

9813

Diag. Cht. No. 4115

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT
(HYDROGRAPHIC)

Type of Survey ... Hydrographic
Field No. FA-80-1-79
Office No. H-9813

LOCALITY

State Hawaji
General Locality .. Island of Hawaji
Locality Offshore Ka Lae

1979

CHIEF OF PARTY
B.I. Williams

LIBRARY & ARCHIVES

DATE October 7, 1980

★ U.S. GOV. PRINTING OFFICE: 1978-666-172

9813

AREA 6
CHART
540
19320
530 NC

HYDROGRAPHIC TITLE SHEET

H-9813

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

FIELD NO.

FA-80-1-79

State HAWAII

General locality ISLAND OF HAWAII

Locality OFFSHORE ~~SOUTH CAPE~~ Ka Lae

Scale 1:80,000 Date of survey March 23 - April 1⁷ 1979

Instructions dated Nov 21, 1978 Supp dated Dec 8, 1978 Project No. OPR-T126-FA-79

Vessel NOAA SHIP FAIRWEATHER (2020)

Chief of party CDR B.I. Williams

Surveyed by LCDR R. Schiro, LT A. Yanaway, LTJG M. Finke, LTJG L. Roberts, LTJG J. Quinlan, ENS D. Ross, ENS M. Willis

Soundings taken by echo sounder, ~~Raytheon~~ Raytheon (UGR) (S/N-172)

Graphic record scaled by Ship's Personnel

Graphic record checked by Ship's Personnel

Positions verified

Processed by Matthew G. Sanders Automated plot by PMC Xynetics Plotter

Sounding

Verification by Matthew G. Sanders

Soundings in fathoms ~~Feet~~ at ~~MLLW~~ MLLW

REMARKS: All survey records and data were collected and compiled with respect to GMT. The mean longitude of this survey is 153°54'00"W. The field sheet is complete and adequate for charting.

"Misc data" filed with field records

DESCRIPTIVE REPORT
TO ACCOMPANY
HYDROGRAPHIC SURVEY H-9813 (FA80-1-79)
NOAA SHIP FAIRWEATHER S220

A. PROJECT

This survey was conducted in accordance with Project Instructions as follows: ✓
Project # - OPR T126-FA-79 HAWAII, HAWAIIAN ISLANDS (11/20/78)
Presurvey Review - OPR T126 (12/01/78) 1

8

B. AREA SURVEYED

The area covered by this survey is longitude 155°30.0'W to 156°17.9'W and ✓
from latitude 18°35.0'N to 18°55.0'N. Hydrography was conducted from March
23, 1979 to April 10, 1979. 9 05

7

C. SOUNDING VESSEL

All soundings were obtained by the NOAA SHIP FAIRWEATHER (2020). No bottom ✓
samples were taken within the area surveyed.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

A TRA corrector of +2.6 fms., was based on measured draft, and was used for ✓
the Ship's hydrography. Side echos were experienced at times in great depths,
thereby required slower speeds as indicated on the raw printouts. Two Nansen
casts were taken on 2/22/79 and 4/12/79, to determine sound velocity
corrections. The sound velocity corrector tape was constructed totally from
the data compiled from the first cast which was deeper (3395 m.). For details
see Report On Corrections To Echo Soundings, OPR T126-FA-79. For a list of
sounding equipment, see the Appendix.

E. HYDROGRAPHIC SHEETS

Two plotting sheets were required: FA80-1N-79 and FA80-1S-79, each with a ✓
SKEW of 0,22,42. Both sheets were plotted by the shipboard hydroplot system:
-PDP8E COMPUTER SYSTEM (S/N 09524)
-COMLOT PLOTTER (Mod.DP-3) (S/N 6166-22)

Line spacing meets requirements stated in the Project Instructions for a ✓
1:80,000 scale survey. Because of Dr. Malahoff's underwater earthquake study
the study area was covered by additional lines @ 900 meter spacing. For
further plotting details, see Appendix for the Parameter Tape Printout. The
field records will be sent to PMC for verification.

F. CONTROL STATIONS

Three different modes of positioning were used on this Field Sheet.

