

9855

Diagram No. 4115

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-80-3-79.....

Office No. .... H-9855.....

LOCALITY

State ..... HAWAII.....

General Locality . ISLAND OF HAWAII.....

Locality . OFFSHORE SOUTH OF KALAPANA.....

1979

CHIEF OF PARTY

...CAPT. WAYNE L. MOBLEY, NOAA, COMMANDING....

LIBRARY & ARCHIVES

DATE ..... JUNE 29, 1981.....

10  
10  
00  
01

19320  
19000  
19007  
6002  
540  
520

**HYDROGRAPHIC TITLE SHEET**

H-9855

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

FIELD NO.

RA-80-3-79

State Hawaii

General locality Island of Hawaii

Locality Offshore South of Kalapana

Scale 1:80,000

Date of survey December 2-5, 1979

Instructions dated July 20, 1979

Project No. OPR-T126-RA-79

Vessel NOAA Ship RAINIER

Chief of party CAPT Wayne L. Mobley, NOAA

Surveyed by LT Alan Anderson, LT Roger Morris, LTJG Michael McCluskey, LTJG Jeff Greene, ENS Dave Kruth, SST Richard Hastings

Soundings taken by echo sounder, ~~hand lead, pole~~

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Positions verified

~~Reduced~~ by Patricia M. Niland

Automated plot by PMC Xynetics Plotter

Soundings

Verification by Patricia M. Niland

Soundings in fathoms feet at MLW MLLW

REMARKS: all times recorded in the survey are  
Standard Mean Time.

STANDARDS CHECKED 9-23-82  
C. Loy

A. Project

Hydrographic survey H-9855 is a basic survey conducted in accordance with Project Instructions OPR-T126-RA-79, Hawaii, Hawaiian Islands, dated July 20, 1979; Change No. 1, Supplement to Instructions, dated August 2, 1979; Change No. 2, Supplement to Instructions, dated August 6, 1979; Change No. 3, Supplement to Instructions, dated August 21, 1979, and Change No. 4, Supplement to Instructions, dated October 3, 1979.

B. Area Surveyed

The area of hydrographic survey H-9855 lies on the southeastern coast of the Island of Hawaii. The northern and southern boundaries are approximately  $19^{\circ}10'00''$  N and  $18^{\circ}35'00''$  N respectively. The eastern boundary is  $154^{\circ}34'00''$  W with the western boundary being  $155^{\circ}10'00''$  W. Hydrographic survey operations began on December 2, 1979 (JD336) and were completed on December 5, 1979 (JD339).

C. Sounding Vessel

The NOAA Ship RAINIER (S221)(2120) was used to conduct this hydrographic survey.

D. Sounding Equipment and Corrections to Echo Soundings

Sounding Equipment

Echo soundings collected for H-9855 were obtained by the RAINIER (2120). The RAINIER is equipped with an EDO Model 248 Transceiver, RAYTHEON-UGR (Universal Graphic Recorder), and a DIGITRAK Model 261-C digitizer.

Table I

Echo Sounder Component Serial Numbers

<u>Component</u>	<u>RAINIER (2120)</u>
Transceiver	202
Analog Recorder	75
Digitizer	204

## Corrections to Echo Soundings

The following corrections to echo soundings are discussed: sound velocity corrections and Ship draft corrections. Consideration of sea-swell errors is not included as it is felt that the irregular nature of the bottom, in addition to the extreme depths found makes a consideration of the state of the sea and swell an unrealistic exercise.

### Sound Velocity Corrections

Sound velocity corrections for echo soundings were derived from data obtained from two Nansen casts performed during OPR-T126-RA-79. (See H.O. 607 Instruction Manual for Obtaining Oceanographic Data, Third Edition, U.S. Naval Oceanographic Office, 1968). The details relating to these casts are presented in Table II:

Table II

#### Nansen Cast Data, OPR-T126-RA-79

<u>Nansen Cast #</u>	<u>Date Time (local)</u>	<u>Location</u>	<u>Applicable Survey</u>	<u>Velocity Table Number</u>
1	Sep 27, 1979 1045	18°48'12" 155°47'48"	H-9852 H-9858 (inclusive)	1, 2
2	Dec 1, 1979 1000	18°46'00" 155°25'00"	H-9852 H-9858 (inclusive)	1, 2

The samples collected in these casts were analyzed for salinity using standard laboratory procedures (See H.O. 607). The salinometer used for these analyses was a Bissett/Berman Model 6210, S/N 1043, which was last calibrated in March, 1979, by the Northwest Regional Calibration Center, Bellevue, Washington.

In order to compute the appropriate velocity correctors, the results of the two Nansen casts and associated salinity data were input into computer program RK-530-Velocity Correction Computations, and run on RAINIER's PDP 8/e digital computer, S/N 1015.

Listings of computed velocity corrector values are provided in the separates-to-the-text portion of this report. These correctors were derived

graphically by co-plotting data from both Nansen casts on the same graph and these graphs are also presented in the separates-to-the-text section of this report. (Figs. II-VIII). At the shallower depths, extremely close agreement is noted in the values from the two different casts. In depths approaching and greater than 2000 fathoms, variation between data points between the two casts starts to become evident, and in these cases, the resultant velocity correctors were picked from a curve drawn to reflect mean values between the two sets of data.

From a consideration of the corrector values obtained in the two casts, it is seen that a relatively stable water column was maintained throughout the course of OPR-T126-RA-79.

#### TRA Determination for RAINIER (2120)

Historically, 2.6 fathoms has been used for the TRA of the RAINIER (2120), and although no attempt to verify this value was made during OPR-T126-RA-79, it is strongly believed that this value correctly reflects the depth of the Ship's transducer. No modification in the position of the transducer was made prior to or during OPR-T126-RA-79. No unusual equipment loading, on board fuel supply, or Ship's operating speed occurred, and no visible evidence of changes in the Ship's draft were noted.

For further information concerning echo sounding corrections, please refer to Corrections to Echo Sounding Report, OPR-T126-RA-79.

#### E. Hydrographic Sheets

All hydrographic field sheets including the smooth field sheet were prepared via the PDP 8/e Complot system on board the Ship RAINIER. A modified transverse mercator projection was used for plotting the hydrographic data. The list of parameters used to define the hydrographic sheets are included in the separates following the text. Field records will be sent to Pacific Marine Center, Seattle, Washington.

#### F. Control Stations

Horizontal control for this <sup>project</sup> ~~survey~~ was provided by the recovery of

fourteen existing stations and the establishment of five new stations. Additionally, two new reference marks were positioned near the stations Kamil 1898-1979 and Kaena PT USGS 1977 in order to locate Raydist shore stations. The recovered stations are as follows: Umis Ahu 1887-1938, Wind 1964, Ka Lae 2 1948, Palahemo 1898, Mahana HGS 1898-1967, Kamilo 1898-1979, Kipaepae 1898, Peak 2 1949, Honuapo 1914, Luu 1929, Kamehame New HTS 1949, Kaena PT USGS 1977, Laeapuki 1914, and Panau 1914. The five new stations established were: Mesheia 1979, Haole 1979, Desolation 1979, 8739A, and Pelini 1979. These stations served as positions for Mini-Rangers and visual hydro signals. The stations Kamilo 1938-1979, Kamehame New HTS 1949, and Kaena PT USGS 1977 were also used as sites for Raydist shore stations. All stations were positioned utilizing Third Order Class I geodetic methods and all were described and monumented.

For further information regarding horizontal control methods and data, refer to Horizontal Control Report OPR-T126-RA-79.

#### G. Hydrographic Position Control

Sounding line position during this survey was accomplished by utilizing Teledyne Hastings Raydist equipment in the conventional range-range mode. The master Raydist station, which was powered-up for the accompanying surveys in OPR-T126-RA-79, was shut down during operations for this survey (RA-80-3-79), allowing the two, former slave stations, to produce the desired range-range configuration. The Raydist arc intersections throughout this survey area were between 30° and 150°, except for a small area on the northeast corner of the sheet.

The left station was located at latitude 18°58'20.955" N, longitude 155°36'18.901" W. The antenna consisted of 7 ten-foot sections of structural tower topped by a 35-foot whip antenna and the station was located approximately five meters above MSL. The right station was positioned in a lava field at latitude 19°16'55.404" N, longitude 155°07'27.806" W. The antenna consisted of 7 sections of ten-foot structural tower topped by a 35-foot whip antenna. The station was approximately ten meters above MSL.

