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Diag. Cht. Nos. 4000 – 4102 – 4115 – 4116.

Original

Form 504

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

R.S. Patton, *Director*

State: ~~Terr. of~~ Hawaiian Ids

DESCRIPTIVE REPORT

~~Topographic~~
Hydrographic } *Sheet No.* 2 5054

LOCALITY

Hawaiian Ids.

~~Eastward~~

Oahu to Hawaii

1929

CHIEF OF PARTY

K.T. Adams

GOVERNMENT PRINTING OFFICE

5054
5054

37
1929

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

REG. NO. 5054

HYDROGRAPHIC TITLE SHEET

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. 2. Project 33

REGISTER NO. 5054

State ~~Territory of~~ Hawaiian Is.

~~General locality Eastward~~

Locality Oahu ~~Island~~ to Hawaii ~~Island.~~

Scale 1:250,000 Date of survey 11/5/28-11/14/, 19 29.

Vessel GUIDE.

Chief of Party K. T. Adams

Surveyed by K. T. Adams

Protracted by H. A. Karo

Soundings penciled by H. A. Karo; F. C. Johnson

Soundings in fathoms ~~feet~~

Plane of reference M.L.L.W.

Subdivision of wire dragged areas by

Inked by E. C. McGlossom

Verified by E. C. McGlossom

Instructions dated March 26, 1928 and April 12, , 19 29.

Remarks:

U. S. GOVERNMENT PRINTING OFFICE: 1929

Form 537
Ed. Sept., 1929

DEPARTMENT OF COMMERCE

U. S, COAST AND GEODETIC SURVEY

REG. NO. 5054

HYDROGRAPHIC TITLE SHEET

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. 2. Project 33

REGISTER NO. 5054

State ~~Territory of~~ Hawaiian Is.

~~General locality Eastward~~

Locality Oahu ~~Island~~ to Hawaii ~~Island.~~

Scale 1:250,000 Date of survey 11/5/28-11/14/, 19 29.

Vessel GUIDE.

Chief of Party K. T. Adams

Surveyed by K. T. Adams

Protracted by H. A. Karo

Soundings penciled by H. A. Karo; F. G. Johnson

Soundings in fathoms ~~feet~~

Plane of reference M.L.L.W.

Subdivision of wire dragged areas by

Inked by H. C. McBlosson

Verified by H. C. McBlosson

Instructions dated March 26, 1928 and April 12, , 19 29.

Remarks:

U. S. GOVERNMENT PRINTING OFFICE: 1930

DESCRIPTIVE REPORT
to accompany
HYDROGRAPHIC SHEET NO. 2
Oahu Island to Hawaii Island, T. of H.

INSTRUCTIONS: The work executed on this sheet was not at first covered by any instructions. This party was working on the Island of Hawaii and basing at Honolulu, and it was thought that certain dead reckoning lines could be run to and from work without extra expenditure of time or effort, and that these lines would give a better than reconnaissance survey of the deep offshore area between these two islands. At a later date this work was more or less covered by the following various letters and instructions:

Paragraph 15 of Instructions dated October 8, 1928.
Paragraph 6, Project 33, Instructions dated April 12, 1929.
Director's letter dated June 17, 1929.

LIMITS AND SCOPE OF WORK: As stated above, the original idea of this sheet was to do some deep sounding in the offshore area between Oahu and Hawaii Islands where no soundings were shown on the chart. After the work had been partially completed, the instructions called for the following:

(a) Making the survey complete in itself so that no additional work need be done in this area, nor any splits need be run.

(b) Completion of the area south of Oahu Island, out to the 1000 fathom curve, and between the previously surveyed area south of Oahu Island and the survey of Penguin Bank.

(c) Completion of the offshore area south of Penguin Bank, Lanai Island and Kahoolawe Island, inshore to a point where a junction could be made with future visual fix controlled work.

(d) Completion of the area between previous surveys shown on Chart No. 4116, south of Lanai and Maui Islands, and the new surveys, Sheets Nos. 1 and 4, off the west coast of Hawaii Island.

SURVEY METHODS: The control was a combination of dead reckoning star sight control and fixed position.

In general, the area south of Oahu, and all work in depths less than 1000 fathoms was controlled by visual fixed positions.

On the boat sheet has been clearly shown the type of control on each sounding line, for your use, in determining the value of various parts of the work. The star sight positions are shown, and the remainder of the work has been variously classed, DEAD RECKONING, WEAK FIXED POSITIONS and GOOD FIXED POSITIONS.

In areas and on lines where the type of control has not been indicated, it is classified as GOOD FIXED POSITION.

All soundings were taken by the Fathometer, operated by an officer. In general, the "red light" method was used in depths less than 350 fathoms and the "white light" method in greater depths.

SERIAL TEMPERATURES: Serial temperatures were taken at the following locations:

10 miles south by west of Honolulu.
15 miles west of Lanai Island.
10 miles west of Keahole Point, Hawaii Island.
10 miles northwest of Mahukona, Hawaii Island.

CORRECTIONS TO FATHOMETER SOUNDINGS: All red light Fathometer soundings were corrected for velocity. For this correction the sheet was divided into three sections as follows:

1. The area south of Honolulu and west and south of Penguin Bank was corrected by using the serial temperature taken south of Honolulu.

2. The area southeast of Penguin Bank and west of the deep water channel between Kahoolawe Island and Hawaii Island was corrected by using the serial temperature taken west of Lanai Island

3. The area inside the 1000 fathom curve adjacent of the coast of Hawaii Island was corrected by using the serial temperature taken off Keahole Point.

"White light" soundings were not corrected for velocity, in accordance with authority from the Director dated December 12, 1929, which authority was based on data furnished by me December 5, 1929, herewith quoted in part:

"I give herewith a resumé of the reductions necessary on one sheet which has already been reduced.

From zero to 200 fathoms the reductions are plus and gradually increase from zero to three fathoms.

From 200 fathoms to 450 fathoms the reductions gradually decrease from plus three fathoms to zero.

From 450 fathoms to 1500 fathoms the reductions are negative and gradually increase from zero to seven fathoms.

From 1500 fathoms to 2250 fathoms the reductions are negative and gradually decrease from seven fathoms to zero.

From 2250 fathoms to 2635 fathoms the reductions are

again positive and gradually increase from zero to eleven fathoms.

It is therefore to be seen that this reduction is always less than one half of one percent and is generally very much less than that. Also this reduction is always less than half of the probable error of observation of a white light sounding."

No slope corrections were applied. Although in several places the slopes were very great,yet on this scale, according to the latest instructions, such corrections are unnecessary.

SIGNALS: Signals were all natural objects, or the summits of hills and mountains. The locations were taken principally from two sources;the list of triangulation stations and the Topographic Survey Quadrangles made by the U. S. Geological Survey.

These latter were indicated by a special symbol, - a purple circle with the name inked in in purple.

A complete list of signals used forms a part of this report.

STAR SIGHTS: Only two star sight positions were obtained during the execution of this work. For the method of treatment of these you are referred to my Hydrographic Sheets, Nos. 4 and 6, to the westward of the Hawaiian Islands.

