9129

Diag. Cht. No. 4115.

FORM C&GS-504

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. PF-4Ø-1-7Ø Office No. H-9129

LOCALITY

State HAWAII

General locality Northwest Coast, Hawaii

Locality Alenuihaha Channel

19 7Ø

CHIEF OF PARTY

E. A. Taylor, CAPT, USESSA

LIBRARY & ARCHIVES

DATE DEC 3 1973

Charts 4115 – Exam for NM
4116
~~4102 – CF~~
4179 – Exam for NM ... CF
4180 Exam for NM
4031 Exam for NM ... CF
4102
4000
4140 Full applied 2/ ... 77

9129

FORM C&GS-537 (5-66)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

REGISTER NO. H-9129

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. PF-40-1-70

State HAWAII

General locality Northwest Coast of Hawaii Island

Locality Alenuihaha Channel

Scale 1:40,000 Date of survey 10-20 February 1970

Instructions dated 22 December 1969 Project No. OPR-419

Vessel USC&GS Ship PATHFINDER

Chief of party Capt. E. A. Taylor, USESSA

Surveyed by Ship's Personnel

Soundings taken by echo sounder, hand lead, pole Raytheon Precision Fathometer Recorder

Graphic record scaled by Ship's Personnel

Graphic record checked by Ship's Personnel

Positions verified by Stanley H. Otsubo Automated plot by PMC - Gerber Digitizer Plotter

Soundings verified by Stanley H. Otsubo

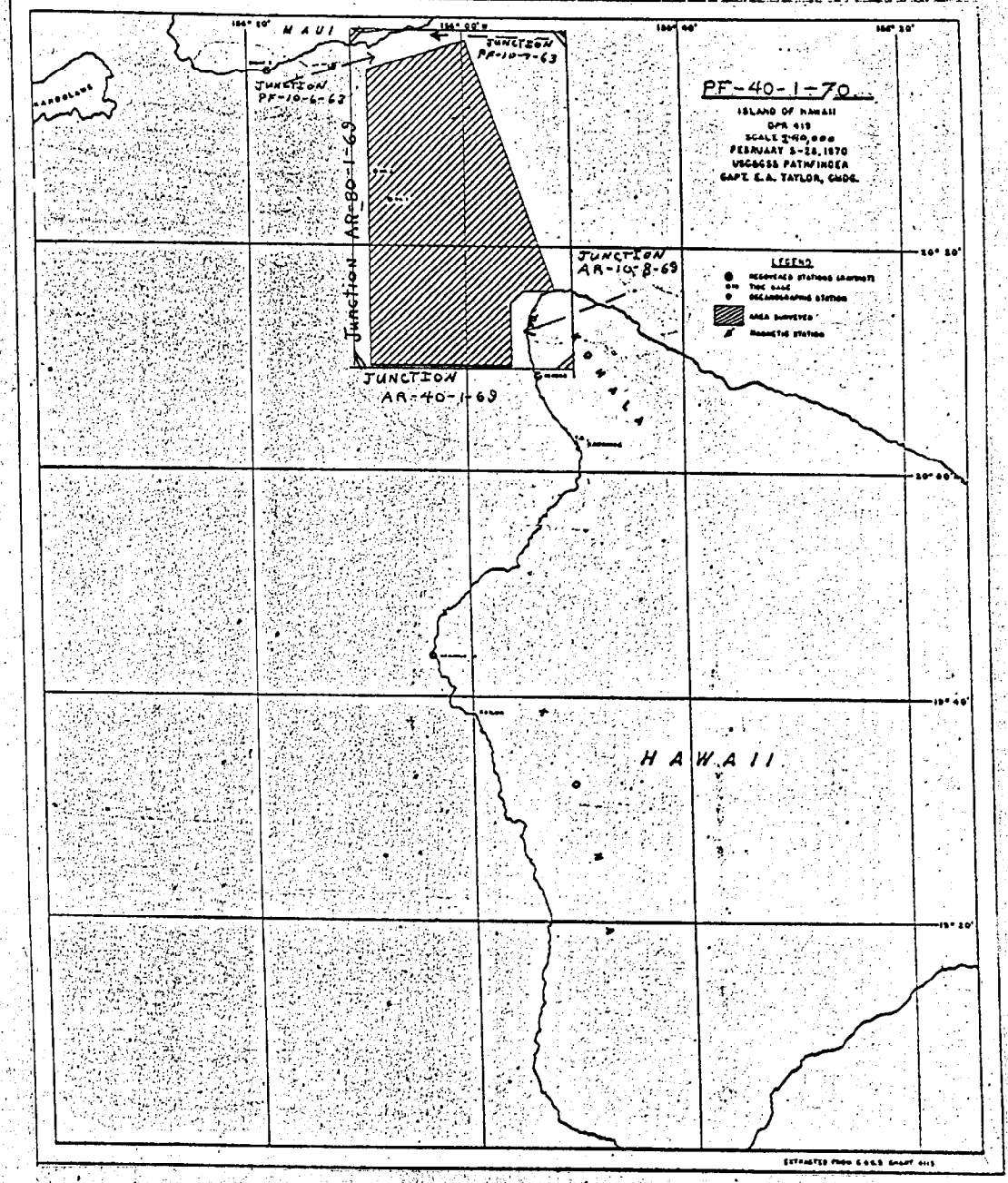
Soundings in fathoms ~~feet~~ at ~~XXXX~~ MLLW

REMARKS:

Applied to stds 4/4/79 CDB

Chart 4115

USCOMM-DC 37009-P66


MAUI
KAHOOLAWE
JUNCTION PF-10-6-69
JUNCTION PF-10-7-63
JUNCTION AR-80-1-69
JUNCTION AR-10-8-69
JUNCTION AR-40-1-69
PF-40-1-70
ISLAND OF HAWAII
OPR 615
SCALE 1:40,000
FEBRUARY 5-28, 1970
USCGSS PATHFINDER
CAPT. E.A. TAYLOR, CMDG.
LEGEND
HAWAII

DESCRIPTIVE REPORT TO ACCOMPANY HYDROGRAPHIC SURVEY PF 40-1-70

1:40,000 USC&GSS PATHFINDER

CAPT., E. A. Taylor, Comdg.

A. PROJECT

This survey was accomplished under OPR-419 in accordance with project instructions dated 22 December, 1969.

B. AREA SURVEYED

The survey took place in the Alenuihaha Channel off the Northwest Coast of Hawaii Island during the period February 10 thru February 20. Specific limits are as follows:

North	20°38.0' N
South	20°08.7' N
East	155°53.8' W
West	156°09.7' W

The survey junctions with the following surveys:

REGISTRY NO.	FIELD NO.	SCALE
H-9015		
H-4790	AR-40-1-69	1:40,000
H-4798	AR-80-1-69	1:80,000
H-9019	AR-10-8-69	1:10,000
H-8825	PF-10-6-63	1:10,000
H-8826	PF-10-7-63	1:10,000

C. SOUNDING VESSEL

All hydrography was accomplished by USC&GS Ship PATHFINDER

D. SOUNDING EQUIPMENT

All soundings were taken with the Raytheon Precision Fathometer Recorder #2 in a depth range of 27 to 1272 fathoms. Velocity corrections (determined from Nansen casts) were applied to the soundings and are listed in the appendix.

E. SMOOTH SHEET

The smooth sheet projection will be made by EDAT, Pacific Marine Center.

F. CONTROL

The entire survey was controlled by Raydist. Raydist towers were located as follows:

1. SHORE D, 1881 (eccentric) - Station originally located by first order triangulation. Tower located by azimuth and distance from original station.

   Lat. 20°35' 12.338" N Long. 156°18' 04.587" W

2. KEAHOLE 2, 1948 (eccentric) - Station originally located by second order triangulation. Tower located on Reference Mark #2 by azimuth and distance from original station.

