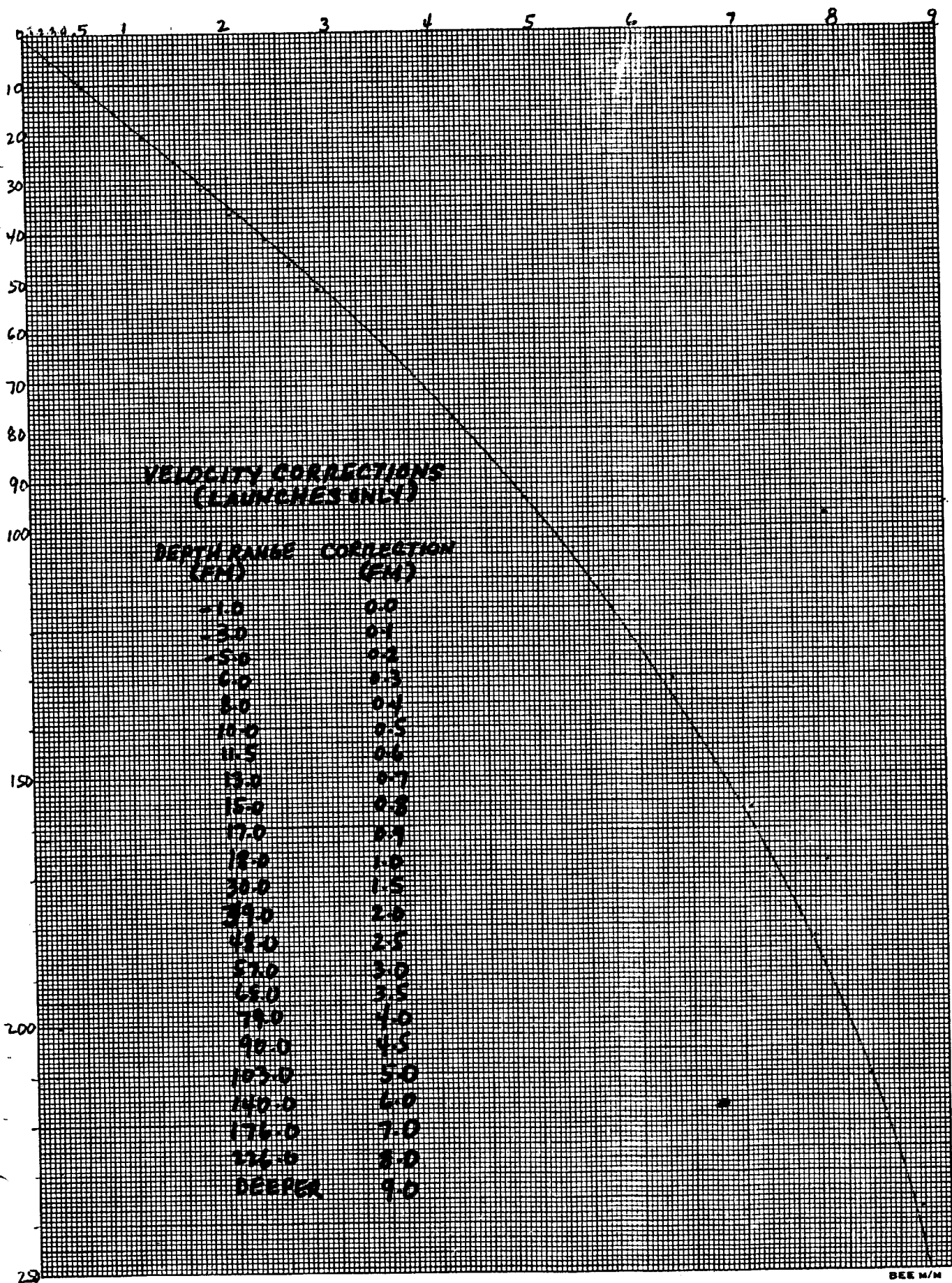
RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
ORIGINATOR	
OBJECTS INSPECTED FROM SEAWARD	LTJG DAVID KRUTH
POSITIONS DETERMINED AND/OR VERIFIED	LTJG DAVID KRUTH
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	