ADJUSTMENTS: The lines of dead reckoning were adjusted to the star sights, where there were such, and the end closures adjusted on a proportion basis. The work was then examined on a basis of the crossings and further adjustments made to make the work check and logical.

The original closures and adjustments were as follows:

Positions 4A - 62A, 9 hr. 40 min., closure 1.66 mi., 334.5° true.
Positions 62 A- 91A, 4 hr. 56.4 min., " 6.57 mi., 320° true.
Positions 1B - 18B, 3 hr. 25.2 min., " 4.40 mi., 283° true.
Positions 12D - 31D, 2 hr. 17.5 min., " 2.00 mi., 190.5° true.
Positions 31D - 90D, 9 hr. 41.5 min., " 3.80 mi., 326.8° true.
Positions 8E - 95aE, 14 hr. 28 min., " 2.05 mi., 240.0° true.
Positions 1F - 31F, 7 hr. 27.0 min., " 1.72 mi., 328° true.
Positions 29U - 58U, 4 hr. 27.5 min., " 0.45 mi., 74.0° true.
Positions 58U -125aU,11 hr., 11.8 min., " 1.40 mi., 60° true.

The above were all proportionately adjusted closures, not taking into account the crossings or depths.

The final additional adjustments were as follows:-These were adjustments made after the soundings were put on the sheet. In each case the stronger control was held fixed and the weaker adjusted.

Position 19A moved 0.9 mi. south and the work readjusted to this point.
Positions 4 to 11aA all moved and the line curved to make soundings and depth curves appear regular.
Position 79D moved 0.94 mi. 286° true to make crossing agree. Remainder of line readjusted to this position.
Position 59E moved 1.0 mi. 115° true. Work replotted and readjusted. This made the closure of the dead reckoning 8 to 59E 1.0 mi. 208.5° true, and of the line 59 to 95aE 1.27 mi. 240.0° true.
Position 19F moved 2.13 mi. 317.5° true to make crossing fit. Adjusted 1 to 19F on this basis, which made the closure 19 to 31F 0.51 mi. 102.8° true.

COMPARISONS WITH PREVIOUS HYDROGRAPHY:

1. The 1524 fathom sounding 18 miles southwest of Kahoolawe Island appears wrong and should be rejected.

2. The 1474 fathom sounding, 28 miles southwest of Lanai Island appears wrong and should be rejected.

Other than the above two instances the new work checks the old as closely as could be expected from this type of work.

ADDITIONAL WORK: Probably additional work will be necessary south of Lanai Island, inside of the 1000 fathom curve.

The northernmost line on F day and the E day line running across this area were dead reckoning and should probably be rejected, in favor of future fixed position work inside the 1000 fathom curve. When this work was executed it was not expected that it would be considered other than reconnaissance hydrography.

In clear weather fixed positions can be obtained to cover the entire area here inside the 1000 fathom curve. For example, the lines on L day and Y day are all fixed position control.

The area south of Oahu Island is somewhat irregular of bottom and in several places soundings appear which are shoaler than the surrounding depths. It was not felt however that additional investigation was necessary. Your attention however is called to the following soundings:

(a) 200 fathoms 54 - 55W
(b) 246 fathoms 42 - 43W

(c) 210 fathoms 32Y
(d) 250 fathoms 89X
(e) 250 fathoms 87X
(f) 240 fathoms 51Y

POOR CONTROL: The work covered such a large area with objects on so many different islands and was so intermittent that officers had difficulty picking out the correct peaks and remembering them.

The following objects especially were confusing:

(a) The eastern end of Oahu Island has several rather sharp peaks. These are on the smooth sheet as KOKO CRATER, MAKAPUU, ONE, KNOL and OUT. Running east from Oahu Island no difficulty was encountered;but coming west and approaching Oahu Island for some time after the objects became visible it was problematical which one was being taken. Later in the work this area became better known and caused less confusion.

(b) Mauna Loa. Presumably this is the highest point on this part of Molokai Island, but it is very deceptive. This part of the island is rather flat with no definite points for use. When passing by,to the southward, an object was necessary in this vicinity and this was used with caution,although almost the only assurance we had, was the fact that the line did not jump.

(c) Puu Manu. From certain directions this was definite and a good object. However from other directions it was questionable when it was seen or another object which was similar to it. Lanaihale was usually in the haze or clouds and was not available. This caused the readjustment of the line 21 - 34B.

(d) Highest point on Maui Island. KOLE was first used on this sheet and it probably was the best point for the larger part of this sheet. Later, however, when working on Sheet No.4 south of Maui Island, after a study of the topography Mag was used, which was slightly higher. This caused confusion, the officers could not keep correct which peak was which, and were continually using the incorrect one.

(e) Mauna Loa is very indefinite. It rises very gradually to the highest point, both slopea being absolutely smooth and gradual. It was very difficualt to estimate the highest point and when close to the Island of Hawaii, at times it was questionable whether the highest point could be seen or not. However, it was the only object in this vicinity and had to be used.

TIDAL REDUCTIONS: No tidal reductions were made on this sheet.

DEAD RECKONING: The dead reckoning was kept in a separate record, the time and position numbers serving to corollate the sounding data to the dead reckoning data.

Two logs were streamed at all times when doing dead reckoning.

Dead Reckoning Forms were made up, in which the data was arranged in a usable form, with logged distances all reduced to plotting distances. These Dead Reckoning Forms, form a part of the data transmitted with this sheet.

JUNCTION WITH OTHER WORK: On the southwest the sheet makes a junction with the work on Sheet No. 6 and Sheet No. 6 C. The junction is not regular, the point of shifting from one sheet to another having been determined by the limit of fixed positions at that time. However,the work here is complete, when all sheets are taken into consideration.

RECORDS: The following records and reports form a part of the data accompanying this sheet:

1 Smooth Sheet
1 Boat Sheet
3 Sounding Records
1 Dead Reckoning Book
3 Star Sight Books
3 Dead Reckoning Sheets
8 Star Sight Sheets
3 Compass Curves
1 List of Log Factors and Dates Used.
3 Lists of Velocity of Sound Corrections
1 List of Salinity Observations
4 Lists of Serial Temperatures
1 List of Signals.

K. T. Adams

K. T. Adams,
H & G E, C & G S,
Chief of Party.

VERIFICATION REPORT
to accompany
HYDROGRAPHIC SHEET NO. 2,
Oahu Island to Hawaii Island,
Territory of Hawaii.

This will certify that I have examined the completed hydrographic sheet and records and hereby approve same.

The field work was done under my direct supervision.

Your attention is called to two adjustments which were made to the three point fix control, as follows:

FIRST- Positions 16 to 20, V day, were adjusted to make a straighter line and to make the work more logical.

SECOND; Positions 22 to 33, B day, were re-adjusted, rejecting the right angle. It was very probable that △ PUU MANU was not actually seen but that some point of similar appearance was used.

The star and sun sights, although recorded and computed in separate volumes, have been cut out and bound all in one cahier. This was done to eliminate such a bulk of records for such a small amount of data.

K. T. Adams

K. T. Adams,
Commanding,
Steamer GUIDE.

LIST OF SIGNALS, to accompany HYDROGRAPHIC SHEET NO. 2, Oahu Island to Hawaii Island, Territory of Hawaii.