   Lat. 19°43' 39.567" N Long. 156°03' 40.076" W

3. KEHENA, 1881 - Station originally located by second order triangulation. Tower located on station.

   Lat. 20°08' 20.570" N Long. 155°53' 21.815" W

The Raydist towers were first built at SHORE D and KEAHOLE 2. On 18 February, the tower at SHORE D was transferred to KEHENA in order to complete the survey.

Calibration was done visually, using control established by prior triangulation. The exact position of each calibration was determined with the Wang Electronic Calculator and compared with 3 Arm Protractor mechanical plots. (see section Q, Reference to Reports)

G. SHORELINE

Shoreline detail was not required on this offshore survey.

H. CROSSLINES

Crosslines amounted to 12.5% of the survey. There were no discrepancies.

I. JUNCTIONS

Junctions with prior surveys were in agreement.

J. COMPARISON WITH PRIOR SURVEYS

When comparing this survey with the only prior survey of the area (H-5052, 1928-1929, 1:80,000), it was discovered that soundings greater than 400 fathoms were not in agreement. The prior survey soundings ran consistently deeper. This is probably due to two factors:

1. The prior survey was done with a leadline. In deep water the line was inclined to the vertical, giving greater depths.

2. The deep water soundings were far from shore, hence visual control may have been unsatisfactory.

There were two pre-survey review items in the area surveyed, a 69 fathom sounding and a 64 fathom sounding near Lat. 20°11' N and Long. 155°56' W. Neither of these items were evident from studies of the normal system of sounding lines and should be deleted from the chart.

K. COMPARISON WITH THE CHART

The largest scale chart of the area (C&GS #4115, 9 Sep. 1963, 1:250,000) is based on the prior survey discussed in section J.

L. ADEQUACY OF SURVEY

The survey is complete and adequate to supersede prior surveys.

M. AIDS TO NAVIGATION

There were no navigational aids in the area surveyed.

N. STATISTICS

Position No's.	1 through 1050 inclusive
Sounding Line	759.9 nautical miles
Area Surveyed	376.8 sq. nautical miles
Oceanographic Stations	2

O. MISCELLANEOUS

Bottom Samples were not taken on this survey. The required spacing was such that only three samples were necessary for the entire survey. Due to the great distance between prospective sample sites, at least one full day of ship time would have been required to take all three. In light of the great depths and geological character of the area it can be safely assumed that the bottom has remained the same since the last survey.

P. RECOMMENDATIONS

The Wang Programmed Calibration is extremely accurate and efficient and is recommended for further use. (see Section Q, Reference to Reports)

Q. REFERENCES TO REPORTS

The following may be referred to for further information:

1. Season's Report, 1970, Ship PATHFINDER - to be forwarded
2. Velocity Corrections for PF 40-1-70 of OPR-419 - to be forwarded
3. Calibration Report, PF 40-1-70 - to be forwarded

Respectfully submitted,

Donald C Suva

Donald C. Suva
Ensign, USESSA

Approved and Forwarded

J.D. Stachelhaus

J.D. Stachelhaus
Acting Field Operations Officer
USC&GSS PATHFINDER

TIDE NOTE

The standard tide gage at Hilo, Hawaii served as the reference gage to control field operations. A portable Bristol bubbler tide gage was installed and maintained at Kawaihae, Hawaii during the survey. Predicted tides from Hilo, Hawaii were used to reduce soundings on the boat sheet. Datum information for the Kawaihae gage will be supplied by Pacific Marine Center from information received from the Rockville office.

Due to malfunction of the Kawaihae gage during the period February 12, 1970 to February 26, 1970, projected tides from the Hilo gage will be supplied by the Rockville office for this period. In making the paper tape for the tide data, the projected tides from Hilo will be used from 1700 Feb. 12 to 2400 Feb. 20, and the Kawaihae tide data will be used for the period preceeding 1700 Feb. 12.

GEOGRAPHIC NAMES

Survey No. H-9129

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	
HAWAII [redacted]										1
ALENUIHAHA CHANNEL										2
MAUI										3
										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
					Approved by:					20
					Chas. E. Harrington					21
					Staff Geographer					22
					31 May 1974					23
										24
										25
										26
										27

M 234

GEODETIC POSITION COMPUTATION

PROGRAM NO. 700-001

STATION A:		TO STATION B:	
LATITUDE	LONGITUDE	AZIMUTH	DISTANCE
19 43 39.86000	156 3 38.92500	F 26 13 45.16000	10.0500
19 43 39.56681	156 3 39.07754	B 206 13 45.10851	
− 0.29319	+ 0.15254		

NOTE ON RAYDIST SYSTEM
TO ACCOMPANY PF-40-1-70

PURPOSE

The purpose of this report is to explain the use of the Raydist DRS system used on survey PF-40-1-70.

EQUIPMENT

The ship carried the DRS Raydist system made by Hastings Raydist Co.. The shipboard installation consisted of a ZA-67A (serial #47) Navigator, a TA96 (serial #22) transmitter, a strip chart recorder, a QB52 antenna coupler and a 30 foot fiberglass whip antenna mounted on top of the foremast. The Raydist equipment was powered by SA192 (serial #19) Raydist power supply which provided 24 volts of direct current. Ground consisted of the ship's hull.

All shore stations were one piece self-contained units which were sealed to withstand foul weather. The installations consisted of 100 foot antennas constructed from 10 foot aluminum Tabet tower sections with a 10 foot antenna on top. The whole tower acted as an antenna and rested on an insulated base plate. Three sets of guys made of 3/8" polypropylene line were spaced at 90° intervals around the tower. A ground plane consisting of sixteen #18 insulated copper wire radials spread at equal intervals was constructed outward from the antenna base. Both stations were driven by Raydist Base Stations model AA60. The green base station was serial #15 and the red base station was serial #14.

The shore stations each operated on 24 V.D.C.. Eight 12 volt heavy duty 90 ampere-hour batteries operated the stations at low power for 8-10 days. These batteries were replaced by freshly charged batteries from the ship when they were expended. Except for replacing batteries, the stations were left unattended.

FREQUENCIES

The transmitter on the ship was a TA96 on a frequency of 3306.500 KHz.. The green base station was an AA60 operating on 1653.425 KHz.. The red base station was an AA60 operating on 1653.015 KHz..

SHORE STATIONS

Raydist Towers were located as follows:

(1) SHORE D, 1881 (eccentric) - Station originally located by first order triangulation. Tower located by azimuth and distance from original station.

Lat. 20° 35' 12.567" N Long. 155° 03' 40.078" W

(2) KEAHOLE 2, 1948 (eccentric) - Station originally located by second order triangulation. Tower located on Reference Mark #2 by azimuth and distance from original station.
Lat. 19° 43' 39.567" N Long. 156° 03' 40.076" W

(3) KEHENA, 1881 - Station originally located by second order triangulation. Tower located on station.
Lat. 20° 08' 20.570" N Long. 155° 53' 21.815" W

The Raydist towers were first built at SHORE D and KEAHOLE 2. On 18 February the tower at SHORE D was transferred to KEHENA in order to complete the survey.

CALIBRATION

Calibration was done visually using three point sextant fixes to signals constructed over existing triangulation stations. At each calibration a series of 10 consecutive visual fixes was taken. The exact position of each calibration was determined with the Wang Electronic Calculator and compared with mechanical plotting with a three arm protractor. The programming of the Wang Electronic Calculator is the subject of a special report entitled "Special Report (Wang Electronic Calculator Programming) USC&GSS PATHFINDER 1970".

MISCELLANEOUS

Some survey time was lost due to the inacessability of station sites for station establishment and battery resupply at KEAHOLE 2 and SHORE D. This could have been prevented by the use of ship's personnel (ET's) in the initial reconnaisance prior to the ship's arrival in the survey area. Adequate support vehicles, specifically off-road trucks or helicopter support, would have been an asset in station establishment.

