9019

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. AR-10-8-68 Office No. H-9019

LOCALITY

State HAWAII

General locality Hawaiian Islands (W. Coast)

Locality Vicinity of Mahukona ~~West Coast, Hawaii Island~~

~~Latitude 20° 08.5' to 20° 15.5'~~

19 68

CHIEF OF PARTY

Ronald L. Newsom, Cdr., USESSA

LIBRARY & ARCHIVES

DATE 2-7-74

Charts 4115 - Exam for NOAA/C&GS 37022, Feb 68
4110 - Exam for NM 4-10-74 CJF
4140 - Exam for NM CJF 4-10-74
4102 - EF
4179 - Exam for NM CJF 4-10-74
4116 Exam for NM CJF 4-10-74
4001 Exam for NM CJF 4-10-74
4101 Exam No com - 4/16/74 1/5,000

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-9Ø19

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. AR-1Ø-8-68

State: HAWAII

General locality: Hawaiian Islands - W. Coast

Locality: ~~West Coast~~ Hawaii Island ~~Latitude 2Ø° Ø8.5' to 2Ø° 15.5'~~ Vicinity of Mahukona

Scale: 1:1Ø,ØØØ

Date of survey: 25 Nov - 13 Dec, 1968

Instructions dated: 31 October 1968

Project No.: OPR-419

Vessel: McARTHUR

Chief of party: Ronald L. Newsom

Surveyed by: J.R. Carr, J.C. Albright

Soundings taken by echo sounder: DE-723 Serial #'s 915, 918, 92Ø

Graphic record scaled by: McARTHUR Personnel

Graphic record checked by: McARTHUR Personnel

Positions verified by: John E. Lotshaw

Automated plot by: PMC - Gerber Digital Plotter

Soundings verified by: Karol M. Hoops

Soundings in fathoms at MLLW

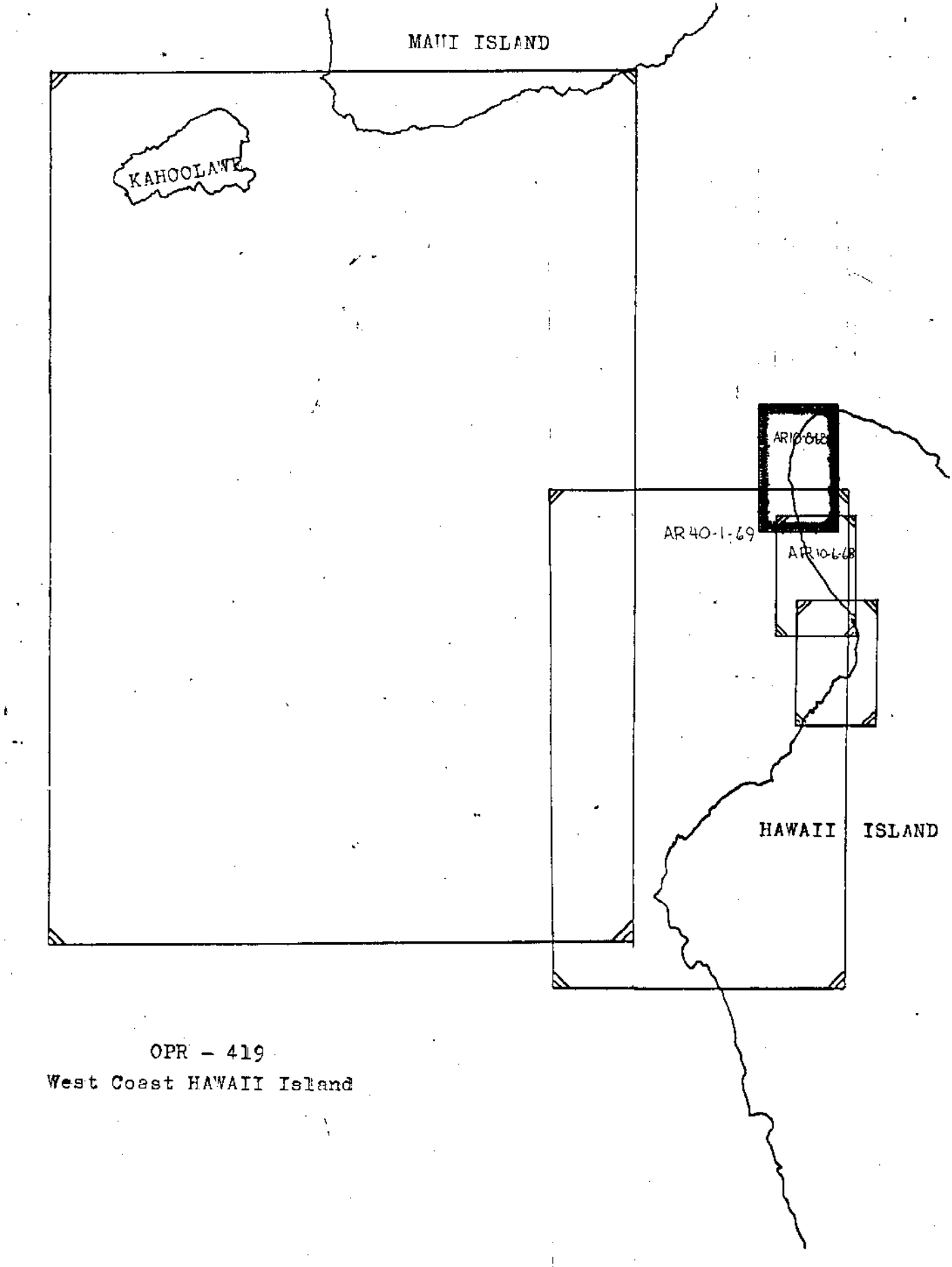
REMARKS:

chart
4140 #5
4110 #5
4115 #13
4116 #23
4179 ... 4115
4001 " "

Applied to chts 4/4/74
CAS

4000 too small
4400 to scale

DJK
4/17/74



OPR – 419

West Coast HAWAII Island

Descriptive Report
To Accompany
Hydrographic Survey H 9019 (AR 10-8-68)

USC&GSS McARTHUR
Ronald L. Newsom, CDR, USESSA
Commanding Officer

1968
Scale 1:10,000

A. PROJECT

Hydrography on this boatsheet was accomplished in accordance with Project Instructions OPR-419, West Coast of Hawaii Island, Hawaii dated 31 October 1968 (CFS2 4060/02) and with Changes No. 1 and No. 2 thereto dated 12 November 1968 and 29 January 1969 respectively

B. AREA SURVEYED

The area surveyed is located on the northwest coast of Hawaii Island. It is bounded by latitudes 20°-08.5'N and 20°15.5'N and longitude 155°56.1'W and the coastline. The survey was performed between 25 November and 12 December 1968. The boatsheet junctions with prior surveys H 3650(1:20,000,1914) and H 3652 (1:60,000,1914) and with contemporary surveys H 9017 (AR 10-6-68) and H 9015 (AR 40-1-68).

