

5010 a
5010 b



Diag. Cht. No. 7000

Form 504

U. S. COAST AND GEODETIC SURVEY
DEPARTMENT OF COMMERCE

DECLASSIFIED BY NOAA
PURSUANT TO DOC SYSTEMATIC REVIEW
GUIDELINES AS DESCRIBED IN SECTION
(E), EXECUTIVE ORDER 12356.

DESCRIPTIVE REPORT

Type of Survey *Hydrographic*
Field No. *3* Office No. *5010A*
5010B

LOCALITY

State *Hawaiian Islands*
General locality *Gardner*
Locality *Pinnacles*
Western Hawaiian Ids.
1929

CHIEF OF PARTY

H. T. Adams

LIBRARY & ARCHIVES

DATE

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Form 504

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

H. S. Patton *Director*

DECLASSIFIED BY NOAA
PURSUANT TO DCS SYSTEMATIC REVIEW
GUIDELINES AS DESCRIBED IN SECTION
3.3(a), EXECUTIVE ORDER 12356.

Hawaiian Is.

State: Terr. of Hawaii

Acc. No.

DESCRIPTIVE REPORT

~~Topographic~~
Hydrographic

Sheet No. 3 5010 a + b

LOCALITY

Territory of Hawaiian Is.

Westward Western Hawaiian Is.

Gardner Pinnacles

1929

CHIEF OF PARTY

K. T. Adams

5010a 5010b

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

DECLASSIFIED BY NOAA
 PURSUANT TO DOC SYSTEMATIC REVIEW
 POLICIES AS DESCRIBED IN SECTION
 3.3(a), EXECUTIVE ORDER 12356

REG. NO. 50102

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. 3REGISTER NO. 50102State TERRITORY OF HAWAIIAN IS.General locality WESTWARD Western Hawaiian Is.Locality GARDNER PINNACLES SHOAL AREAScale 1:60,000 Date of survey July 17-Sept. 21, 1929Vessel U.S.C. & G.S.S. GUIDEChief of Party K. T. AdamsSurveyed by K. T. AdamsProtracted by G. W. LoveseeSoundings penciled by J. N. JonesSoundings in fathoms feetPlane of reference M. L. L. W.

Subdivision of wire dragged areas by _____

Inked by Warren H. BawfordVerified by WABInstructions dated March 26, 1928 & April 12, 1929, 19

Remarks: _____

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. 5010b

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.

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PURSUANT TO DOC SYSTEMATIC REVIEW
GUIDELINES AS DESCRIBED IN SECTION
5 OF THE
3.01A EXECUTIVE ORDER 12356

Field No. (2 parts) a and b

REGISTER NO. 5010b

State TERRITORY OF HAWAIIAN ISLANDS

General locality WESTWARD Western Hawaiian Is.

Locality GARDNER PINNACLES SHOAL AREA

Scale 1:60,000 Date of survey July 17-Sept. 21, 1929

Vessel U.S.C. & G.S.S. GUIDE

Chief of Party K. T. Adams

Surveyed by K. T. Adams

Protracted by G. W. Lovesea

Soundings penciled by J. N. Jones

Soundings in fathoms FEET

Plane of reference M. L. L. W.

Subdivision of wire dragged areas by _____

Inked by Warren H. Bawford

Verified by W.H.B.

Instructions dated March 26, 1929 & April 12, 1929, 19

Remarks: _____

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

WASHINGTON

April 21, 1931.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheets 5010a - 5010b

Gardner Pinnacles Shoal Area, Western Hawaiian Islands

Surveyed in 1929

Fathometer soundings

Instructions dated March 26, 1928. (Guide)

Supplemental instructions dated April 12, 1929

Chief of Party - K. T. Adams

Surveyed by K. T. Adams

Protracted by G. W. Lovesee

Soundings plotted by J. N. Jones

Verified and inked by W. H. Balford

1. The records conform to the requirements, except that in the area inside of the 20 fathom curve of approximately 350 sq. miles, no bottom characteristics were recorded although 77 hand lead soundings were obtained.
2. The plan, character and extent of the survey satisfy the requirements of the general and specific instructions.
3. The sounding line crossings are generally satisfactory, on H. 5010a. There are no cross lines on H. 5010b.
4. The information is sufficient for drawing the usual depth curves within the limits of the work.
5. The junction of H. 5010a and 5010b is satisfactory.

The junction with H. 5021 is satisfactory.

The junction on the south with H. 5037 is satisfactory.

The junction with the small sheet covering Gardner Pinnacles, H. 5020 is satisfactory.

The soundings shown on H. 5012 were not added to this sheet with the exception of a 15 fathom sounding about 3.5 miles south of Gardner Pinnacle. The other soundings on H. 5012 do not add to the information on this sheet and should not be charted within the area covered by H. 5010a on account of their weak control.

H. 4650b could not be examined as it was in the field, but is probably of little value for comparison with this survey.

6. The usual amount of field plotting was done by the field party. The protracting and spacing of soundings was fairly well done. The plotting of dead reckoning lines and positions of signal buoys were not verified in the office as they were checked in the field.
7. Character and scope of surveying - very good. Within the limits of the work this survey is considered adequate. About the only danger is Gardner Pinnacle which is covered by a larger scale sheet. The 9 $\frac{1}{2}$ fathom sounding obtained with the fathometer in Lat. 25°02', Long. 168°05.4' was investigated with the hand lead and depths of 10 fathoms were found. A further examination of the sounding of 11.5 fathoms in Lat. 24°55', Long. 168°03.4' would have been desirable.

The data for the correction of fathometer soundings was examined and accepted.

8. No additional work is recommended.
9. Reviewed by R. L. Johnston, March 18, 1931.

Approved:

Chief, Section of Field Records (CHARTS)

Chief, Section of Field Work (H. & T.)

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SHEET NO. 3 Hawaiian Islands.

DATE OF INSTRUCTIONS:

The hydrography on this sheet was executed in conformance with instructions (project 22) dated March 26, 1928 and instructions (project 33) dated April 12, 1929.

SURVEY METHODS:

Almost all soundings on this sheet were taken by the Fathometer, the vessel running standard speed and an officer reading the Fathometer. A few soundings on shoal spots were taken by the hand lead.

Practically all of the control over the shoal area was three point fixed positions on the island and floating buoys which were located by dead reckoning runs and an azimuth. Beyond the limits of the shoal area dead reckoning loops were run, either from a buoy, or from a fix, out to the desired depth, and return to a buoy or to a three point fix.

The short north and south lines over the northern edge of the shoal and the north and south lines northeast of Gardner Pinnacle area not as well controlled as the lines over the remainder of the shoal and therefore these areas are not quite so well surveyed.

LOCATION OF BUOYS:

Buoys were located by a double full speed run from Gardner Island to the buoy and from buoy to buoy. This double run logged distance was used for distance only. The azimuths were obtained by getting two buoys in range and measuring the angle between the range and an astronomical body. Sometimes an inclined angle was used and in that case it was reduced to horizontal by the formula paragraph 361, page 157, Bowditch. These azimuths were remarkably accurate and strengthened the location of the buoys in azimuth so that they could be used almost as shore objects.