Hawaii Island

△ Puu ULA
△ LAHIkiola
△ Puu PILI
KAUNU - o - Kaleioohie
△ Puu Pa (PUPA)
△ HOLOholoku
NOHOnaohae
△ Puu HINAI
△ ANAhulu
△ KUILI
△ Summit
Mauna Kea
Puu Waa Waa (WAWA)
△ KeaHOLE Pt. L. H.
△ HUALalai 2
△ Bright
Mauna Loa Pk.
White
△ Napoopoo L. H.

Oahu Island

Kepuhi
Puu Keaau
Kaala
KAMAohanui
△ Kaua
PALIkea
△ Puu o HULU S.
△ MaNAWAhua
△ Kapuai
Makakilo
△ Ewa Mill Chimney
△ Barbers Point L. H.
△ E. Radio Tower
KEAHIakahue
LANIhuli
△ KONAhuanui
△ Aloha Tower
△ Leahi (Diamond Head)
△ Diamond Head L. H.
Puu o KENO
Puukano (OUT)
Knol
△ Makapuu
One
△ Koko Crater
△ Koko Head

Molokai Island

△ Kaeo
Kaia
Waiele
1375 ft.
△ Mauna Loa (Mt.Nana)
△ MIDDLE Hill (Kuala Hill)
Nub
△ Kilohana
△ Kaulahuki (KAEO)(LUKI)
△ KamaKOU

Maui Island

Molopini L. H.
Kukui
HalepoHAKU
Hanamanioa L. H.
Kaeo
△ OLAI (Puu Olai)
MAGnetic Pks.
△ KOLEkole Pt.
△ HANAkauni
KUIKI
KauMAKAni
8423 ft.

Lanai Island

△ WHITE Light (Kamalapau L.H)
O Oil Tank
LANAIhale
△ Puu MANU
△ Puu MAHAnalua

Kahoolawe Island

△ S. Crater
△ Kahoolawe (KAHOO)
△ Blow
Knoll
916 ft.
O Kahoolawe L. H.

NOTE: Singals "OIL TANK" (Lanai Island) and Kahoolawe L. H. were scaled from the chart. All other signals not marked as △ stations were scaled from the Topographic Survey Quadrangles, madeby the U. S. Geological Survey.

STATISTICS
Sheet - #2

Oahu to Hawaii T.H.

Date	Day	Soundings Number	Soundings White lt. Sta. Mi.	Soundings Red Lt. Sta.Mi.	V. C.	Total sndgs. for day	Total Sta. Miles for day.	No. of Positions
11/6/28	A	260	94.3			260	94.3	41
11/17/28	B	49	26.6	1.4		49	28.0	34
12/6/28	C	10	4.9	1.2		10	6.1	6
12/20/28 /21/	D	188	158.9			188	158.9	94
1/2/29 /3/	E	164	113.5	35.4		164	148.9	98
1/12/29	F	124	101.1	17.5		124	118.6	42
1/17/29	G	36	26.3	5.7		36	32.00	17
1/31/29	H	102	61.5	24.0		102	85.5	75
2/6/29	J	34	21.8	17.1	1	35	38.9	23
2/20/29	K	52	12.6	21.8		52	34.4	32
3/3/29	L	167	107.6	20.7		167	128.3	81
3/25/29	M			11.1			11.1	8
7/31/29	N	3	2.0	2.9		3	4.9	4
8/8/29	P	3	1.0	12.0		3	13.0	19
8/9/29	Q	20	9.7	3.4		20	13.1	15
8/12/29	R	14	7.5			14	7.5	8
8/31/29	S	19	14.2			19	14.2	13
9/10/29	T	29	21.7	1.9		29	23.6	27
10/19/29	U	225	186.1	3.6		225	189.7	127
10/26/29	V	148	38.9	22.8		148	61.7	72
11/5/29	W	116	38.9	38.9		116	77.8	81
11/11/29	X	84	17.0	85.8		84	102.8	98
11/12/29	Y	42	9.1	74.3	1	43	83.4	84
11/14/29	Z			20.3			20.3	24
TOTALS		1889	1075.1	421.8	2	1891	1497.0	1123

TIDAL NOTE.

Sheet No.2.
Hawaii to Oahu, T. H.

There are no tidal reductions for this sheet, all reducers being less than 1% of the depth.

DATA SHEET FOR OCEAN OBSERVATIONS.
Sheet No.2.
Oahu to Hawaii, T. H.

Sample No Date Time	Latitude Longitude	Therm. No. Reading Cor. Temp.	~~Haul No.~~ ~~Apparatus~~ Depth-fms.	Salinity
#100 11/10/28 2:51 p.m.	19-42.6N. 156-06.6W. N'		1012	35.35
#101 12/17/28 8:07 a.m.	O' 19-56.8N. 155-59.3W.	8.2	228	34.33
#102 12/17/28 8:48 a.m.	P' 19-58.0N. 156-04.1W.	6.5	315	34.38
#103 12/17/28 9:40 a.m.	⊕ 19-58.3N. 156-09.5W.	3.8	639	34.60
#104 1/3/ 29. 12:54 p.m.	P' 20-00¾N. 156-01.0W.		312	34.42
#105 1/3/29 . 2:08 p.m.	Q' 20-00.9N. 155-51.8W.	#41798 24.2 C	77	35.13
#106 1/5/29 . 9:06 a.m.	P' 20-02.0N. 156-06.3W.	4.3 C	518½	34.74
#107 1/5/29 . 10:05 a.m.	R' 20-02.4N. 156-13.0W.	3.4	704	34.76
#108 1/5/29 . 1:01 p.m.	S' 20-03.9N. 155-56.6W.	7.6	235½	34.69
#109 1/9/29 . 3:04 p.m.	Q 20-00.9N. 155-55.0W.	9.0	214	34.47

⊕ not room to plot.

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DATA SHEET FOR OCEAN OBSERVATIONS.
Sheet No.2.
Oahu to Hawaii, T. H.

Sample No Date Time	Latitude Longitude	Therm. No. Reading Cor.Temp.	~~Haul No.~~ ~~Apparatus~~ Depth-fms.	Salinity
#110 1/9/29 8:40 a.m.	20-06.0N. 156-02.2W. T	#4114 17.1	492½	34.66
#111 1/9/29 9:46 a.m.	20-06.2N. 156-10.1W. B	13.8	632	34.69
#112 1/31/29 9:50 a.m.	20-22.5N. U 155-39.2W.	23.5	Surface	35.07
#113 2/6/29 2:00 p.m.	20-47.7N. V 157-12.9W.	#41790 24.0	Surface	34.70
#114 2/6/29 4:00 p.m.	20-47.7N. V 157-12.9W.	4.4	550	34.99
#115 2/8/29 1:42 p.m.	20-13.9N. 156-09.4W. W	#41798 4.0	574	34.77
#116 2/10/29 11:24 a.m.	20-16.9N. 156-03.2W. +	#4104 4.45C	509	35.21
#121 4/19/29. 5:45 p.m.	21-00.5N. D 156-30.9W.	24.1	Surface	35.06
#122 4/19/29 8:30 p.m.	20-01.0N. 156-54.7W. Y	24.2	Surface	34.96
#123 4/19/29. 11:08 p.m.	21-05.2N. 157-21.5W. Z	24.1	Surface	34.97

D no room to plot.