<p>OFFICE</p> <p>I. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75</p> <p>FIELD</p> <p>I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: P - Photogrammetric Vis - Visually L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection</p> <p>A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75</p> <p>*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.</p>	<p>INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION' (Consult Photogrammetric Instructions No. 64,</p> <p>FIELD (Cont'd)</p> <p>B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982</p> <p>II. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75</p> <p>III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75</p> <p>**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.</p>
--	---

VELOCITY CORRECTOR LISTING
OPR-T126-RA-80

LAUNCHES ONLY
TABLE NO. 2

000010	0	0000	0002	001	000000	000000
000030	0	0001				
000050	0	0002				
000060	0	0003				
000080	0	0004				
000100	0	0005				
000115	0	0006				
000130	0	0007				
000150	0	0008				
000170	0	0009				
000180	0	0010				
000300	0	0015				
000390	0	0020				
000480	0	0025				
000570	0	0030				
000680	0	0035				
000790	0	0040				
000900	0	0045				
001030	0	0050				
001400	0	0060				
001760	0	0070				
002260	0	0080				
999999	0	0085				



TMA (TC/TI) TAPE: VESSEL 2126 (RA-2) SURVEY RA-20-4-80 H-9914

FATHOMETER S/N 1071 YR 80 PAGE 1 OF 1

FROM TIME	TMA CORR.	DAY	VEL. TBL.	TMA corr. is the algebraic sum of these columns					COMMENTS
				INITIAL	SCALE-PHASE	DRAFT	F. ARC	S. / SQUAT	
234438	0.3	291	2	0.0	0.0	0.3	N/A	N/A	HYDRO BEGINS
234600	0.3	310	2	0.0	0.0	0.3	N/A	N/A	

RA-20-4-80

TRA (30/71) TAPE: VESSEL 2123 (RA-3) SURVEY H-9914 PATROMETER S/N 1070 YR 80 PAGE 1 OF 1

FROM TIME	TRA CORR.	DAY	VEJ. TRJ.	TRA CORR. IS THE ALGEBRAIC SUM OF THESE COLUMNS			COMMENTS			
				INITIAL	SCALE-PHASE	DRIFT				
195945	0.3	281	2	0.0	0.0	0.3	$\frac{1}{4}$	$\frac{1}{4}$		Hydro BEGINS
214000	0.3	310	2	0.0	0.0	0.3	$\frac{1}{4}$	$\frac{1}{4}$		Hydro END

FIELD TIDE NOTE
OPR-T126-RA-80

Field tide reduction of soundings for OPR-T126-RA-80 was based on predicted tides from Honolulu, Hawaii, corrected to Honuapo, Hawaii. These predicted tides were interpolated by PDP 8/e computer utilizing AM 500. Due to the small range of tide at Honuapo (mean range 1.7 feet, diurnal range 2.5 feet), tide correctors were applied to soundings only on the smooth copies of field sheets. All times of predicted tides are GMT.

Metercraft bubbler tide gages were installed at two locations in the project area. Their location and time of operation are as follows:

<u>SITE</u>	<u>LOCATION</u>	<u>PERIOD</u>
Honuapo (161-8578)	19°05.3'N 155°33.2'W	6 Sep - 25 Nov
Pohoiki (161-8062)	19°27.6'N 154°50.6'W	6 Sep - 25 Nov

Honuapo

A 0-10 feet scale Metercraft gage (S/N 7601-7536-31) was installed and began operation 7 September. The staff was installed and leveled on 7 September also. The time meridian was 000° for this gage. The gage performed well through the project except that the clock/paper drive stopped at 0300 Z November 21; it was restarted 1927 Z November 21, resulting in a two-thirds of a day loss of data. The gage ran out of nitrogen on November 24 about 0900 Z and was leveled on November 21. The gage was removed November 25. There were no unusual tides during the period of operation of this gage. Zero on the marigram equals 16.31 feet on the tide staff.

