

4871

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PURSUANT TO DOC SYSTEMATIC REVIEW
GUIDELINES AS DESCRIBED IN SECTION
3.3(a), EXECUTIVE ORDER 12356.

Hydro. Chart No. 4000

Form 504

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
E. Lester Jones, Director

C. & G. S. No. _____
L. & No. _____
APR 16 1929
Acc. No. _____

State: Ter. of Hawaiian Is.

DESCRIPTIVE REPORT
~~Hydrographic~~ Hydrographic } Sheet No. 12 4871

LOCALITY
French Frigate Shoals
(Northwesterly End)

1928

CHIEF OF PARTY
K. T. Adams, H. & G. E.

GOVERNMENT PRINTING OFFICE

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DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

C. & G. SUR
L. & A
APR 16 1929
Acc. No

REG. NO.
4871

HYDROGRAPHIC TITLE SHEET

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

Field No. 12

REGISTER NO. 4871

State ~~Territory of Hawaiian Is.~~

General locality French Frigate Shoals ✓

Locality Northwestern End of Shoal ✓

Scale 1/20,000 Date of survey August 8 - Sept. 24, 1928

Vessel Motor-sailer

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

Surveyed by F. B. Quinn, Jr. H. & G. E.

Protracted by E. B. Lewey, Aid

Soundings penciled by E. B. Lewey, Aid

Soundings in fathoms ~~fath~~

Plane of reference MLLW

Subdivision of wire dragged areas by - - - -

Inked by

Verified by

Instructions dated March 25, 1928

Remarks: Triangulation station "Beer" was used to plot the following positions:- 1"l" to 4"l" incl., 7"l" to 15"l" incl., and 1"m" to 29"m" incl. This station does not appear on the sheet. A "dog-ear" was put on the sheet for the purpose of plotting and later removed. Three lines inked on the sheet lead to an intersection, off the sheet, where the station was located.

Des Rep.
1 B.S.
4 Vols.

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DESCRIPTIVE REPORT
to accompany

HYDROGRAPHIC SHEET NO. 12,

French Frigate Shoals, T. H.
(Northerly End)
Scale 1/20,000

AUTHORITY: Instructions of Director dated March 25, 1928.

LIMITS: The northerly limit of this sheet joins with sheet #10, the westerly and southerly with sheet #8, and the easterly with sheets #7 and #13.

CONTROL: With the exception of two buoy signals, "Ruf" and "Lean", this sheet was controlled by triangulation stations and topographic signals on various islands and reefs awash. Signal "Lean" was located by topography. Signal "Ruf" was located by fixes at the buoy and sextant cuts from two anchored positions of the launch. See page 2, sounding volume #2. The topographic signals were cross-banners on 16 - foot poles on reefs awash.

SURVEY METHODS: A 30 - foot U.S. Navy motor-sailer was used. The party consisted of: one officer in charge, right angle and plotting; one officer, left angle and steering; one recorder; one launch engineer; and three leadmen. The party operated as a sub-party from the steamer "GUIDE".

The sounding lines outside the reef were run generally parallel to the reef and approximately 200 meters apart. One line was run as close as safety permitted, and the other lines were spaced from it to 12 fathoms or the limit of ship sheet #10.

One line was carried around the outside of the reef from the easterly limit of the above lines, and appears on sheet #10. It was run as close to the reef as possible on a day picked for its favorable conditions.

A small buoy, signal "Ruf", was anchored northwest of signal "Crane" to control the area east and west of signal "Crane". It was located by sextant fixes and cuts.

The main part of the soundings were run on radial lines from La Perouse Pinnacle with their outer ends approximately 200 meters apart. Where shoaler soundings indicated the possibility of coral heads, additional soundings were taken to determine the least water. On a bright day the water over these coral heads appears as a light green at a distance of several hundred meters.

Distances were estimated to the reefs and breakers.

Several sunken coral heads were discovered by the ship. These were sounded by this party, and the least water determined and enclosed in circles.

The presence of shoal water and innumerable coral

heads, sunken and awash, between the inner and outer reefs showed this area to be impractical for an anchorage. It was deemed advisable to merely run sufficient radial lines, spaced from a half mile to two miles apart, to give a general idea of the depth. A closer development would fail to locate all of the sunken coral heads and would have no practical value.