T

DATA SHEET FOR OCEAN OBSERVATIONS.
Sheet No.2.
Oahu to Hawaii, T. H.

Sample No Date Time	Latitude Longitude	Therm. No. Reading Cor. Temp.	~~Haul No.~~ ~~Apparatus~~ Depth-fms.	Salinity
#124 4/20/29. 1:20 a.m	21-10.5N. 157-40.7W. A	23.9	Surface	34.92
#233 10/9/29. 5:00 p.m	20-34.5N. 157-43.5W. B	26.3	W.S. 203 Canv. buck. Surface	35.25
#236 10/9/29. 9:00 p.m.	20-09.4N. 157-17.0W. C	26.0	W.S. 204 Canv. buck. Surface	34.83
#244 11/12/29. 3:15 p.m.	21-09.8N. 157-56.0W. D	14996 .065	W.S. 209 Cup T-77 300.5 Fms	34.29

NOTE: Refer to copies of Salinity observations made by GUIDE, sent to the DIRECTOR by the Scripps Institute of Oceanography of the University of California, under dates of February 14 and (September 18, 1929,) and January 25, 1930.

* found in Tides: temp file no. 145.

SHEET NO. 2.

Oahu to Hawaii .
Serial Temperatures

Lat. 20-22 N
Long.156-02 W
Feb. 23, 1929

Deptn	#4114	#4104
2	23.40	23.25
15	23.40	23.20
30	23.00	22.80
50	22.25	22.10
70	20.40	20.35
85	19.60	19.35
105	17.70	17.45
120	15.85	15.60
135	13.80	-- --
150	12.00	12.10
165	10.60	10.50
180	10.20	11.20
196½	8.80	8.75
250	7.60	7.65
480	4.60	4.60

Recorder --- G. W. Lovesee.

SHEET #2.
Oahu to Hawaii, T. H.

Serial Temperature 10 mi. W. of Kiahole St.

Lat. 19-44-N F2 Long. 156-14.5-W
Feb. 22, 1929.

Depth in fathoms	°C.
2	24.35
10	23.60
25	22.95
35	22.45
40	22.25
47	22.00
60	21.90
75	21.10
90	20.45
105	18.50 ?
112	19.70
120	18.30
125	17.50
130	15.80
140	14.45
150	14.45
	15.10
160	11.00
	12.80
175	10.70
190	9.85
205	8.90
225	8.40
250	7.50
285	7.00
326	6.20
400	5.20
550	4.25
800	3.15

Officer of the Deck------ H. C. Warwick
Recorder ---------- F. B. Quinn.

SHEET NO. 1.
Temperatures

16 miles W. of Keahole Pt. Lt.
Mean Surface Temp. 25.65
Mean Salinity 34.5

Depth	Temp °C		Sums	Mean Temp.	Factor		Summary
						Corr.	Depth
2	24.3	25.65			+.0275		
10	23.6	24.95	50.6	25.3	.02695		
20	23.1	24.45	75.05	25.02	.0265		
30	22.7	24.05	99.1	24.78	.0262	+0.5	17 to 20.8
40	22.25	23.6	12,27	24.54	.0258	+0.6	" 24.7
50	21.9	23.35	145.95	24.35	.0255	+0.7	" 28.6
60	21.85	22.5	168.45	24.06	.0251	+0.8	" 32.6
70	21.5	21.5	189.95	23.75	.0245	+0.9	" 36.6
80	20.8		210.85	23.43	.0239	+1.0	" 40.7
90	20.0		230.85	23.08	.0232	+1.1	" 44.8
100	19.05		249.9	22.72	.0224	+1.2	" 48.9
	18.05		267.95	22.33	.0217	+1.3	" 53.2
	17.0		284.95	21.92	.0208	+1.4	" 57.5
	15.8		300.75	21.48	.0200	+1.5	" 62.0
	14.45		315.2	21.01	.0190	+1.6	" 66.8
150	13.3		328.5	20.53	.0181	+1.7	" 71.7
		12.15	340.65	20.04	.0171	+1.8	" 76.8
		11.15	351.8	19.54	.0162	+1.9	" 82.1
		10.4	362.2	19.06	.0153	+2.0	" 87.8
		9.85	371.95	18.60	.01455	+ 2.1	" 93.9
200		9.25	381.3	18.15	.0138	+2.2	" 100.4
		8.7	389.9	17.73	.0130		
		8.4	398.4	17.33	.0122	+2.0	100 to 120
		8.2	406.6	16.94	.0114	+3.0	121 to 250
		7.95	414.55	16.58	.0107	+2.0	250 " 330
250		7.7	422.25	16.24	.0100	+1.0	330 " 412
		7.5	429.75	15.92	.0093	+0.0	413 " 484
		7.25	436.9	15.60	.0085	-1.0	484 " 555
		7.1	444.1	15.31	.0078	-2.0	556 " 605
		6.9	451.0	15.03	.0071	-3.0	605 " 707
300		6.7	457.7	14.76	.0064	-4.0	707 " 802
		6.5	464.2	14.50	.00575	-5.0	802 " 925
		6.3	470.5	14.25	.0051	-6.0	925 " 1093
		6.15	476.65	14.02	.00455	-7.0	1093 " 1685
		5.95	482.6	13.78	.0041	-6.0	1685 " 1825
350		5.8	488.4	13.57	.0036	-5.0	1825 " 1910
		5.7	494.1	13.35	.0032	-4.0	1910 " 1985
		5.5	499.6	13.14	.0028	-3.0	1985 " 2060
		5.35	504.95	12.95	.0024	-2.0	2060 " 2130
		5.25	510.2	12.76	+.0020	-1.0	2130 " 2195

	Temp °C	Sums	Mean Temp.	Factor	Summary corr.	Depth
400	5.2	515.4	12.57	+.0016	0.0	2195 to 2246
	5.1	520.5	12.39	.0013	+1.0	2246 " 2296
	5.0	525.5	12.22	.0009	+2.0	2296 " 2344
	4.90	530.4	12.05	.0006	+3.0	2344 " 2389
	4.85	535.25	11.89	+.0003		
450	4.75	540.0	11.74	.0000		
	4.7	544.7	11.59	-.0003		
	4.65	549.35	11.44	.0006		
	4.6	553.95	11.30	.0009		
	4.55	558.5	11.17	.0012		
500	4.5	563.0	11.04	.0014		
	4.45	567.45	10.91	.0017		
	4.4	571.85	10.78	.0019		
	4.35	576.2	10.67	.0022		
	4.3	580.5	10.55	.0024		
550	4.25	584.75	10.44	.0026		
	4.2	588.95	10.33	.0028		
	4.15	593.1	10.22	.0031		
	4.1	597.2	10.12	.0033		
	4.05	601.25	10.02	.0035		
600	4.00	605.25	9.92	-.0037		

Scaled from curve		From Above Means				Sums	Mean Vel.	
0-200		18.15	825.65	3.95	829.60			
200-400		6.70	809.90	1.21	811.11	1640.71	820.36	.000439
400-600		4.49	808.36	0.93	809.29	2450.00	816.67	.00406
600-800	3.55		810.60	0.98	811.58	3261.58	815.40	.00561
800-1000	2.90		812.52	1.05	813.57	4075.15	815.03	.00606
1000-1200	2.45		815.01	1.14	816.15	4891.30	815.22	.00583
1200-1400	2.15		816.88	1.29	818.17	5709.47	815.64	.00532
1400-1600	2.00		820.5	1.48	821.98	6531.45	816.45	.00435
1600-1800	1.90		823.3	1.65	824.95	7356.40	817.38	.00319
1800-2000	1.85		828.2	1.84	830.04	8186.44	818.64	.00166
2000-2200	1.80		829.9	2.03	831.93	9018.37	819.85	.000183
2200-2400	1.75		834.75	2.26	837.01	9855.38	821.28	.001561
				2.49				

SHEET #2.