R/R (RAYDIST)
HYPERBOLIC (RAYDIST)
RA/AZ (RAYDIST) ✓

For further details see the Appendix for List of Positions and Signal Listings, and see the Horizontal and Electronic Control Reports, OPR T126-FA-79.

G. HYDROGRAPHIC POSITION CONTROL

Positioning modes included R/R (RAYDIST), HYPERBOLIC (RAYDIST), and RA/AZ (RAYDIST). All calibrations were made with T-2 cut intersections or sextant fix with check fixes, using RK 300 and RK 561 computer programs. For details see Appendix for Electronic Corrector Abstract, and also see Electronic Control Report, OPR T126-FA-79, and raw printout for each day's calibrations. ✓

H. SHORELINE

This was an offshore survey which did not include any shoreline development. ✓

I. CROSSLINES

Total Nautical Miles - 1011.2
Crossline Nautical Miles - 70.5
Percentage - 7.0%

The extensive 900 meter spacing required by Dr. Malahoff's development, added to the total miles. The crossline percentage is therefore considered adequate for the depth of this offshore survey. ✓

J. JUNCTIONS

FAIRWEATHER 1973 SURVEY (REG# H-9355)

In comparison with the FAIRWEATHER survey of 1973, all soundings agreed quite well. Ninety-five percent of all soundings agreed within 50 fathoms. At this extreme depth, this agreement indicates a comparison error of less than 10 percent.

Two discrepancy areas were noted. At longitude 155°57.0'W , latitude 18°39.0'N a 400 fathom discrepancy was observed. Since our equipment was operating properly and the fathometer was scale checked it appears as if the FAIRWEATHER in 1973 was off scale by 400 fathoms. At longitude 156°03.0'W , latitude 18°47.0'N , a 100 fathom discrepancy was observed. This is less than a 5% comparison discrepancy at 2400-2500 fathoms and should not be considered significant. Side echos from steep underwater shelf areas were common throughout, suggesting the possible reason for this discrepancy. ✓

See Quality Control Report.

FA10-3-79 (H-9812)

FA80-1-79 soundings were plotted on FA10-3-79 Semi-Smooth Sheet for junction comparison purposes. All soundings agreed extremely well, with less than a 5 percent difference. ✓

corrected on H-9355

K. COMPARISON WITH PRIOR SURVEYS

This survey was compared with Reconnaissance Survey (H-4655a), dated 4/12/27-4/13/27. The few offshore soundings that were available on the prior survey, did not agree very well with this survey. Due to advanced sounding equipment and electronic positioning modes, FA80-1-79 (H-9813) should supercede the prior survey. ~~See Appendix for copy of Reconnaissance Survey and indicated soundings compared.~~ ✓

L. COMPARISON WITH THE CHART

In comparison with Chart #19320 (12th ed. June 17/78), approximately 50% of all soundings checked agreed within 50 fathoms. No trends toward changes in contour or new geological formations could be deduced from the soundings not in agreement. The discrepancies were random, indicating possible side echo influence on the sounding records. It is recommended that this survey supercede all soundings on Chart #19320. ~~See Appendix for copy of Chart #19320 and indicated soundings that were compared.~~ ✓

M. ADEQUACY OF SURVEY

This survey is complete and adequate to supercede prior surveys for charting purposes. ✓

N. AIDS TO NAVIGATION

MILOLII POINT LIGHT - See Horizontal Control Report, OPR T126-FA-79 for Recovery Note, and also see Appendix for Form 76-40.
KA LAE LIGHT - Due to the permanence of this structure and no evidence of movement, the 1978 position for this Aid should be charted as before. Further recovery of this station is recommended when the 1:10,000 shoreline survey of this section of coastline is done. See Appendix for Form 76-40. ✓

O. STATISTICS

TOTAL NO. OF POSITIONS - 950
TOTAL NAUTICAL MILES - 1011.2 ✓
TOTAL AREA (SQ. MI.) - 800
TOTAL NO. OF BOTTOM
SAMPLES --0
NANSEN CASTS - 2