Pohoiki

A 0-10 feet scale Metercraft gage (S/N 7601-7536-29) was installed and began operation 6 September. The staff was installed on 6 September and the leveling done on 5-6 September. The time meridian was 000° for this gage. There were several minor problems during September. The pen was marking intermittently between September 8, 1600 Z and September 10, 2307 Z. Some scattered hourly heights were recovered during this period. On September 25, beginning about 0400 Z, there is a strange pressure build-up which released at 0610 Z. Comparison of staff and gage difference before and after this period are consistent, suggesting a one-time problem. The hourly heights 04-06 Z were interpolated. Finally, the paper slipped off its sprockets September 28 at 1100 Z and was not fixed until October 1 0200 Z, a loss of 2½ days of data. The remainder of the time the gage performed well. It was leveled November 19 and removed November 25. There were no unusual tides during the period of operation of this gage. Zero on the marigram equals 3.51 feet on the tide staff.

Levels

In addition to Honuapo and Pohoiki gages, the Hilo control station (161-7760) was leveled September 5 and November 25.

All levels between marks were within acceptable limits. The levels for both tide stations indicate no significant staff movements. The following tables show bench mark elevations above staff zero for installation and removal.

<u>Honuapo (161-8578)</u>		<u>BM Elevations (ft)</u>	
<u>BM#</u>	<u>9/6/80</u>	<u>11/21/80</u>	<u>Difference</u>
3	24.160	24.170	+ 0.010
D	21.873	21.877	+ 0.004
E	21.273	21.286	+ 0.013
F	24.957	24.980	+ 0.023
G	22.018	22.034	+ 0.016

<u>Pohoiki (161-8062)</u>		<u>BM Elevations (ft)</u>	
<u>BM#</u>	<u>9/6/80</u>	<u>11/19/80</u>	<u>Difference</u>
A	10.522	10.525	+ 0.003
B	13.038	13.041	+ 0.003
C	12.139	12.136	+ 0.003
D	14.265	14.268	+ 0.003
E	13.570	13.570	+ 0.000

Recommended Zoning

The differences in times and heights of tides for the various tide stations were small, and correctors obtained from predicted tides at Honolulu, adjusted for Honuapo, were judged adequate for the 1:5,000 and 1:20,000 smooth field sheets. However, for maximum accuracy tide correctors could be applied as follows:

<u>Sheet</u>	<u>Tide Station</u>
HH (RA-5-4-80)	Honuapo H-9913
JJ (RA-20-4-80)	Honuapo H-9914
KK (RA-20-5-80)	Honuapo H-9916
LL (RA-20-6-80)	Pohoiki H-9917
MM (RA-20-7-80)	Pohoiki H-9918

The correctors are not considered necessary for the 1:40,000 and 1:80,000 offshore sheets as the depths on these sheets are all sufficient to make the tide corrector insignificant.

Miscellaneous

A comparison of actual and predicted tide heights at Honuapo was performed. There was reasonable agreement between them.

U.S. DEPARTMENT OF COMMERCE
October 8, 1981 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): 161-8578 Honuapo, HI

Period: November 30-December 1, 1979
October 7-November 5, 1980

HYDROGRAPHIC SHEET: H-9914

OPR: T-126

Locality: Southeast Coast of Hawaii

Plane of reference (mean lower low water): 1979 = 3.0 ft.
1980 = 0.6 ft.

Height of Mean High Water above Plane of Reference is 1979 = 2.0 ft.
1980 = 2.0 ft.