C. SOUNDING VESSEL

Hydrography performed by the McARTHUR is shown in red on the boatsheet, that by Launch AR-1 in blue, and that by Launch AR-2 in violet.

D. SOUNDING EQUIPMENT

Raytheon DE 723 fathometers were used throughout the survey, serial number 918 on the Ship, serial number 920 on Launch AR-1, and serial number 915 on Launch AR-2. The fathometer initial was set at 2.0 fathoms on the Ship and at zero on both launches. Bar checks to six fathoms were taken once daily to determine instrument and transducer draft corrections for the launches. A mean transducer draft of 1.8 fathoms was determined for the Ship. No settlement, squat, or phase corrections were necessary. Velocity corrections were obtained from a Nansen cast to 100 fathoms taken off the northwest coast of Hawaii Island on 10 December 1968 and, in greater depths, from

"Tables of the Velocity of Sound and of Depth Corrections for Echo-Sounding in Hawaiian Waters", Applied Oceanography Series No. 5, University of Hawaii, by John C. Belshe, September 1967. Tide reducers were determined from actual tides observed with a portable gage at Kawaihae Harbor, Hawaii.

E. SMOOTH SHEET

The smooth sheet is to be plotted by Gerber Plotter at the Electronic Data Processing Division, Pacific Marine Center.

F. The entire survey was controlled by visual three-point sextant fix methods. Control consisted of existing triangulation stations, photo-hydro signals, and two hydro signals located by sextant cuts. The photo-hydro signals were located using 1:10,000 scale advance manuscripts T 12527, T 12529, and T 12530.

G. SHORELINE

Shoreline was transferred to the boatsheet by blueline from the above three 1:10,000 scale advance manuscripts. The shoreline as shown is correct. Swell conditions, along with the small range in tide, prevented the delineation of the low-water line.

H. CROSSLINES

There were 317.2 nautical miles of sounding lines run, of which 28.0 were crosslines. This constitutes 8.8% of the total. There were no significant discrepancies.

I. JUNCTIONS

This survey agrees well in depth with the two contemporary surveys listed in section B. No adjustment was necessary.

J..COMPARISON WITH PRIOR SURVEYS

There were three pre-survey review items applicable to the area surveyed on this sheet. Two of the items will be investigated during a larger scale (1:5,000) survey off Mahukona, Hawaii Island at a later date. The third item concerns verification of the existence of three mooring buoys off Mahukona. Upon investigation of the area in April 1969 it was found that no mooring buoys existed at that time. It is recommended that these buoys be deleted from the charts

of the area.

Two prior surveys of the area of this boatsheet were undertaken in March of 1914. These surveys were designated as H 3650 (scale 1:20,000) and H 3652 (scale 1:60,000). Comparison of AR 10-8-68 with these prior surveys showed many major discrepancies present in both H 3650 and H 3652, ranging from five to fifteen fathoms. The high frequency of these discrepancies might indicate a lack of accuracy in the horizontal control used for the two prior surveys.

K. COMPARISON WITH THE CHART

Results of this survey were compared with C&GS Chart 4140, scale 1:80,000, 3rd. edition, January 24, 1966. Agreement in general was not good, but discrepancies may have resulted in part from the considerable difference in scale between the boatsheet and chart. No new dangers to navigation were found.

L. ADEQUACY OF SURVEY

This survey is complete and adequate to supersede prior surveys for charting this area.

M. AIDS TO NAVIGATION

The Mahukona Light is located as shown on advance manuscript T 12530.

N. STATISTICS

Ship	
nautical miles sounding line	162.0
positions	~~671~~ 693
Launch AR-1	
nautical miles sounding line	133.6
positions	~~911~~ 903
Launch AR-2	
nautical miles sounding line	21.6
positions	~~124~~ 109
Area in square nautical miles	14.0
Bottom samples	61

O. MISCELLANEOUS

By agreement with the Chief, Processing Division, the cutting of the position and sounding tapes and the verification of the position overlay will be taken care of by PMC.

A revised signal tape is being submitted with the records of this survey. A signal overlay from this tape has not been verified. A revised Form #1 is also being submitted as requested by the Chief, Electronic Data Processing Branch.

P. RECOMMENDATIONS

None

Q. REFERENCES TO REPORTS

Pre-survey review, OPR-419, Hawaii Island.

Submitted by:

John C. Albright

John C. Albright
LTJG, USESSA

Approved and Forwarded

Ronald L. Newsom

Ronald L. Newsom, CDR, USESSA
Comdg., Ship McARTHUR

Enclosures: Tide Note
Abstract of Corrections to Echo Soundings (Table and Curve)
List of Signals
Abstract of Position Numbers
List of Basic Field Records
Approval Sheet

Tide Note
To Accompany
H 9019 (AR 10-8-68)

Tide Station	Kawaihae Harbor Hawaii Island, Hawaii Lat. 20°02'18"N Long. 155°49'51"W
Plane of Reference	MLLW=1.8 ft. on 1968 staff
Time Meridian	150°W
Time Correction	None
Height Correction	None
Time of Coverage	Entire Survey
Area of Coverage	Entire Survey