Oahu to Hawaii, T.H.

Serial Temperature 15 mi. W. of Lanai, T. H.

Lat. 20-47.7-N. Long. 157-12.9-W
Feb. 6, 1929.

Depth in fathoms	°C.	
2	24.00	
10	23.95	
25	23.85	
37	23.70	
44	23.50	
50	22.70	
57	22.40	
68	21.65	
75	21.20	
86	20.20	
98	18.90	
109	17.75	
120	17.00	
133-	15.70	
146	14.10	
160	13.00	
180	11.60	
196	9.90	
210	9.25	
235	8.25	
265	7.70	
298	6.90	
338	6.10	
409	5.25	
550	4.40	
825	3.10	
1240	2.20	Bottom

Officer of the Deck--)F. L. Gallen
)H. C. Warwick
Recorded by ---F. B. Quinn

SHEET NO. 2.
Oahu to Hawaii

Feb. 6, 1929.
Lat. 20-47.7 N.
Long.157-12.9 W.
15 Mi. W. of Lanai.
Salinity 34.9

Velocity correction for Red Light.

Depth	Temp.	Sum	Mean	Factor	Corr.	Depth	Corr.
Surface	24.0						
13 1/3	23.9	47.9	23.95	+.0257	+.342		
26 2/3	23.8	71.7	23.90	+.0256	+.683	3.0	
40	23.6	95.3	23.82	+.0254	+1.016		+0.1
53 1/3	22.4	117.7	23.54	+.0249	+1.33	7.0	
66 2/3	21.3	139.0	23.17	+.0241	+1.61		+0.2
80	20.5	159.5	22.79	+.0234	+1.79	10.5	
93 1/3	19.1	178.6	22.33	+.0225	+2.00		+0.3
106 2/3	17.7	196.3	21.81	+.0214	+2.28	15.0	
120	16.7	213.0	21.30	+.0204	+2.45		+0.4
133 1/3	15.4	228.4	20.76	+.0193	+2.57	19.5	
146 2/3	13.9	242.3	20.02	+.0178	+2.61		+0.5
160	12.9	255.2	19.64	+.0170	+2.72	23.0	
173 1/3	11.9	267.1	19.08	+.0160	+2.77		+0.6
186 2/3	10.8	277.9	18.54	+.0149	+2.79	26.0	
200	9.7	287.6	18.00	+.0140	+2.80		+0.7
213 1/3	9.2	296.8	17.48	+.0128	+2.73	30.5	
226 2/3	8.5	305.3	16.98	+.0118	+2.67		+0.8
240	8.1	313.4	16.52	+.0108	+2.59	34.5	
253 1/3	7.8	321.2	16.06	+.0100	+2.53		+0.9
266 2/3	7.5	328.7	15.59	+.0089	+2.38	38.5	
280	7.2	335.9	15.27	+.0080	+2.24		+1.0
293 1/3	6.9	342.8	14.91	+.0071	+2.08	43.0	
306 2/3	6.7	349.5	14.56	+.0062	+1.90		+1.1
320	6.4	355.9	14.23	+.0055	+1.76	47.0	
333 1/3	6.2	362.1	13.93	+.0048	+1.60		+1.2
346 2/3	6.0	368.1	13.65	+.0042	+1.45	51.5	
360	5.8	373.9	13.35	+.0036	+1.30		+1.3
373 1/3	5.7	379.6	13.09	+.0031	+1.16	55.5	
386 2/3	5.5	385.1	12.84	+.0028	+1.08		+1.4
400	5.3	390.4	12.59	+.0021	+0.84	60.5	
413 1/3	5.2	395.6	12.36	+.0016	+0.66		+1.5
426 2/3	5.1	400.7	12.15	+.0012	+0.51	66.5	
* 440	5.0	405.7*	11.93	+.0008	+0.35		+1.6
466 2/3	4.8	410.5	11.40	-.0003	-0.14	72.0	
493 1/3	4.7	415.2	10.93	-.0012	-0.59		+1.7

SHEET NO. 2.
Oahu to Hawaii
(Continued)

Velocity correction for Red Light.

Depth	Temp.	Sum.	Mean.	Factor	Corr.	Depth.	Corr.
520	4.5	419.7	10.38	−.0023	−1.20	78.0	
546 2/3	4.3	424.0	10.10	−.0029	−1.58		+1.8
573 1/3	4.2	428.2	9.74	−.0036	−2.04	84.0	
600	4.1	432.3	9.40	−.0043	−2.58		+1.9
626 2/3	3.9	436.2				90.0	
653 1/3	3.8	440.0					+2.0
680	3.7	443.7				316.0	
706 2/3	3.6	447.3					+1.0
733 1/3	3.4	450.7				403.0	
760	3.3	454.0					0.0
786 2/3	3.2	457.2				502.0	
823 1/3	3.1	460.3					
840	2.9	463.2					
866 2/3	2.8	466.0					
893 1/3	2.8	468.8					
920	2.7	471.5					
946 2/3	2.6	474.1					
973 1/3	2.5	476.6					
1000	2.4	479.0					
1026 2/3	2.3	481.3					
1053 1/3	2.3	483.6					
1080	2.2	485.8					
1106 2/3	2.2	488.0					
1133 1/3	2.2	490.2					
1160	2.2	492.4					
1186 2/3	2.2	494.6					
1213 1/3	2.2	496.8					
1240	2.2	499.0					

SHEET #2.

Oahu to Hawaii, T. H.

Serial temperature 10 mi. SxW of Aloha Tower, Honolulu

Lat. 21-09.8-W D² Long. 157-56.0-W
Nov. 12, 1929.

Koho Crater	38-53
Aloha Tower	
Hulu	65-37

Depth in fathoms	°C.	
Surface	27.5	
15	27.2	
30½	26.4	
35-1/6	24.8	
40-1/3	23.6	
50	22.6	
60-1/3	21.8	
70-1/3	21.4	
72 ½	21.3	
85-1/3	20.6	
100½	18.5	
120	16.3	
300½	6.5	Bottom- Grey clay.

Officer of the deck - W. H. Bainbridge
Recorder - " " "

SHEET NO. 2.
Oahu to Hawaii.
10 Mi. S.W. of Honolulu, Nov. 12, 1929.
Salinity 34.9 Velocity Corr. For R. L.