The location data for buoys on adjacent sheet No. 8 appears in the same volume and this volume and all of the locations of and computations of the positions of buoys on both sheets will be submitted with sheet No. 8. You are therefore referred to sheet No. 8 for any data with regard to locations of buoys.

CONTROL:

Most of the area of the shoal proper is controlled by three point fixed position. Outside of the shoal, dead reckoning loops were run, all data being recorded in the sounding volumes. Dead Reckoning sheets were made up for all dead reckoning loops and these were used to plot the smooth sheet. Where feasible, the adjustment was shown on the smooth sheet in pencil, but in much of the area it was too confusing to leave this on the sheet.

An area on the northern edge of the shoal and an area north and east of Gardner Pinnacle could not be well controlled and three point fixed control was supplemented by short dead reckoning lines.

DISCREPANCIES:

Two positions of Buoy Egg are given. It cannot be said

positively that this buoy dragged but it is certain that between certain dates it appears to change in azimuth with respect to Dog and Fin. Two positions are shown on the smooth sheet and were used in plotting.

DANGERS:

No dangers exist on this sheet with the exception of Gardner Pinnacle itself. The only shoal spot found is just about three quarters of a mile south of buoy "Uno" and on this ten fathoms position 31D, was the least depth found.

The eleven fathom sounding near position 3U and the eleven fathom sounding half way between 26 x and 27 x were later investigated and were rejected. They were doubtful at the time of observations and were so noted at that time.

ANCHORAGES:

There obviously is no protected anchorage here. This vessel anchored all over the shoal area during a period of three months. The holding ground is poor.

LIMITS OF SHEET:

It was expected when this sheet was laid out that it would cover the entire northern part of the area to be surveyed. This area extended so much farther north and east than expected, that a supplementary sheet No. 7 had to be made on a 1:100,000 scale on which supplementary lines were run. Therefore supplementary lines north and east of Gardner Pinnacle will be found on Sheet No. 7.

The southern part of the shoal area adjacent to this sheet will be found on Sheet No. 8.

An inshore sheet on 1:20,000 scale will be constructed around Gardner Pinnacle to cover the close in soundings.

BOAT SHEET:

The projection for the boat sheet was turned ninety degrees in azimuth during the construction and could not be used. The same sheet was used for a boat sheet, disregarding the projection and the red ink north and south azimuth line was placed on the chart for orientation. This sheet was then used as a blank sheet with no projection thereon.

SMOOTH SHEET:

The smooth sheet was carefully laid out over the boat sheet in order to cover all the area and after construction the meridians were numbered wrong. All of the three point fix work had been plotted when this error was discovered. Rather than replot all of this work, a second smooth sheet was made to take in the dead reckoning loops which would not come within the limits of the first one. This smooth sheet therefore consists of two sheets (A & B). I apologize for such an occurrence but when discovered so much work had been done that it seemed scarcely possible to do it all over again.

FATHOMETER SOUNDINGS:

All fathometer soundings were corrected for slope by drawing accurate ^{depth} curves on the boat sheet and by using a celluloid scale constructed by J. A. Boné, the slope in percentage was taken off. All red light soundings were corrected by a constant error as explained in each volume. A resume' of the data used is appended to this report. All red light soundings were corrected for velocity of sound. The white light soundings were not so corrected however, in accordance with authority

received from the Director dated December 12, 1929, and which was based on the following data copied from my letter dated December 5, 1929.

" I give herewith a resume' 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."

RECORDS:

This sheet is accompanied by the following records which form a part of the data accompanying this sheet.

- 7 sounding volumes.
- 6 smooth sheets. Dead reckoning data for plotting.
- 1 copy original serial Temperatures observations.
- 1 copy salinity observations.
- 1 copy signals and buoy positions.
- 1 Tidal note.
- 1 copy velocity corrections.
- 1 copy Red Light constant corrections, with curve.
- 1 copy standard and steering compass Deviation curves.
- 1 copy log rates used during this period.

Respectfully submitted,

K. T. Adams
K. T. Adams,
Chief of Party,
Steamer GUIDE.

TIDAL NOTE

HYDROGRAPHIC SHEET NO. 34

Gardner Pinnacles, T. H.
1929

No tides were observed at Gardner Pinnacles, there being no place at which either a gauge or staff could be established. Honolulu tides were used, corrected to 75% of range and made 20 minutes later. These corrections were obtained by taking simultaneous comparisons of French Frigate Shoals tides with Honolulu tides and correcting them to Gardner Pinnacles by proportional distances to Midway Island.

LIST OF SIGNALS

GARD -ASTRONOMIC LOCATION- BUOY POSITIONS

Buoy Positions

Log run locations and azimuths.

Azimuths measured from North.

	Distance in meters	Azimuth	
UNO			
Gard - Uno	10476.0	295° 31' 51.9"	*
DOS			
Uno - Dos	8111.2		
Gard - Dos		295 26 11.9	*
TRES			
Dos - Tres	9269.0		
Gard - Tres		295 48 54.4	*
ABLE			
Able - Gard	9540.8	185 15.48	
BOY			
Able - Boy	8109.5	338 11.22	
CAT			
Gard - Cat	9709.9		
Cat - Gard		1 36.2 ³	
DOG			
Cat - Dog	10228.0		
Dog - Gard		1 48.11	
EGG			
(1) Dog - Egg	9423	182 24.48	(prior to Sept.16)
(2) Egg - Gard		1 56.54	} (after Sept.19)
(3) Egg - Dog		2 10.35	
FIN			
(a) Fin - Egg	9335.0	7 55.94	(prior to Sept.16)
(b) Fin - Egg		8 11.21	(after Sept.19)

- (a) This azimuth to position of EGG as given by (1)
 (b) This azimuth to position of EGG as given by (2)
 (1) Location on this azimuth used prior to Sept. 16.
 (2) Location on this azimuth used after Sept. 19.

* Azimuths by horizontal angles.

Original records to be forwarded with Sheet No.8.