P. MISCELLANEOUS

GMT was used for all survey records. For details on Tide Gauges and Data, see Appendix for Field Tide Note. ✓

Q. RECOMMENDATIONS

This survey should be accepted and used for charting purposes. ✓

R. AUTOMATED DATA PROCESSING

All data acquisition was obtained by use of the following programs:

- RK 111 - R/R REAL TIME HYDROPLOT
- RK 110 - HYPERBOLIC REAL TIME HYDROPLOT
- FA 181 - RA/AZ LOGGER OUTPUT

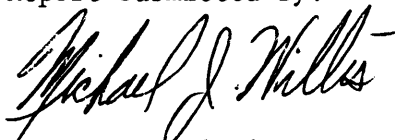
All Semi-Smooth and Smooth Plots were done using NON-REAL TIME programs: ✓

- RK 210
- RK 211
- RK 216 LAYER CORRECTION FOR VELOCITY 5/10/76
- RK 530 UTILITY COMPUTATIONS 2/5/76
- RK 300

S. REFERRAL TO REPORTS

- Report On Corrections To Echo Soundings OPR T126-FA-79 ✓
- Horizontal Control Report OPR T126-FA-79
- Electronic Control Report OPR T126-FA-79
- Field Edit Report OPR T126-FA-79

Report Submitted By:



Michael J. Willis-ENS., NOAA

APPROVAL SHEET

Field Number: FA80-1-79

Registry Number: H-9813

This survey was conducted under my supervision and is complete and adequate for charting purposes.

A handwritten signature in cursive script that reads "Bruce I. Williams".

CDR. B. I. Williams

Commanding Officer

NOAA SHIP FAIRWEATHER S220

SIGNAL LISTING

101	2	19	09	33253	155	55	04810	139	0012	000000
102	4	19	09	29809	155	53	28254	139	0234	000000
103	1	19	09	29991	155	53	27408	250	0231	330040
104	1	19	08	15598	155	54	52428	139	0031	000000
105	4	19	07	49156	155	55	03938	139	0011	000000
106	1	19	06	21091	155	54	34393	139	0039	000000
107	1	19	04	55020	155	54	31223	250	0008	000000
108	1	19	04	57531	155	54	12952	139	0016	000000
109	1	19	04	34269	155	54	09129	250	0011	000000
110	7	19	02	13337	155	52	53794	139	0017	000000
111	1	19	01	48274	155	51	21266	139	0075	000000
112	6	19	01	43234	155	51	21081	250	0075	330040
113	2	19	04	54833	155	45	41938	139	0612	330040
114	2	18	54	56570	155	41	04290	250	0011	330040
115	2	19	00	28750	155	47	52817	250	0016	000000
116	2	19	00	28241	155	47	44432	250	0044	000000
117	5	18	54	57671	155	41	04143	250	0011	000000
118	2	18	58	18378	155	41	22642	139	0238	000000
119	7	18	58	18446	155	41	22354	139	0238	000000
120	4	13	54	54432	155	41	04553	139	0011	000000
121	5	19	04	54335	155	45	43197	250	0612	330040
122	2	19	02	14070	155	52	53274	254	0014	000000
123	7	19	01	47142	155	51	20442	243	0065	000000

101	HANAMALO 2, 1890									
102	PUU NAHAHA 2, 1948									
103	RAYDIST ANTENNA 1									
104	OHEPUUPUU, 1948									
105	NIUOU, 1948									
106	HANAKEAUMOE, 1948-1949									
107	UKA, 1979									
108	KAMOI, 1948-1949									
109	MAN, 1979									
110	KAUNA PT. LIGHT, 1949									
111	NA PUU A PELE, 1948-1949									
112	NA PUU A PELE RAYDIST 2									
113	PUU O KAMAOA, 1948									
114	KA LAE 2 1948									
115	PO, 1979									
116	PUU KI									
117	KA LAE 1887									
118	UMIS AHU									
119	UMIS AHU RM 2									
120	KA LAE LIGHT, 1978									
121	PUU O KAMAOA RM 2, 1978									
122	KAUNA PT. LIGHT MINIRANGER OFFSET									
123	NA PUU A PELE OFFSET									

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

TO BE CHARTED
 TO BE REVISED
 TO BE DELETED

REPORTING UNIT
(If field party, ship or office)

NOMA Ship FAIRWEATHER

STATE

HAWAII

LOCALITY

ISLAND OF HAWAII
SOUTHWEST COAST

DATE

4 MAY,
1979

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

OPR PROJECT NO.