REFERENCES

1. Descriptive Report PF-40-1-1970, USC&GSS PATHFINDER, 1970
2. Special Report (Wang Electronic Calculator Programming) USC&GSS PATHFINDER, 1970

Respectfully submitted,

Richard M. Mathis

Richard M. Mathis
ENS USESSA

Approved and forwarded,

J. D. Stachelhaus

John D. Stachelhaus
LT USESSA

STOCK NO. 37
(4-30-57)
COMM-DC 28424

Raydist Calibration Values
PF 40-1-70

	Red				Green				
Date	Entering Value	Cal. Value	Corr'n.	Final Setting	Entering Value	Cal. Value	Corr'n.	Final Setting	Time (HST)
10 Feb 1970	1142.08	1142.92	+0.54	1142.62	1321.06	1321.26	+0.21	1321.27	0720
10 Feb 1970	1228.65	1229.42	+0.71	1229.36	1261.35	1261.61	+0.20	1261.55	1820
10 Feb 1970	1158.66	1159.31	+0.54	1159.20	1314.82	1315.16	+0.33	1315.15	1827
12 Feb 1970	1144.94	1145.80	+0.86	1145.79	1328.84	1329.09	+0.29	1329.13	1605
19 Feb 1970	1175.52	1176.32	+0.83	1176.35	151.37	151.07	-0.28	151.09	1445
20 Feb 1970	1134.70	1135.67	+0.97	1135.67	108.33	108.18	-0.15	108.18	1230

The initial position of the towers was at KEAHOLE 2 (Red) and at SHORE D (Green). On 18 Feb 1970, the tower at SHORE D was transferred to KEHENA in order to complete the survey.

Magnetics to Accompany PF 40-1-70 Report

Measurements of the total magnetic intensity were made on sheet PF 40-1-70 using the Varian proton magnetometer (Model V-4931). The sensing head was towed 350 feet astern.

Data were recorded simultaneously in graphic form on a strip chart, digital printout on a paper strip and punched on paper tape. All data are labelled with the time (Hawaiian Standard Time - W Time Zone) and position number when turns were made. The magnetometer operated properly except for a brief period on 19 February (1757W to 1903W) when it was down for repairs. Also, on 20 February at 0244W the clock was advanced one minute to more nearly conform with Hawaiian Standard Time. At the beginning of each operating session (fix 1-47 & fix 763-766) magnetometer data were not recorded due to various recording problems. Beyond fix 1031 (1043W - 20 February) no magnetic data were annotated since the lines being run after that time were very short.

Individual problems were encountered with each recording device. The final digit wheel on the digital printout failed to work properly giving inaccurate or unreadable printout. Frequently the punched paper tape erroneously contained a carriage return hole in the ninth digit position. Sometimes this hole was punched along with the proper number making the last digit of the magnetic

intensity recoverable. However, several times this carriage return hole was by itself on the tape and the proper last digit was unrecoverable since it was not included in the digital printout accurately. In such cases the digit five was used to give an accuracy of plus or minus five gammas. A listing from the original tapes is included to show which readings were treated this way. The final punched paper tapes have the most accurate magnetic readings. According to the OPORDER, all analog strip chart magnetic data are to be recorded at a chart speed of 3 inches per hour. Heat from the magnetometer itself and the warm temperatures in Hawaii caused the pen to clog numerous times in the first few hundred fixes. Hence, the chart speed was changed to twelve inches per hour for the rest of the survey. All such changes of speed are noted on the strip chart.

An inventory of data obtained follows:

(1) Punched Paper Tapes & Their Listings

Fix 47 (1258W 2/10/70) to Fix 501 (2127W 2/11/70)

Fix 502 (2135W fix - data starts 2136W 2/11/70) to Fix 762 (1557W 2/12/70)

Fix 766 (1538W 2/19/70) to Fix 909 (0122W 2/20/70)

Fix 910 (0135W 2/20/70) to Fix 1050 (1202W 2/20/70)

(2) Digital Printout

Fix 47 (1258W 2/10/70) to Fix 762 (1557W 2/12/70)

Fix 769 (1558W 2/19/70) to Fix 1031 (1043W 2/20/70)

(3) Analog Graphic Strip Chart

Fix 47 (1258W 2/10/70) to Fix 531 (2339W 2/11/70)

Fix 532 (2345W 2/11/70) to Fix 762 (1557W 2/12/70)

Fix 769 (1558W 2/19/70) to Fix 1031 (1043W 2/20/70)

Included with the data is a log of the magnetometer operation (form 385), which is a record of shutdown times, malfunctions, tuning, etc. The Navigational Data Form (C&GS Form #2306) was not completed for this data since positions coincide with those on the boatsheet.

Respectfully submitted,

Gerald B. Mills

Gerald B. Mills

LT(JG) USESSA

FORM 385 (3-61)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

MAGNETOMETER LOG
(Towed Proton Magnetometer)

DATE DAY MO. YR.	TIME W ____M.T. *	REMARKS	DIAL SETTING PRE-AMP	DIAL SETTING AMP-LIM	OBSR
	(150° Time Zone)		3	2	
Ship PATHFINDER OPR-419 ALENUIHAHA CHANNEL, HAWAII					
		PF 40-1-70 10 FEB to 20 FEB 1970			
10 FEB	1000W	Strung fish to 350' tow. Operations			
		normal - 35441 gammas.	35.0 22	35.0 11	Eckert
12 FEB	1600W	Secured magnetometer - reeled in			
		fish - 35740 gammas.	35.0 55	35.0 22	Eckert
19 FEB	1515W	Strung fish to 350' tow continuing			
		OPR-419 - 35520 gammas.	35.0 77	35.0 11	Eckert
19 FEB	1810W	Magnetometer secured to trouble-shoot.			Thompson
19 FEB	1903W	Replaced 2021&5963 in display			
		circuit. Operations normal -			
		33542 Gammas.			Thompson
20 FEB	1205W	Secured magnetometer - reeled in fish.			
		35505 gammas.	35.0 77	35.0 11	Eckert
* W Time Zone is Hawaiian Standard Time Zone					

USCOMM-DC 25340-P61

FORM CD-121 (11-63) (PRES. BY A.O. 206-10)

UNITED STATES GOVERNMENT

Memorandum

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

TO : Fathometer Corrections Officer
USC&GSS PATHFINDER

DATE: 22 Feb. 1970

In reply refer to:
Data from Oceo.
Sta. #1 & #2.

FROM : Oceanographic Officer
USC&GSS PATHFINDER

SUBJECT: Velocity Corrections for PF 40-1-70 of OPR-419.

Serial temperature and salinity observations for the determination of velocity corrections were taken at two (2) oceanographic stations:

Station #1 - 6 Feb 1970 - Lat. 20°24.0'N, Long. 156°07.0'W.
Station #2 - 20 Feb 1970 - Lat. 20°26.5'N, Long. 156°08.2'W.

Both of these stations were observed in Alenuihaha Channel, Hawaii.

Due to the fact that for any given depth it was found that the velocity correction difference between the two oceanographic stations was less than 0.5% of the depth, the following velocity corrections, determined at Station #1, should be applied to the depth soundings on PF 40-1-70 throughout the entire working period, i.e., from 10 February 1970 through 20 February 1970.

Michael Kawka
Michael Kawka
LTJG USESSA

Robert C. Roush
Robert Roush
ENS USESSA

FORM CD-121 (11-43) (PRES. BY A.O. 206-10)

UNITED STATES GOVERNMENT

Memorandum

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

TO : Fathometer Corrections Officer
USC&GSS PATHFINDER

DATE: 22 Feb. 1970

In reply refer to:
Data from Oceo.
Sta. #2.

FROM : Oceanographic Officer
USC&GSS PATHFINDER

SUBJECT: Velocity Corrections for PF 40-1-70 of OPR-419.

See data from Oceo. Sta. #1 for details.