Both Raydist systems were operated on a frequency of 3216.47 KHz and power for these units was provided by propane-fueled Teledyne Hastings Thermal generators.

Positioning equipment aboard the RAINIER was as follows:

<u>Vessel</u>	<u>Transmitter</u>	<u>Navigator</u>	<u>Position Indicator</u>	<u>Panalogic</u>
RAINIER (2120)	166	114	117	17

Station names, numbers and dates of operation are noted in the following table:

RA-80-3-79 (H-9855)

<u>Station No.</u>	<u>Station Name</u>	<u>Dates (Julian days)</u>
104	Kamilo, 1898-1979 RM-3	
108	Kaena PT. 1977-1979 RM-3	336-339

Note: All Raydist operations on this survey sheet occurred in the conventional range-range mode.

A problem that became evident with regard to Raydist operations involved the presence, on both channels of the system's GOULD Strip Chart Recorder of an apparently sinusoidal drift. This wavering drift pattern which oscillated at approximately one cycle per seven seconds was reduced somewhat through the efforts of the Ship's ET's but never completely eliminated during the course of RA-80-3-79. Attempts to eliminate the problem were both numerous and varied. They included re-tuning and/or replacing the various shore transmitters, increasing the number of ground plane radials at shore sites, and checking for the possible existence of a non-NOAA transmitter inducing these unwanted harmonics.

The problem was encountered on both RA-3 (2123) and the RAINIER (2120) the only two vessels involved in Raydist-controlled data gathering efforts. A switching of receiving equipment between these two provided no solution, indicating that the anomaly was not peculiar to only one of the vessels, but rather was external in origin.

This stability problem did compromise the expected fix accuracies somewhat however the actual accuracies were well within .5 mm at the scale of the survey (40 meters). Fix accuracies were computed using the  $d_{rms}$  formula in section 4.4.3.2.1 p. 4-24 of the NOS Hydrographic Manual, Fourth Edition.

Two Mini-Ranger baseline calibrations were performed in conjunction with this survey. Although no data was collected in the course of this survey while using Mini-Rangers for positional control the fact that these two calibrations were performed bears mentioning here since the Mini-Rangers were utilized for Raydist calibration purposes. All Mini-Ranger baseline calibration field sheets and graphs are contained in attachment # 5 of the Electronic Control Report OPR-T126-RA-79 which accompanies this descriptive report. A listing of the final Mini-Ranger baseline correctors, in addition to the electronic corrector abstracts are also included in attachment # 5.

Raydist calibration was either by three point sextant fixes (visual) or by Mini-Ranger range values. All visual calibration signals were located over Third Order Class I (or better) triangulation stations and each visual calibration consisted of at least five sextant fixes. If a check fix was used, the fix was rejected if the inverse distance between fix and check fix exceeded five meters.

Mini-Ranger calibrations greatly enhanced efficient data collection during this survey by allowing accurate calibrations at all times of the day and night and at extended distances.

Lane jumps were experienced at times during this survey. Correctors were applied at the necessary positions. During one instance an ending calibration was not obtained because of a broken antenna lead, however the data was accepted because of high confidence in the lane count and good junction and crossline agreement.

#### H. Shoreline

No shoreline was involved in survey H-9855.



## I. Crosslines

Crosslines for H-9855 total 73.5 nautical miles or 13% of all sounding lines. Crosslines were run at 90, 40, 45 and 55 degrees to the main scheme lines. All crosslines are smooth<sup>field</sup> plotted in red ink.

Crossline soundings agree very well with main scheme soundings. Any discrepancies in sounding comparisons may be attributed to the irregular bottom and extreme depths to which the bottom reaches in the area.

## J. Junctions

H-9855 consists of two field sheets, an A and B sheet. The two field sheets junction along latitude 18°55'00" N. There is no overlap between the two sheets.

H-9855 junctions along the western border with RAINIER Survey RA-80-1-79 (H-9858) at latitude 18°35'00" and longitude 155°05'00". There are no sounding discrepancies between the two surveys.

H-9855 junctions with RAINIER Survey RA-80-2-79 (H-9856) on its northern boundary at latitude 19°10'00". There are no discrepancies between the soundings of the two surveys.

## K. Comparison with Prior Surveys

There were no known prior surveys of the area surveyed in H-9855 (RA-80-3-79).

## L. Comparison with the Chart

Survey H-9855 is done in the area covered on the Southeastern Corner of Chart 19320, 12th Edition, June 17, 1978. In general, charted soundings were shallower however a direct comparison could not be made because the soundings were not coincident.

## M. Adequacy of Survey

Survey H-9855 is a complete and adequate survey to supersede all prior surveys for charting the area.

N. Aids to Navigation

No aids to navigation exist within the area of H-9855 (RA-80-3-79).

O. Statistics

The survey H-9855 (RA-80-3-79) contains 375 positions and 692.5 nautical miles of hydrography, covering 961.5 square miles. Four tide stations were used for this project.

P. Miscellaneous

None

Q. Recommendations

There are no special recommendations for additional field work or unusual processing. This survey is complete and adequate for charting.

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-range program RK 111. There are daily master tapes and corresponding corrector tapes which include the TRA for the Ship, electronic control calibration correctors for Raydist 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 Programs</u>	<u>Version Dates</u>
RK 111 RANGE-RANGE REAL TIME PLOT	1-30-76
RK 201 GRID, SIGNAL & LATTICE PLOT	4-18-75
RK 300 UTILITY COMPUTATIONS	2-05-76
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

PDP 8/e Programs (cont.)

Version Dates

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 DUPLICATOR	8-22-74

The WANG series 700 and HP 97 calculators were used to compute geographic positions of electronic control stations and visual signals for calibrations.

S. Referral to Reports

The following reports contain information related to this survey:

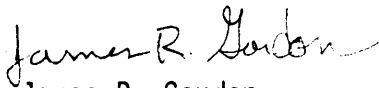
Horizontal Control Report, OPR-T126-RA-79

Electronic Control Report, OPR-T126-RA-79

Field Edit Reports, OPR-T126-RA-79

Corrections to Echo Soundings Report, OPR-T126-RA-79.

Respectfully submitted,



James R. Gordon  
Ensign, NOAA

Approval Sheet

Descriptive Report To Accompany

Hydrographic Survey

H-9855

RA-80-3-79

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*

Wayne L. Mobley, Captain, NOAA  
Commanding Officer

MASTER STATION LIST  
OPR-T126-RA-79

FINAL VERSION

101	4	18	54	56570	155	41	04290	250	0008	000000	
/KA LAE 2,1948-1949 M/R PG.27 G-9279											
102	4	18	55	54401	155	39	40233	250	0050	000000	
/PALEHEMO,1398-1948 M/R PG.27 G-9279											
103	4	18	56	46169	155	39	02560	250	0078	000000	
/MAHANA,1898-1949 M/R PG.19 G-9279											
→	104	3	18	58	20955	155	36	18901	250	0005	329647
/KAMILO,1898-1979 RM3 (LEFT SLAVE) PG.19 G-9279											
105	1	19	05	16647	155	32	59609	250	0003	000000	
/HONUAPU,1914-1949 M/R PG.28 G-9279											
106	3	19	07	36455	155	30	48106	250	0015	000000	
/LOU,1930 M/R PG.67 G-446											
107	1	19	08	26595	155	29	21880	250	0006	000000	
/PUN,1930 M/R PG.67 G-446											
→	108	1	19	16	55404	155	07	27806	250	0010	329647
/KAENA PT,1977-1979 RM3 (RIGHT SLAVE)											
109	1	19	08	52334	155	28	07488	250	0015	329647	
/KAMEHAME NEW,1977 RM1 (MASTER STATION) PG.1 G-16025											
110	1	18	58	23300	155	36	15919	250	0003	000000	
/KAMILO,1898-1949 M/R											
111	3	19	08	52345	155	28	07628	250	0015	000000	
/KAMEHAME NEW,1977 M/R											
112	4	18	55	15983	155	41	12404	250	0012	000000	
/MESHERA,1979 M/R											
113	2	18	55	25485	155	41	13019	250	0013	000000	
/HADLE,1979 M/R											
114	4	18	57	44421	155	37	52340	250	0045	000000	
/PELINI,1979 M/R											
115	3	19	05	16886	155	32	59853	250	0000	000000	
/HONUAPU RM1 M/R											
200	4	18	58	18378	155	41	22642	250	0235	000000	
/UMIS AHU,1887-1949 M/R PG.19 G-9279											
201	6	18	56	43150	155	41	13888	250	0000	000000	
/WIND,1964 M/R PG.122 G-13429											