TEMPERATURE CORRECTION FOR RED LIGHT SOUNDINGS
Gardner Pinnacles

Fms.	Temp.	Sum	Mean °C	Factor	Corr.	Depth	Corr.
13-1/3	26.2			0.0286	+ 0.38		
26-2/3	25.7	51.9	25.95	0.0279	+ 0.75		
40	23.9	75.8	25.27	.0269	+ 1.08	13	
53-1/3	22.3	98.1	24.52	.0258	+ 1.38	13	
66-2/3	21.3	119.4	23.88	.0248	+ 1.65		+ 0.4
80	20.4	139.8	23.30	.0236	+ 1.89	16.8	
93-1/3	19.5	159.3	22.76	.0225	+ 2.10		+ 0.5
106-2/3	18.4	177.7	22.21	.0214	+ 2.29	20.4	
120	17.5	195.2	21.69	.0204	+ 2.45		+ 0.6
133-1/3	16.7	211.9	21.19	.0194	+ 2.58	24.0	
146-2/3	15.7	227.6	20.69	.0184	+ 2.70		+ 0.7
160	15.0	242.6	20.22	.0174	+ 2.78	27.9	
173-1/3	14.3	256.9	19.76				+ 0.8
186-2/3	13.4	270.3	19.31			31.9	
200	12.7	283.0	18.87	.0150	+ 3.00		+ 0.9
213-1/3	12.2	295.2	18.45			35.9	
226-2/3	11.6	306.8	18.05	.0136	+ 3.09		+ 1.0
240	11.0	317.8	17.66	.0128	+ 3.07	40.0	
253-1/3	10.5	328.3	17.12	.0117	+ 2.96		+ 1.1
266-2/3	10.0	338.3	16.92			44.4	
280	9.3	347.6	16.55	.0106	+ 2.97		+ 1.2
293-1/3	8.8	356.4	16.20	.0099	+ 2.90	48.8	
306-2/3	8.3	364.7	15.84	.0091	+ 2.79		+ 1.3
320	7.9	372.6	15.52	.0083	+ 2.65	53.3	
333-1/3	7.5	380.1	15.20	.0075	+ 2.50		+ 1.4
346-2/3	7.1	387.2				58.2	
360	6.7	393.9					+ 1.5
373-1/3	6.2	400.1	14.29	.0052	+ 1.94	63.0	
386-2/3	5.8	405.9	14.00	.0045	+ 1.74		+ 1.6
400	5.5	411.4	13.71	.0039	+ 1.56	68.1	
413-1/3							+ 1.7
426-2/3						73.6	
440							+ 1.8
453-1/3						79.2	
466-2/3							+ 1.9
480						85.4	
493-1/3							+ 2.0
506-2/3						155	
520-							+ 3.0
533-1/3						311	
546-2/3							+ 2.0
560						386	
573-1/3							+ 1.0
586-2/3						End	
600							

No corrections applied in
depths greater than 400 fathoms.

STATISTICS

Sheet No. 3, Gardner Pinnacles Shoal Area.

1929

Day		W. L. Sdgs.		R. L. Sdgs.	Total	No. of
		No.	Sta. Mi.	Sta. MI.	Sta. MI.	Positions
7-17	A			73.1	73.1	97
7-18	B			109.7	109.7	131
7-19	C	68	31.5	108.7	140.2	149
7-20	D	20	8.0	108.3	116.3	233
7-21	E	24	11.4	91.4	102.8	141
7-22	F			116.7	116.7	127
7-23	G			117.7	117.7	134
7-24	H	125	38.7	75.6	114.3	133
7-25	J	52	14.3	94.3	108.6	97
7-26	K			10.3	10.3	19
8-18	L			104.7	104.7	161
8-19	M			96.6	96.6	154
8-23	N			37.8	37.8	58
8-24	P			86.4	86.4	130
8-25	Q			80.0	80.0	119
8-26	R			57.2	57.2	91
8-27	S			35.1	35.1	46
8-28	T			66.5	66.5	87
9-14	U	10	3.4	133.7	137.1	162
9-15	V	29	13.7	82.3	96.0	122
9-16	W			22.3	22.3	30
9-17	X			72.5	72.5	102
9-21	Y			7.3	7.3	23
TOTALS		328	121.0	1718.2	1839.2	2546

COMPARATIVE SOUNDINGS

Used to determine

CONSTANT REDUCTION TO RED LIGHT SOUNDINGS.

Gardner Pinnacles, T.H.
July - Sept., 1929.

DATE	FATHOMETER READING	VELOCITY REDUCTIONS	CORRECTED FATHOMETER	HANDLEAD SOUNDINGS	HANDLEAD minus FATHOMETER
July					
17	19.8	+0.5	20.3	20.8	0.5
18	19.4	0.5	19.9	19.7	0.2
	20.0	0.5	20.5	20.4	0.1
19	19.8	0.5	20.3	20.0	0.3
	19.5	0.5	20.0	19.5	0.5
20	19.5	0.5	20.0	19.2	0.8
	11.0	0.3	11.3	10.8	0.5
	17.5	0.5	18.0	18.0	0.0
21	18.2	0.5	18.7	17.8	0.9
	19.4	0.5	19.9	20.0	0.1
22	19.5	0.5	20.0	20.0	0.0
	19.8	0.5	20.3	19.8	0.5
					+0.6
					-3.8
					+0.6
					-3.8
					Sum (12)
					Mean
					-0.267
23	20.0	+0.5	20.5	19.7	-0.8
	21.5	0.6	22.1	21.5	0.6
24	21.0	0.6	21.6	21.0	0.6
	21.4	0.6	22.0	21.3	0.7
25	21.3	0.6	21.9	21.5	0.4
	21.9	0.6	22.5	21.8	0.7
26	21.5	0.6	22.1	21.5	0.6
	22.0	0.6	22.6	21.8	0.8
	21.5	0.6	22.1	21.0	1.1
Aug.					
18	20.0	0.5	20.5	19.0	1.5
	21.0	0.6	21.6	21.5	0.1
19	20.6	0.6	21.2	21.8	+0.6
	19.0	0.5	19.5	18.0	1.5
20	19.0	0.5	19.5	18.2	1.3
					+0.6
					-10.7
					+0.6
					-10.1
					Sum (14)
					Mean
					-0.72
21	19.0	+0.5	19.5	18.8	-0.7
	16.5	0.4	16.9	17.4	+0.5
22	17.0	0.5	17.5	18.0	0.5
	19.5	0.5	20.0	20.0	0.0
23	20.7	0.6	21.3	21.0	0.3
	18.0	0.5	18.5	18.5	0.0

DATE	COMPARATIVE SOUNDINGS (Continued)				HANDLEAD	
	FATHOMETER READINGS	VELOCITY REDUCTIONS	CORRECTED FATHOMETER	HANDLEAD SOUNDINGS	minus	FATHOMETER
Aug.					+	-
24	18.2	+0.5	18.7	18.0		0.7
	18.0	0.5	18.5	18.2		0.3
	18.5	0.5	19.0	18.5		0.5
25	19.3	0.5	19.8	19.0		0.8
	19.0	0.5	19.5	19.8	0.3	
26	19.0	0.5	19.5	19.5		0.0
	17.0	0.5	17.5	17.0		0.5
	17.0	0.5	17.5	17.0		0.5
	20.4	0.5	20.9	20.7		0.2
27	1060.			1022.		
	21.0	0.6	21.6	21.0		0.6
	18.0	0.4	18.4	18.7		
					0.3	
					+1.6	- 5.1
						+1.6
					Sum (17)	- 3.5
					Mean	- 0.204
Aug.						
28	17.0	+0.5	17.5	16.8		1.3
	11.6	0.3	11.9	10.8		1.1
	17.0	0.5	17.5	16.8		0.7
					Sum (3)	+0.0
					Mean	- 1.03
Sept.						
14	19.0	+0.5	19.5	19.0		0.5
	21.5	0.6	22.1	22.5	0.4	
15	21.3	0.6	21.9	21.8		0.1
	19.0	0.5	19.5	19.8	0.3	
16	19.3	0.5	19.8	19.8		0.0
	21.0	0.6	21.6	21.5		0.1
17	21.3	0.6	21.9	22.0	0.1	
	19.8	0.5	20.3	19.3		1.0
18	19.0	0.5	19.5	19.5		0.0
	21.0	0.6	21.6	22.0	0.4	
19	22.5	0.6	23.1	22.7		0.4
	21.3	0.6	21.9	22.0	0.1	
20	21.2	0.6	21.8	22.5	0.7	
	21.9	0.6	22.5	22.3		0.2
	21.0	0.6	21.6	21.3		0.3
21	19.0	0.5	19.5	18.0		1.5 Reject
	21.5	0.6	22.1	21.7		0.4
22	23.4	0.6	24.0	24.0		0.0
23	23.6	0.6	24.2	23.7		0.5
	17.5	0.5	18.0	17.7		0.3
					+2.0	- 3.8
						+2.0
					Sum (19)	- 1.8
					Mean	- 0.1