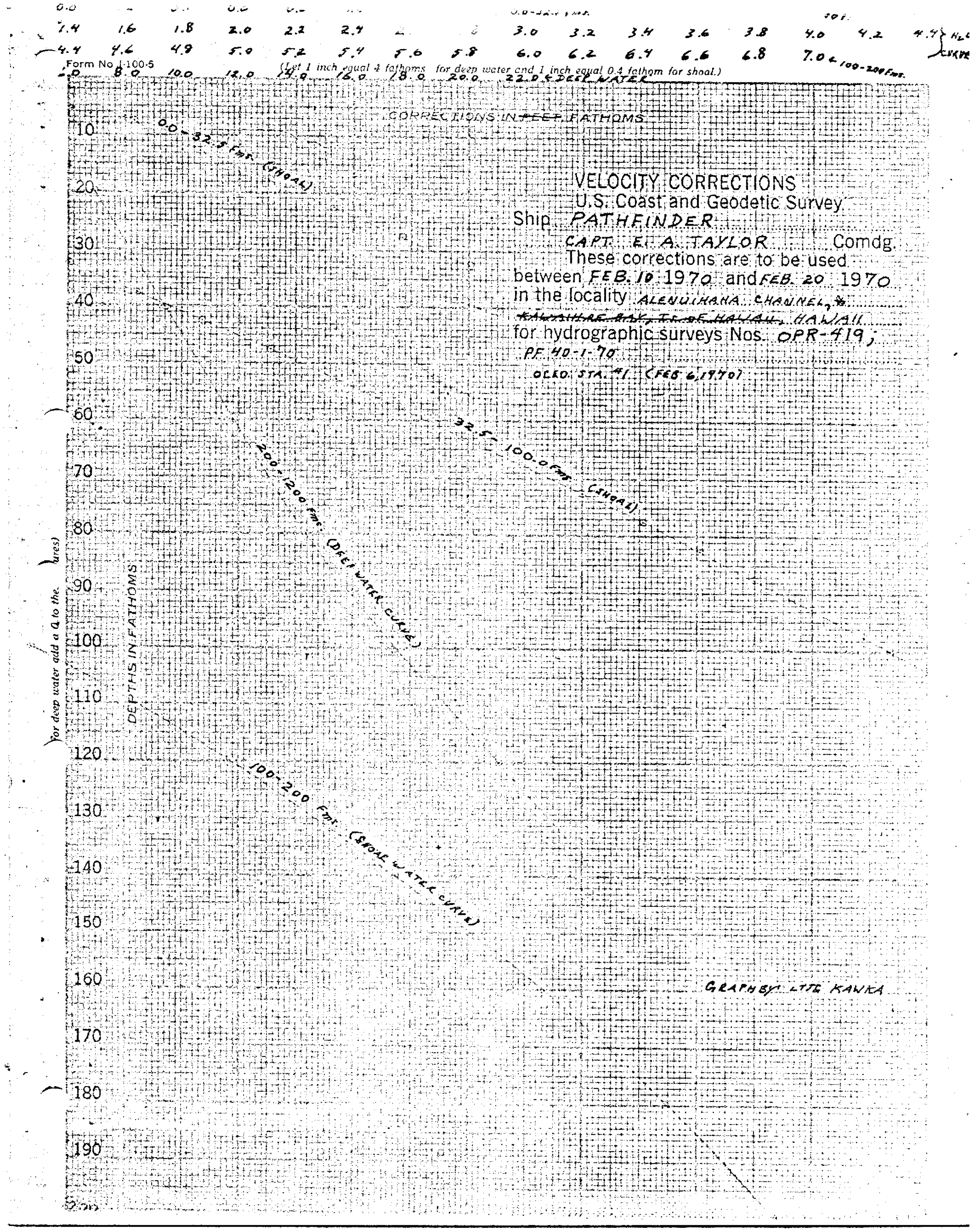
Michael Kawka
Michael Kawka
LTJG USESSA

Robert C. Roush
Robert Roush
ENS USESSA

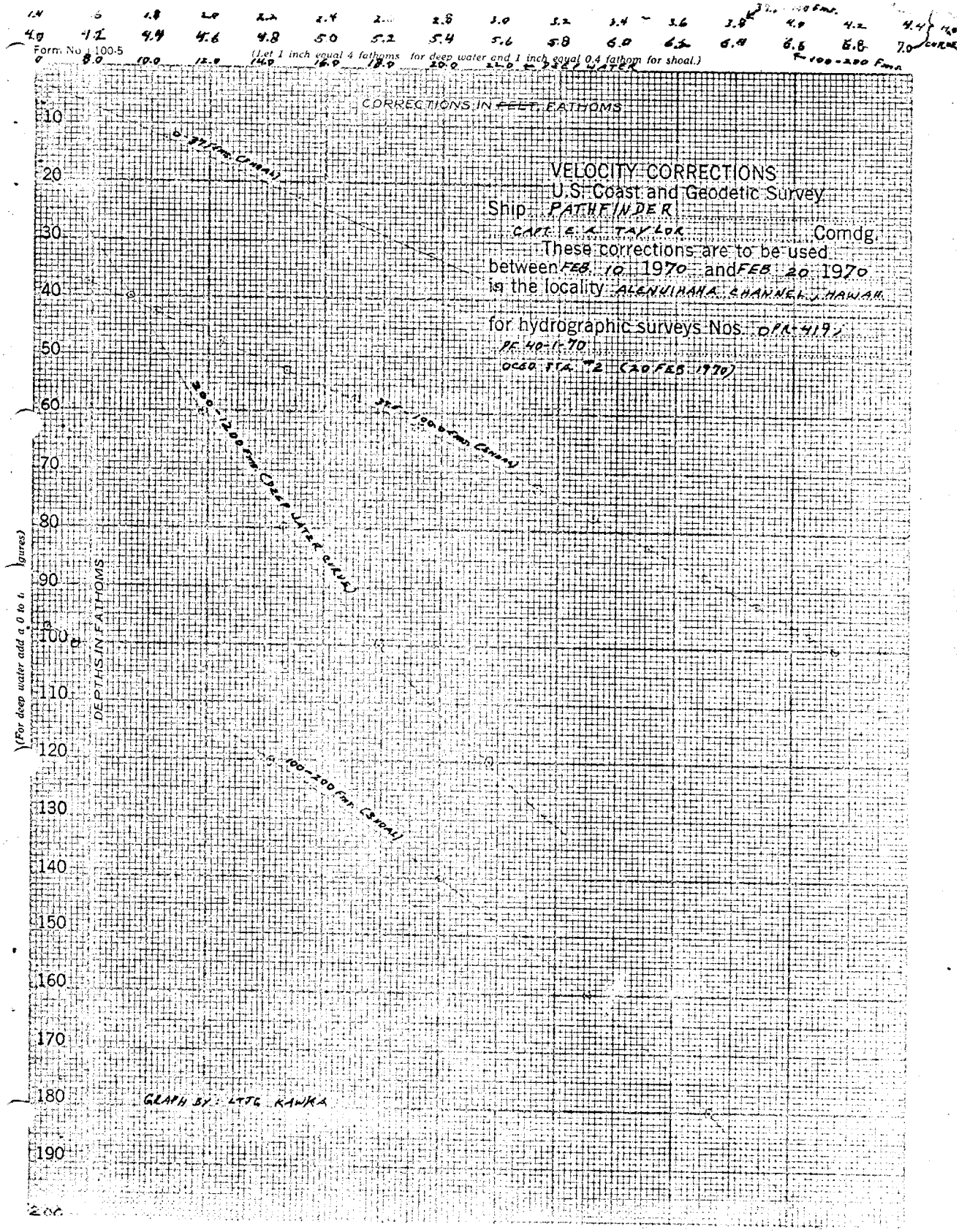
Oceanographic Station #1

6 February 1970

Correction to (fms)	Depth (fms)
0.0	4.0
0.1	6.2
0.2	8.2
0.3	10.3
0.4	12.4
0.5	14.5
0.6	16.6
0.7	18.8
0.8	21.0
0.9	23.0
1.0	25.1
1.1	27.3
1.2	29.4
1.3	31.4
1.4	34.7
1.6	38.9
1.8	43.1
2.0	47.3
2.2	51.8
2.4	56.6
2.6	61.1
2.8	65.7
3.0	70.2
3.2	74.9
3.4	79.9
3.6	85.0
3.8	90.2
4.0	95.6
4.2	100.7
4.5	113.0
5.0	129.2
5.5	147.6
6.0	205.0
8.0	367.0
10.0	533.0
12.0	696.0
14.0	843.0
16.0	970.0
18.0	1083.0
20.0	1195.0
22.0	1307.0