VELOCITY CORRECTOR TAPE LISTING  
OPR-T126-RA-79  
HAWAIIAN ISLANDS, HAWAII

TABLE NO.1  
SCALE - FATHOMS  
FOR SHIP RAINIER (2120) ONLY

000200 0 0010 0001 001 000000 000000  
000270 0 0012  
000310 0 0014  
000340 0 0016  
000350 0 0018  
000400 0 0020  
000450 0 0022  
000490 0 0024  
000540 0 0026  
000600 0 0028  
000650 0 0030  
000700 0 0032  
000750 0 0034  
000780 0 0036  
000800 0 0038  
000850 0 0040  
000880 0 0042  
000920 0 0044  
001000 0 0046  
001050 0 0048  
001120 0 0050  
001600 0 0060  
002100 0 0070  
002600 0 0080  
003400 0 0090  
004100 0 0100  
004900 0 0110  
005600 0 0120  
006400 0 0130  
007100 0 0140  
007700 0 0150  
008300 0 0160  
008800 0 0170  
009450 0 0180  
010100 0 0190  
010600 0 0200  
011100 0 0210  
011600 0 0220  
012000 0 0230  
012400 0 0240  
012800 0 0250  
013200 0 0260  
013700 0 0270  
014100 0 0280



014600 0 0290  
015000 0 0300  
015400 0 0310  
015700 0 0320  
016000 0 0330  
016350 0 0340  
016650 0 0350  
017100 0 0360  
017400 0 0370  
017700 0 0380  
018000 0 0390  
018300 0 0400  
018600 0 0410  
018900 0 0420  
019200 0 0430  
019500 0 0440  
019800 0 0450  
020100 0 0460  
020400 0 0470  
020700 0 0480  
021000 0 0490  
021300 0 0500  
021600 0 0510  
021850 0 0520  
022200 0 0530  
022450 0 0540  
022700 0 0550  
023000 0 0560  
023200 0 0570  
023500 0 0580  
023700 0 0590  
024000 0 0600  
024200 0 0610  
024400 0 0620  
024650 0 0630  
024900 0 0640  
025100 0 0650  
025350 0 0660  
025600 0 0670  
025800 0 0680  
026000 0 0690  
026300 0 0700  
026600 0 0710  
026800 0 0720  
027000 0 0730  
027200 0 0740  
027400 0 0750  
027600 0 0760  
027700 0 0770  
028000 0 0780  
028250 0 0790  
028500 0 0800

028600 0 0810  
028850 0 0820  
029100 0 0830  
029300 0 0840  
029500 0 0850  
029700 0 0860  
029900 0 0870  
030100 0 0880  
030300 0 0890  
030500 0 0900  
030700 0 0910  
030900 0 0920  
031100 0 0930  
031300 0 0940  
031500 0 0950  
031700 0 0960  
031900 0 0970  
032100 0 0980  
032300 0 0990  
032500 0 1000  
032800 0 1010  
999999 0 1020

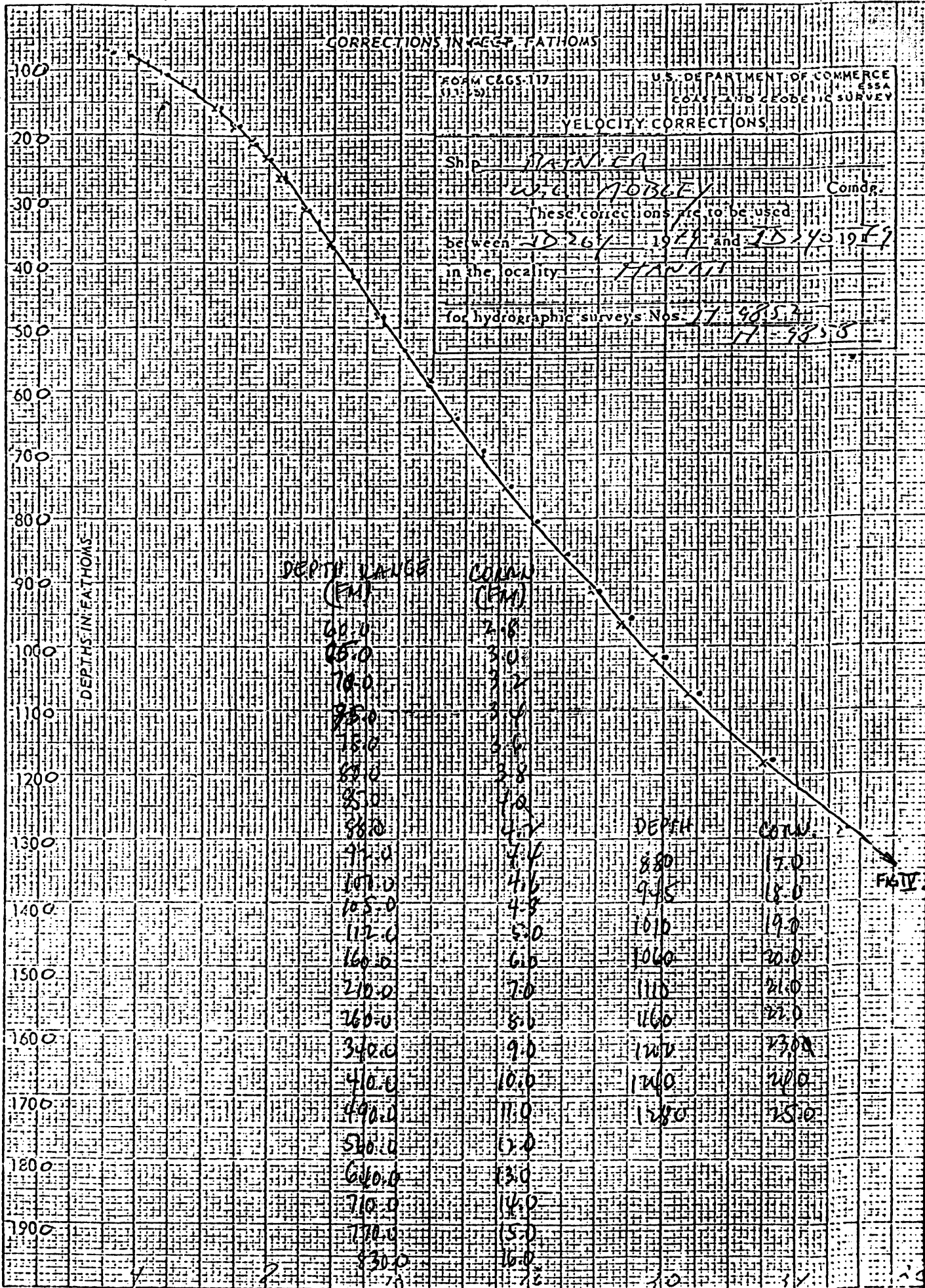
(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)