Two positions of signal "Lean" appear on the boat sheet. The SSW'ly position was used in plotting the boat sheet, but the topographic position obtained later was used on the smooth sheet.

ANCHORAGES: The only possible anchorage within the limits of this hydrography is two miles south of signal "Tern". The main reef, extending from Northwest to Northeast, breaks down the heavy swells from the outside. An area of coral heads was found a half mile SSW of this anchorage with 5 to 6 fathoms of water over them. One mile SSE of the proposed anchorage is a four-fathom coral head. One mile and a quarter east of the anchorage is a reef awash and breaking. The 5-fathom curve indicates its extent.

This anchorage may be entered from a WSW'ly direction.

DANGERS: In addition to the coral heads mentioned in "Anchorages", are several others two and a quarter miles NNE of La Perouse Pinnacle with least depths from 4 to 5 fathoms.

GENERAL: The main outer reef extends from Shark Island, ENE'ly to Tern Island, EN'ly, thence E'ly and SE'ly past Whale Island, and continuing in a crescent southward. The reef is practically continuous over these limits. However, about 3/4 of a mile east of Shark Island, signal "Crane", it is possible for a small boat to go through between coral heads and patches of reef when the sea is fairly smooth.

Between Tern Island and Trig Island, there are stretches of light green water within the reef with a probable depth of half a fathom. These are inaccessible from either side of the reef.

A broken ridge that crops up to the surface at many places as coral reef awash, extends from Shark Island easterly and then southerly toward Round Island. Many sunken coral heads are found along this line which is the inside reef line.

The presence of numerous coral heads at depths of from 3 to 5 fathoms and at a distance of a mile SW from Round Island, make it dangerous to attempt to anchor inside the reef in this vicinity.

The reconnaissance lines indicated no possible channels through the outer reef from the northeast and north.

Respectfully submitted,

Francis B. Quinn

F. B. QUINN,
Jr. H & G E
C & G Survey

Forwarded, Approved.

K. T. Adams
K. T. ADAMS,

Chief of Party.

STATISTICS FOR HYDROGRAPHIC SHEET NO. 12.
French Frigate Shoals, T. H.

DATE	DAY	VOL.	POSITIONS	SOUNDINGS	STATUTE MILES
Aug. 8	a	1	142	822	28.9
10	b	1	126	670	24.2
11	c	1-2	132	579	20.8
12	d	2	120	491	18.8
13	e	2	124	466	18.8
14	f	2-3	135	613	22.4
15	g	3	139	751	25.5
16	h	3	155	791	28.4
17	j	3-4	129	605	23.8
18	k	4	138	543	23.2
Sept. 23	l	4	16	86	4.5
24	m	4	113	611	30.1
<hr/>					
TOTALS	12	4	1469	7028	269.4

C. & G. SURVEY

APR 16 1929

Acc. No.

APPROVAL SHEET
for

HYDROGRAPHIC SHEET,
Field No. 12,
French Frigate Shoals, T. H.

April 2, 1929.

The sheet and records for this area have been examined by me and are hereby approved.

The following information is given to assist the verifier and for the information of the office:

As the field work progressed the boat sheet was examined daily by me and the work discussed with the officer in charge.

When the smooth sheet was almost completed it got wet on the northern side, principally above Δ Trig and Δ Tern. This was due to no carelessness on the part of the officers. The sheet was in the rack overhead in the drafting room, where all sheets are habitually kept but the drafting room ~~was~~ leaked. After being dried the projection was checked and found to be correct and the sheet was therefore not remade.

The contour lines east of Δ Whale and Δ Round should not have been drawn on the sheet. These are reconnaissance lines only and the area is very foul and irregular and there is no evidence to support even a guess at where these lines should be drawn.

The 5-4/6 fathom sounding approximately 1-2/3 miles north of Δ Pin and the immediate sounding area was developed by the ship on Sheet 8.

K. T. Adams

K. T. Adams,
H. & G. Engineer,
Chief of Party.

TIDAL NOTE.