COMPARATIVE SOUNDINGS. (Continued)

DATE	FATHOMETER READING	VELOCITY REDUCTIONS	CORRECTED FATHOMETER	HANDLEAD SOUNDINGS	HANDLEAD minus FATHOMETER
Sept.					
24	16.5	+0.4	16.9	16.0	+ 0.9
	21.5	0.6	22.1	20.2	1.9
	19.0	0.5	19.5	18.5	1.0
25	19.0	0.5	19.5	18.5	1.0
	21.0	0.6	21.6	20.0	1.6
26	21.2	0.6	21.8	20.3	1.5
	19.4	0.5	19.9	19.8	0.1
27	18.5	0.5	19.0	18.0	1.0
	19.0	0.5	19.5	18.0	1.5
28	19.0	0.5	19.5	18.2	1.3
	18.5	0.5	19.0	17.0	2.0
				Sum (11)	+0.0 - 13.8
				Mean	- 1.255

SUMMARY

<u>FROM</u>	<u>TO</u>	<u>USE CONSTANT REDUCER</u>
July 17	July 22	- 0.3
July 23	Aug. 20	- 0.7
Aug. 21	Aug. 27	- 0.2
Aug. 28	- - - -	- 1.0
Aug. 29	Sept. 23	- 0.1
Sept. 24	Sept. 28	- 1.3

Tabulated by KTA
JFB

DATA SHEET FOR OCEAN OBSERVATIONS

Station Hawaiian Island

Observer Various Officers - GUIDE

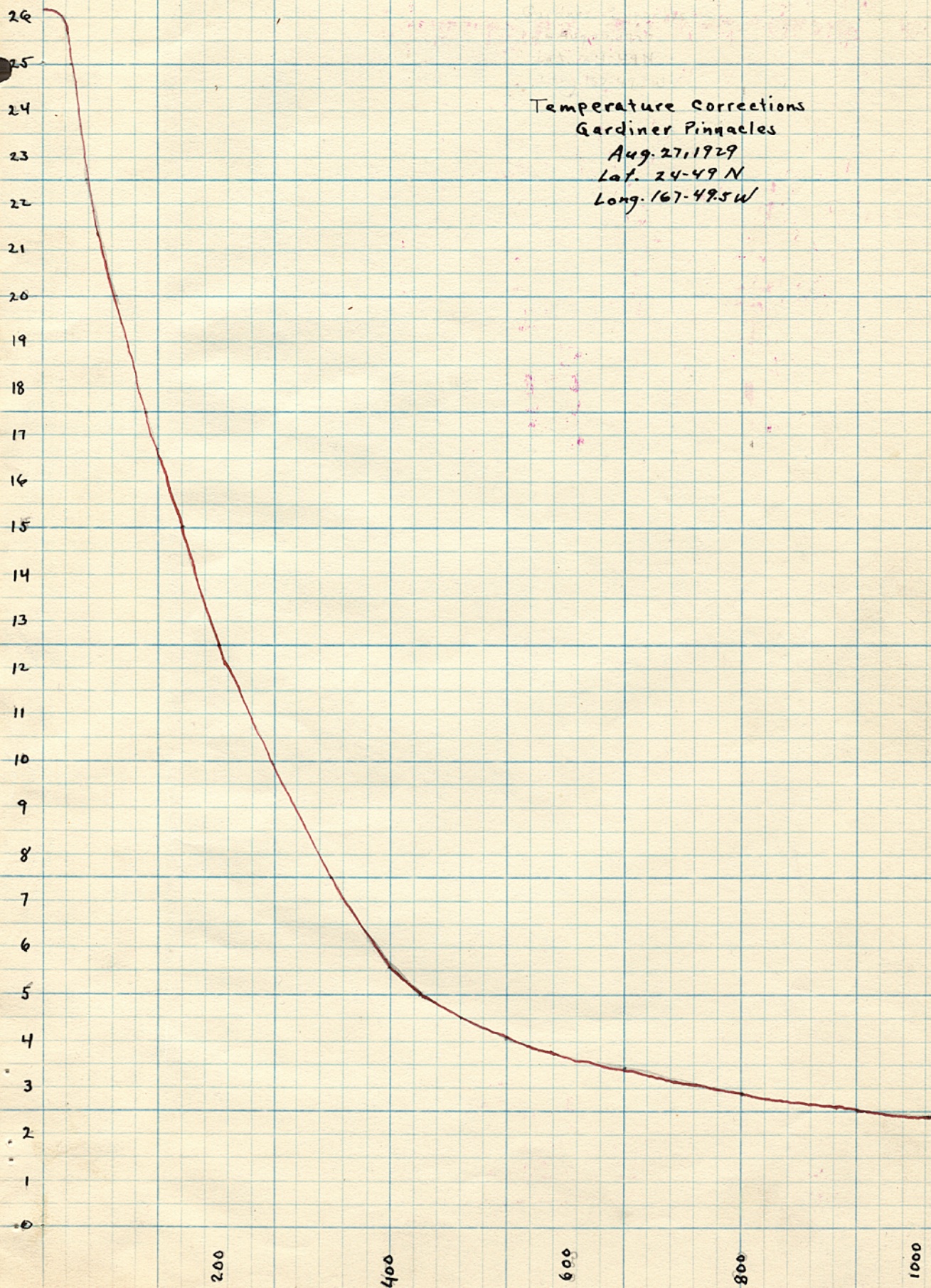
Sample No.	Date	Time	Salinity
183	7/16/29	1 - 30 P.M.	Surface 35.49
184	7/16/29	7:00 P.M.	Surface 35.43
187	8/27/29	9:25 A.M.	34.72 Serial Temperature
194	9/13/29	6:50 P.M.	Surface 35.37
195	9/25/29	7:30 P.M.	Surface 35.37
197	9/28/29	7:50 P.M. 11:00	Surface 35.36

NOTE: Refer to copy of Salinity Observation made by Guide, sent to the Director by the Scripps Institute of Oceanography of the University of Calif. under date of January 25, 1930.

LOG DATA

Factors to be used				
Period	Log.No.	Factor	Log.No.	Factor
5:30 AM May 31-July 27	194	0.9645	195	1.035
Am 9:50 July 27-Sep. 29	194	1.0074	195	1.034

Temperature Corrections
Gardiner Pinnacles
Aug. 27, 1929
Lat. 24-49 N
Long. 167-49.5 W





N^o 4. Gardner Island 139° n.w.
gr 1 1/4' aftand.