Depth.	Temp.	Sum	Means	Factor	Corr.
0	27.5				
13 1/3	27.3	54.8	27.40	+ .0309	+ .41
26 2/3	26.7	81.5	27.17	.0306	.81
40	23.7	105.2	26.30	.0293	1.17
53 1/3	22.2	127.4	25.48	.0280	1.51
66 2/3	21.3	148.7	24.78	.0277	1.85
80	20.6	169.3	24.19	.0262	2.10
93 1/3	19.3	188.6	23.58	.0250	2.33
106 2/3	17.5	206.1	22.90	.0236	2.52
120	16.2	222.3	22.23	.0223	2.68
133 1/3	15.0	237.3	21.57	.0211	2.81
146 2/3	13.5	250.8	20.90	.0196	2.87
160	12.5	263.3	20.27	.0183	2.93
173 1/3	11.6	274.9	19.64	.0171	2.96
186 2/3	10.7	285.6	19.04	.0159	2.97
200	10.0	295.6	18.48	.0148	2.96
213 1/3	9.3	304.9	17.93	.0137	2.92
226 2/3	8.8	313.7	17.43	.0127	2.88
240	8.2	321.9	16.94	.0117	2.81
253 1/3	7.8	329.7	16.48	.0108	2.73
266 2/3	7.4	337.1	16.05	.0099	2.64
280	7.0	344.1	15.63	.0090	2.52
293 1/3	6.7	350.8	15.26	.0080	2.35
306 2/3	6.3	357.1	14.88	.0071	2.18
320	6.1	363.2	14.53	.0062	1.98
333 1/3	5.8	369.0	14.20	.0054	1.80
346 2/3	5.7	374.7	13.86	.0046 ✓	1.60
360	5.5	380.2	13.58	.0040 ✓	1.44
373 1/3	5.3	385.5	13.30	.0035	1.31
386 2/3	5.2	390.7	13.02	.0029	1.12
400	5.0	395.7	12.75	.0024	0.96
413 1/3	4.8	400.5	12.51	.0019	0.78
426 2/3	4.7	405.2	12.28	.0014	0.60
440	4.6	409.8	12.05	.0010	0.44
453 1/3	4.5	414.3	11.84	.0006	0.27
466 2/3	4.3	418.6	11.63	+.0002	+ 0.09
480	4.3	422.9	11.43	-.0002	- 0.09

Summary

Depth	Cor.
0 - 6.0	+.1
6.0 - 9.0	+.2
9.0 - 12.0	+.3
12.0 - 15.5	+.4
15.5 - 19.0	+.5
19.0 - 22.5	+.6
22.5 - 26.0	+.7
26.0 - 30.0	+.8
30.0 - 33.5	+.9
33.5 - 37.0	+1.0
37.0 - 41.0	+1.1
41.0 - 45.0	+1.2
45.0 - 49.5	+1.3
49.5 - 53.0	+1.4
53.0 - 57.5	+1.5
57.5 - 61.0	+1.6
61.0 - 65.0	+1.7
65.0 - 70.0	+1.8
70.0 - 74.0	+1.9
74.0 - 125	+2.0
125 - 250	+3.0
250 - 337	+2.0
337 - 412	+1.0
412 - —	+0.0

LOG DATA

Sheet No. 2,

Oahu to Hawaii, T.H.

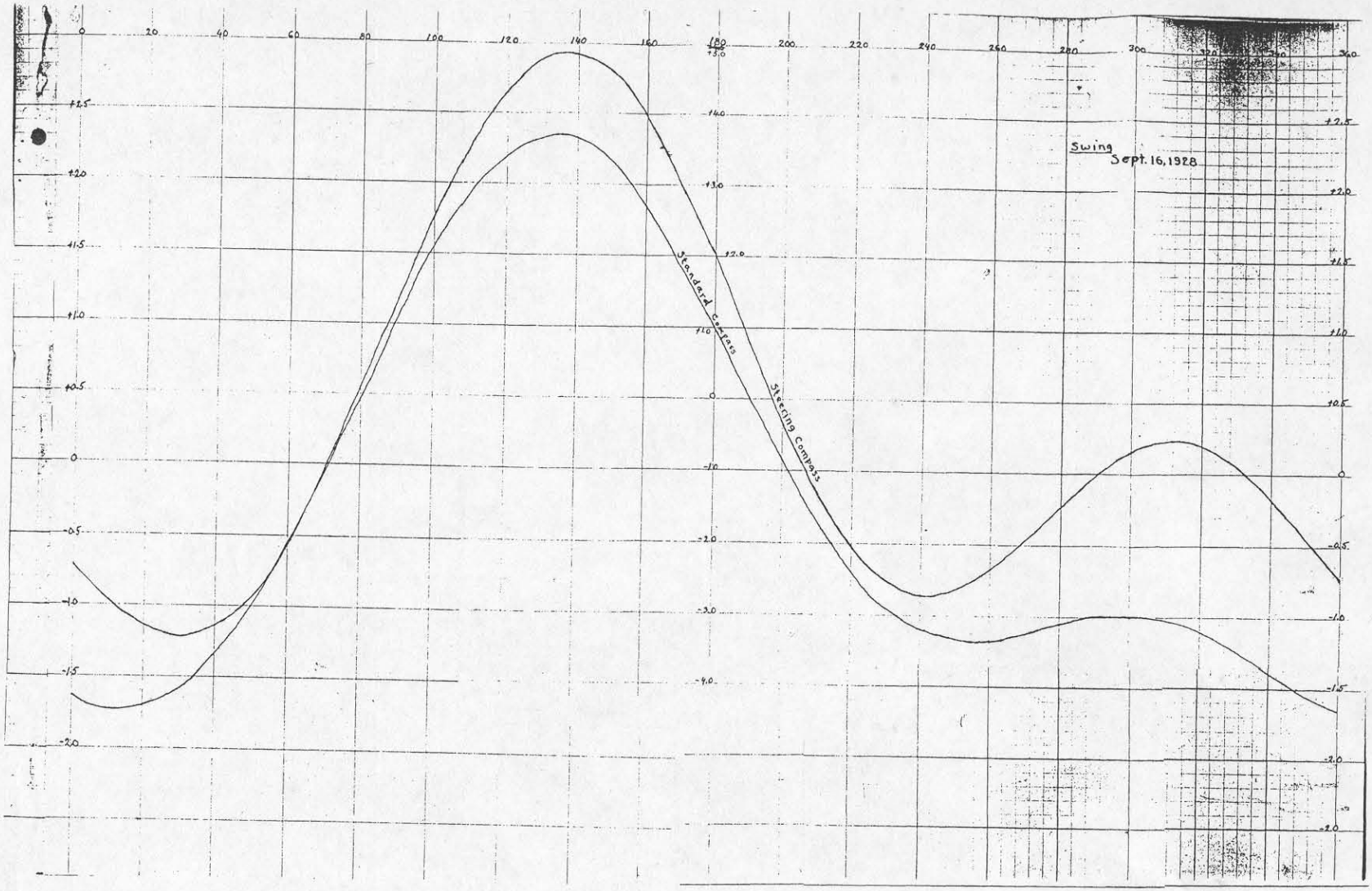
PERIOD	LOG	FACTOR	LOG	FACTOR
Sept. 30, 1928 to Jan.3,1928	194	0.875	195	0.945
Jan. 11 to April 28, 1929	194	0.965	195	1.049
July 27 to Sept. 29, 1929	194	1.0074	195	1.034