CORRECTIONS IN FEET, FATHOMS		FORM CGS-17		U.S. DEPARTMENT OF COMMERCE COAST AND GEODESIC SURVEY	
VELOCITY CORRECTIONS		Ship		Comdr.	
Ship		RAINIER		W. E. MOBLEY	
These corrections are to be used		between		1977 and 1977	
in the locality		HAWAII		for hydrographic surveys Nos. 11-9852-77-9.P.S.	
DEPTH RANGE (FM)	CORRECTIONS (FM)				
0-2.0	0.0				
2.0-3.0	0.1				
3.0-4.0	0.2				
4.0-5.0	0.3				
5.0-6.0	0.4				
6.0-7.0	0.5				
7.0-8.0	0.6				
8.0-9.0	0.7				
9.0-10.0	0.8				
10.0-11.0	0.9				
11.0-12.0	1.0				
12.0-13.0	1.1				
13.0-14.0	1.2				
14.0-15.0	1.3				
15.0-16.0	1.4				
16.0-17.0	1.5				
17.0-18.0	1.6				
18.0-19.0	1.7				
19.0-20.0	1.8				
20.0-21.0	1.9				
21.0-22.0	2.0				
22.0-23.0	2.1				
23.0-24.0	2.2				
24.0-25.0	2.3				
25.0-26.0	2.4				
26.0-27.0	2.5				
27.0-28.0	2.6				
28.0-29.0	2.7				
29.0-30.0	2.8				
30.0-31.0	2.9				
31.0-32.0	3.0				
32.0-33.0	3.1				
33.0-34.0	3.2				
34.0-35.0	3.3				
35.0-36.0	3.4				
36.0-37.0	3.5				
37.0-38.0	3.6				
38.0-39.0	3.7				
39.0-40.0	3.8				
40.0-41.0	3.9				
41.0-42.0	4.0				
42.0-43.0	4.1				
43.0-44.0	4.2				
44.0-45.0	4.3				
45.0-46.0	4.4				
46.0-47.0	4.5				
47.0-48.0	4.6				
48.0-49.0	4.7				
49.0-50.0	4.8				
50.0-51.0	4.9				
51.0-52.0	5.0				
52.0-53.0	5.1				
53.0-54.0	5.2				
54.0-55.0	5.3				
55.0-56.0	5.4				
56.0-57.0	5.5				
57.0-58.0	5.6				
58.0-59.0	5.7				
59.0-60.0	5.8				
60.0-61.0	5.9				
61.0-62.0	6.0				
62.0-63.0	6.1				
63.0-64.0	6.2				
64.0-65.0	6.3				
65.0-66.0	6.4				
66.0-67.0	6.5				
67.0-68.0	6.6				
68.0-69.0	6.7				
69.0-70.0	6.8				
70.0-71.0	6.9				
71.0-72.0	7.0				
72.0-73.0	7.1				
73.0-74.0	7.2				
74.0-75.0	7.3				
75.0-76.0	7.4				
76.0-77.0	7.5				
77.0-78.0	7.6				
78.0-79.0	7.7				
79.0-80.0	7.8				
80.0-81.0	7.9				
81.0-82.0	8.0				
82.0-83.0	8.1				
83.0-84.0	8.2				
84.0-85.0	8.3				
85.0-86.0	8.4				
86.0-87.0	8.5				
87.0-88.0	8.6				
88.0-89.0	8.7				
89.0-90.0	8.8				
90.0-91.0	8.9				
91.0-92.0	9.0				
92.0-93.0	9.1				
93.0-94.0	9.2				
94.0-95.0	9.3				
95.0-96.0	9.4				
96.0-97.0	9.5				
97.0-98.0	9.6				
98.0-99.0	9.7				
99.0-100.0	9.8				
100.0-101.0	9.9				
101.0-102.0	10.0				
102.0-103.0	10.1				
103.0-104.0	10.2				
104.0-105.0	10.3				
105.0-106.0	10.4				
106.0-107.0	10.5				
107.0-108.0	10.6				
108.0-109.0	10.7				
109.0-110.0	10.8				
110.0-111.0	10.9				
111.0-112.0	11.0				
112.0-113.0	11.1				
113.0-114.0	11.2				
114.0-115.0	11.3				
115.0-116.0	11.4				
116.0-117.0	11.5				
117.0-118.0	11.6				
118.0-119.0	11.7				
119.0-120.0	11.8				
120.0-121.0	11.9				
121.0-122.0	12.0				
122.0-123.0	12.1				
123.0-124.0	12.2				
124.0-125.0	12.3				
125.0-126.0	12.4				
126.0-127.0	12.5				
127.0-128.0	12.6				
128.0-129.0	12.7				
129.0-130.0	12.8				
130.0-131.0	12.9				
131.0-132.0	13.0				
132.0-133.0	13.1				
133.0-134.0	13.2				
134.0-135.0	13.3				
135.0-136.0	13.4				
136.0-137.0	13.5				
137.0-138.0	13.6				
138.0-139.0	13.7				
139.0-140.0	13.8				
140.0-141.0	13.9				
141.0-142.0	14.0				
142.0-143.0	14.1				
143.0-144.0	14.2				
144.0-145.0	14.3				
145.0-146.0	14.4				
146.0-147.0	14.5				
147.0-148.0	14.6				
148.0-149.0	14.7				
149.0-150.0	14.8				
150.0-151.0	14.9				
151.0-152.0	15.0				
152.0-153.0	15.1				
153.0-154.0	15.2				
154.0-155.0	15.3				
155.0-156.0	15.4				
156.0-157.0	15.5				
157.0-158.0	15.6				
158.0-159.0	15.7				
159.0-160.0	15.8				
160.0-161.0	15.9				
161.0-162.0	16.0				
162.0-163.0	16.1				
163.0-164.0	16.2				
164.0-165.0	16.3				
165.0-166.0	16.4				
166.0-167.0	16.5				
167.0-168.0	16.6				
168.0-169.0	16.7				
169.0-170.0	16.8				
170.0-171.0	16.9				
171.0-172.0	17.0				
172.0-173.0	17.1				
173.0-174.0	17.2				
174.0-175.0	17.3				
175.0-176.0	17.4				
176.0-177.0	17.5				
177.0-178.0	17.6				
178.0-179.0	17.7				
179.0-180.0	17.8				
180.0-181.0	17.9				
181.0-182.0	18.0				
182.0-183.0	18.1				
183.0-184.0	18.2				
184.0-185.0	18.3				
185.0-186.0	18.4				
186.0-187.0	18.5				
187.0-188.0	18.6				
188.0-189.0	18.7				
189.0-190.0	18.8				
190.0-191.0	18.9				
191.0-192.0	19.0				
192.0-193.0	19.1				
193.0-194.0	19.2				
194.0-195.0	19.3				
195.0-196.0	19.4				
196.0-197.0	19.5				
197.0-198.0	19.6				
198.0-199.0	19.7				
199.0-200.0	19.8				

(For deep water so. 0 to these figs.)

0.7 0.8 1.3 1.6 2.0 2.5 3.1

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



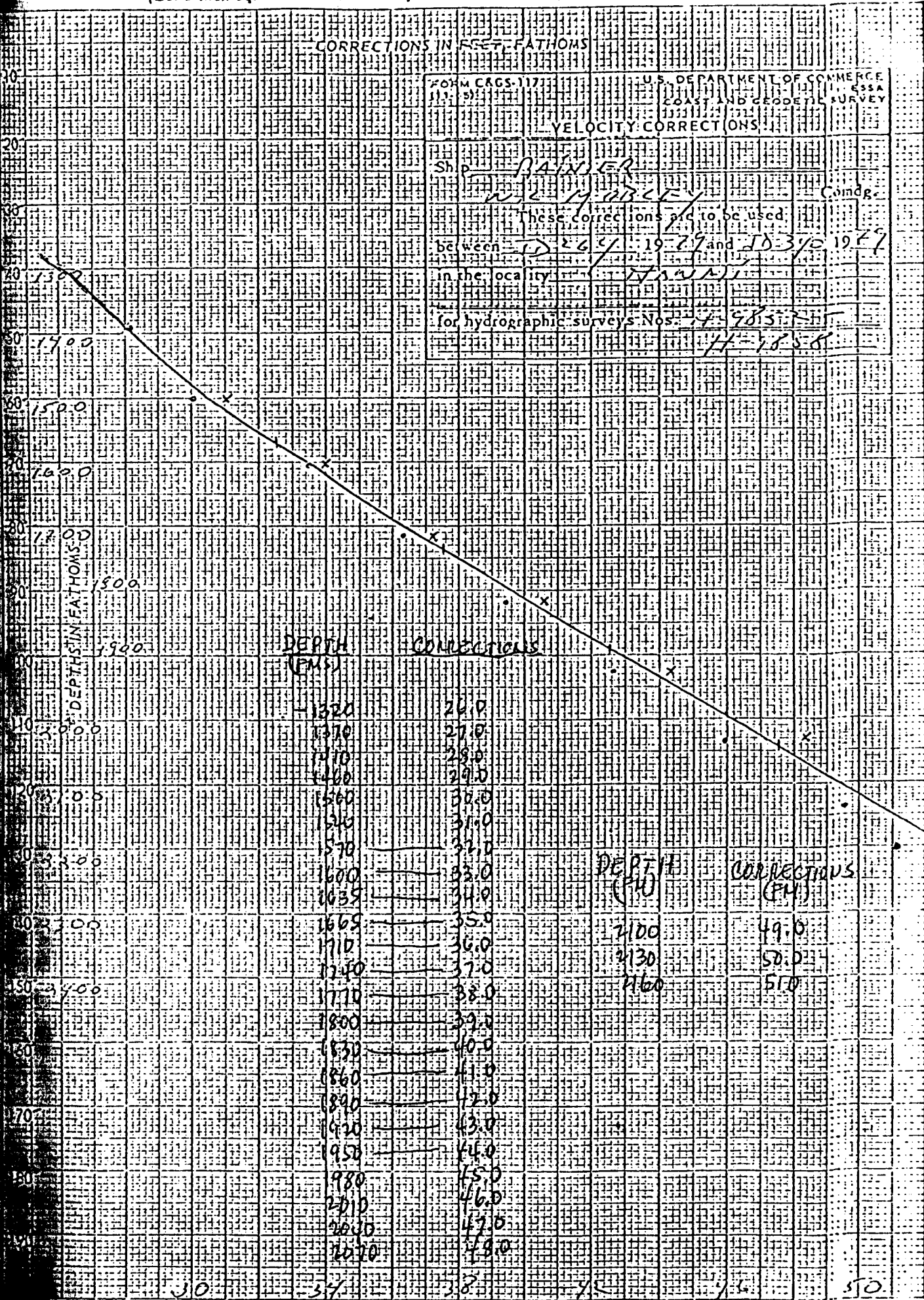
(For deep water add a 0 to these figures)