REMARKS: Zone Direct

for Donald Carrier
Chief, Datums and Information Branch

GEOGRAPHIC NAMES

Name on Survey

A ON CHART NO. 19320
 B ON PREVIOUS SURVEY NO.
 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
 T-Sheets 400378 400379

Name on Survey	A	B	C	D	E	F	G	H	U.S. LIGHT LIST	Sheet No.
KAPAOO POINT	/	X							X	1
KAUHUULA	/								X	2
WEE	/								X	3
HAWAII	/								X	4
LAAHANA	/								X	5
MAHUKA BAY	/								X	6
NALIIKAKANI POINT	/	X							X	7
NA PUU O NA ELEMAKULE	/								X	8
OPIHINEHE	/								X	9
PALIMA POINT	/	X							X	10
PAPALEHAU POINT	/								X	11
PUNAHANA	/								X	12
OLEKUNALE PUEO (point)	/								X	13
WAIPELE BAY	/								X	14
WAIOLA SPRING	/								X	15
WAIWELAWEA POINT	/									16
KAAHA	/									17
WAIPELE BAY	/									18
										19
										20
										21
										22
										23
										24
										25

Approved:

Chas. P. Harrington
 Chief Geographer - 4/26/83

2 MAY 1983

APPROVAL SHEET
FOR
SURVEY H- 9914

- A. This hydrographic survey has been verified, evaluated and inspected. It meets the requirements of the Hydrographic Manual except as noted in the Verification/Evaluation Report. The automated data file has been updated to reflect the data presented on the smoothsheet.

Date: 6/1/82

Signed: 
Title: Chief, Verification Branch

- B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic Manual. Exceptions are listed in the Verification/Evaluation Report.

Date: 6/16/82

Signed: 
Title: Chief, Marine Surveys Division

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	9
DESCRIPTIVE REPORT	1	SMOOTH OVERLAYS: POS, ARC, EXCESS	6

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES	None		1 Smoc			
CAHIERS	+		1 Raw			
VOLUMES	None					
BOXES						

T-SHEET PRINTS (List) TP-00378, TP-00379 (Paper) *received*

SPECIAL REPORTS (List)

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

PROCESSING ACTIVITY	AMOUNTS		TOTALS
	PRE-VERIFICATION	VERIFICATION	
POSITIONS ON SHEET			694
POSITIONS CHECKED		694	
POSITIONS REVISED		3	
SOUNDINGS REVISED		14	
SOUNDINGS ERRONEOUSLY SPACED			
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED			
	TIME - HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	3	*(VER)/(EVAL)	
VERIFICATION OF CONTROL		04/00	
VERIFICATION OF POSITIONS		34/00	
VERIFICATION OF SOUNDINGS		48/00	
COMPILATION OF SMOOTH SHEET		16/00	
APPLICATION OF TOPOGRAPHY		07/00	
APPLICATION OF PHOTOBATHYMETRY			
JUNCTIONS		06/00	
COMPARISON WITH PRIOR SURVEYS & CHARTS		00/17	
VERIFIER'S REPORT		00/14	
OTHER		00/36	
TOTALS	3	109/73	185

Pre-Verification by James S. Green	Beginning Date 5/27/81	Ending Date 5/27/81
Verification by Thelma O. Jones	Beginning Date 9/3/81	Ending Date 3/15/82
Evaluation by Gordon E. Kay	5/5/82	5/25/82
Verification Check by James L. Stringham, James S. Green	Time (Hours) 26	Date 5/19/82
Marine Center Inspection by	Time (Hours)	Date
Quality Control Inspection by	Time (Hours)	Date
Requirements Evaluation by	Time (Hours)	Date

* Time in this column is for Verification (VER) and Evaluation (EVAL)
Completed 4/13/83 3 hrs

REGISTRY NO. H-9914

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:



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Pacific Marine Center
1801 Fairview Avenue East
Seattle, Washington 98102

June 17, 1982

TO: C3 - C. William Hayes

FROM: *Charles K. Townsend*
CPM - Charles K. Townsend

SUBJECT: Administrative Approval, H-9914, *Kaaha to Palima Point*
~~Palima Point to Nalikai~~
~~Point, Island of Hawaii, Hawaii.~~
SE Coast of Hawaii

The smooth sheet and reports of this survey have been examined and the survey is adequate for charting and to supersede common areas of prior surveys.