N^o 5. Gardner Island 114° (n.w.) gr 1 1/2' aft.



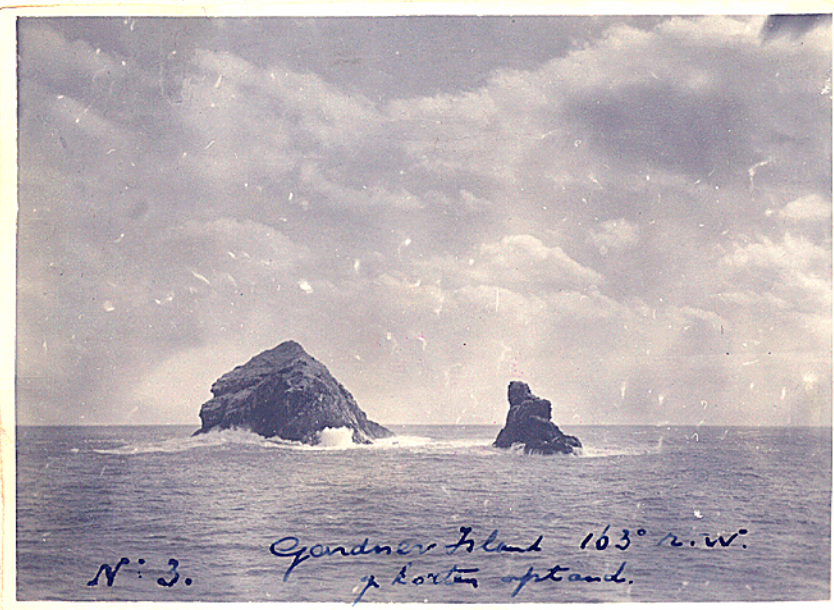
N^o 6. Gardner Island 96° n.w. gr 2' aftand.



Gardner Island
N: 1. 233° 2.W 2' of land



Gardner Island
N: 2. 1226° 2.W. p 1 1/2' of land.



Gardner Island 163° 2.W.
N: 3. p. bottom of land.

TRANSLATION

PACIFIC-JAVA-BENGAL LINE

*Translation by
Mr. J. H. H. H.
JSH*

Aboard Ship "Salawati."

Singapore, December 24, 1931.

To the Chief of the Hydrographic
Division of the Minister of Defence,
Bathhouse Row,
The Hague (Netherlands)

Honored Sir:

On our route from San Francisco towards Soerabaya we passed on the morning watch of the 24th of November, 1931, at 2:29 A. M. a short distance to the north from the island Gardner, lying westerly in the Hawaiian Group (Administrative Chart 782).

From 1:44 to 3:28 we took regular soundings for this place, which hitherto were unrecorded, the soundings to be correct (exact) by the Thompson Sounding Machine, with pipes and sides adjusted for barometer position. The bottom specimens are not described, but eight specimens are recorded by number opposite the soundings which follow (hereinafter mentioned).

Perhaps these specimens may afford you useful information.

The ground (specimens) were brought to the surface by affixing hard soap to the sparring (hollow) beneath the lead.

In the "Pacific Island Sailing Directions," Volume

*Transmitted letter on 2 supply
filed Hans T - Hydrographer, Netherlands
1/28/32. JSH*

III (Eastern Group), 5th edition, 1920, occurs on page 289, 26th line:

"With a smaller rock close to its southwestern extreme." To the southwest side of this island there are no rocks as properly named.

The shoals and breakwater stretch somewhat farther than the position described on the above-mentioned page regarding this reef.

To the Chief of the Hydrographic Division of the Minister of Defense,
Bathhouse Row, The Hague (Netherlands)

Continuation No. 1.

Directly to the northwest side of the island lies (entirely) one rock, unwashed (above sea level), 70 feet high. From the inclosed photos such things can be seen clearly.

To the east approach of Gardner Island there comes before the sight what appears to be two islands or rocks lying nearby; with poetic license (it can be easily imagined from appearances) that the southern one of these islands appears to be the mainland. (See photos Nos. 1 and 2.)


On the island reside many sea fowl, hordes of which flew around our ship. The birds were very tame, flying now and then close up to the side of the ship, on deck, and some in the hold. The greatest number of this species which were observed to the fore were noted by their build to compare with the mantle "coat gull," or "jacket gull" (*Larus marinus*). The backs of the wings were dark, the beaks intensely yellow, the belly grayish; orange-yellow band around the neck. The claws were evenly marked orange-yellow.

The rocks of the entire island were entirely covered with the excrement of the fowls and the island had thereby an entirely white appearance.

There follows on another sheet impromptu casual observations of the westerly area of this island referred to in the above-mentioned "Sailing Directions." Our entire reckoning of the position was $25^{\circ} - 00.0'$ N. and $167^{\circ} - 59.9'$ W. The dip of the horizon was normal and the position of the "time meter" was observed exactly on $0.5''$. The reckoning to the soundings mentioned are to be computed following the new position of Gardner Island.

On photo No. 6 the white stripe (streak) ^{of the reef} is to be seen to the southwest side of the island, which reef stretches itself entirely (continuously) to the inked arrow.

With highest esteem,


Translated by Hartley,
February 11, 1932.

Commanding Officer.

Note: Translations of the captions on the table occurring on page 3 of the original letter are indicated in longhand.

Lat. $25^{\circ} 00.12$ } from H-5010
Long $167-59.85$ }

Attach this letter to Descriptive
Report H-5010 (Adams, K.T.)

Bottom characteristics from samples
received have been plotted on sheet
in pencil after coordinating $1000'$ position
of each with position received from Salaschi.
7/12

LOODINGEN VERRICHT AAN BOORD VAN HET M.S. "SALAWATI" OP 25 NOVEMBER 1931.

Soundings Report on Board of the Majesty's Ship "Salawati" on November 25, 1931

TIJD. <i>Time</i>	BREKTE <i>Compass</i>		LENGTE <i>Length</i>	DIEPTE. IN VADEMEN. <i>Depth in Fathoms</i>	NUMMER MONSTER GRONDSOORT. <i>Number of bottom specimen</i>
	BREKTE <i>Depth Lat. N</i>	HOOD <i>North</i>			
I-44	25 - 03	HOOD	I67 - 51.5	WEST 31½	1.
I-51	25 - 02.7	<i>North</i>	I67 - 53.3	<i>West</i> 39	1.
I-58	25 - 02.5		I67 - 55.2	33	1.
2-06	25 - 01.8 +		I67 - 57.0	24	2.
2-14	25 - 01.5		I67 - 59.3	23	2.
2-24	25 - 01.2		I68 - 01.3	23	2.
2-29	25 - 00.7		I68 - 02.2	12	3.
2-32	25 - 00.3		I68 - 03.8	19	4.
2-35	25 - 00.0		I68 - 04.3	21	4.
2-40	24 - 59.7		I68 - 05.2	19½	4.
2-45	24 - 59.3		I68 - 06.2	18½	4.
2-51	24 - 59.0		I68 - 07.5	16½	4.
2-57	24 - 58.5		I68 - 08.7	22	5.
3-02	24 - 58.2		I68 - 10.0	19½	6.
3-13	24 - 57.3		I68 - 12.2	19½	7.
3-16	24 - 57.0		I68 - 13.0	21	8.
3-21	24 - 56.5		I68 - 14.2	17	8.
3-26	24 - 56.0		I68 - 15.3	43½	1.
3-32	24 - 55.5		I68 - 17.0	geen grond. <i>no ground</i>	300 vdm. lijn. <i>fathoms line</i>

PACIFIC-JAVA-BENGAL LINE

m.s. "SALAWATI"

Singapore, 24 December 1931.