OPR-419
BOAT SHEET "B"
AR-10-8-68
TIDE PRINTOUT
KAWAIHAE HARBOR, HAWAII ISLAND

060000 00 1003 0000 330 0 000000 000000
063500 00 1003
102000 00 1004
115000 00 1003
130000 00 1002
150000 00 1001
165000 00 1000
180000 00 1001
061000 00 1003 0000 331 0 000000 000000
080000 00 1003
110000 00 1004
122400 00 1003
134500 00 1002
180000 00 1001
060000 00 1003 0000 338 0 000000 000000
065000 00 1003
070500 00 1002
134000 00 1001
160000 00 1002
180000 00 1001
060000 00 1003 0000 339 0 000000 000000
071500 00 1003
094200 00 1002
180000 00 1001
060000 00 1003 0000 340 0 000000 000000
073200 00 1003
090000 00 1002
150000 00 1001
170000 00 1002
180000 00 1001
060000 00 1004 0000 341 0 000000 000000
071800 00 1004
083200 00 1003
094200 00 1002
180000 00 1001
060000 00 1004 0000 344 0 000000 000000
080000 00 1004
100000 00 1003
111400 00 1002
180000 00 1001
060000 00 1003 0000 345 0 000000 000000
063500 00 1003

```
090000 00 1004
111100 00 1003
121800 00 1002
140000 00 1001
160000 00 1000
180000 00 1001
060000 00 1003 0000 346 0 000000 000000
080000 00 1003
092500 00 1004
112000 00 1003
123400 00 1002
142000 00 1001
170000 00 1000
180000 00 1001
060000 00 1002 0000 347 0 000000 000000
070000 00 1002
114000 00 1003
123300 00 1002
142000 00 1001
170000 00 1000
180000 00 1001
```

ABSTRACT OF VELOCITY CORRECTIONS H-9019 (AR 10-8-68)

VELOCITY TAPE TYPE NO. 2
All depths and corrections are in fathoms. These corrections apply to all soundings of the survey.

000040 00 0000 0001 000 0 000000 000000 (Ship)
000070 00 0002
000110 00 0004
000150 00 0006
000190 00 0008
000230 00 0010
000270 00 0012
000310 00 0014
000350 00 0016
000395 00 0018
000438 00 0020
000480 00 0022
000524 00 0024
000570 00 0026
000616 00 0028
000663 00 0030
000711 00 0032
000760 00 0034
000811 00 0036
000863 00 0038
000928 00 0040
000982 00 0042
001033 00 0044
001190 00 0048
001350 00 0053
001540 00 0058
001750 00 0063
002020 00 0068
000010 00 0001 0002 000 0 000000 000000 (Launches)
000040 00 0003
000070 00 0005
000110 00 0007
000150 00 0009
000190 00 0011
000230 00 0013
000270 00 0015
000310 00 0017
000350 00 0019
000395 00 0021
000438 00 0023
000480 00 0025
000524 00 0027
000570 00 0029
000616 00 0031
000663 00 0033

GEOGRAPHIC NAMES

Survey No. H-9019

Name on Survey	On Chart No. A	On previous survey No. B	On U. S. quadrangle Maps C	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	H-Sheet K	
ALENUIHAHA CHANNEL									12527	1
Island of HAWAII ~~ISLAND~~	4101									2
KAOMA PT.	4101									3
KAUILII PT.	4101									4
MAHUKONA HARBOR	4101									5
MAKAOHALE PT.	4101									6
PACIFIC OCEAN										7
PUAKEA POINT										8
HONOIPU LANDING										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
					Approved by					20
					Chas. C. Harrington					21
					Staff Geographer					22
					18 April 1974					23
										24
										25
										26
										27

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

0 1 2 3 4 5 6 7 8

CORRECTIONS IN [redacted], FATHOMS

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

DEPTHS IN FATHOMS

(For deep water add a 0 to these figures

Results of Nansen cast of 10 Dec. 1968

Values from Univ. of Hawaii tables shifted 0.15 fm. right to match the Nansen curve

FORM C&GS-117 (4-68) — U.S. DEPARTMENT OF COMMERCE, COAST AND GEODETIC SURVEY

VELOCITY CORRECTIONS

Ship USC&GS McARTHUR

R.L. Newsom CDR, USESSA Comdg.

These corrections are to be used

between 11 Nov. 1968 and 12 Dec. 1968

in the locality West Coast Hawaii Island

for hydrographic surveys Nos. H-9017 (AR 10-6-68) and H-9019 (AR 10-8-68)

Depth, fm.	Correction, fm.
1.0	0.0
4.0	0.2
7.0	0.4
11.0	0.6
15.0	0.8
19.0	1.0
23.0	1.2
27.0	1.4
31.0	1.6
35.0	1.8
39.0	2.0
43.8	2.2
48.0	2.4
52.4	2.6
57.0	2.8
61.6	3.0
66.3	3.2
71.1	3.4
76.0	3.6
81.1	3.8
86.3	4.0
92.8	4.2
98.2	4.4
103.3	4.6
119.0	5.0
135.0	5.5
154.0	6.0
175.0	6.5
202.0	7.0

Note: Transducer draft corrections (ship −0.2 fm ; launches + 0.1 fm) are included in the velocity tables.

USCOMM-DC 14439-P

List of Stations on H 9019 (AR 10-8-68)

Name	Number	Origin
ACE	023	T 12529
AHU	016	T 12529
ARM	011	T 12529
ASK	043	T 12530
BAG	042	T 12530
BON	012	T 12529
CON	005	T 12527
CUT	041	T 12530
DAY	040	T 12530
DEE	019	T 12529
DON	018	T 12529
EGO	039	T 12530
FAN	009	T 12529
FRY	037	T 12530
GET	036	T 12529
GUN	003	T 12527
HAM	053	T 12530
HAR	035	MAHUKONA HARBOR NORTH DAY BEACON 1910
HEN	052	KEHENA 1881
IRK	034	T 12529
JAN	013	T 12529
JOY	054	T 12530
JUG	033	T 12529
KEN	014	T 12529
KEY	021	T 12529
KIM	032	T 12529
LEE	017	T 12529
LOG	031	T 12529
LOR	006	LORAN A TOWER 1964
MAH	038	MAHUKONA LIGHT 1929
MAR	001	T 12527
MID	030	T 12529
MIK	051	T 12530
MOL	015	T 12529
NOD	029	T 12529
OUT	007	T 12527
OWL	028	T 12529
POI	049	T 12530
POL	024	T 12529
PUT	027	T 12529
RAN	008	LORAN C TOWER 1964
SEE	026	T 12529
SIS	004	T 12527
TED	002	T 12527
TEL	025	T 12529
TOM	050	T 12530
TON	048	Vol.2,p.4
TOW	010	T 12529

List of Stations on H 9019 (AR 10-8-68)

Name	Number	Origin
VAL	047	T 12530
WAX	046	Vol.1,p.12
WES	020	T 12529
WIN	022	T 12529
YES	045	T 12530
ZOO	044	T 12530

Abstract of Position Numbers
On H 9019 (AR 10-8-68)