OPR-T126

JOB NUMBER

FA-10-5W-79

SURVEY NUMBER

H-9815
H-9813

DATUM

Old Hawaiian

CHARTING NAME

LIGHT

DESCRIPTION
(Record reason for deletion of landmark or aid to navigation.
Show (trailing zeros) in parentheses, where applicable, in parentheses)

Ka Lae Light

REF. L-853 (80)

POSITION

LATITUDE

° /

D.M. Meters

18° 54' 54.44

1673.6

LONGITUDE

° /

D.P. Meters

155° 41' 04.55

133.2

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

OFFICE

63S(C) 8010
Aug. 31, 1963

FIELD

F-2-6-L
1/17/78

CHARTS AFFECTED

19320
19004
19010

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 CAGS Form 567.

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

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

- 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 (If field party, ship or office) **NOM SHIP FAIRWEATHER** STATE **Hawaii** LOCALITY **West Coast, Hawaii Island Apr 79** DATE **Apr 79**

The following objects HAVE HAVE NOT been inspected from seaward to determine their value as landmarks. DATUM **Old Hawaiian**

OPR PROJECT NO. **T126-FA-79** JOB NUMBER **19 11** SURVEY NUMBER **23.965 155 54 38.012 736.852 1133.893**

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station name, where applicable, in parentheses)	LATITUDE		LONGITUDE		METHOD AND DATE OF LOCATION (See instructions on reverse side)		CHARTS AFFECTED
		° / D.M. Meters	//	° / D.P. Meters	//	OFFICE	FIELD	
Nilolii Point Light	white, 4 second flashing light, 6 miles <i>off sheet limits</i>	19 11	//	155 54	//	F-2-J-Y	March 79	19320

REF. L-1334(81)

VELOCITY CORRECTION TABLES

TABLE#: 01 YR: 79 FM

DEPTH	VEL COR				
		1100.00	21.00	2486.00	70.00
3.50	.00	1153.00	22.00	2506.00	71.00
5.60	.10	1203.00	23.00	2526.00	72.00
7.60	.20	1247.00	24.00	2544.00	73.00
9.80	.30	1288.00	25.00	2561.00	74.00
11.90	.40	1327.00	26.00	2580.00	75.00
14.00	.50	1366.00	27.00	2599.00	76.00
16.00	.60	1404.00	28.00	2616.00	77.00
18.10	.70	1438.00	29.00	2633.00	78.00
20.10	.80	1472.00	30.00	2650.00	79.00
22.20	.90	1504.00	31.00	2667.00	80.00
26.30	1.00	1538.00	32.00	2685.00	81.00
30.50	1.20	1571.00	33.00	2703.00	82.00
34.60	1.40	1606.00	34.00	2721.00	83.00
38.70	1.60	1634.00	35.00	2736.00	84.00
42.70	1.80	1664.00	36.00	2754.00	85.00
46.70	2.00	1695.00	37.00	2772.00	86.00
50.80	2.20	1726.00	38.00	2789.00	87.00
55.00	2.40	1755.00	39.00	2807.00	88.00
59.20	2.60	1784.00	40.00	2824.00	89.00
64.20	2.80	1813.00	41.00	2842.00	90.00
68.80	3.00	1840.00	42.00	2858.00	91.00
73.40	3.20	1867.00	43.00	2874.00	92.00
78.00	3.40	1893.00	44.00	2890.00	93.00
82.60	3.60	1920.00	45.00	2906.00	94.00
87.10	3.80	1946.00	46.00	2922.00	95.00
91.80	4.00	1970.00	47.00	99999.90	95.00
98.00	4.20	1997.00	48.00		
104.00	4.40	2023.00	49.00		
110.20	4.60	2049.00	50.00		
116.40	4.80	2074.00	51.00		
129.40	5.00	2100.00	52.00		
149.90	5.50	2124.00	53.00		
173.70	6.00	2146.00	54.00		
197.70	6.50	2170.00	55.00		
242.50	7.00	2194.00	56.00		
302.00	8.00	2218.00	57.00		
367.00	9.00	2240.00	58.00		
432.00	10.00	2262.00	59.00		
495.00	11.00	2283.00	60.00		
559.00	12.00	2306.00	61.00		
625.00	13.00	2326.00	62.00		
690.00	14.00	2347.00	63.00		
754.00	15.00	2367.00	64.00		
814.00	16.00	2387.00	65.00		
872.00	17.00	2407.00	66.00		
929.00	18.00	2427.00	67.00		
992.00	19.00	2446.00	68.00		
1044.00	20.00	2466.00	69.00		