Aan den CHEF der Afdeling HYDROGRAPHIE
van het MINISTERIE VAN DEFENSIE

Badhuisweg 147

' s G R A V E N H A G E .

Weledele Heer,

Op onze route van SAN FRANCISCO naar SOERABAYA passeerden wij op de A.M.-wacht van den 25en November 1931 te 2-29 op korten afstand ten Noorden van het eiland GARDNER, westelijk van de Hawaiian groep gelegen (Adm.kaart 782).

Van I-44 tot 3-32 werd geregeld gelood en resultaten verkregen, welke op het hier aangehechte lijstje staan vermeld. De loodingen zijn verricht met het Thomson loodtoestel met buisje en zijn gecorrigeerd voor barometerstand. De grondsoort is niet beschreven, maar wel is achter iedere looding het nummer van het monster geplaatst, waarvan een achttal hierbij volgen. Wellicht dat dese monsters behalve voor U, ook voor andere wetenschappelijke doeleinden van nut kunnen zijn. De grond is bovengebracht door in de uitsparing onder het lood harde zeep te doen.

In de zeilaanwijzing Pacific Islands Vol. 3 (Eastern groups) 5th ed. 1920 staat op blz. 289, 26e regel vermeld : "with a smaller rock close to its southwestern extreme". Aan de ZW-zijde van het eiland werd geen rots waargenomen. Wel strekte zich, zooals iets verder staat beschreven op genoemde bladzijde, het rif uit, waarop de see brak.

Aan den CHEF der Afdeling HYDROGRAPHIE, Badhuisweg 147, den HAAG. Vervolg No. 1
Singapore, 24 December '31.

Aan de NW-zijde vlak bij het eiland lag wel een rots ongeveer 70 voet hoog. Op de hier bijgevoegde foto's is zulks duidelijk te zien.

Van de Oost naderend lijkt het bij het in zicht komen van Gardner alsof er twee eilandjes of rotsen naast liggen (zie schets); dichterbij komend bemerkt men dat het Zuidelijke aan het eiland vast zit. (foto 1 & 2)

Op het eiland huizen vele zeevogels, welke, toen wij dicht bij het eiland kwamen, in groote getale rond het schip vlogen. De dieren waren zeer mak en streken nu en dan vlak naast het schip neer. De soort welke in het grootste aantal voorkwam, had wat grootte en bouw van het lichaam betreft, veel overeenkomst met de mantelmeeuw (*Larus marinus*). Rug en vleugels waren donker, snavel sterk ontwikkeld en geel, buik grauwig wit en rond den hals een oranje-gele band. De pooten waren eveneens oranje-geel.

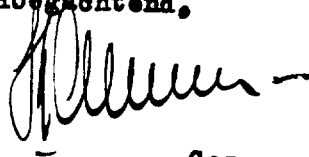
Het geheele eiland en de rots zijn met de uitwerpselen van vogels bedekt en hebben daardoor een witachtig aanzijn.

Volgens onze observaties ligt het eiland Westelijker dan in geheel de zeilaanwijzing staat aangegeven en kwamen wij volgens onze berekeningen tot een positie van : $25^{\circ} - 00'$ NOORD en $168^{\circ} - 02,7'$ WEST. De gemeten kinkduiking was normaal en de stand van den tijdmetre was tot op 0.5 sec. nauwkeurig bekend.

De bestekken bij de loodingen vermeld, zijn berekend volgens de nieuwe positie van Gardner Island.

Op foto No. 6 is de witte streep van het rif aan de ZW-zijde van het eiland te zien, ^{welk rif} dat zich uitstrekt tot aan het inkt pijltje.

Hoogachtend,



Gezagvoerder.

schets

met 14 bijlagen.



COAST AND GEODETIC SURVEY STEAMER "....."

Locality,, Date,, 19.....

Sounding No. Line

DEPTHS, IN FATHOMS.	TEMPERATURES.						REMARKS.		
	Reading.		Correction.		Corrected.			No. of the Thermometer.	Kind of Thermometer used.
	Min.	Max.	Min.	Max.	Min.	Max.			
Surface.								Temperature of Air Temperature of Thermometer. Locker.....	
								Serial Water Temperatures 14 ³ / ₂ mi. S. E. Gardner Pinnacles Latitude 24° - 49' - Longitude 167° - 49.5' August 27, 1929	

Signature of the Officer of the Deck:

Signature of the Recorder:

COAST AND GEODETIC SURVEY STEAMER "GUIDE"

Locality, 14 1/2 mi. SE Gardner Pinnacles Date, August 27, 1929

Sounding No. 1186 Lat. 24° - 49' Longitude 167° - 49.5'

DEPTHS. IN FATHOMS.	TEMPERATURES.						REMARKS.		
	Reading.		Correction.		Corrected.			No. of the Thermometer.	Kind of Thermometer used.
	NE.	NW.	NE.	NW.	Min.	Max.			
AM	#4102		#14996					Deep Sea	
10:25	1022	2 40	-	-				Temperature of Air Temperature of Thermometer. Bottom-Water Sample Locker	
9:54	750	3 00	3	20					
10:12	552 1/2	4 00	3	20					
10:31	401	5 20	5	60					
10:45	326	7 65	7	80					
10:57	281	8 85	9	65					
11:09	256	10 50	11	20					
11:17	209 1/2	12 10	13	00					
11:26	190 1/2	12 90	13	50					
11:34 1/2	176	14 30	-	-					
11:43	160 1/2	13 90	16	20					
11:52	151 1/2	14 50	17	00					
12:01	136	17 60	17	75					
12:09	124 1/2	17 30	17	30					
12:20	110 1/2	18 15	19	70					
12:30	100 1/2	18 25	18	45					
1:02	100 1/2	18 25							
1:08	85	19 70							
1:13	65 1/2	21 25							

Signature of the Officer of the Deck: W. H. Bainbridge & F. B. Quinn

Signature of the Recorder: W. H. Bainbridge & F. B. Quinn

COAST AND GEODETIC SURVEY STEAMER "GUIDE"