Vessel	Day	Date	Julian Day	Positions
McARTHUR	A	9 Dec 1968	344	3000-3041
	B	10 Dec 1968	345	3042-3198
	C	11 Dec 1968	346	3199-3501
	D	12 Dec 1968	347	3502-3640
Launch AR-1	a	25 Nov 1968	330	999-1111
	b	3 Dec 1968	338	1112-1186
	c	4 Dec 1968	339	1187--1331
	d	5 Dec 1968	340	1332-1465
	e	9 Dec 1968	344	1466-1608
	f	10 Dec 1968	345	1610-1742
	g	11 Dec 1968	346	1742-1821
	h	12 Dec 1968	347	1822-1910
Launch AR-2	a	26 Nov 1968	331	2000-2004
	b	6 Dec 1968	341	2005-2123

FORM C&GS-733M (8-65)

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

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

VESSEL	PROJ. NO.	YEAR		CHECKED BY	DATE CHECKED
McARTHUR CSS-30	419	1968	Boat sheet AR-10-8-68		

SERIAL NO.	DATE	SAMPLE POSITION LATITUDE	SAMPLE POSITION LONGITUDE	DEPTH (Fathoms)	WEIGHT OF SAMPLER	APPROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
3000	12-9-68	20° 14.36'	154° 54.36'	19.7	70#				crs. gy S. crs wh. S. + Co.		
3001		14.15'	54.89'	47.8					bks. Co. + crs brn S.		
3002		14.25'	55.29'	74#					bks. Co + crs brn. S.		
3003		14.21'	55.77'	84.2					bks. Co. crs. brn S. + fine brn S.		
3004		14.18'	56.21'	104.0					crs brn S. + bks. Co.		
3005		13.50'	55.98'	89.0					crs. brn S + bks Co.		
3006		13.66'	55.60'						crs. brn S + bks. Co.		
3007		13.77'	55.98'	53.3					wh. bks Co. + crs brn S.		
3008		13.21'	55.60'	22.5					Crs. blk + brn S. + bks. Sh.		
3009		13.12'	55.45'	62.0					crs brn S + bks Co. + Sh.		
3010		13.25'	55.80'	77.0					fine brn S. bks Co + sh.		
3011		13.33'	56.00'	90.0					Crs + fine brn S + bks. Co + Sh.		
3012		12.45'	56.16'	87.8					crs brn S + bks Co + Sh.		
3013		12.71'	55.50'	75.4					crs + fine brn S. + bks. Co + sh.		
3014		12.68'	56.15'	45.6					crs gy S, bks Co + sh.		
3015		12.66'	54.55'	18.6					fine blk S + wh. S. + bks Co. + sh.		
3016		12.76'	54.78'	28.0					brn. blk + wh. S. bks Co. + sh.		

Use more than one line per sample if necessary.

USCOMM-DC 37019-P66

FORM C&GS-733M (6-66)

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

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

VESSEL	PROJ. NO.	YEAR		CHECKED BY	DATE CHECKED
M°ARTHUR - CSS-30	OPR-419	1968	Bore Sheet AR-10-8-68		

SERIAL NO.	DATE	SAMPLE POSITION LATITUDE	SAMPLE POSITION LONGITUDE	DEPTH (Fathoms)	WEIGHT OF SAMPLER	APPROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
3017	12-9-68	20° 18.18'	155° 55.15'	47.5					crs gy S & bk. Co & Sh.		
3018		12.20'	55.45'	70.5					fne & Crs. brn S. & bks. C. & Sh.		
3019		12.17'	55.78'	79.0					Crs. brn S. & bks C. & Sh.		
3020		12.17'	56.16'	89.5					Crs & fne brn S. & bks Co & sh.		
3021		20° 11.60'	56.78'	87.3					crs & fne brn S. bks Co & sh.		
3022		11.65'	55.17'	53.2					fne Wh. S & bks Co & sh.		
3023		11.66'	54.65'	15.0					crs. blk & brn & Wh S. & bks Co & Sh		
3024		11.20'	59.75'	27.0					crs gy & blk. S. & bks. Co & Sh. & (fish)		
3025		11.16'	55.20'	60.0					crs brn S. & bks Co & Sh. & (shrimp)		
3026		11.21'	55.65'	77.4					fne & Crs. brn S. & bks Co & Sh.		
3027		11.15'	56.18'	107.0					crs. brn & wh S. & bks. Co & Sh.		
3028		20° 10.58	55.99'	92.4					crs. brn S. & bk Co & sh.		
3029		10:56	55.05'	54.5					crs. brn S. & bks. Co &.		
3030		10.55'	59.62'	37.5					crs & fne blk & wh. S. bks Co & Sh		
3031		10.16'	54.65'	40.0					crs. & fne blk S, bks. Co & Sh.		
3032		10.59'	55.08'	63.3					crs wh. & brn. S & bks. Co & Sh.		
3033		10.20'	55.50'	74.0					crs. brn. S. wh. S. & bk. C. & Sh.		

Use more than one line per sample if necessary.

USCOMM-DC 37019-P66

FORM C&GS-733M (6-66)

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

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

VESSEL	PROJ. NO.	YEAR		CHECKED BY	DATE CHECKED
USC&GS S MACARTHUR CSS 30	OPR-419	1968	Boat sheet AR-10-8-68		

SERIAL NO.	DATE	SAMPLE POSITION LATITUDE	SAMPLE POSITION LONGITUDE	DEPTH (Fathoms)	WEIGHT OF SAMPLER	APPROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
3034		20° 10.05'	155° 56.16'	140.0					crs. brn S & fne brn S.		
3035		09.32'	55.75'	80.0					crs. brn S & blks. Co. & Sh.		
3036		09.95'	55.30'	76.0					crs. brn S blks Co. & Sh.		
3037		09.90'	54.77'	46.0					crs. blk & wh. S. & blks. Sh & Co.		
3038		09.02'	54.68'	47.5					crs brn & blk S. blks. Co.		
3039		20° 08.95'	55.08'	67.0					fne brn S & blks. Sh. & Co.		
3040		09.35'	55.25'						crs. brn S & fne brn S & blks Sh & Co.		
3041		09.55'	55.51'	86.5					crs. brn S, fne brn S & blks. Sh.		
3042		20° 08.68'	54.75'	17.7					crs. brn S. & blks. Sh. & Co.		
3043		08.77'	54.20'	24.4					crs gy S., blks. Sh.		
3044		09.29'	155° 54.51'	25.2					crs gy S. blks. Sh.		

Use more than one line per sample if necessary.