7.4 1.6 1.8 2.0 2.2 2.4 3.0 3.2 3.4 3.6 3.8 4.0 4.2 4.4
4.4 4.6 4.8 5.0 5.2 5.4 5.6 5.8 6.0 6.2 6.4 6.6 6.8 7.0 ← 100-200 Fms.
Form No. 1-100-5
2.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0 22.0 ← DEEP WATER
(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)
CORRECTIONS IN ~~FEET~~ FATHOMS
VELOCITY CORRECTIONS
U.S. Coast and Geodetic Survey
Ship PATHFINDER
CAPT. E. A. TAYLOR Comdg.
These corrections are to be used
between FEB. 10 1970 and FEB. 20 1970
in the locality ALENUIHAHA CHANNEL, &
~~KAWAIHAE BAY, I. OF HAWAII,~~ HAWAII
for hydrographic surveys Nos. OPR-419;
PF 40-1-70
OCEO. STA. #1 (FEB 6, 1970)
0.0-32.5 Fms. (SHOAL)
32.5-100.0 Fms. (SHOAL)
200-1200 Fms. (DEEP WATER CURVE)
100-200 Fms. (SHOAL WATER CURVE)
DEPTHS IN FATHOMS
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200
For deep water add a ... to the ... ures)
GRAPH BY: LTJG KAWKA


1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2 3.4 3.6 3.8 4.0 4.2 4.4
4.0 4.2 4.4 4.6 4.8 5.0 5.2 5.4 5.6 5.8 6.0 6.2 6.4 6.6 6.8 7.0
Form No. 100-5
(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)
0 8.0 10.0 12.0 14.0 16.0 18.0 20.0 22.0
DEEP WATER
100-200 Fms
CORRECTIONS IN FEET FATHOMS
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200
DEPTHS IN FATHOMS
(For deep water add 0 to figures)
VELOCITY CORRECTIONS
U.S. Coast and Geodetic Survey
Ship PATHFINDER
CAPT. E. A. TAYLOR Comdg.
These corrections are to be used
between FEB. 10 1970 and FEB 20 1970
in the locality ALENUIHAHA CHANNEL, HAWAII
for hydrographic surveys Nos. OPR-419,
PF 40-1-70
OCEO FTA. #2 (20 FEB 1970)
GRAPH BY: LTJG KAWKA

APPROVAL SHEET

FIELD NO. H-9129 PF-40-1-70

The hydrographic sheet has been examined and approved. The survey is considered complete and adequate for charting purposes and no additional field work is recommended.

E.A. Taylor
CAPT. USESSA
CMDG. USC&GSS PATHFINDER

NOAA FORM 77-27
(9-72)
(PRESC. BY HYDROGRAPHIC MANUAL 20-2, 6-94, 7-13)

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

HYDROGRAPHIC SURVEY STATISTICS

HYDROGRAPHIC SURVEY NO. H-9129

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET & PNO	1	BOAT SHEETS	1
DESCRIPTIVE REPORT	1	OVERLAYS	4

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES	X		1			
CAHIERS			X			
VOLUMES	4					
BOXES	1 Box PFR					

T-SHEET PRINTS *(List)* NONE

SPECIAL REPORTS *(List)*

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS			
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				
POSITIONS CHECKED		1049		
POSITIONS REVISED		8		
DEPTH SOUNDINGS REVISED		86		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		----		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		----		
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS				
JUNCTIONS		4		
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		16		
SPECIAL ADJUSTMENTS		18		
ALL OTHER WORK		36		
TOTALS		74		

PRE-VERIFICATION BY	BEGINNING DATE	ENDING DATE
VERIFICATION BY Stanley H. Otsubo	BEGINNING DATE 31 March 1973	ENDING DATE 16 Nov. 1973
REVIEW BY	BEGINNING DATE	ENDING DATE

* U.S. G.P.O. 1972-769-562/439 REG.#6

VERIFIER'S REPORT

H-9129

This sheet was constructed and plotted at Pacific Marine Center, Seattle, Washington. Information relating to this will be noted under the heading by the number and letter as on the Verifier's Report, C&GS Form 946A.

PART II SHORELINE AND SIGNALS

Shoreline Manuscripts were not required for this offshore sheet.

PART III JUNCTIONS

There is no junction discrepancies with sheet H-9015 (1969). Sheets H-4798 (1969), H-9019 (1969), H-8825 (1963), H-8826 (1963), junctional verification was not attempted due to the differing phases.

PART VII CURVES

The depth curves were inspected by Nicholas Lestenkof, Cartographic Tech.

Respectfully submitted,

Stanley H. Otsubo
Cartographic Technician

2-20-70

30100

FORM #3 1/2

COMPUTER PARAMETERS FOR ELECTRONICALLY CONTROLLED SURVEYS

(RANGE - RANGE)

PF 10-1-70

(1) Project No. OPR 419 (2) N. No. _____ (3) Field No. _____

(4) Type of Control: ___ SHORAN, X RAYDIST, ___ HI-FIX, ___ RADAR
Frequency (for conversion of RAYDIST or HI-FIX lanes to meters) 3306.40 Re Telecon w/ LT Young 4/15/70

(5) RANGE ONE (R1) RM 2
Station Name Mauhal-2, 1948
Latitude 19° 43' 39."567
Longitude 155° 03' 39."077

(6) RANGE TWO (R2)
Station Name Shore D (ERC)
Latitude 20° 35' 12."338
Longitude 156° 18' 04."507

(7) Azimuth from R1 to R2 → 165° 14' 14.108

(8) Baseline Length in Meters → 98,368.481 M.

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

___ -A (minus) X +A (plus)

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

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

(11) Number of Velocity Tables to be used:

___None, X One, ___ More than one.

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

_____ This form applies to all data on this survey.

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

Time and Date limitations: From 0931/2-10-70 To 1557/2-12-70

Position Number Limitations: From 001 To 762

This is Form #3 Sheet # 1 of 2 Sheets for this survey.

Data from Survey Vol.

(13) Other Remarks:

NOTE! THIS FORM 3 IN different form previously submitted Form 3.

H #
Field No. OF 4C-1-70
Date 4/15/70

HYDRO I PARAMETER CARDS

Computes G.P.'s from Electronic Controlled Baseline

Parameter Card I

		Deg. Min. Seconds	Proc. Codes	Positions 1-762
Master R1 KEAHOLE 2 1948 Hydro Name RM 2	Lat.	19 43 39.57 X	RPD	7 1 0 1 9 5 7 0 0 5
	Long.	156 03 39.64 X	RED	5 6 1 8 [illegible] [illegible] [illegible] 8 0 6
Slave R2 SHORE D Hydro Name ECC	Lat.	20 35 12 34.90		Not Used 30100
	Long.	156 18 04 59.9		Not Used
Azimuth R1 to R2		165 14 14 11.4	RAD	5 9 4 8 5 4 1 1 0 6
				Not Used
Baseline Distance in Meters		98.368.481 ✓	SMP	9 8 3 6 8 4 8 1 0 5
Velocity Code 0 - No Vel. 2 - 2 Vel.-{E - W} 1 - 1 Vel. Table 3 - 2 Vel.-{N - S}			IVL	1
Conversion factor for electronic distance to meters. 3306.40		Stat. Mi = Lanes = or	CNV	4 5 3 1 6 6 5 7 0 2
H-Identification Number			JN	3 0 1 0 0
Location of survey with respect to electronic baseline		- <A = 1 + <A = 0	AAA	0
Velocity Boundary IVL = 2 IVL = 3		Long = ° ' " Lat =	VLE	
			YR	0 7 0
If Shoran calibration correction is applied by equation (use Shoran card) punch 1 in column 80				