FIELD TIDE NOTE

Field tide reduction of soundings for OPR-T126-FA-79 was based on predicted tides from Honolulu, Hawaii, corrected to Napoopoo, Hawaii, and were interpolated by PDP-8/e computer utilizing AM-500. The operating tide station at Hilo, Hawaii, provided control for datum determination at both subordinate tide stations. All times of both predicted and recorded tides are GMT.

One Bristol Bubbler Tide Gage was installed at Ka Lae and a Fisher-Porter ADR Tide Gage was installed at Milolii. Location and period of operation of the gages were as follows:

<u>SITE</u>	<u>LOCATION</u>	<u>PERIOD</u>
Milolii	19°11.3'N 155°54.6'W	7 February-17 April 70 Days
Ka Lae	18°55'34"N 155°41'10"W	24 February- 17 April 53 Days

Milolii

Fisher Porter ADR Gage (S/N R6804A4960M4) was installed and began operation on 7 February. The staff was installed and leveled on the same day. Excellent records were obtained for 70 days with no interruptions. The marigram reads 7.0 feet greater than the staff.

Ka Lae

The Bristol Bubbler Gage (S/N 68A9334) was installed and began operations on 25 February. Excellent records were obtained with the following two exceptions:

On 5 March, at 1815 GMT, while the FAIRWEATHER was engaged in operations not requiring data from this gage, the gage ran down and was out of operation until 9 March at 2120 GMT. After this, the gage was wound upon every inspection because the clock could not be relied on to last more than five days without being rewound.

On 4 April, at 2310 GMT, the tubing parted due to heavy seas and was out of service until 7 April at 2300 GMT.

From 25 February through 4 April, the marigram read 2.3 feet greater than the staff. From 7 April until the removal of the gage, the marigram read 3.2 feet greater than the staff.

LEVELS

In a comparison of level records, the greatest observed difference at Ka Lae was a 0.013 foot rise in elevation of the staff stop. At the Milolii gage, the staff was struck by a launch which necessitated resecuring the staff. This led to the lowering of the staff by 0.01 feet. All levels between marks were within the acceptable error limits.

MISCELLANEOUS

For the tide record gaps in the Ka Lae gage record, the Milolii gage should be used as a reference for interpolation. This is in addition to the operating tide station at Hilo, Hawaii, which should also be used as a reference.


LT(jg) Mark S. Finke
Tides Officer

September 13, 1979 U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Pacific Marine Center:

Hourly heights are approved for Form 362

Tide Station Used (NOAA Form 77-12): 161-8431 Milolii, Hawaii Island, HI
161-8742 KaLae, Hawaii Island, HI

Period: March 23 - April 16, 1979

HYDROGRAPHIC SHEET: H-9813

OPR: T126

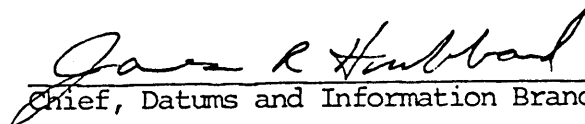
Locality: Kona-Kau Coast, Island of Hawaii, Hawaii

Plane of reference (mean lower low water): 2.93 ft. Milolii
12.0 ft. Ka Lae

Height of Mean High Water above Plane of Reference is
1.7 ft. - Milolii; 2.0 ft. - KaLae

REMARKS: Recommended zoning:

- (1). North of Kauna Point zone direct on Milolii.
- (2). South of Kauna Point zone direct on KaLae.