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

CORRECTIONS IN FEET-FATHOMS

FORM CGS-117  
 U.S. DEPARTMENT OF COMMERCE  
 COAST AND GEODETIC SURVEY  
 VELOCITY CORRECTIONS

Ship RAINIER  
 Comdr. W. L. HUBLEY  
 These corrections are to be used  
 between 10 26 19 19 and 10 31 19 19  
 in the locality of HAWAII  
 for hydrographic surveys Nos. 75985-87  
H-1858



DEPTH (FM)      CORRECTIONS (FM)

2100	49.0
2130	50.0
2160	51.0

FIG 1

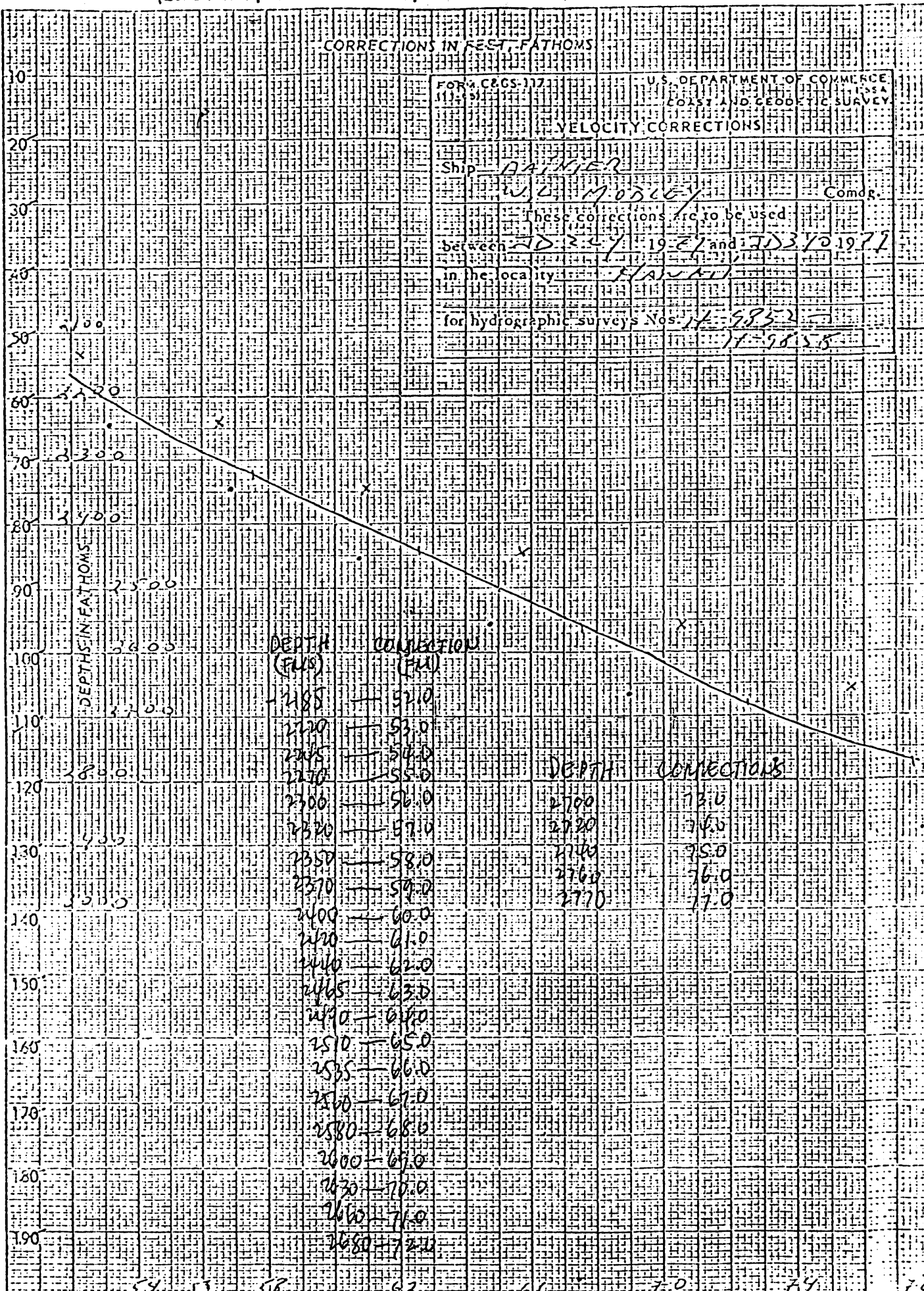
(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)

CORRECTIONS IN FEET-FATHOMS

FOR C&GS 117 U.S. DEPARTMENT OF COMMERCE  
 COAST AND GEODETIC SURVEY  
 VELOCITY CORRECTIONS

Ship DARTIER  
 Comdr. W. C. MURPHY  
 These corrections are to be used  
 between AD 3-27-1927 and AD 3-10-1971  
 in the locality of FLORIDA  
 for hydrographic surveys Nos. 14-9852  
14-9855

(For deep water add a 0 to these figures)



DEPTH (FMS)	CORRECTION (FM)
2185	52.0
2220	53.0
2245	54.0
2270	55.0
2300	56.0
2320	57.0
2350	58.0
2370	59.0
2400	60.0
2420	61.0
2440	62.0
2465	63.0
2490	64.0
2510	65.0
2535	66.0
2560	67.0
2580	68.0
2600	69.0
2620	70.0
2640	71.0
2660	72.0

DEPTH	CORRECTIONS
2700	73.0
2720	74.0
2740	75.0
2760	76.0
2770	77.0

Fig. 11

5.4 5.6 5.8 6.2 6.6 7.0 7.4 7.8

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

119

CORRECTIONS IN FEET, FATHOMS

NO. 110-721	FORM 75-21	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEAN SURVEY	
VELOCITY CORRECTIONS			
Ship	DANIEL		Comdr.
	W. L. MOSELEY		
These corrections are to be used			
between <u>JD 267 1977</u> and <u>JD 190 1979</u>			
in the locality <u>HAWAII</u>			
for hydrographic surveys Nos. <u>11-9358</u>			
<u>11-9355</u>			

10  
20  
30  
40  
50  
60  
70  
80  
90  
100  
110  
120  
130  
140  
150  
160  
170  
180  
190

DEPTH IN FATHOMS

600  
570  
500  
350  
300  
310  
330  
330

FLGTY

DEPTH (FM)

CORRECTIONS (FM)

DEPTH

CORRECTIONS

2800 — 78.0  
2875 — 79.0  
2850 — 80.0  
2860 — 81.0  
2885 — 82.0  
2910 — 83.0  
2930 — 84.0  
2950 — 85.0  
2970 — 86.0  
2990 — 87.0  
3010 — 88.0  
3030 — 89.0  
3050 — 90.0  
3070 — 91.0  
3090 — 92.0  
3110 — 93.0

3130 — 94.0  
3150 — 95.0  
3170 — 96.0  
3190 — 97.0  
3210 — 98.0  
3230 — 99.0  
3250 — 100.0  
3280 — 101.0  
99999 — 102.0

80 84 88 92 96 100

11

46 1240

20 X 30 TO THE INCH, 7 X 10 INCHES  
KEUFFEL & ESSER CO. MADE IN U.S.A.

(For deep water add a 0 to these figures)





FIELD TIDE NOTE

OPR-T126-RA-79

Field tide reduction of soundings for OPR-T126-RA-79 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.