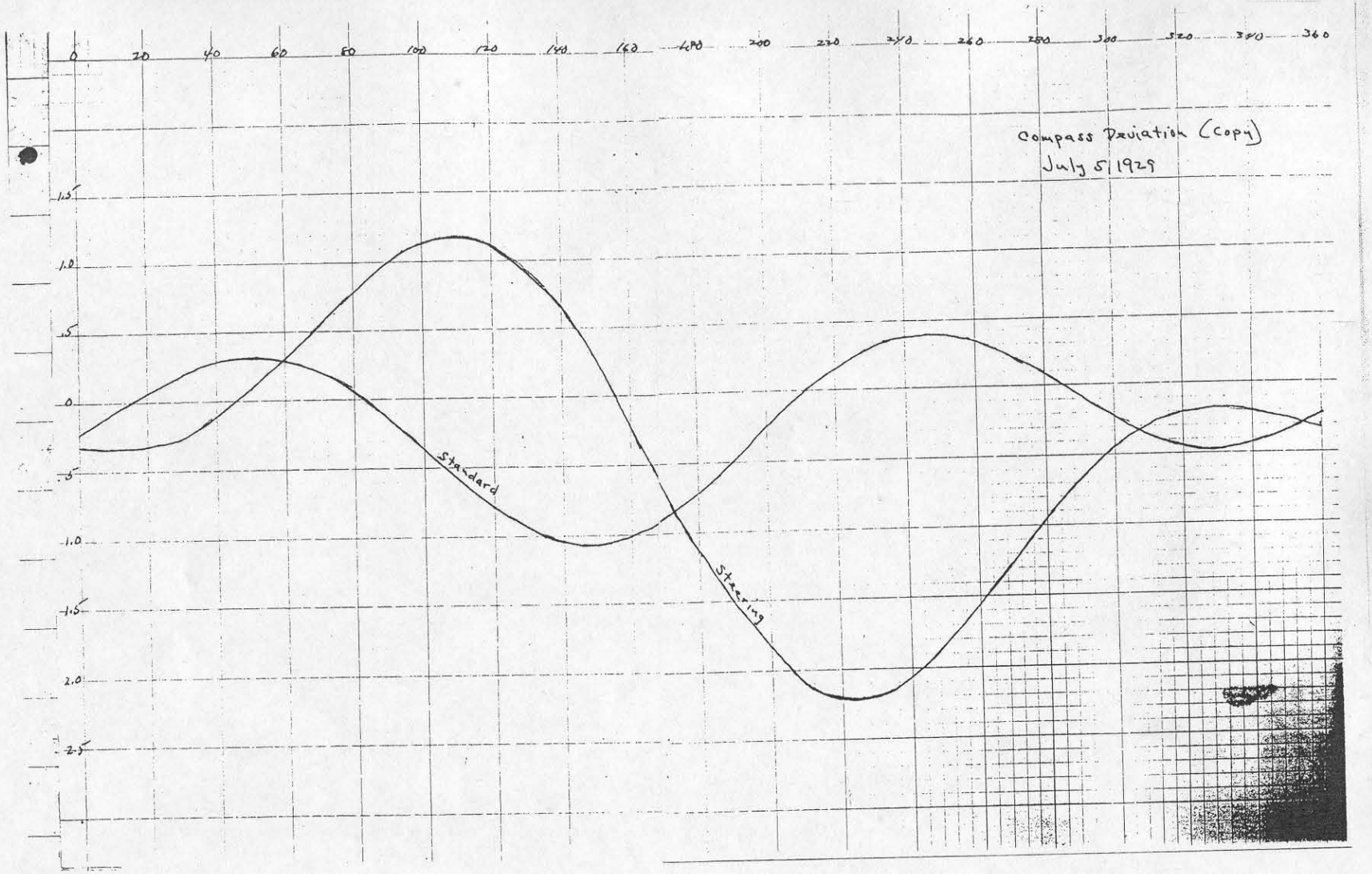
From October 9 to November 14, 1929, the log factors used were on the basis of log distances and scaled distances between fixes.