Chief, Datums and Information Branch

GEOGRAPHIC NAMES

H-9813

Name on Survey	Source of Name											
	A	B	C	D	E	F	G	H	K			
	ON CHART NO.	ON PREVIOUS SURVEY NO.	ON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP	RAND McNALLY ATLAS	U.S. LIGHT LIST				
DANA SEAMOUNT												1
HANAKEAUMOE												2
HAWAII												3
KAMOI POINT												4
KA LAE												5
KAUNA POINT												6
NA PUU A PELE												7
PUU KI												8
												9
												10
												11
												12
												13
												14
												15
												16
												17
												18
												19
												20
												21
												22
												23
												24
												25

Approved:

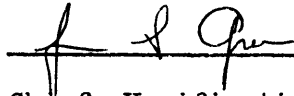
Chas. E. Harrington
Chief Geographer - C3x5

19 Feb. 1981

APPROVAL SHEET
FOR
SURVEY H- 9813

- 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: 8/27/80

Signed: 
Title: Chief, Verification Branch

REGISTRY NO. 9813

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

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

CARDS CORRECTED

DATE _____ TIME REQUIRED _____ INITIALS _____

REMARKS:

REGISTRY NO. _____

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:

PACIFIC MARINE CENTER
VERIFIER'S REPORT

REGISTRY NO. H-9813

FIELD NO. FA-80-1-79

Hawaii, Island of Hawaii, Offshore ~~South Cape~~ ^{Ka Lae}

SURVEYED: March 23 - April 17, 1979

SCALE: 1:80,000

PROJECT NO: OPR-T126-FA-79

SOUNDINGS: Raytheon (UGR) (SN-172)

CONTROL: Raydist
Range-Range Mode
Hyperbolic Mode
Range-Azimuth Mode

Chief of Party.....CDR B.I. Williams
Surveyed by.....LCDR R. Schiro, LT A.
Yanaway, LTJG M. Finke,
LTJG L. Roberts, LTJG J.
Quinlan, ENS D. Ross,
ENS M. Willis

Automated Plot by.....Xynetics Plotter (PMC)
Verified and Inked by.....Matthew G. Sanders

1. INTRODUCTION

This survey, H-9813, FA-80-1-79, is a basic hydrographic survey of Offshore ~~South Cape~~ ^{Ka Lae}, Island of Hawaii, Hawaii. The Project Instructions dated 21 November, 1978, OPR-T126-FA-79 states:

This project is a continuation of work to modernize hydrographic surveys in the Hawaiian Islands which was terminated in 1973. The new surveys will be used for maintenance of existing nautical chart coverage and for construction of new 1:10,000 and 1:100,000 scale charts.

The Raytheon (UGR), EDO (transceiver) was used by the ship to determine the bottom configuration. Positioning modes included R/R (Raydist), Hyperbolic (Raydist), and R/AZ (Raydist). These were the primary systems used for this survey.

2. CONTROL AND SHORELINE

Sounding line positioning during this survey was accomplished by using range/range, hyperbolic, modes with Hastings Raydist and Wild Theodolite.
and range/azimuth

Base Stations:

	S/N	Julian Dates	Station Site
Red Station	124	83-107	114 KA 124 2, 1948 LAE

Green Station	125	56-95 95-107	102 PUU NAHAHA 2, 1948 112 NA PUU A FELE Raydist 2
Hyperbolic Master	90	95-107	113 PUU O KAMAOA, 1948

Mobile Equipment:

Vessel	S/N Navigator	S/N Transmitter	Julian Dates
2020	16	96	82-94 98 106-107
	18	90	99-101 102-103

Calibration was done visually using three point sextant fixes with theodolite intersection.

See Descriptive Report, Section F and G, Horizontal and Electronic Control Report for further description of control.

This is an offshore survey; the inshore contemporary surveys will depict the shoreline.