Four Metercraft bubbler tide gages were installed at four locations in the project area. Location and period of operation for each gage are as follows:

<u>SITE</u>	<u>LOCATION</u>	<u>PERIOD</u>
Milolii (161-8431)	19°11.3'N 155°54.5'W	18 Sep - 7 Oct 17 Oct - 28 Nov
Ka Lae East (161-8739)	18°56.4'N 155°38.7'W	19 Sep - 23 Nov 30 Nov - 4 Dec
Honuapo (161-8578)	19°05.3'N 155°33.2'W	21 Sep - 6 Dec
Pohoiki (161-8062)	19°27.6'N 154°50.6'W	20 Oct - 6 Dec 20 Oct - 2 Nov usable

Milolii

A 0-10 ft. scale Metercraft gage (S/N 7601-7536-34) was installed 17 September and began operation 18 September. The staff was installed 17 September and leveled 18 September. The gage operated satisfactorily from 18 September to 7 October with two one-day gaps in the marigram on 23 September and 2 October due to ink flow problems. On 7 October, waves from a storm damaged the gage. The gage was replaced with 0-10 ft. scale Metercraft (S/N 7601-7536-31) on 17 October, which operated satisfactorily until removal on 28 October. The staff and orifice were unaffected by the 7 October storm. The last staff observation was on 27 October, and the last 13 hours of tides were inferred from a marginal trace (ink flow problems). Removal levels were run 16 November. The marigram zero line is at 5.7 ft. on the staff. Gage times on the marigram are Zulu. Watch times are local (Zulu - 10 hours) except where noted.

Ka Lae East

A 0-10 ft. scale Metercraft gage (S/N 7601-7536-29) was installed 18 September and began operation 19 September. The staff was installed 18 September and leveled 19 September. The gage operated satisfactorily from 19 September to 23 November with the following exceptions: On 4 and 5 October, the clock wound down and the gage was out of service for about half a day. This happened again on 28 and 29 October, resulting in a one-day gap. On 17 through 21 October, overinking caused bleed through of the tide curve on the marigram paper. On 3 and 4 November, a low nitrogen flow rate caused a one-day gap. On 24 November,

the clock stopped. The gage was restarted again on 30 November and ran satisfactorily until removal on 4 December. However, a stopped clock on 4 December prevented an ending observation for this time period. Removal levels were run 5 December. The marigram zero line equals 0.2 ft. on the staff. All times on the marigram are Zulu unless otherwise noted. The gage was kept on Zulu time.

Honuapo

A 0-10 ft. scale Metercraft gage (S/N 7601-7536-32) was installed and began operation 21 September. The staff was installed 21 September and leveled 22 September. The gage ran satisfactorily until removal on 6 December with one 5-hour gap in data on 28 and 29 October caused by a stopped clock. Removal levels were run 5 December. The gage was kept on Zulu time. All times on the marigram are Zulu unless otherwise noted. The marigram zero line equals 1.1 ft. on the staff.

Pohoiki

A 0-10 ft. scale Metercraft gage (S/N 7601-7536-30) was installed 19 October and began operation 20 October. The staff was installed 19 October and leveled 20 October. The gage ran satisfactorily until removal on 6 December. However, the contract observer's observations are inadequate. He apparently estimated the time without using a watch. Thus, the only usable data from this gage is that from the period covered by shipboard personnel observations, from 20 October to 2 November. Hourly heights are tabulated for this period only. This should be sufficient data to determine sufficiently accurate correctors for Pohoiki. Removal levels were run 6 December. All times on the marigram are local unless noted Zulu. The gage was kept on Zulu time. The marigram zero line equals 3.7 ft. on the staff.

Levels

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

Milolii (161-8431) BM Elevations (Ft)

<u>BM#</u>	<u>9-18-79</u>	<u>11-16-79</u>	<u>Difference</u>
1	21.293	21.286	-.007
2	15.352	15.312	-.013
3	14.603	14.590	-.013
A	19.744	19.738	-.006
B	19.324	19.321	-.003

Ka Lae East (161-8739) BM Elevations (Ft)

<u>BM#</u>	<u>9-19-79</u>	<u>12-5-79</u>	<u>Difference</u>
A	18.409	18.412	+.003
B	25.732	-	-
C	9.551	9.554	+.003
D	9.951	9.947	-.004
E	9.869	9.869	0

Honuapo (161-8578) BM Elevations (Ft)

<u>BM#</u>	<u>9-22-79</u>	<u>12-5-79</u>	<u>Difference</u>
3	11.381	11.375	-.006
D	9.085	9.081	-.004
E	8.494	8.487	-.007
F	12.188	12.175	-.013
G	9.252	9.239	-.013
H	9.357	-	-

Pohoiki (161-8062) BM Elevations (Ft)

<u>BM#</u>	<u>10-20-79</u>	<u>12-6-79</u>	<u>Difference</u>
A	10.521	10.512	-.009
B	13.034	13.025	-.009
C	12.126	12.126	0
D	14.257	14.252	-.005
E	13.557	13.556	-.001

Recommended Zoning

As differences in times and heights of tides for the various tide stations were small, correctors obtained from Honuapo predicted tides were judged adequate for all smooth field sheets on OPR-T126-RA-79. However, for maximum accuracy, tide correctors could be applied as follows:

<u>Sheet</u>	<u>Tide Station</u>
W	Milolii and Ka Lae East
CC	Ka Lae East
BB	Ka Lae East
DD	Ka Lae East and Honuapo
EE	Ka Lae East and Honuapo
FF	Honuapo
GG	Honuapo

H-9855

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

GEOGRAPHIC NAMES

H-9855

Name on Survey

A ON CHART NO.  
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  
K

KALAPANA (Title)

19320  
19004

1

PACIFIC OCEAN

2

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Approved:

16

*Chas. P. Harrington*

17

Chief Geographer - C345

18

1 Sept. 1981

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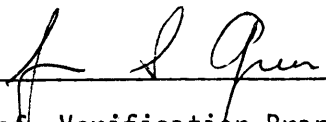
APPROVAL SHEET

FOR

SURVEY H-9855

- A. All revisions and additions made on the smooth sheet during verification have been entered in the magnetic tape records for this survey. A new final position print-out has been made. A new final sounding print-out has been made.
- B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic Manual. Exceptions are listed in the verifier's report.

Date: 3/2/81

  
\_\_\_\_\_  
Chief, Verification Branch

## 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 parts & 3		5	
DESCRIPTIVE REPORT		1	SMOOTH OVERLAYS: POS. ARC, EXCESS		3*	
DESCRIP- TION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES						
CAHIERS						1-misc. data
VOLUMES	1 (in box)					
BOXES			1- Smooth Pos. 1- " Sndg.			

T-SHEET PRINTS (List)

SPECIAL REPORTS (List) \* 1- Sndg. analysis plot &amp; Printout

## OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS		
	PRE- VERIFICATION	VERIFICATION	TOTALS
POSITIONS ON SHEET			372
POSITIONS CHECKED		382	
POSITIONS REVISED		72	
SOUNDINGS REVISED		18	
SOUNDINGS ERRONEOUSLY SPACED		0	
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED		0	
	TIME - HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	5		
VERIFICATION OF CONTROL		2	
VERIFICATION OF POSITIONS		91	
VERIFICATION OF SOUNDINGS		46	
COMPILATION OF SMOOTH SHEET		10	
APPLICATION OF TOPOGRAPHY		0	
APPLICATION OF PHOTOBATHYMETRY		0	
JUNCTIONS		3	
COMPARISON WITH PRIOR SURVEYS & CHARTS		8	
VERIFIER'S REPORT		8	
OTHER			
TOTALS	5	167	172
Pre-Verification by James S. Green	Beginning Date 6/9/80	Ending Date 6/9/80	
Verification by Patricia M. Niland	Beginning Date 10/27/80	Ending Date 2/10/81	
Verification Check by Stanley H. Otsubo, James S. Green	Time (Hours) 22	Date 2/23/81	
Marine Center Inspection by HIT	Time (Hours) 27	Date 4/30/81	
Quality Control Inspection by L. QUINLAN	Time (Hours) 8	Date 7/20/81	
Requirements Evaluation by <i>[Signature]</i>	Time (Hours) 2	Date 6/18/82	

*A. M. [Signature] 11/1/81 1 hr.*

PACIFIC MARINE CENTER  
VERIFIER'S REPORT

REGISTRY NO. H-9855

FIELD NO. RA-80-3-79

Hawaii, Island of Hawaii, South of Kalapana

SURVEYED: December 2 - 5, 1979

SCALE: 1:80,000

PROJECT NO: OPR-T126

SOUNDINGS: Universal Graphic Recorder

CONTROL: Range/Range Raydist

Chief of Party.....CAPT Wayne L. Mobley

Surveyed by.....LT Alan Anderson, LT Roger  
Morris, LTJG Michael  
McCluskey, LTJG Jeff Greene,  
ENS Dave Kruth, SST Richard  
Hastings

Automated plot by.....Xynetics Plotter (PMC)

Verified by.....P. M. Niland

1. INTRODUCTION

H-9855 is a basic hydrographic survey conducted in accordance with Project Instructions OPR-T126-RA-79, Hawaii Islands, dated July 20, 1979. This area was surveyed by the NOAA Ship RAINIER.