USCOMM-DC 37019-P66

FORM C&GS-733M (6-66)

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

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

VESSEL	PROJ. NO.	YEAR		CHECKED BY	DATE CHECKED
USC&GSS MACARTHUR	OPR-419	1968	Bottles: AL-10-8-68		

SERIAL NO.	DATE	SAMPLE POSITION LATITUDE	SAMPLE POSITION LONGITUDE	DEPTH (Fathoms)	WEIGHT OF SAMPLER	APPROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
3502	12-12-68	20° 15.32'	155°54.23'	27.7	70lbs.				crs. gy S. + bks Sh. & Co.		
3503		15.03'	54.82'	53.1					crs. gy S. + bks Sh. & Co.		
3504		15.47'	55.21'	76.4					crs. brn S. & bks. Sh. & Co.		
3505		15.56	56.80'	85.6					crs. brn S & bks. Sh. & Co.		
3507		20° 14.86	55.95	86.0					crs. brn S. & bks. Sh. & Co.		
3508		14.88	55.40	78.5					crs. brn S. & bks, Co & Sh.		
3508		14.78	54.82'	57.8					crs. gy S. fn. gy S + bks sh & Co.		
3509		20° 14.86	155° 54.10'	18.0					crs. gy S. & bks, Sh.		

Use more than one line per sample if necessary.

USCOMM-DC 37019-P66

FORM C&GS-733M (6-66)

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

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

VESSEL	PROJ. NO.	YEAR		CHECKED BY	DATE CHECKED
LAUNCH AR-1	419	1968	AR 10-8-68 HAWAII 15		

SERIAL NO.	DATE	SAMPLE POSITION LATITUDE	SAMPLE POSITION LONGITUDE	DEPTH (Fathoms)	WEIGHT OF SAMPLER	APPROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
1814	10-11-68	15559.1	2009.7	2	18#	SURFACE			hrd	5 ATTEMPTS NO SAMPLE	
1815	"	15554.2	2010.2	9	"	"			gys, brk Sh & Co		
1816	"	15554.3	2010.7	13	"	"			wh S, brk Sh		
1817	"	15554.3	2011.2	7	"	"			brk Co & Sh		
1818	"	15554.4	2012.9	10	"	"			fnc gy S, brk Sh		
1819	"	15554.2	2013.7	6	"	"		crs	wh S, brk Co & Sh	LEAD LINE DEPTH	
1820	"	15553.7	2014.8	6	"	"			fnc gy S	"	
1821	"	15553.5	2014.8	7	"	"			fnc gy S, brk Sh	"	

Use more than one line per sample if necessary.

USCOMM-DC 37019-P66

Abstract of Bar Checks

H-9019 (AR 10-8-68)

Launch	AR-1		DE 723		#920			
	1.0	2.0	4.0	6.0				
	0	0	+0.1	+0.1				
	0	0	+0.1		"a"	day		
	0.2	0.1	0.2	0.2				
	0.1	0.1	0.2		"b"	day		
	0.1	0.1	0.1	0.2				
	0.1	0.1	0.1		"c"	day		
	0.1	0.3	0.2	0.3				
	0.1	0.3	0.2		"d"	day		
	0.1	0.1	0.1	0.1				
	0	0	0		"e"	day		
	0	0	0.1	0.2				
	0.1	0.1	0.1		"f"	day		
	0.1	0	0	0.1				
	—	0.2	0.1		"g"	day		
	0.1	0.1	0.1	0.1				
	0.1	0.1	0.1		"h"	day		
ave.:	0.1	0.1	0.1	0.2				
Launch	AR-2		DE	723	#915			
	0.2	0.2	0.3					
	0.2	0.2	0.3		"b"	day		
ave.:	0.2	0.2	0.3					

(All corrections +)

Approval Sheet
for
H 9019 (AR10-8-68)

Field work on this survey was accomplished under my general supervision. Frequent inspections of the field data and boatsheet were made by me as the survey progressed. The sounding records have been inspected by me and are approved. This survey is complete and adequate, and is hereby approved.

Ronald L Newsom

12 July 1969

Ronald L. Newsom
CDR, USESSA
Commanding Officer
USC&GSS McARTHUR

NOAA FORM 77-27
(9-72)
(PRESC. BY HYDROGRAPHIC MANUAL 20-2, 8-94, 7-13)

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

HYDROGRAPHIC SURVEY STATISTICS

HYDROGRAPHIC SURVEY NO. H-9019

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						
CAHIERS	1					
VOLUMES	9					
BOXES			1			

T-SHEET PRINTS *(List)*
~~T-12521, 12529 & 12530 (Photostat & PNO)~~

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		1676		
POSITIONS REVISED		146		
DEPTH SOUNDINGS REVISED		964		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		12		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		1		
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS		16		
JUNCTIONS		1		
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		202		
SPECIAL ADJUSTMENTS		---		
ALL OTHER WORK		144		
TOTALS		363		

PRE-VERIFICATION BY	BEGINNING DATE	ENDING DATE
VERIFICATION BY A. E. Eichelberger	BEGINNING DATE 8 Sept. 1973	ENDING DATE 18 January 1974
REVIEW BY	BEGINNING DATE	ENDING DATE

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

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 9019

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 adjusments 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 (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	X	
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	

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 pencilled 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 - BOATSHEET		
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 A. E. Eichelberger
A. E. Eichelberger

Date 18 January 1974

FORM C&GS-346A (11-65)

USCOMM-DC 36272-P65

VERIFIER'S REPORT

H-9Ø19 OPR-419 AR-1Ø-8-68

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

PART II SHORELINE AND SIGNALS

4. Advance Manuscripts T-12527, 12529, and 1253Ø were used to transfer shoreline to the smooth sheet.

a.	Date of Photography	August, 1963
b.	Field Inspection Date	May & June, 1964
c.	Field Edit Date	December, 1968

PART III JUNCTIONS

1Ø. This survey junctions to the south with H-9Ø17, 1968 (1:1Ø,ØØØ). Curves in this junction area agree but were left in pencil as an exact copy of H-9Ø17 was not available.