3. HYDROGRAPHY

The bottom configuration is a very steep slope, yet it is quite conformal, with plateaus ranging from 50 to 800 fathoms. The crosslines are in good agreement, generally, within 1 to 27* fathoms. Depth curves could be completely drawn. The determination of least depths and the development of the bottom configuration is adequate.
 * Depths to 2600 fathoms exist on the present survey; crossings of 27 fathom differences are within acceptable accuracies at the appropriate depths.

4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records and reports are adequate and conform to the requirements stated in the Hydrographic Manual except that:

- a. The applicable depths of the velocity table #1 were incorrectly scaled and the correctors at greater depths were not in accordance with Table 4-4 of the Hydrographic Manual. Velocity table #1 was completely revised.
- b. A bubbler gauge was used at tide station KA LAE instead of an ADR gauge as directed by the Project Instructions.

5. JUNCTIONS

This survey junctions with four contemporary surveys.

- To the Northwest, H-9808 (1979), 1:10,000
- To the North, H-9812 (1979), 1:10,000
- To the West, H-9355 (1973), 1:80,000 See Quality Control Report, para 2.
- To the North and East, H-9858 (1979), 1:80,000

There were no problems in accomplishing the junctions with H-9808 and H-9812, the junction curves have been inked.

The junctions with H-9355 was accomplished. The curves on H-9355 should be adjusted to conform with H-9813.

The junction curves with H-9858 are in pencil, since this survey has not been verified. The junction adequacy will be considered at the time of its quality evaluation.

No contemporary survey, ^south of H-9813.
_{exists}

6. COMPARISON WITH THE PRIOR SURVEY

H-4655a, (1927), 1:250,000. There is only one prior reconnaissance survey, H-4655a, existing for this area. This survey is a trackline along the coast with only 5 soundings common to the area. Due to the scale, 1:250,000, no relative comparison can be made. The soundings that were compared on the southwest side of the Island of Hawaii, varied in depth from 140 fathoms shoaler to 190 fathoms deeper, see Section K, Descriptive Report, and Section 3, Verifier's Report.

There are no Pre-survey Review Items within the limits of the survey. The present survey is adequate to supersede H-4655a ⁱⁿ for the area of common coverage.

7. COMPARISON WITH THE CHART

- a. The survey was compared with Chart 19320, 12th Edition, June 17, 1978. The verifier concurs with the hydrographer's comments as stated in Section L of the Descriptive Report.

- (1) The soundings on Chart 19320 originate from H-4655a (1947); H-9355 (1973); and miscellaneous soundings, from Bp's 33911, 33912, and 64266.

- b. The present survey is adequate to supersede the charted hydrography of the common area, with the retention of charted bottom characteristics
- c. Aids to Navigation
KA LAE Light is the only aid to navigation with the limits of the survey.

The position of the aid was checked and a form 76-40 is attached. See Section N of the Descriptive Report. This aid adequately marks the feature intended.

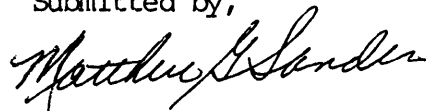
8. COMPLIANCE WITH PROJECT INSTRUCTIONS

This survey complies with the Project Instructions dated November 21, 1978 and Supplement to Instructions dated December 8, 1978. This survey adequately complies with these instructions.

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,



Matthew G. Sanders
Cartographic Technician

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

September 10, 1980

Copy to CPM 220

TO: OA/CPM - Charles K. Townsend (Acting) *[Signature]*
FROM: OA/CPM3 - John W. Carpenter *[Signature]*
SUBJECT: PMC Hydrographic Inspection Team Report for Survey H-9813

This survey is a basic hydrographic survey offshore ^{Ka Lae} ~~South Cape~~,
Island of Hawaii, Hawaii. This survey was conducted by NOAA Ship
FAIRWEATHER in 1979 in accordance with Project Instructions OPR-T126-
FA-79, dated November 21, 1978.