10TH ANNIVERSARY 1970-1980

National Oceanic and Atmospheric Administration

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PACIFIC MARINE CENTER
VERIFICATION/EVALUATION REPORT

REGISTRY NO: H-9914

FIELD NO: RA-20-4-80

Hawaii, Island of Hawaii, Palima Point to Naliikakani Point

SURVEYED: October 7 - November 5, 1980

SCALE: 1:20,000

PROJECT NO: OPR-T126-RA/
FA-80

SOUNDINGS: Ross Model 5000 *Echo Sounder* CONTROL: Range/Azimuth
Mini-Ranger

Chief of Party.....CAPT W. L. Mobley

Surveyed by.....LCDR A. Anderson
ENS J. Gordon
ENS R. Fleischman (USN)
ENS F. Ohlinger
SST R. Hastings

Automated Plot by.....PMC Xynetics Plotter

Verified by.....T. O. Jones

Evaluated by.....G. E. Kay

I. INTRODUCTION

NOTE: This survey has been processed utilizing a procedure developed to work in conjunction with the Verification Branch realignment, which established an evaluation process. The survey data was first verified and a smooth sheet compiled by a verifier. Then an evaluator reviewed the work of the verifier, made the necessary comparisons with prior surveys and charts and wrote the Verification/Evaluation Report.

NOAA Ship RAINIER (S-221) conducted this hydrographic survey during the 1980 field season in a continuing effort to modernize the hydrographic information around the Hawaiian Islands. H-9914 is an inshore hydrographic survey situated along the southeastern coast of the Island of Hawaii from Palima Point to Naliikakini Point, and was conducted from October 7 to November 5, 1980. The area surveyed encompasses the five fathom curve as an inshore limit and generally reaches depths of 150

fathoms. The alongshore areas are characterized by heavy surf. Navigation inside the five fathom curve is extremely dangerous. There are no all weather harbors or anchorages.

There was one unusual problem encountered during verification; it was the installation of a non-standard transducer on one of the survey launches. The conical (7-1/2°) Ross transducer was replaced with a rectangular (5° x 10°) transducer. This replacement transducer has a drastically different beam width effect athwart ship which at certain depths could reach 60°. You are referred to paragraphs P and Q of the ship's descriptive report and the beam pattern display appended thereto. These crosslines utilizing the wide beam transducer were run parallel to the shoreline and thus collected shoaler data that was inshore from the true launch location. Mainscheme and crosslines were checked for discrepancies as recommended in paragraph Q of the ship's descriptive report. No appreciable differences in the placement of depth curves were found.

Projection parameters used to prepare the field sheet have been revised to center the hydrography on the smooth sheet. Smooth sheet parameters and all correctors used to reduce the soundings by the Pacific Marine Center (PMC) are appended in the smooth printouts. The tide correctors are in the raw data cahiers. The field tide reductions are based on Honolulu, Hawaii, corrected to Honuapo, Hawaii. See Field Tide Note, ship's descriptive report 1980 for an adequate description of tides. Smooth sheet reduced soundings are based on observed tides at Honuapo, Hawaii (161-8578) at latitude 19°05'18"N and longitude 155°33'12"W.

2. CONTROL AND SHORELINE

No unusual problems were encountered during verification of positioning or control. See Horizontal Control Report, Electronic Control Report for OPR-T126-RA-80 and ship descriptive report paragraphs F and G for an adequate discussion of both.

The following unreviewed Class I manuscripts were used;

<u>Sheet Number</u>	<u>Scale</u>	<u>Date of Photography</u>	<u>Date of Field Edit</u>
TP-00378	1:20,000	Dec. 1976, Mar. 1977	Dec. 1979, Oct. 1980
TP-00379	1:20,000	Dec. 1976, Mar. 1977	Oct. 1980

TP-00379 Class I manuscript has been updated and the smooth sheet reflects these changes (see attached letter from CPM33 dated May 17, 1982).