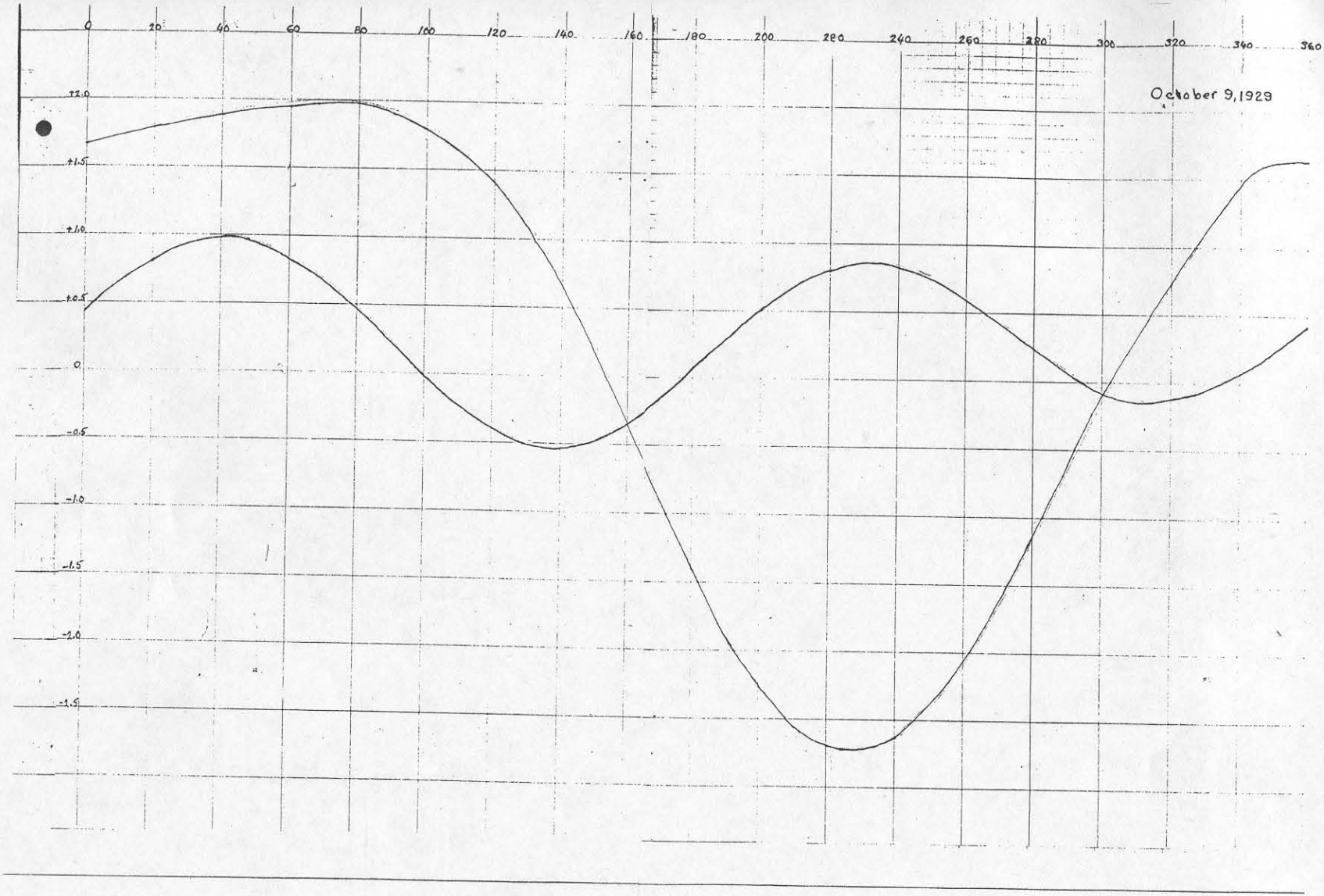
COMPASS DATA

Sheet No. 2.
Oahu to Hawaii, T. H.

Sept. 16, 1928	to Apr. 22, 1929	Sept. 16, 1928	Sept. 16, 1928.
May, 29, 1929	to July 31, 1929	July 5, 1929	July 5, 1929.
Aug. 12, 1929	----------	Oct. 9, 1929	Oct. 9, 1929.


Swing
Sept. 16, 1928
Standard Compass
Steering Compass


0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360
1.5
1.0
.5
0
.5
1.0
1.5
2.0
2.5
Standard
Steering
Compass Deviation (copy)
July 5 1929


0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
+2.0
+1.5
+1.0
+0.5
0
-0.5
-1.0
-1.5
-2.0
-2.5
October 9, 1929

(FOR FILES OF FIELD RECORDS)

January 31, 1931

Division of Hydrography and Topography:

Division of Charts:

Tide Reducers are approved in
3 volumes of sounding records for

HYDROGRAPHIC SHEET 5054

Locality Territory of Hawaii(Id. of Oahu to Id. of Hawaii)

Chief of Party:
Plane of reference K.T. Adams , in 1928 and 1929
ft. on tide staff at
ft. below B. M.

No tide reducers entered. Less than one per cent of depths

Condition of records satisfactory except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.

PCM

Chief, Division of Tides and Currents.

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 5054

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

Number of positions on sheet	1123
Number of positions checked	125
Number of positions revised	0
Number of soundings recorded	1891
Number of soundings revised	26
Number of signals erroneously plotted or transferred	None

Date: 18 November 1931

Cartographer: L. M. McGlincy

Section of Field Records

Sheet No H 5054
Surveyed in 1928 – 1929
Chief of Party – K.T. Adams
Surveyed by – K.T. Adams
Protracted by – H.A. Karo
Soundings plotted by – H.A. Karo and F.E. Johnson
Verified & Inked by – E.L. McGlasson

1. The records conform to the requirements of the general instructions.
2. The value and character of development fulfill the requirements of the general instructions.
3. The sounding line crossings are extremely good in water of such depths as is on this sheet. All soundings were taken with the fathometer and their accuracy ~~has~~ have been verified by adjoining sheets.
4. The usual depth curves can be completely drawn within the limits of the sheet.

5. The field plotting was completed to the extent prescribed in general instructions.

6. The office draftsman did not have to do over any part of drafting done by field party except as noted on statistic sheet. This sheet was controlled by a combination of dead reckoning, star sight, and fixed positions. In so far as I can determine the plotting was well done consequently there were few changes made on the smooth sheet.

7. The junctions with adjacent sheets were extremely good.

Respectfully submitted,

E. D. McGlasson

IN REPLY ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY
AND NOT THE SIGNER OF THIS LETTER

AND REFER TO No. 80-DRM

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

SECTION OF FIELD RECORDS

Review of Hydrographic Sheet No. 5054

Offshore, Hawaiian Islands - Oahu to Hawaii

Instructions dated October 8, 1928, April 12, 1929 (GUIDE)

Chief of Party, K. T. Adams

Surveyed by K.T.A.

Protracted by H. A. Karo

Soundings plotted by H.A.K. and F. G. Johnson

Verified by G. C. McGlasson

1. The records are in conformity with the requirements of the Hydrographic Manual.

2. The work is in accordance with the specific instructions, but it is believed that the area due south of △ Radio Tower E on Oahu Island should have been further developed and possibly on a larger scale. There are some irregularities in the soundings that could not be accounted for except that it indicates an irregular bottom. There are also several indications of banks that might be desirable to develop. It should be noted that this area is well within the limits of visibility of shore signals.

3. The usual amount of field plotting was completed by the field party and was well done, at least as far as the office verification was extended. The field adjustments of the dead reckoning lines and the astronomic positions were accepted by the office without further investigation.

4. The junctions with the contemporary surveys are all satisfactory. The survey of 1904 (H. 2726) to the south and west of Kahoolawe, is the only other survey by this Bureau that overlaps the present survey. This sheet has been considered in only a general way, as it is understood that the work in this vicinity is to be extended inshore to the various islands until a satisfactory junction is made with the more recent surveys.

Other charted soundings that fall within the limits of the present survey are from miscellaneous sources and should be superseded by the new survey. This applies in particular to the 1524 fathom sounding 18 miles southwest of Kahoolawe Island and the 1474 fathom sounding 28 miles southwest of Lanai Island,

both of which are mentioned in the Descriptive Report. They are doubtless soundings out of position.

To the south of Oahu in latitude 21° 10', longitude 158° 04' a 206 fathom sounding falls in depths over 400 fathoms on the new survey. The authority for this sounding is the survey by the U.S.S. TUSCARORA in 1874, which survey was doubtless a crude dead reckoning survey. It should be omitted from the charts.

5. Additional work - In addition to extending the work inshore and the possibility of further development south of Oahu as mentioned in paragraph 2 above, the area inside the 1000 fathom curve to the south of Lanai should be resurveyed with fixed position lines to cover those lines that were run by dead reckoning. These lines (E and F days) have been accepted for the present since they appear to be in agreement with other lines, but they should be superseded if the new work in any way discredits them.

Altogether apart from the above recommended work, it would seem desirable to run a few additional lines across the work that was controlled by fixed positions, if such lines can be located by some other certain method such as bomb control. A report is now being prepared on "Further experimental work in connection with transmission of sound through sea water" which will recommend that the area covered by this sheet be used to carry on such experiments. If successful results in transmission are obtained, ~~then~~ it will entail no great amount of work, after the hydrophones are established, to run a few additional sounding lines, to check the accuracy of the fixed position lines. This suggestion is made in view of the statement in the Descriptive Report that many of the objects used were confusing and it was not always certain that the correct one was being observed.

6. Reviewed by A. L. Shalowitz, December 1931

Approved:

A. M. Sobieralski
Chief, Field Records Section

T. S. Borden
Chief, Field Work Section

Applied to ckt 4110 – Feb. 1941 – R.B.C.
" " " 4120 May 1941 – J.T.W.
" " " 4140 " " E.M.A.