The following items were noted:

1. No bottom samples were taken.
2. A crossline run from approximately 18°40'N and 155°30'W to approximately 18°50'N and 155°35.5'W would have neatly tied off the eastern part of the survey. *[Signature]*
3. The Descriptive Report was lacking in content. It did not address items required by the Hydrographic Manual. *[Signature]*
4. The spacing between soundings on the inner two circular lines exceeded the 6 mm maximum spacing requirement (Hydro Manual 1.4.6).
5. The one kilometer spacing of lines on the western portion of the sheet were specified in a document entitled, Supplemental Information for Project Instructions, dated February 21, 1979. A change to the Project Instructions should have been issued instead for this requirement.

The inspection team finds H-9813 to be adequate to supersede common areas of prior surveys and charted hydrography. Administrative approval is recommended.

[Signature]
John W. Carpenter

[Signature]
David B. MacFarland, Jr.

[Signature]
James W. Steensland

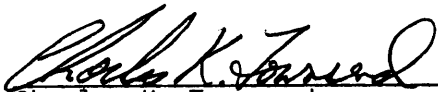
[Signature]
Arnold E. Eichelberger



ADMINISTRATIVE APPROVAL

H-9813

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
Captain, NOAA
Acting Director
Pacific Marine Center

9/12/80
Date



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

OA/C352:RWD

November 19, 1980

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

THRU: Chief, Quality Control Branch *gpc*

FROM: R. W. DerKazarian *R.W. DerKazarian*
Quality Evaluator

SUBJECT: Quality Control Report for H-9813 (1979), Hawaii, Island of
Hawaii, Offshore Ka Lae

A quality control inspection of H-9813 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, decisions 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 one-half scale copy of the survey to be furnished the verifier. 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, the HIT Report, and as follows:

1. The apparent random placement of several control station names detracts from a clear identification of signals used for control on the smooth sheet. A tabulation of these names prefixed by the station number and cross-referenced at the signal location would have been appropriate.
2. An adequate junction was effected with H-9355 (1973) during quality control after making a thorough examination of this junctional survey's records in the area common to the present survey. The 400-fathom depth discrepancy noted in the Descriptive Report, paragraph J, was also very apparent in a few other areas. Some of these differences were caused by a misinterpretation of the graphic records. For example, the discrepancy noted in the Descriptive Report at latitude 18°39'N, longitude 155°57'W was examined and the 1973 work was found to have been scanned in error. Additionally, the same discrepancy existed in latitude 18°56'N, longitude 156°02'W. These have been corrected.



Several junctional depths previously scanned in error by 400 fathoms, and subsequently rejected during the processing of H-9355, were corrected and manually plotted on that survey. These soundings are verified by comparable depths on the present survey. In other instances, soundings were plotted on H-9355 during quality control from digital depths in areas where the bottom profile trace on the graphic depth record was not discernible. These depths were apparently rejected because of the unlikelihood of features in the area as represented by the digital depths. However, these features are verified by present depths that fall in the common area.

Since the extent of revisions made to junctional survey H-9355 is considerable, it is recommended that that survey be reapplied to the charts.

3. Depths between positions 617-622 on the present survey were scanned 400 fathoms in error. These soundings were corrected on the smooth sheet during quality control.

4. Depth curves between 500-900 fathoms were not drawn on the smooth sheet in areas of comparable depths. (See table 4-5 of the Hydrographic Manual.)

5. The discrepancy addressed in the HIT Report, paragraph 4, should have been corrected before the survey was forwarded to Headquarters. The lack of soundings could have been avoided. The continuous profile furnished by the graphic record facilitates the acquisition of depths for complete coverage.

cc:
OA/C351



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

SEP 9 1981

OA/C351:DJ

TO: OA/CPM - Charles K. Townsend

FROM: ~~F/OA/CS~~ - Roger F. Lanier

SUBJECT: H-9813 (1979), OPR-T126, Hawaii, Island of Hawaii, Offshore
Ka Lae, 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 November 19, 1980 (copy attached), and the Hydrographic Survey Inspection Team Report, dated September 10, 1980, is complete and adequate for the purposes intended and is in compliance with Project Instructions OPR-T126-FA-79, dated November 21, 1978.

Attachment

cc:
OA/C352 w/o att.