Shoran Card Format (when calibration correction is applied by a line K x + C)
(flag 5, 11, 17, or 23 if resp. constant is negative)

R1K R1C R2K R2C

Computed [illegible] Punched _____ Checked _____ Date _____

2-20-70 Scanned ARCS FORM #3 2/2

COMPUTER PARAMETERS FOR ELECTRONICALLY CONTROLLED SURVEYS

(RANGE - RANGE) PF 10-1-70

(1) Project No. OP-419 (2) N. No. _____ (3) Field No. _____

(4) Type of Control: ___ SHORAN, X RAYDIST, ___ HI-FIX, ___ RADAR
Frequency (for conversion of RAYDIST or HI-FIX lanes to meters) 33306.40 Per Telecon LT Young 4/15/70

(5) RANGE ONE (R1) R.M.2 Latitude 19° 43' 34".367
Station Name KEAHOLE 2, 1948 Longitude 156° 03' 39".077

(6) RANGE TWO (R2) (H,GS) Latitude 20° 08' 20".570
Station Name KEHENA 1881 Longitude 155° 53' 21".815

(7) Azimuth from R1 to R2 201° 29' 02".578

(8) Baseline Length in Meters 98,950.127 M.

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

X -A (minus) _____ +A (plus)

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

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

(11) Number of Velocity Tables to be used: 30100

___None, X One, ___ More than one.

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

_____ This form applies to all data on this survey.

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

Time and Date limitations: From 1526/2-19-70 To 1202/2-20-70

Position Number Limitations: From 763 To 1050

This is Form #3 Sheet # 2 of 2 Sheets for this survey.

(13) Other Remarks:

Shoreline on both islands

2-20-70 Sample ARCS FORM #3 2/2

COMPUTER PARAMETERS FOR ELECTRONICALLY CONTROLLED SURVEYS

(RANGE - RANGE) DF 10-1-70

(1) Project No. OP-419 (2) N. No. _____ (3) Field No. _____

(4) Type of Control: ___ SHORAN, X RAYDIST, ___ HI-FIX, ___ RADAR
Frequency (for conversion of RAYDIST or HI-FIX lanes to meters) 3306.40 Per Telecon LT Young 4/15/70

(5) RANGE ONE (R1) R.M.2 Latitude 19° 43' 39".267
Station Name KEAHOLE 2, 1948 Longitude 156° 03' 39".077

(6) RANGE TWO (R2) (H,GS) Latitude 20° 08' 20".570
Station Name KOHNA 1981 Longitude 155° 53' 21".815

(7) Azimuth from R1 to R2 201° 29' 02".578

(8) Baseline Length in Meters 98,950.127 M.

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

X -A (minus) _____ +A (plus)

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

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

(11) Number of Velocity Tables to be used: 30100

___None, X One, ___ More than one.

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

_____ This form applies to all data on this survey.

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

Time and Date limitations: From 1526/2-19-70 To 1202/2-20-70

Position Number Limitations: From 763 To 1050

This is Form #3 Sheet # 2 of 2 Sheets for this survey.

(13) Other Remarks:

H g

Field No. PF 4C-1-70

Date 4/15/70

30100

HYDRO I PARAMETER CARDS

Computes G.P.'s from Electronic Controlled Baseline

Positions 763 - 1050

Parameter Card I

		Deg.	Min.	Seconds	Prog. Codes
Master R1 KEAHOLE 2 1948 Hydro Name RM2	Lat.	19	43	39.57	RPD
	Long.	156	03	39.05	RED
Slave R2 KEHENA (HGS) Hydro Name 1881	Lat.	20	03	20.57	
	Long.	155	53	21.82	
Azimuth R1 to R2		201	29	02.58	RAD

Prog. Code	Columns	Punched
RPD	1–10	7 1 0 1 9 5 7 0 0 5
RED	11–20	5 6 1 8 1 9 0 8 0 6
		Not Used
		Not Used
RAD	21–30	7 2 5 3 4 2 5 8 0 6
		Not Used
SMP (Baseline Distance in Meters)	31–40	4 8 9 5 0 1 2 7 0 5
IVL (Velocity Code 0 - No Vel. 1 - 1 Vel. Table 2 - 2 Vel.-(E - W) 3 - 2 Vel.-(N - S))	41	1
CNV (Conversion factor for electronic distance to meters. 3300.40 Stat. Mi = Lanes = or)	42–51	4 5 3 1 6 6 5 7 0 2
JN (H-Identification Number)	52–56	3 0 1 0 0
AAA (Location of survey with respect to electronic baseline - <A = 1, + <A = 0)	57	1
VLE (Velocity Boundary IVL = 2 Long = ° ' "; IVL = 3 Lat =)	58–66	
YR	67–69	0 7 0
(If Shoran calibration correction is applied by equation (use Shoran card) punch 1 in column 80)	70–80	

Shoran Card Format (when calibration correction is applied by a line K x + C)
(flag 5, 11, 17, or 23 if resp. constant is negative)

R1K						R1C						R2K						R2C				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23

Computed JAh Punched BM Checked BM Date 4/28/70

H 8

Field No. 30100

Date 1/14/70

30100

HYDRO I PARAMETER CARDS

Computes G.P.'s from Electronic Controlled Baseline

Parameter Card I

Parameter		Deg. Min. Seconds	Prog. Code	Card columns / values
Master R1 Hydro Name KEAHOLE 2	Lat.	19 43 39860	RPD	1–10: 7 1 0 1 9 8 0 0 0 5
	Long.	156 03 38925	RBD	11–20: 5 6 1 8 1 8 9 2 0 6
Slave R2 Hydro Name SHORE D	Lat.			Not Used
	Long.			Not Used
Azimuth R1 to R2		165 13 36995	RAD	21–30: 5 9 4 8 1 67 0 0 0 6
				Not Used
Baseline Distance in Meters			SMP	31–40: 9 8 3 5 7 0 5 1 0 5
Velocity Code 0 - No Vel. 1 - 1 Vel. Table 2 - 2 Vel.-(E - W) 3 - 2 Vel.-(N - S)			IVL	41: 1
Conversion factor for electronic distance to meters. Stat. Mi = Lanes = 3306040 or			CNV	42–51: 4 5 3 2 1 5 9 2 0 2
H-Identification Number			JN	52–56: 0 3 0 2 4
Location of survey with respect to electronic baseline −<A = 1 +<A = 0			AAA	57: 0 (30100)
Velocity Boundary IVL = 2 Long = 0 " " IVL = 3 Lat =			VLE	58–66:
			YR	67–69: 0 2 0
If Shoran calibration correction is applied by equation (use Shoran card) punch 1 in column 80				70–80:

Shoran Card Format (when calibration correction is applied by a line K x + C)
(flag 5, 11, 17, or 23 if resp. constant is negative)

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

R1K R1C R2K R2C

Computed SR Punched MMS VLM Checked LM Date ________

FORM C&GS-712
(3-9-64)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

11

TIDE NOTE FOR HYDROGRAPHIC SHEET

December 16, 1970

~~Processing Division:~~ Pacific Marine Center

Plane of reference approved in
~~Verification of sounding records~~ for

HYDROGRAPHIC SHEETS 9018, 9129, 9131, and 9132

Locality: Kawaihae, Hawaii

Year
~~Chief of Party:~~ 1970

Plane of reference is mean lower low water

Tide Station Used (Form C&GS-681):

Kawaihae

Height of Mean High Water above Plane of Reference is as follows:

1.5 ft.