Projection parameters used to prepare the boatsheet have been revised to center the hydrography on the smooth sheet. Parameters used by the Pacific Marine Center are appended in the smooth printout.

Predicted tides from Honolulu, Hawaii, were interpolated by the PDP/8E computer using Program AM500 to reduce soundings on the field sheet. Approved tides from Ka Lae East, Hawaii, are used for final reduction of soundings. All correctors used to plot and reduce soundings are located in the smooth printout. *Do not concur. Soundings for H-8955*

The following problems <sup>was</sup> ~~were~~ encountered during verification: *are not corrected for tide.*

(1) There was no mention of an ANDIST corrector for H-9855 in the descriptive report. Information for the ANDIST corrector value was extracted from H-9858 (junctional survey) which shows the value of 33.5 meters.

2. CONTROL AND SHORELINE

Section F of the ship's descriptive report describes the horizontal control adequately. Calibration procedures and electronic control

systems are explained in Section G of the ship's report.

No shoreline is required or applied to the smooth sheet.

### 3. HYDROGRAPHY

The crosslines are in good agreement, generally, within 10 to 25 fathoms. Any discrepancies in sounding comparisons may be attributed to the irregular bottom and extreme depths to which the bottom reaches in the area.

The bottom configuration, determination of least depths and development of all standard depth curves are adequate.

### 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

This survey junctions with two contemporary surveys:

H-9858 (1979)	1:80,000
H-9856 (1979-80)	1:80,000

(a) H-9858 junctions along the western border at Latitude 19°00'00"N and Longitude 155°05'00"W. There are no sounding discrepancies and the junctional curves have been inked accordingly.

(b) H-9856 (1979-80) junctions on the northern border. The junction curves are in pencil since this survey has not been verified.

*Junctional surveys not available to check agreement*  
There are no contemporary surveys to the south and east of H-9856. *during QC*  
*10/6/81*

### 6. COMPARISON WITH PRIOR SURVEYS

There ~~were~~ <sup>are</sup> no known prior surveys of the area surveyed in H-9856.

### 7. COMPARISON WITH THE CHART

A. Comparison was made with Chart #19320 (12th Edition, June 17, 1978)

This survey is adequate to supersede charted hydrography within the common area; however, the following should be taken into consideration:

When comparing the chart to the smooth sheet the charted soundings in the 900 to 1500 fathom area range from 221 fathoms shoaler to 225 fathoms deeper. In the area of 1500 to 3000 fathoms the charted soundings range from 380 fathoms shoaler to 281 fathoms deeper. These differences are due to the irregular slope conditions in this area.



B. Aids to Navigation

No aids to navigation exist within the area of H-9855.

8. COMPLIANCE WITH PROJECT INSTRUCTIONS

This survey was conducted in accordance with Project Instructions OPR-T126-RA-79, Hawaii, Hawaiian Islands, dated July 20, 1979; Change No. 1, Supplement to Instructions, dated August 2, 1979; Change No. 2, Supplement to Instructions, dated August 6, 1979; Change No. 3, Supplement to Instructions, dated August 21, 1979, and Change No. 4, Supplement to Instructions, dated October 3, 1979.

9. ADDITIONAL FIELD WORK

This is a very good basic hydrographic survey. No additional field work is required for the area covered by this survey.

Submitted by,



P. M. Niland  
Cartographic Technician  
February 25, 1981

Examined and approved,



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, WA 98102

April 30, 1981

OA/CPM3/JWC

TO: OA/CPM - Charles K. Townsend *[Signature]*  
FROM: OA/CPM3 - John W. Carpenter *JWC*  
SUBJECT: PMC Hydrographic Inspection Team Report for Survey H-9855

This is a basic hydrographic survey Offshore South of Kalapana, Island of Hawaii, Hawaii. This survey was conducted by NOAA Ship RAINIER in 1979 in accordance with Project Instructions OPR-T126-RA-79 dated July 20, 1979; Change No. 1, dated August 2, 1979; Change No. 2, dated August 6, 1979; Change No. 3, dated August 21, 1979; and Change No. 4, dated October 3, 1979.

The inspection team finds H-9855 to be a basic survey adequate to supersede common areas of prior surveys and charted hydrography. Administrative approval is recommended.

*John W. Carpenter*  
\_\_\_\_\_  
John W. Carpenter

*James M. Wintermyre*  
\_\_\_\_\_  
James M. Wintermyre

*James W. Steensland*  
\_\_\_\_\_  
James W. Steensland

*James L. Stringham*  
\_\_\_\_\_  
James L. Stringham

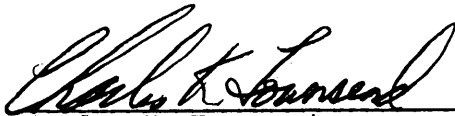


**10TH ANNIVERSARY 1970-1980**  
**National Oceanic and Atmospheric Administration**

A young agency with a historic  
tradition of service to the Nation

ADMINISTRATIVE APPROVAL  
H-9855

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.

  
\_\_\_\_\_  
Charles K. Townsend  
Director  
Pacific Marine Center

  
\_\_\_\_\_  
Date



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL OCEAN SURVEY  
Rockville, Md. 20852

OA/C352:LMQ

July 21, 1981

TO: Glen R. Schaefer *GRS*  
Chief, Hydrographic Surveys Division

THRU: Chief, Quality Control Branch *DMW*

FROM: *L.M. Quinnan*  
L. M. Quinnan  
Quality Evaluator

SUBJECT: Quality Control Report for H-9855 (1979), Hawaii, Island of Hawaii,  
Offshore South of Kalapana

A quality control inspection of H-9855 was accomplished to monitor the survey for adequacy with respect to data acquisition, delineation of the bottom, determination of least depths, navigational hazards, sounding line crossings, smooth plotting, decisions made and actions taken by the verifier, and the cartographic presentation of data. In general, the survey was found to conform to the National Ocean Survey's standards and requirements except as stated in the Verifier's Report and as follows:

Some depth curves were erroneously drawn in alignment with the numeral 1 of sounding values plotted on the smooth sheet. (See item 12 of Hydrographic Survey Guideline No. 5.)