Four rocks were transferred from the field sheet to the smooth sheet. These rocks (shown in red on the field sheet) were not supported by either hydrographic positioning or the Class I manuscript. They are located as follows:

- a. latitude 19°09'21"N, longitude 155°26'55"W
- b. latitude 19°10'50"N, longitude 155°25'29"W
- c. latitude 19°12'03"N, longitude 155°23'23"W
- d. latitude 19°12'34"N, longitude 155°21'36"W

The limits of the breakers area on the Class I manuscript do not exactly agree with that shown on the final field sheet. Furthermore, several submerged ledges found in the field sheet were not portrayed on the Class I manuscript. These areas have been depicted on the smooth-sheet as shown on the Class I manuscript, with the added note "foul with submerged ledge".

See Q. C.

3. HYDROGRAPHY

a. Crossline and main scheme sounding lines are in good agreement. Differences between soundings at points of coincidence are attributed to the steep bottom slope and the change of transducers as stated in Section 1 of this report.

b. The 0, 1, 2, 3, 5 fathom standard depth curves could not be adequately developed. Hazardous surf conditions and rugged ~~cross~~^{coast} line precluded the development of these areas. Depiction of the remaining standard depth curves (10 to 100 fathoms) were adequate.

c. The hydrography in this survey, H-9914, is adequate to determine the bottom configuration and least depths.

d. There are ten bottom samples consisting mainly of black, coarse sand.

4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records and reports are adequate and conform to the requirements of the Hydrographic Manual.

5. JUNCTIONS

H-9914 junctions with the following contemporary surveys:

H-9857, 1:20,000 (1979) junctions the southwestern limit of H-9914. No problems were encountered in making the junction, but some shoaler soundings have been carried forward (in red) onto H-9914. Depth curves and junctional note have been inked on H-9914.

H-9916, 1:20,000(1980) junctions the northeastern limit of H-9914. No problems were encountered in making the junction. Depth curves and junctional note (in orange) have been inked on H-9914.

H-9856, 1:80,000 (1979-1980) junctions the entire eastern limit of H-9914 from about 150 fathoms seaward. Generally few soundings from this offshore sheet overlap onto H-9914. However, good agreement was made in the adjoining areas where supporting data was available. Depth curves and junctional note (in violet) have been inked on H-9914.

6. COMPARISON WITH PRIOR SURVEY

H-9914 was compared with the following prior survey:

H-4655, 1:247,000 (1927). This reconnaissance survey compares very poorly with H-9914. Differences are attributed to positioning accuracies of the prior. H-9914 is adequate to supersede H-4655 over their common areas.

Hydrographer used H-5008 for comparison.

a lack of

There are no numbered or dashed pre-survey items for investigation contained within the limits of this survey. ✓

7. COMPARISON WITH CHART

a. Hydrography - Chart 19320, 12th Ed., June 17/28 (1:250,000). The charted information originates with the previously discussed prior survey. Soundings do not compare well as discussed previously. There are also 13 charted rocks and all can be found within the vicinity of rocks located on the present survey. H-9914 is adequate to supersede the charted information over their common areas.

b. Controlling Depths - There are no controlling depths within the limits of this survey.

c. Aids to Navigation - There were no fixed or floating aids within the limits of this survey, but according to the field works officer on this survey, a fenceline extending northwest from latitude 19°11'36"N, longitude 155°24'00"W is the only distinguishing feature for over 20 miles along this otherwise featureless coastline. This fenceline should be charted. *Scale of chart may preclude this.*

8. COMPLIANCE WITH INSTRUCTIONS

H-9914 complies with the following Project Instructions and Amendments for OPR-T126-RA,FA-80, Hawaii, Hawaiian Islands, August 4, 1980 and:

Change No. 1, Amendment to Instructions, August 8, 1980

~~Change No. 4, Amendment to Instructions, November 28, 1980~~

9. ADDITIONAL FIELD WORK

H-9914 is a good hydrographic survey. Additional field work is neither recommended nor required at this time.