PART VII CURVES

23. The penciled depth curves were inspected by Clarence R. Lehman, Cartographic Technician.

PART XI NOTES TO THE REVIEWER

36. Soundings were verified and the smooth sheet compiled by Karol M. Hoops, Cartographic Technician.

Respectfully submitted,

Arnold E. Eichelberger

Arnold E. Eichelberger
Cartographic Technician

PARAMETERS FOR DIGITAL COMPUTING
POLYCONIC PROJECTION

(1) Project No. 419

(2) H No. 9019

(3) Field No. AHB 10-8-68

(4) Requested by ———

(5) Ship or Office HSD

(6) Date Required ———

(7) Visual ☑ Ft.(0) or Fathoms (1) ☐ (8) Electronic ☐ (fill out form #3)

(10) XKN (SP 5) Distance from CMER to East Edge (NYX = 1) or West Edge (NYX = 0). (Origin) 4356.65 KGB 4612.51995 Meters

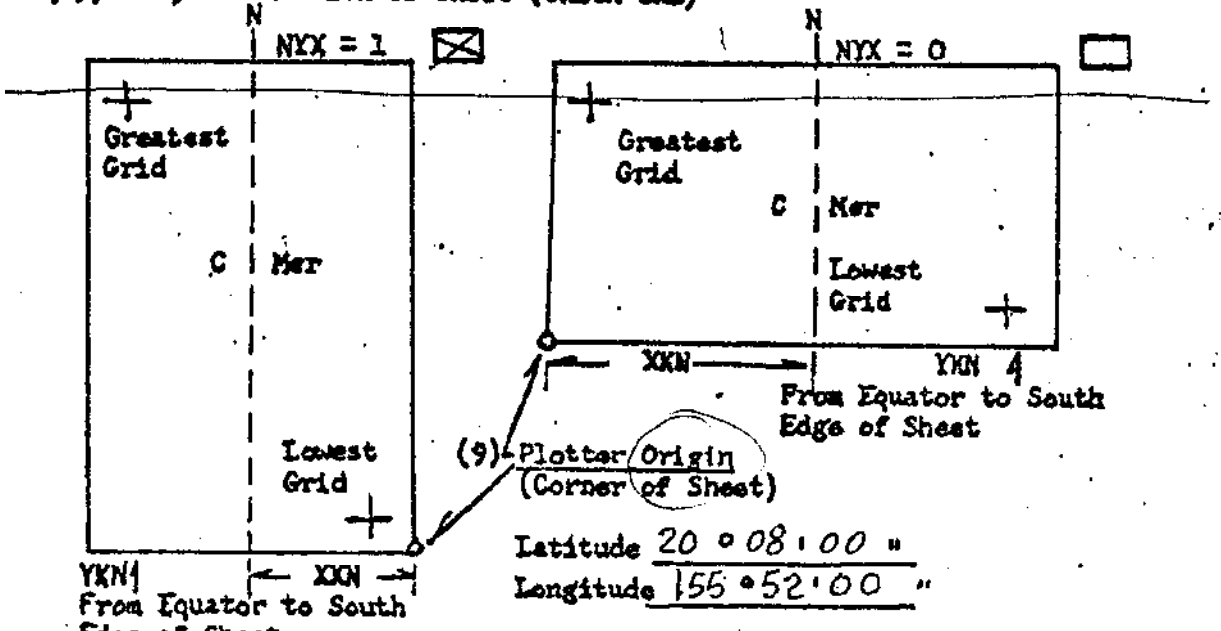
(11) YKN (SP 241) Distance from Equator to South Edge of Sheet. (Origin) 2,226,994.5980 Meters

(12) Central Meridian 155 ° 54 ' 30 "

(13) Survey Scale 1:10,000

(14) Size of Sheet (Check one) 36x60 ☐ 42x60 ☒

(15) NYX, Orientation of sheet (Check one)



Latitude 20 ° 08 ' 00 "

Longitude 155 ° 52 ' 00 "

Grid Limits

(16) Greatest Latitude 20° 16 ' 00 "

(17) Lowest Latitude 20 ° 08 ' 30 "

(18) Difference ~~08 00~~ " 07 30

(Projection Line Interval Page 4 Hydro Manual)

(19) 0 ' 30 "

(20) 15 16 YSN

(21) Greatest Longitude 155 ° 57 ' 00 "

(22) Lowest Longitude 155 ° 52 ' 00 "

(23) Difference 05 ' 00 " 04 30

(24) 0 ' 30 "

(25) 9 10 XSN

H 9019

Field No. AR-10-8-68 (03138)

Date 10/26/72

~~FDPO II AND III PARAMETER CARD~~

PARAMETER CARD II

			1	2	3	4	5	6	7	8	9	10
Semi major axis of the earth	6,378,206.4	RDA	6	3	7	8	2	0	6	4	0	7
			11	12	13	14	15	16	17	18	19	20
X Constant- Distance from central meridian to origin of plotter SP 5	4356.65 meters	XKN	4	3	5	6	6	5	0	0	0	4
			21	22	23	24	25	26	27	28	29	30
Y Constant - Distance from equator to origin of plotter SP 241	2226994.6 meters	YKN	2	2	2	6	9	9	4	6	0	7
			31	32	33	34	35	36	37	38	39	40
Central Meridian of Projection	155° 54' 30"	CMR	5	6	1	2	7	0	0	0	0	6
			41	42	43	44	45	46	47	48	49	50
Plotter Scale/Survey Scale	*20198.6876 1: 10,000	SCA	1	0	4	9	8	6	8	8	0	1
												51
North/south axis of sheet - to correspond to (Y axis - 0) (X axis - 1) of plotter		NYX										1
												52
Feet/Fathom indicator	0 - feet 1 - fathom	FOF										1
									53	54	55	56	57
H Identification No.		JN								9	0	1	9
												58	59
		YR									:	6	8

FOF - 1

PARAMETER CARD III

			1	2	3	4	5	6	7	8	9	10
Lowest Lat. Intersection	20° 08' 30"	YST	7	2	5	1	0	0	0	0	0	5
			11	12	13	14	15	16	17	18	19	20
Lowest Long. Intersection	155° 52' 30"	XST	5	6	1	1	5	0	0	0	0	6
			21	22	23	24	25	26	27	28	29	30
Difference between Grid	30"	DXY	3	0	0	0	0	0	0	0	0	2
											31	32
Interval (Long)		XSN									0	9
											33	34
Interval (Lat)		YSN									1	5

Computed 10/26/72 KBB

Punched KBB

Checkdd ... at:

Date 10/26/72

FORM C&GS-712
(10-67)

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

August 7, 1969

~~[illegible]~~ Pacific Marine Center

Plane of reference approved ~~[illegible]~~ for

HYDROGRAPHIC SHEETS 9015, 9017, 9018, 9019

Locality: West coast of Hawaii Island

~~[illegible]~~: Year: 1968-69

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:

1.4 feet

Remarks

J. M. Symons

Chief, Tides and Currents Branch

OPR-419
BOAT SHEET "B"
AR-10-8-68 H-9019
TIDE PRINTOUT
KAWAIHAE HARBOR, HAWAII ISLAND

11-25-68

060000 00 1003 0000 330 0 000000 000000
063500 00 1003
102000 00 1004
115000 00 1003
130000 00 1002
150000 00 1001
165000 00 1000
180000 00 1001

061000 00 1003 0000 331 0 000000 000000
080000 00 1003
110000 00 1004
122400 00 1003
134500 00 1002
180000 00 1001

12-2-68

060000 00 1003 0000 338 0 000000 000000
065000 00 1003
070500 00 1002
134000 00 1001
160000 00 1002
180000 00 1001

060000 00 1003 0000 339 0 000000 000000
071500 00 1003
094200 00 1002
180000 00 1001

060000 00 1003 0000 340 0 000000 000000
073200 00 1003
090000 00 1002
150000 00 1001
170000 00 1002
180000 00 1001

060000 00 1004 0000 341 0 000000 000000
071800 00 1004
083200 00 1003
094200 00 1002
180000 00 1001

12-9-68

060000 00 1004 0000 344 0 000000 000000
080000 00 1004
100000 00 1003
111400 00 1002
180000 00 1001

060000 00 1003 0000 345 0 000000 000000
063500 00 1003

```
090000 00 1004
111100 00 1003
121800 00 1002
140000 00 1001
160000 00 1000
180000 00 1001
060000 00 1003 0000 346 0 000000 000000
080000 00 1003
092500 00 1004
112000 00 1003
123400 00 1002
142000 00 1001
170000 00 1000
180000 00 1001
060000 00 1002 0000 347 0 000000 000000
070000 00 1002
114000 00 1003
123300 00 1002
142000 00 1001
170000 00 1000
180000 00 1001
```

Plane of Reference Approved
Datum Planes Section
Date 8-5-69

REVISED SIGNAL TAPE AR 10-8-68 H-9019

001	20	16	0041	155	52	0829	mar
002	20	15	1613	155	52	1353	ted
003	20	15	1395	155	52	1673	gun
004	20	15	1126	155	53	0206	sis
005	20	15	0797	155	53	0467	con
006	20	15	0463	155	53	0666	lor
007	20	15	0177	155	53	0774	out
008	20	15	0042	155	53	0517	ran
009	20	14	1773	155	53	0884	fan
010	20	14	1552	155	53	0880	tow
011	20	14	1265	155	53	1199	arm
012	20	14	1012	155	53	1340	bon
013	20	14	0662	155	53	1622	jan
014	20	14	0440	155	53	1713	ken
015	20	14	0178	155	54	0074	mol
016	20	14	0008	155	54	0197	ahu
017	20	13	1690	155	54	0204	lee
018	20	13	1301	155	54	0166	don
019	20	13	1020	155	54	0277	dee
020	20	13	0758	155	54	0371	wes
021	20	13	0607	155	54	0359	key
022	20	13	0343	155	54	0408	win
023	20	13	0210	155	54	0511	ace
024	20	12	1782	155	54	0589	pol
025	20	12	1444	155	54	0451	tel
026	20	12	1097	155	54	0440	see
027	20	12	0770	155	54	0466	put
028	20	12	0590	155	54	0578	owl
029	20	12	0305	155	54	0610	nod
030	20	12	0039	155	54	0721	mid
031	20	11	1617	155	54	0707	log
032	20	11	1318	155	54	0615	kim
033	20	11	1019	155	54	0515	jug
034	20	11	0908	155	54	0584	irk
035	20	11	0756	155	54	0589	har
036	20	11	0523	155	54	0342	get
037	20	11	0210	155	54	0454	fry
038	20	11	0007	155	54	0447	mah
039	20	10	1579	155	54	0350	ego
040	20	10	1374	155	54	0317	day
041	20	10	0925	155	54	0402	cut
042	20	10	0777	155	54	0339	bag
043	20	10	0283	155	54	0217	ask
044	20	10	0034	155	54	0305	zoo
045	20	09	1664	155	54	0141	yes
046	20	09	1013	155	54	0061	wax
047	20	09	0692	155	53	1716	val
048	20	09	0278	155	53	1497	ton
049	20	08	1743	155	53	1605	poi
050	20	08	1354	155	53	1577	tom
051	20	08	0894	155	53	1258	mik
052	20	08	0633	155	53	0634	hen
053	20	08	0502	155	53	1250	ham
054	20	08	0258	155	53	1147	joy
850	20	14	0000	155	53	0871	(artificial signal)

VELOCITY TAPE—TYPE NO. 2
H-9019 (AR 10-8-68)

000040 00 0000 0001 000 0 000000 000000 (SHIP)
000070 00 0002
000110 00 0004
000150 00 0006
000190 00 0008
000230 00 0010
000270 00 0012
000310 00 0014
000350 00 0016
000395 00 0018
000438 00 0020
000480 00 0022
000524 00 0024
000570 00 0026
000616 00 0028
000663 00 0030
000711 00 0032
000760 00 0034
000811 00 0036
000863 00 0038
000928 00 0040
000982 00 0042
001033 00 0044
001190 00 0048
001350 00 0053
001540 00 0058
001750 00 0063
002020 00 0068
000010 00 0001 0002 000 0 000000 000000 (LAUNCHES)
000040 00 0003
000070 00 0005
000110 00 0007
000150 00 0009
000190 00 0011
000230 00 0013
000270 00 0015
000310 00 0017
000350 00 0019
000395 00 0021
000438 00 0023
000480 00 0025
000524 00 0027
000570 00 0029
000616 00 0031
000663 00 0033

OPR-419
AR-10-8-68 H-9019
TC/TI TAPE PRINTOUT

```
084800 00 1002 0001 344 0 000000 000000
085100 00 1002 0001 345 0 000000 000000
071630 00 1002 0001 346 0 000000 000000
081000 00 1002 0001 347 0 000000 000000

092915 00 0003 0002 330 0 000000 000000
082815 00 0003 0002 338 0 000000 000000
083700 00 0003 0002 339 0 000000 000000
093500 00 0003 0002 340 0 000000 000000
091400 00 0003 0002 341 0 000000 000000
090545 00 0003 0002 344 0 000000 000000
084515 00 0003 0002 345 0 000000 000000
073545 00 0003 0002 346 0 000000 000000
080730 00 0003 0002 347 0 000000 000000
```