Remarks

J. M. Symons
Chief, Tides and Currents Branch

USCOMM-DC

Smooth Tides OPR-419 1976

H-9018, 9129, 9131, 9132

Smooth Tides

Reviewer - file with printouts

0925000001002000000041000030000000000000
11000000001001
16000000001000
17170000001001
20000000001002
20590000001003
23280000001002
055900000010010000000420000000000000000
10000000001002
12000000001001
16220000001000
18000000001001
19360000001002
23000000001003
020000000010020000000430000000000000000
07530000001001
08000000001002
12290000001001
16220000001000
18200000001001
20280000001002
010000000010030000000440000000000000000
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15000000001001
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14590000001001
15590000001000
16000000001001
17000000001000
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08000000001001
09000000001000
11000000001001
12000000001000
14000000001001
7 19590000001000
21460000001001
6 22590000001002
040000000010030000000470000000000000000
5 05390000001002
08000000001001
4 08590000001000
09000000001001
3 10000000001000
15290000001001
21000000001000

2 [illegible]
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23390000001002
045900000010030000000480000000000000000
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07590000001001
08590000001000
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16410000001001
21220000001000
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001700000010020000000490000000000000000
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06350000001002
08590000001001
10310000001000
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06000000001003
07290000001002
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03590000001003
04050000001004
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07370000001002
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04000000001002
06160000001003
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15370000001001
6 20000000001002
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5 003300000010000000000550000000000000000
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18430000001003
20150000001002
21430000001001
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18430000001003
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21430000001001
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06350000001003
08310000001002
09470000001001
14120000001000
15290000001001
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10190000001001
14150000001000
16000000001001
17280000001002
21390000001003
23280000001002
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15310000001000
17000000001001
18270000001002
22330000001003
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10590000001001
16000000001000
17450000001001
20000000001002
000000000001003000000073000000000000000000
02000000001002
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16000000001000
18300000001001
21000000001002
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12000000001000
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23000000001002

17280000001002
21390000001003
23280000001002
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15310000001000
17000000001001
18270000001002
22330000001003
00390000001002000000072000000000000000
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05140000001002
07000000001001
11590000001000
17200000001001
22000000001000
23290000001001
01160000001002000000078000000000000000
03310000001003
05360000001002
07000000001001
12000000001000
15000000001001

APPROVAL SHEET

The smooth sheet has been inspected, is complete, and meets the requirements of the General Instructions for automated surveys and the Hydrographic Manual. (Note: All exceptions are listed in the Verifier's Report)

Examined and approved,

James S. Green
Supervisory Cartographic Technician

Approved and forwarded,

Walter F. Forster, LCDR, NOAA
Chief, Processing Division
Pacific Marine Center

FORM C&GS-946A
(REV. 11-65)
(PRES. BY HYDROGRAPHIC MANUAL, 6-94)

U.S. DEPARTMENT OF COMMERCE
ESSA
COAST AND GEODETIC SURVEY

VERIFIER'S REPORT

HYDROGRAPHIC SURVEY, H 9129

INSTRUCTIONS - This form serves to identify items of a check list in verification together with items which are separately reported to the Reviewer. The form is not to be forwarded to the Reviewer. A report, which is prepared for the Reviewer, should identify items by number and letter and will be filed in the Descriptive Report until the survey is reviewed.

CL - Check List Items: should be checked as having been completed during the verification processes.

R - Report Item: This column refers to those items reported to the reviewer and is used to indicate the items discussed.

Part I - DESCRIPTIVE REPORT	CL	R
Note: The verifier should first read the Descriptive Report for general information and problems.		
1. The Descriptive Report was consulted, paragraphs checked if found satisfactory, and notations were made in soft black pencil regarding action taken. Remarks Required: -- None	X	
2. Soundings originating with the survey and mentioned in the Descriptive Report have been verified and checked in soft black pencil, including latitude and longitude, together with position identification. Remarks Required: -- None	X	
3. All reference to survey sheets mentioned in the Descriptive Report should include registry number and year. Remarks Required: -- None	X	
Part II - SHORELINE AND SIGNALS		
4. Source of shoreline signals Remarks Required: -- List all surveys		
a. Give earliest and latest dates of photographs		X
b. Field inspection date		
c. Field Edit date		
d. Reviewed-Unreviewed		
5. The transfer of contemporary topographic information was carefully examined and reconciled with the hydrography. Remarks Required: -- Discuss remaining differences.	X	
6. The plotting of all triangulation stations, topographic stations and hydrographic signals has been checked and noted in processing stamp No. 42 on the smooth sheet. Remarks Required: -- None	X	
7. Objects on which signals are located and which fall outside of the high-water line have been described on the sheet. Remarks Required: -- List those signals still unidentified.	X	
Part III - JUNCTIONS		
Note: Make a cursory comparison preliminary to inking soundings in area of overlap.		
8. All junctions of contemporary or overlapping sheets were transferred in colored ink and overlapping curves were made identical. Remarks Required: -- None		X
9. The notation in slanted lettering "JOINS H---- (19)" was added in colored ink for all verified contemporary adjoining or overlapping sheets. Those not verified are shown in pencil. Remarks Required: -- None	X	

Part III - JUNCTIONS (Continued)	CL	R
10. Junctions with contemporary surveys were satisfactory except as follows: Remarks Required: -- Consider conditions after adjustments have been made; note adjustments made. Make special notes of Butt junctions and areas which are SUPERSEDED.	X	
Part IV - VOLUMES		
11. All items affecting the plotting of the survey which are entered in the remarks columns of the sounding records were noted and check marked. In all cases appropriate action was taken and exceptions noted in the volumes. Remarks Required: -- None	X	
12. Condition of sounding records was satisfactory except as follows: Remarks Required: -- Mention deficiencies in completeness of notes or actions for the following:		
(a) rocks		
(b) line turns		
(c) position values of beginning and ending of lines		
(d) bar check or velocity correctors	X	
(e) time recording		
(f) notes or markings on fathograms		
(g) was reduction of soundings accurately done?		
(h) was scanning accurate?		
(i) were peaks at uneven intervals missed?		
(j) were stamps completed?		
(k) references to adjacent features		
Part V - PROTRACTING		
13. All positions verified instrumentally were check marked in color in the sounding records, and verifier initialed the processing stamp. Remarks Required: -- None	X	
14. The protracting and plotting of all unsatisfactory crossings were verified. Remarks Required: -- None	X	
15. All detached positions locating critical soundings, rocks, buoys, breakers, obstructions, kelp, etc., were verified and the position numbers are legible. Remarks Required: -- None	X	