Respectfully submitted,

Gordon E. Kay

Gordon E. Kay
Cartographer

Examined and approved,

J. S. Green

James S. Green
Chief, Verification Branch



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Pacific Marine Center
1801 Fairview Avenue East
Seattle, Washington 98102

May 17, 1982

TO: CPM32C - James Stringham

THRU: CPM3 - John W. Carpenter *JWC → CPM 32*

FROM: CPM33 - David Butler *DB*

Please note the change in elevation of the following six rocks located on TP-00379, CM-7713:

1. $19^{\circ}08'49.01''$
 $155^{\circ}28'07.97''$ Height change from (1) to (3) *-*
2. $19^{\circ}08'54.15''$
 $155^{\circ}27'40.35''$ Height change from (5) to (3) *-*
Symbol change from * to ° *-*
3. $19^{\circ}08'59.13''$
 $155^{\circ}27'26.76''$ Height change from (1) to (4) *-*
4. $19^{\circ}09'06.80''$
 $155^{\circ}27'10.61''$ Height change from (5) to (3) *-*
Symbol change from * to ° *-*
5. $19^{\circ}09'17.43''$
 $155^{\circ}26'56.88''$ Height change from (1) to (8) *-*
6. $19^{\circ}09'21.82''$
 $155^{\circ}26'55.85''$ Height change from (5) to (4) *-*



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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF CHARTING AND GEODETIC SERVICES
ROCKVILLE, MARYLAND 20852

N/CG242:LQ

April 17, 1985

TO: Roy K. Matsushige *RKM*
Chief, Hydrographic Surveys Branch

THRU: Chief, Standards Section

FROM: Lisa Quinlan *Lisa Quinlan*
Quality Evaluator

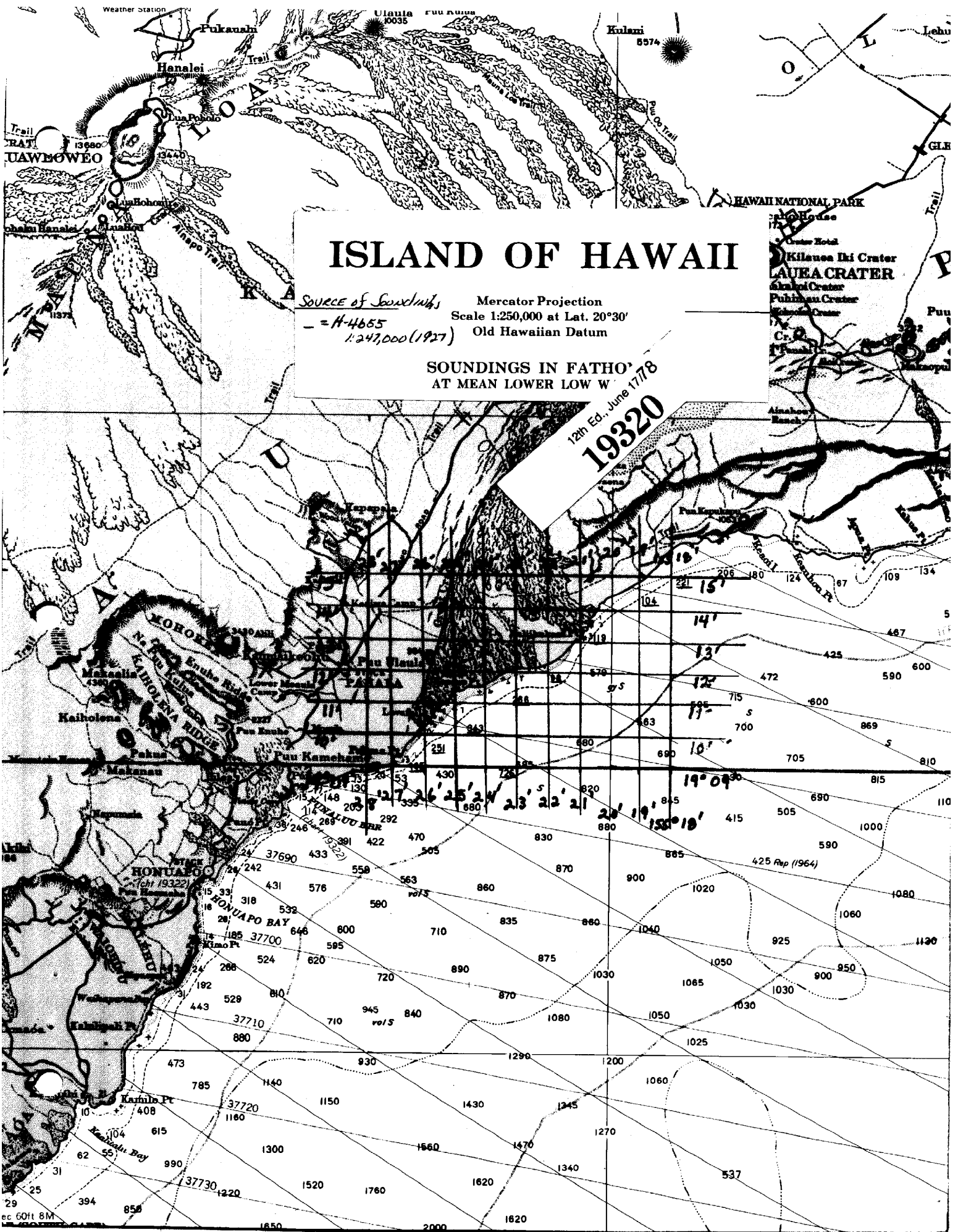
SUBJECT: Quality Control Report for Survey H-9914 (1980), Hawaii, SE Coast
of Hawaii, Kaaha to Palima Point