Sheet No. 12,
French Frigate Shoals, T. H.

A portable automatic tide gauge was established on the edge of the reef at the southeast end of East Island, lat. 23 - 46.96 N, long. 166-12.53 W.

Simultaneous Comparisons were made with Honolulu tides for the periods July 11 - 16, August 5 - 21, September 9 - 15 and September 19 - 25 inclusive.

These gave a value of MLLW = 3.12 on the staff at French Frigate Shoals. An independent determination of MLLW gave a value of 3.04. The value of MLLW = 3.1 was used for reduction of soundings.

A summary of tides used is as follows:

FRENCH FRIGATE SHOALS, T. H.

Day letter	Date
a	August 8, 1928
b	" 10, "
c	" 11, "
d	" 12, "
e	" 13, "
f	" 14, "
g	" 15, "
h	" 16, "
j	" 17, "
k	" 18, "
l	September 23, "
m	" 24, "

Section of Field Records.
Report on Hyd. Sheet No. 4871.
French Frigate Shoals, Hawaiian Is.

Surveyed in 1928

Instructions dated Mar. 2⁶, 1928.

Chief of Party K.T. Adams Surveyed by F.B. Quinn Jr.
Contracted & Sdgs. Plotted by E.B. Suvey Verified & Inked by G. Peizari

1. The records, plan and character of development satisfy the requirements of the General Instructions.
2. The plan and extent of development satisfy the Specific Instructions.
3. There are practically no crossings of sounding lines on the sheet. The work, however, appears to be satisfactory, judging from the appearance of adjoining lines, ^{of other day letters}. To the southeast of Δ Fig are run several widely separated lines. Improvement here could have been made, if time had been permissible, to have run several cross lines. Such a development not only would have ^{been} sufficient but would have enabled the completion of drawing in of the depth curves effects.
4. The usual depth curves can be completely drawn with the exception of the widely separated lines mentioned in paragraph 3.
5. The field party plotting was completed to the extent prescribed in the General Instructions.
6. In a number of cases the work was replotted due to the use of swingers. The final accepted positions of the soundings in each case appear satisfactory and agree with adjoining soundings, which were obtained by good fixes. Numerous ^{making no distinction} sunken rocks were shown by the field draftsman for shoal areas and specific rocks. In order to define the sunken rocks more specifically, those shown more boldly are definitely located, while the others are more

Report on Hyd. Sheet No. 4871 (Cont.)

(Cont). or less generally located and represent an observed shoals. *

7. The sheets adjoining H. 4871 are not completed at this date.

8. The work on the sheet appears to have covered the area as per instructions and no further development is recommended. The area covered by the few widely separated lines appears unimportant and no further development is recommended.

9. Character and scope of the surveying is good.
Field drafting is good.

Reviewed by E. Picegari Dec. 26, 1929.

* Attention might be called here regarding the recording of the various rocks shown boldly. The positions of these rocks are not referenced in the records by some distinctive mark opposite a particular sounding as required by paragraph 76 in the Hyd. Manual.

The boat sheet was given consideration, when it could be used, in establishing their final positions.

Approved,
W. M. Sobieralski

Section of Field Records

ecm

August 23, 1929.

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in
4 volumes of sounding records for

HYDROGRAPHIC SHEET 4871

Locality: French Frigate Shoals, T. H.

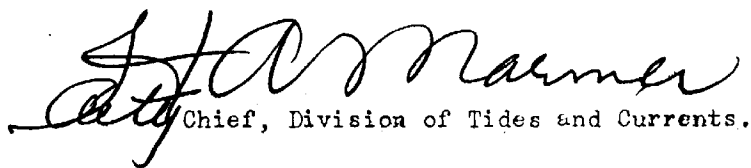
Chief of Party: K. T. Adams in 1928

Plane of reference is mean lower low water, reading

3.1 ft. on tide staff at East Island, French Frigate Shoals
~~ft. below B. M.~~

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.


Chief, Division of Tides and Currents.

Applied to Chart 4182 7/25/40 ~~83~~ Jr.

Applied to New Chart. 4172 Aug 2 1946 ~~83~~