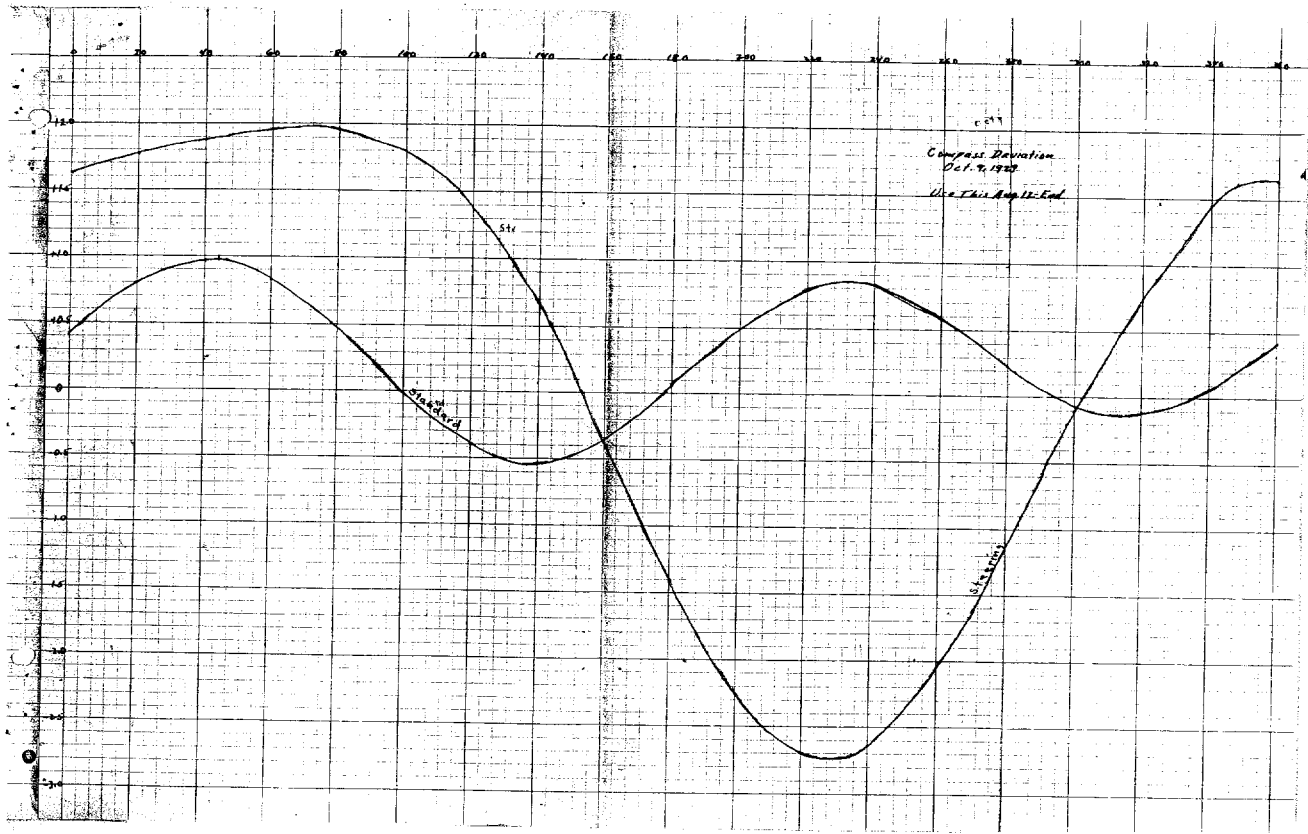
Locality, $14\frac{3}{4}$ mi. SE Gardner Pinnacle Date, August 27, 1929, 19

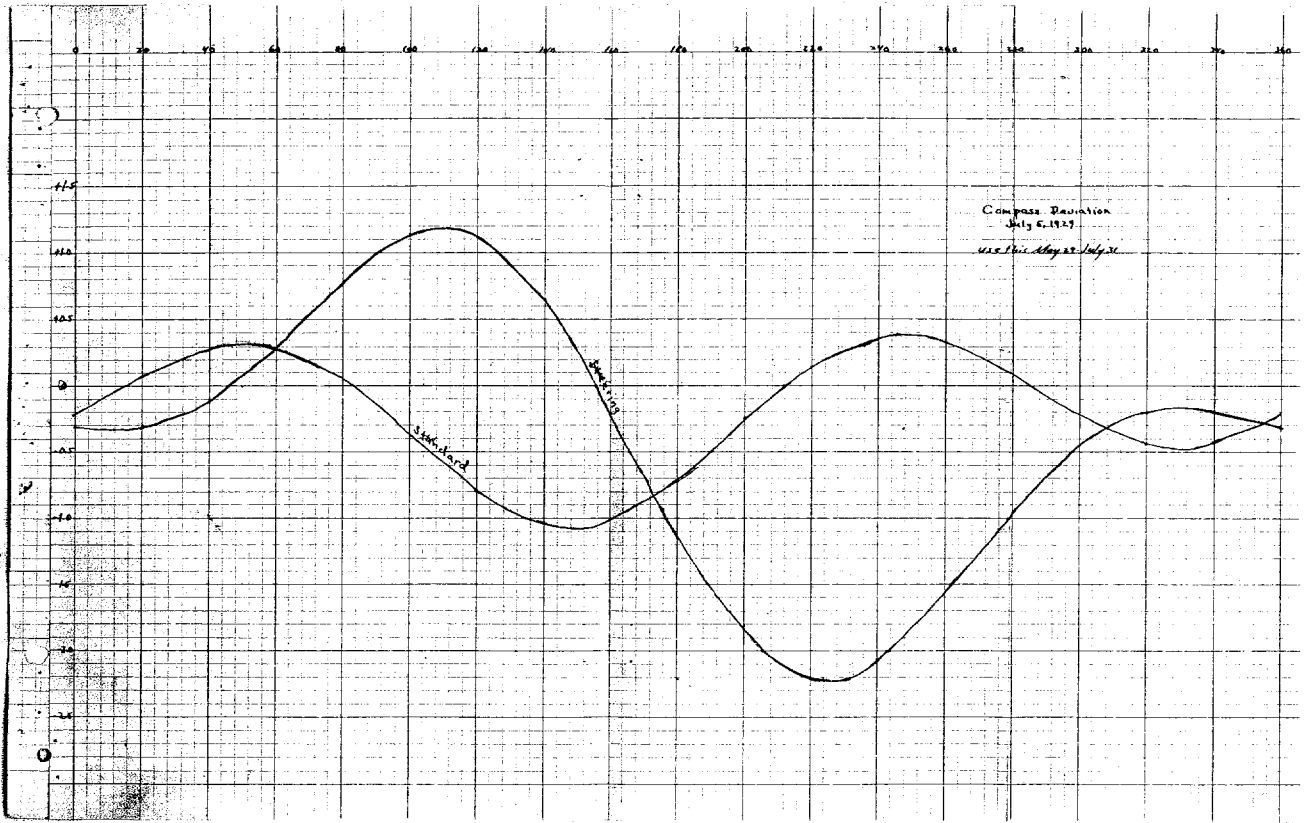
Sounding No. _____ Line _____
 Latitude $24^{\circ} - 49'$ Longitude $167^{\circ} - 40.5'$

DEPTHS, IN FATHOMS.	TEMPERATURES.						REMARKS.		
	Reading.		Correction.		Corrected.			No. of the Thermometer.	Kind of Thermometer used.
	Min.	Max.	Min.	Max.	Min.	Max.			
Surface.	#4102	#14998					Deep Sea	Temperature of Air ----- Temperature of Thermometer, Locker -----	
1:17 $55\frac{1}{8}$	21	65							
1:23 $45\frac{1}{4}$	22	90							
1:34 $35\frac{3}{4}$	24	20							
1:38 $25\frac{1}{4}$	25	90							
1:43 $17\frac{1}{2}$	26	10							
1:47 $7\frac{1}{2}$	26	20							
1:50 Surface	26	20							
1:57 120	17	00							
2:04 215	11	30							

Signature of the Officer of the Deck: W. H. Bainbridge

Signature of the Recorder: W. H. Bainbridge





HB applied to Chart 4182 8/9/40 CRB1+

4173 10/16/46 ~~CRB1+~~

ECM
PAC.