cc:  
OA/C351





**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL OCEAN SURVEY  
Rockville, Md. 20852

SEP 1 1982

C351: SJV

TO: CPM - Charles K. Townsend

FROM: C3 - C. William Hayes *Allen R. Schayf*

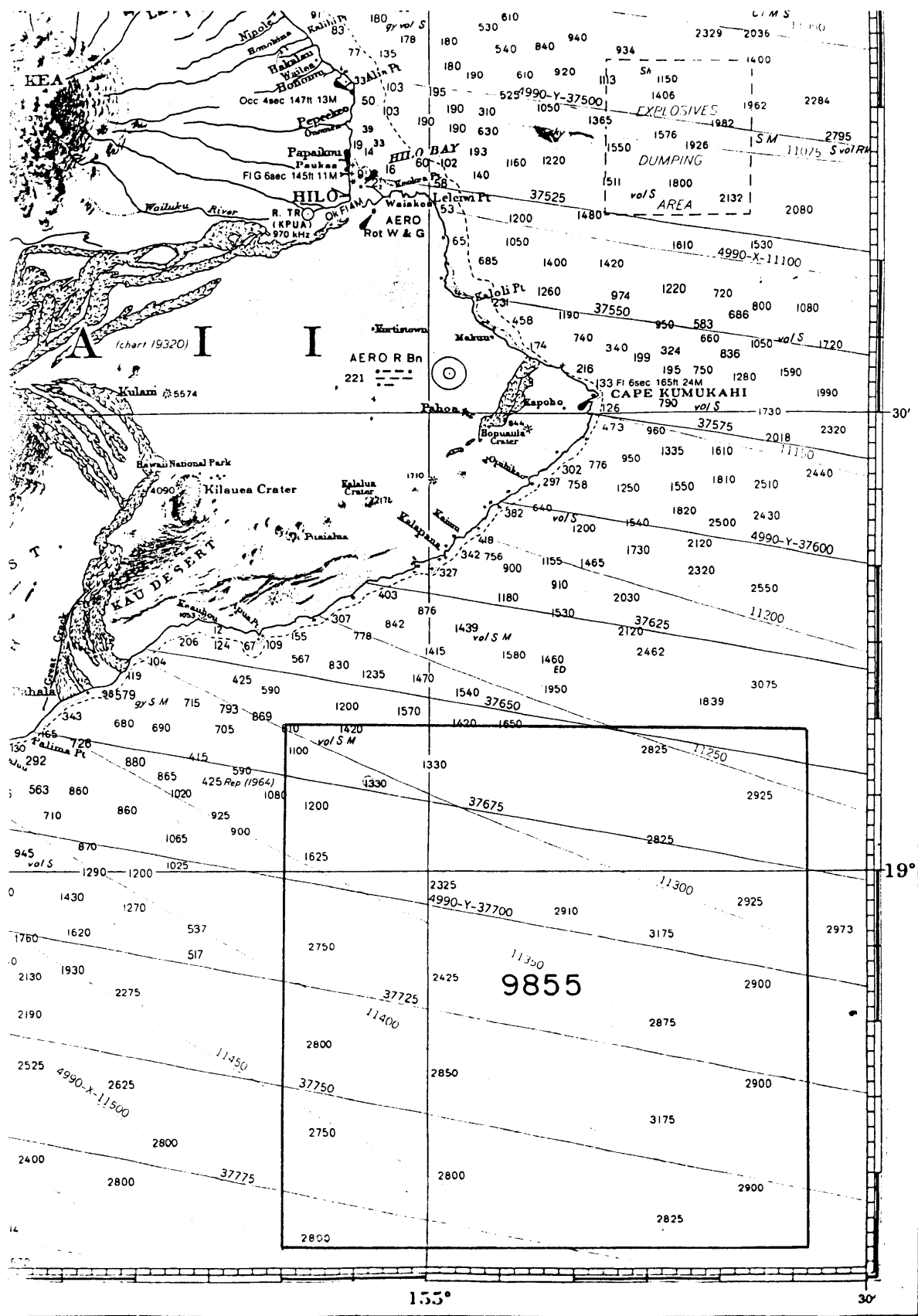
SUBJECT: H-9855 (1979), Hawaii, Island of Hawaii, Offshore South of Kalapana,  
Report of Compliance with Project Instructions

The smooth sheet and Descriptive Report for the subject survey have been examined. This survey, except as noted in the Quality Control Report, dated July 21, 1981 (copy attached), and the Hydrographic Survey Inspection Team Report, dated April 30, 1981, is complete and adequate for the purposes intended and is in compliance with Project Instructions OPR-T126-RA-79, dated July 20, 1979.

Attachment

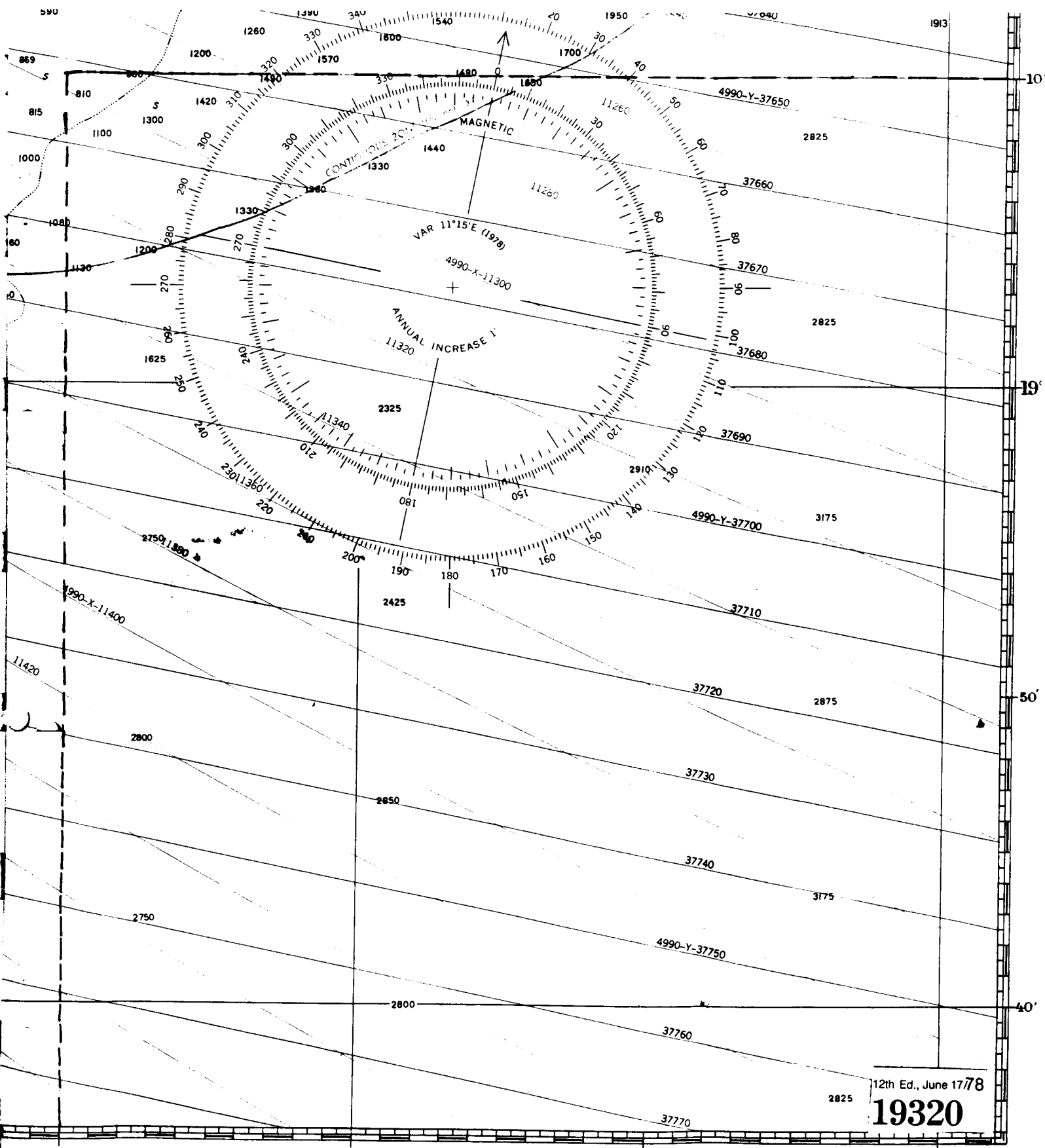
cc:  
C352 w/o att.





Cht. 19004

DWA STOCK NO 19XCO19004



12th Ed., June 1778  
**19320**

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. 9855

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
19320	10-6-82	Lori A. Simmons	Full <del>Part Before</del> After Verification Review Inspection Signed Via Drawing No. 16
19004	1-11-83	Lori A. Simmons	Full <del>Part Before</del> After Verification Review Inspection Signed Via Drawing No. 34 <sup>start line</sup> App'd thru common area of 19320 #16
19007	3-23-83	Lori A. Simmons	Full <del>Part Before</del> After Verification Review Inspection Signed Via Drawing No. 13 App'd thru <del>19010 #15</del> #34
<del>19010</del>			
19010	4-1-83	Lori A. Simmons	Full <del>Part Before</del> After Verification Review Inspection Signed Via Drawing No. 15 App'd thru 19004 #34
540	6/20/83	Robert J. Sager	Full <del>Part Before</del> After Verification Review Inspection Signed Via Drawing No. 17 App'd thru <del>19010 #15</del> 19007 #13
530	7/13/83	M. Sager	Full <del>Part Before</del> After Verification Review Inspection Signed Via Drawing No. 32 Applied thru chart 540 Drawg #17
50	6/27/84	Kathleen	Full <del>Part Before</del> After Verification Review Inspection Signed Via Drawing No. 3 applied thru chart 530 Drawg 32 no corrections
			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.