A quality control inspection of survey H-9914 was accomplished to monitor the survey for adequacy with respect to data acquisition, delineation of the bottom, determination of least depths, navigational hazards, junctions, sounding line crossings, smooth plotting, shoreline transfer, decisions made and actions taken by the verifier, and the cartographic presentation of data. Revisions and additions to the smooth sheet, plus helpful comments made to the verifier, are identified on a $\frac{1}{2}$ -scale copy of the survey to be furnished the verifier. In general, the survey was found to conform to National Ocean Service standards and requirements except as stated in the Evaluation Report.

The dashed line symbology depicting "breakers" transferred to the smooth sheet from the unreviewed Class I map TP-00379 (1976, 1977-80) was further annotated in several places on the final field sheet as submerged ledge and/or foul with rocks and breakers. Several notes in the hydrographic records substantiate the existence of additional rocks in the surf zone. However, position fixes could not be taken to locate all of these features. The informational notes from the final field sheet were added to the smooth sheet to supplement the photogrammetric information.

cc:
N/CG241





ISLAND OF HAWAII

SOURCE of Soundings
 = H-4655
 1:247,000 (1927)

Mercator Projection
 Scale 1:250,000 at Lat. 20°30'
 Old Hawaiian Datum

SOUNDINGS IN FATHOMS
 AT MEAN LOWER LOW WATER

12th Ed., June 1778
19320

- HAWAII NATIONAL PARK
- Crater House
 - Crater Hotel
 - Kilauea Iki Crater
 - LAUEA CRATER
 - Mokuauia Crater
 - Puhimau Crater
 - Waiwai Crater
 - Crater
 - Crater
 - Crater



HAWAII

FE-229

FE-230

4115-2



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF CHARTING AND GEODETIC SERVICES
ROCKVILLE, MARYLAND 20852

N/CG24x1:DEW

FEB 20 1986

TO: N/MOA - Wesley V. Hull
N/MOP - Robert L. Sandquist
FROM: N/CG2 - *J. Austin Yeager*
J. Austin Yeager

SUBJECT: Reports of Compliance for Hydrographic Surveys

I have decided that a special "Report of Compliance" is no longer required for those remaining hydrographic surveys processed under the Verification/Quality Control system in place prior to October 1982. You will no longer receive these reports. Statements made in the Verifier's Reports, modified as necessary by the Quality Control Reports, will suffice with regard to compliance with project instructions.

After their examination of the Descriptive Reports for Automated Wreck and Obstruction Information System (AWOIS) file revisions, Operations Section (N/CG241) personnel will insert a copy of this memorandum into each Descriptive Report to provide appropriate authority for the missing compliance report. In accordance with past practice, we will forward a copy of the Quality Control Report to you for your information.

cc:
N/CG22 - Nortrup