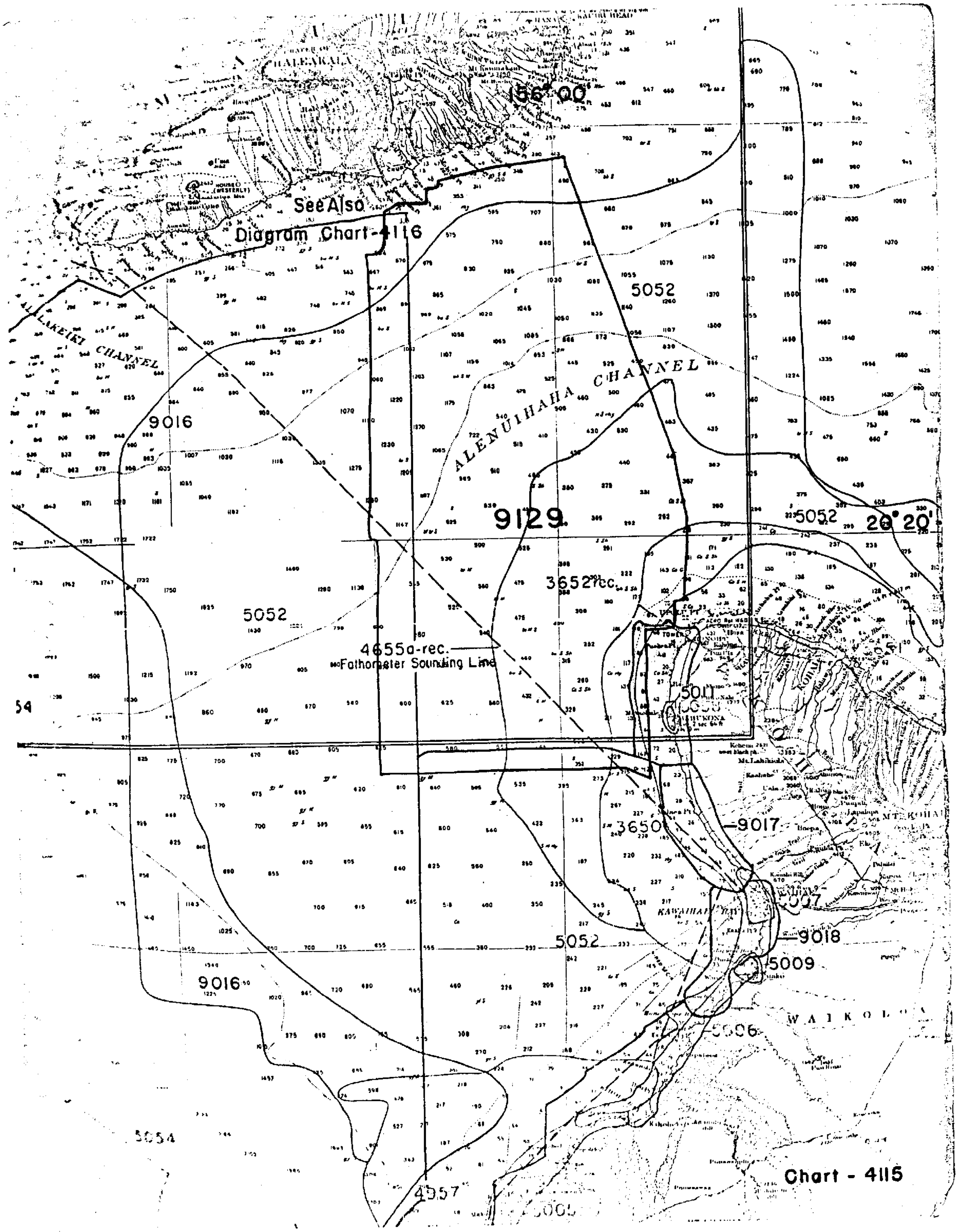
USCOMM-DC 36272-P65

Part V - PROTRACTING (Continued)	CL	R
16. The protracting was satisfactory except as follows: Remarks Required: -- Refers to protracting in general except for specific faults repeated often, or faults in control information, which required considerable replotting or adjustments.	X	
17. The protractor has been checked within the last three months. Remarks Required: -- Date of check, type of protractor and number.	X	
Part VI - SOUNDINGS		
18. All soundings are clear and legible, and critical soundings are a little larger than adjacent soundings. Remarks Required: -- None	X	
19. Sounding line crossings were satisfactory except as follows: Remarks Required: -- Discuss adjustments.	X	
20. The spacing of soundings as recorded in the records was closely followed; Remarks Required: -- None	X	
21. The scanning, reduction, spacing, plotting of questionable soundings have been verified. Remarks Required: -- None	X	
22. The smooth plotting of soundings was satisfactory except as follows: Remarks Required: — Refer to legibility, errors in spacing, and errors in numbers - but not to errors in scanning.	X	
Part VII - CURVES		
23. The depth curves have been inspected before inking. Remarks Required: -- By whom was the penciled curves inspected.	X	
24. The low-water line and delineation of shoal areas have been properly shown in accordance with the following: a. From T-Sheet in dotted black lines b. From soundings in orange c. Approximate position of sketched curve is dashed orange d. Approximate position of shoal area not sounded in black dashed Remarks Required: -- None	X	
25. Depth curves were satisfactory except as follows: (This statement should not refer to the manner in which the curves were drawn). Remarks Required: -- Indicate areas where curves could not be drawn completely because of lack of soundings. For some inshore areas a general statement is sufficient.	X	

Part VIII - AIDS TO NAVIGATION	CL	R
26. All fixed aids located together with those on the contemporary topographic sheets, have been shown on the survey. Remarks Required: -- Conflicts of any nature listed.	X	
27. All floating aids listed in the Descriptive Report should be verified and checked in soft black pencil, including latitude and longitude and position identification. Remarks Required: -- None	X	
Part IX - BOAT SHEET		
28. The boat sheet was constantly compared with the smooth sheet with reference to notes, position of sounding lines and supplemental information. Remarks Required: -- None	X	
29. Heights of rocks awash were correctly reduced and compared with topographic information. Remarks Required: -- Note excessive conflicts with topographic information.	X	
Part X - GENERAL		
30. All information on the sheet is shown in accordance with figures 82 and 83 in the Hydrographic Manual (Pub. 20-2). Remarks Required: -- None	X	
31. Unnecessary pencil notes have been removed from the sheet. Remarks Required: -- None	X	
32. Degree, minute values and symbols have been checked; also electronic distance arcs have been properly identified and checked on the smooth sheet. Remarks Required: — None	X	
33. The bottom characteristics are adequately shown. Remarks Required: -- None	X	
Part XI - NOTES TO THE REVIEWER		
34. Unresolved discrepancies and questionable soundings.	X	
35. Notation of discrepancies with photogrammetric survey inserted in report of unreviewed photogrammetric survey or on copy.	X	
36. Supplemental information.	X	

Verified by Stanley H. Otsubo

Date



See Also
Diagram Chart-4116
156° 00
ALALAKEIKI CHANNEL
ALENUIHAHA CHANNEL
5052
9016
9129
20° 20'
3652 rec.
4655a-rec.
Fathometer Sounding Line
5011
3650
9017
9018
5009
5006
5054
4957
Chart - 4115

FORM C&GS-8352
(8-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9129 (Category I)

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
4102	4/2/74	E FREY	~~Full~~ Part Before ~~After Verification~~ Review Inspection Signed Via
19004			Drawing No. Examined for critical corr's only (at proof stage of chr 4102) No corrections
19017			
4180	4/10/74	C.S. Forbes	~~Full~~ Part ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. Examined for critical corrections only. No corrections before
19007			
4001	9/30/74	T. Alexander	~~Full~~ Part ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. Examined for critical corr's only. (thru chart 4102) No corr's.
540			
4000	9/10/75	KANIS	~~Full~~ Part ~~Before~~ After Verification ~~Review Inspection Signed~~ Via
			Drawing No. Examined for critical corrections only
19010			thru chart 4102 - no corrections
4179	9/12/75	HAUSMAN	~~Full~~ Part ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. Exam. for critical corr only thru chart 4102
19319			No Correction.
4180	1/25/77	KANIS	~~Full~~ Part ~~Before~~ After Verification ~~Review Inspection Signed Via~~
			Drawing No. Examined for critical corrections-
19320			No corrections
4115	1/28/77	KANIS	~~Full~~ Part ~~Before~~ After Verification ~~Review Inspection Signed~~ Via
			Drawing No. Examined for critical corrections only-
19321			no corrections
4140	2/17/77	M.J. Friese	Full ~~Part Before~~ After Verification ~~Review Inspection Signed~~ Via
Reviewed	2/24/77	D.S. Kenyon Class I	Drawing No. Added numerous sdgs and partially revised 1000 fm. curve
19220			
4116	1/30/78	M.J. Friese	Full ~~Part Before~~ After Verification ~~Review Inspection Signed~~ Via
			Drawing No. Consider Class I hydro fully appl'd to 4116 thru 4140 for final application
19013			
4180	7/12/78	Raiter	Full ~~Part Before~~ After Verification ~~Review Inspection Signed~~ Via
			Drawing No. Applied thru 4115 Dwg 14 Final App.
19310			
4116	9/15/79	KANIS	Part After Verification thru 4115 Final App' deferred
4001	1-22-80	Sager	Full application thru 4115 Dwg #14 Cat I Hydro Survey after Verification
540	2/21/80	Sager	Full application thru chart 4001 - No correction consider Final application Cat I Hydro Survey after Verification
A004 (402)	3/28/80	Stembel	Applied thru 4115, Consider fully applied.

FORM C&GS-8352 SUPERSEDES ALL EDITIONS OF FORM C&GS-975.

USCOMM-DC 8556-P63