APPROVAL SHEET

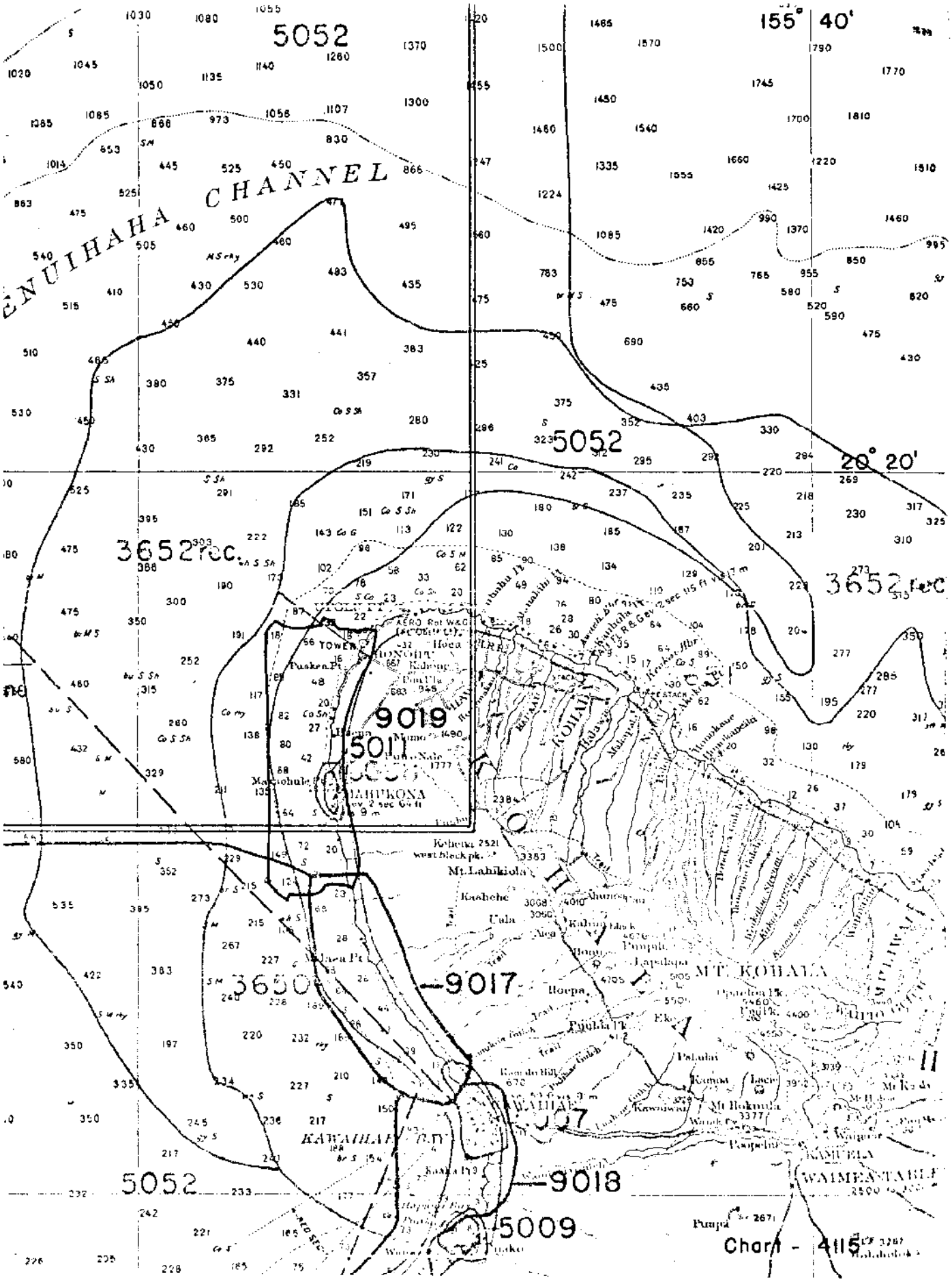
The smooth sheet has been inspected, is complete, and meets the requirements of the General Instructions for automated surveys and the Hydrographic Manual. (Note: All exceptions are listed in the Verifier's Report)

Examined and approved,

James S. Green
Supervisory Cartographic Technician

Approved and forwarded,

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


155° 40'
20° 20'
5052
3652rec.
9019
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5009
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MT. KOHALA
KAWAIHAE
WAIMEA
Chart - 4115

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

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9019 (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
4178 2			Drawing No. Exam'd for critical corr's (at proof stage of chart); No corr's before
4101 4179	4/17/74	Forbes	~~Full~~ Part ~~Before~~ After Verification Review Inspection Signed Via
4177			Drawing No. Critical exam. only No action before
4140	4/17/74	Forbes	~~Full~~ Part ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. Critical exam only no action —
4101	7/22/74	S. Manty	~~Full~~ Part Before ~~After~~ Verification Review Inspection Signed Via
			Drawing No. Critical corr. and filled holidays in hydrography.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
5 179			before
4001	9/25/74	T. Alexander	~~Full~~ Part ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. Exam'd for critical corr's only (Survey do not fall beyond 100fm curve) small No corrections
178			
4179	9/15/75	HAUSMAN	~~Full~~ Part ~~Before~~ After Verification ~~Review Inspection Signed~~ Via
			Drawing No. Exam. No Crit. Corr Exam thru 4102
			Full
4140	1/21/77	KANIS	~~Full Date Before~~ After Verification ~~Review Inspection Signed Via~~
			Drawing No. Exam'd for crit. corrections only
19007			Fully App'd Class I Survey.
4101	2/10/77	M.J. Friese	Full ~~Part Before~~ After Verification ~~Review Inspection Signed Via~~
			Drawing No. Appl'd numerous sdgs, added one * and one islet and added the 120 ft. curve, revised 60, 20 and 18 ft. curves
~~4102~~ 19007			Full ~~Part Before~~ After Verification ~~Review Inspection Signed Via~~
4102	10-29-77	C.J. Forbes	Drawing No. Consider application as Final. No additional
19010			corrections.
4179	12-1-77	C.J. Forbes	Final application after verification. Consider
			application as Final. No additional corrections.
19320	10		
4115	1/19/78	M.J. Friese	Consider Class I hydro fully appd in conjunction
19340			with charted sdgs thru Chf. 4140 (17th Ed.) — Final Appl'd
4116	9/10/79	Kanis	Final Application (CAT I Survey) Thru 4115
~~19007~~	5/4/81	Sager	Consider Final Application (Cat I Survey) Thru 19010 (Examined, no corrections)

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

USCOMM-DC 8858-P63