FOR THE FILES OF THE FIELD RECORDS SECTION

May 23, 1930.

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in
7 volumes of sounding records for

HYDROGRAPHIC SHEET 5010 A & B

Locality: Territory of Hawaii (Gardner Pinnacles)

Chief of Party: F. T. Adams in 1929

Plane of reference is ~~mean low water~~ mean lower low water, reading
tabulations at Honolulu

3.5 ft. on tide staff
17.3 ft. below B. M. 2

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.

F. T. Adams
Chief, Division of Tides and Currents.

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 5010-a

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

Number of positions on sheet	2409
Number of positions checked	277 NO DEAD RECKONING POSITIONS CHECKED IN OFFICE
Number of positions revised	..10..
Number of soundings recorded	NOT COUNTED
Number of soundings revised	..458
Number of signals erroneously plotted or transferred	NONE

Date:.. JANUARY 24 - 1931

Cartographer:.. *W. Brown & Bamford*

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. **5010-b**

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

Number of positions on sheet	137
Number of positions checked	NO DEAD RECKONING POSITIONS CHECKED IN OFFICE
Number of positions revised	NONE
Number of soundings recorded	NOT COUNTED
Number of soundings revised	31
Number of signals erroneously plotted or transferred	NONE

Date: **JAN. 24-1937**

Cartographer: **Warren H. Bawford**

VERIFICATION REPORT

I hereby certify that I have examined the completed smooth sheet and records and approve same.

For your information, all of the field work was done directly under my supervision and a large part of it by myself.

K. T. Adams

K. T. Adams,
Chief of Party,
Steamer GUIDE.

SECTION OF FIELD RECORDS

REPORT ON SHEETS No. 5010-a-b

SURVEYED IN - JULY - SEPT - 1929

CHIEF OF PARTY - K.T. ADAMS

SURVEYED BY - K.T. ADAMS

PROTRACTED BY - G.W. LOVESEE

SOUNDINGS PLOTTED BY - J.N. JONES

VERIFIED AND INKED BY - WARREN, H. BAMFORD.

- 1./ The records were found to conform to the requirements of the General Instructions for Field Work.
- 2./ The protracting of the Three Point Fixes was found to be fairly good. The Dead Reckoning positions were not checked in the office. The field plotting being accepted as correct.
- 3./ The spacing of soundings was fairly well done - 489 soundings were replotted due to poor spacing -

It was not thought necessary to count the total number of soundings on this sheet - they were not counted by the field men - consequently the percentage could not be figured.

4./ The sounding line crossings were found to be adequate.

5./ The $9\frac{3}{4}$ and 10 fathom shoal at approximately Latitude $25^{\circ}-02'$ and Longitude $168^{\circ}-05'$ is accepted as the shoal is indicated by soundings taken on two separate days i.e. "A" day and "D" day.

The development in the vicinity of Gardner Pinnacles is not as comprehensive as could be desired but this area is covered on a larger scale sheet H-5020

In approximately Latitude $24^{\circ}-55'$ and Longitude $168^{\circ}-03'-30''$ a shoal

sounding of 11 fathoms is circled with a broken ten fathom curve - indicating the possibility of depths less than ten fathoms.

6./ It was possible to draw all depth curves ^{completely} except the 1000 fathom curve.

7./ The sheet was found to be fairly clean and the work legible but very poorly penciled.

8./ The field plotting was completed to the extent prescribed in the Hydrographic Manual.

9./ Junctions with adjacent sheets were found to be satisfactory.

10./ The work on the "b" sheet was transferred to the "a" sheet in black ink - where ever the work on the "b" sheet overlapped that on the "a" sheet. No position

numbers were transferred to the "a" sheet. The reason the overlap was put on the "a" sheet in black ink is that the work on both sheets was performed by the same field party and at the same time.

Respectfully Submitted

Warren H. Bamford

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

AND REFER TO NO. 11-WSW

WASHINGTON

April 21, 1931.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheets 5010a - 5010b
Gardner Pinnacles Shoal Area, Western Hawaiian Islands

Surveyed in 1929

Fathometer soundings

Instructions dated March 26, 1928. (Guide)

Supplemental instructions dated April 12, 1929

Chief of Party - K. T. Adams

Surveyed by K. T. Adams

Protracted by G. W. Lovesee

Soundings plotted by J. N. Jones

Verified and inked by W. H. Balford

1. The records conform to the requirements, except that in the area inside of the 20 fathom curve of approximately 350 sq. miles, no bottom characteristics were recorded although 77 hand lead soundings were obtained.
2. The plan, character and extent of the survey satisfy the requirements of the general and specific instructions.
3. The sounding line crossings are generally satisfactory, on H. 5010a. There are no cross lines on H. 5010b.
4. The information is sufficient for drawing the usual depth curves within the limits of the work.
5. The junction of H. 5010a and 5010b is satisfactory.

The junction with H. 5021 is satisfactory.

The junction on the south with H. 5037 is satisfactory.

The junction with the small sheet covering Gardner Pinnacles, H. 5020 is satisfactory.

The soundings shown on H. 5012 were not added to this sheet with the exception of a 15 fathom sounding about 3.5 miles south of Gardner Pinnacle. The other soundings on H. 5012 do not add to the information on this sheet and should not be charted within the area covered by H. 5010a on account of their weak control.

~~H. 4850b could not be examined as it was in the field, but is probably of little value for comparison with this survey.~~

6. The usual amount of field plotting was done by the field party. The protracting and spacing of soundings was fairly well done. The plotting of dead reckoning lines and positions of signal buoys were not verified in the office as they were checked in the field.
7. Character and scope of surveying - very good. Within the limits of the work this survey is considered adequate. About the only danger is Gardner Pinnacle which is covered by a larger scale sheet. The $9\frac{3}{4}$ fathom sounding, obtained with the fathometer in Lat. $25^{\circ}02'$, Long. $168^{\circ}05.4'$ was investigated with the hand lead and depths of 10 fathoms were found. A further examination of the sounding of 11.5 fathoms in Lat. $24^{\circ}55'$, Long. $168^{\circ}03.4'$ would have been desirable.

The data for the correction of fathometer soundings was examined and accepted.

8. No additional work is recommended. *Accept as indicated*
9. Reviewed by R. L. Johnston, March 18, 1931. *in par. 7*

Approved:

L. O. Collett
Chief, Section of Field Records (CHARTS)

Francis S. Borden
Chief, Section of Field Work (H. & T.)

W. M. Ragsdale ch. charts
G. T. ... Chief Div. of H. & T.