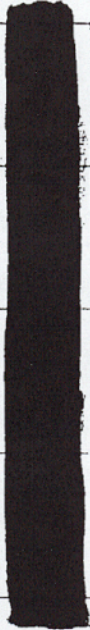


4902

Dir. Off. No. 4000

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

4902



Form 504
 DEPARTMENT OF COMMERCE
 U. S. COAST AND GEODETIC SURVEY
 E. Lester Jones, Director

C. & G. SURVEY
L. & A.
JUN 12 1929
Acc. No.

Hawaiian Is.
 State: Terr. Of Hawaii

DESCRIPTIVE REPORT

~~Hydrographic~~ } Sheet No. 13 4902
 Hydrographic

LOCALITY

French Frigate Shoals

(Southerly End)

1928

CHIEF OF PARTY

K. T. Adams, H. & G. E.

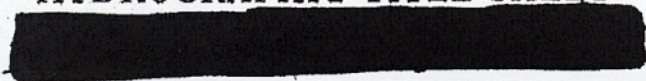
GOVERNMENT PRINTING OFFICE

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

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

DECLASSIFIED BY NOAA
PURSUANT TO DOC SYSTEMATIC REVIEW
GUIDELINES AS DESCRIBED IN SECTION
3.3(a), EXECUTIVE ORDER 12356.
DC & G. SURVEY
L & S
JUN 8 1929
Acc. No.

HYDROGRAPHIC TITLE SHEET



REG. NO.
4902

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. 13

REGISTER NO. 4902

State ~~Territory of Hawaiian~~ Is.

General locality French Frigate Shoals

Locality Southerly End of Shoals

Scale 1/20,000 Date of survey Aug. 19- Sept. 25, 1928

Vessel Motor-sailer

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

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

Protracted by K. T. A., F. L. G., ^{Allen} V. M. Gibson

Soundings penciled by F. L. G.

Soundings in fathoms ~~XXXX~~

Plane of reference MLW

Subdivision of wire dragged areas by

Inked by

Verified by

Instructions dated March 25, 1928

Remarks:

GPO

Rec. P. S.
1 B.S.
5 Vols.

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

①

DESCRIPTIVE REPORT
to accompany

HYDROGRAPHIC SHEET NO. 13,

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

26

AUTHORITY: Instructions of Director dated March 25, 1928.

LIMITS: This sheet joins with sheets #7, #8 and #12 on the north and west, with sheet #11 on the south and with sheet #10 on the east.

CONTROL: It was impossible to entirely control this sheet by triangulation stations on land. Two large buoys "French" and "Buoy" were established by the ship, and two small buoys "Low" and "Big" were placed and located by this party. Signal "French" was located by triangulation, ~~"Buoy" by triangulation~~, and "Low" and "Big" by sextant fixes and sextant cuts. *"Buoy" was located by two theodolite angles and one sextant cut.*

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 leadsmen. The party operated as a sub-party from the steamer "GUIDE". Hand - lead sounding methods were used with one man throwing the lead and another pulling it in.

In general, the lines were run NE and SW. Later this area was searched for sunken coral heads seen by the ship and this party. The least water was determined and enclosed in circles on the sheet.

One line was run south of Disappearing Island, outside of and as close as safety permitted to the reef, in an ESE'ly direction. A zig-zag line was run in the same general direction to locate the 5 and 10 fathom curves and to connect with the ship work on sheet #11.

Another line was carried around the easterly limit of the shoals, outside the reef, and appears on sheets #10 and #11. It was run as close as possible to the reef on a day picked for its favorable conditions.

A series of radial reconnaissance lines, spaced from one to two miles apart, were run between the inner and outer reefs. Since this area is foul and inaccessible it was deemed impractical and unnecessary to run a closer system of lines. Many coral heads and reefs awash, and sunken coral heads, in this area were located approximately by estimating distances and directions from the lines run. Others were located by sextant cuts from two or more positions. Since most of the signals were not visible from the launch at the outer, easterly, ends of the lines, it was necessary to plot these sections on time and course with one angle and to connect them with the better controlled sections nearer the inner reef. Near positions 28s and 31s, the outer reef was crossed with a least depth of 2 fathoms. This crossing is impossible except on a very smooth day.

(2)

At the extreme westerly limit of the soundings on this sheet a shoal area was found by the ship and investigated by this party. The least depth found was 5 fathoms.

ANCHORAGES: Nowhere within the limits of this hydrography were possible anchorages found. The entire area is spotted with sunken coral heads at depths of 2 to 5 fathoms.

DANGERS: At a distance of 0.85 of a mile 71° true from signal "French" a shoal was found with least water of $1\frac{1}{2}$ fathoms. This shoal is dangerous because it does not show up plainly except on a bright day.

GENERAL: From the northeast corner of this sheet the outer reef is well defined by breakers, and swings in a crescent toward the south and west. From a point about 2 miles from Disappearing Island it runs practically WNW to the island. At points approximately one and two miles west of Disappearing Island are areas of shoal water that break except on unusually smooth days.

The inner reef runs practically south from Little Gin Island, signal "Little", and is impassable, except in spots, to a point about half way to Disappearing Island. From there to Disappearing Island it is marked by detached reefs awash, coral heads, and shoaler water.

About two and a half miles NE from Disappearing Island is an area with ten fathoms or more of water, but fouled with sunken reefs and coral heads having least depths of about $2\frac{1}{2}$ fathoms.

With the reconnaissance lines north of Gin Island, data was taken relative to the inner reef location. This may be combined with the data on sheet #7.

POSITIONS ON RECONNAISSANCE LINES WITHOUT COMPLETE CONTROL:

To be adjusted between completely controlled parts of outgoing and incoming lines, by plotting single angle with time and course.

Positions 25s to 34s ----- one angle only.

Positions 71s to 75s ----- one angle only.

Respectfully submitted,

Francis B. Quinn

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

Forwarded, approved.

K. T. Adams

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

STATISTICS FOR HYDROGRAPHIC SHEET NO. 13.

French Frigate Shoals, T. H.

	DATE	DAY	VOLUME	POSITIONS	SOUNDINGS	STATUTE MILES
	1928					
Aug.	19	a	1	89	290	14.8
	20	b	1	130	487	24.0
	21	c	1	63	239	12.9
* Sept.	9	d	1	117	510	23.3
	10	e	2	104	421	21.0
	11	f	2	62	267	9.6
	12	g	2	108	509	18.0
	13	h	2-3	111	503	18.0
	14	j	3	119	492	19.4
	15	k	3	129	572	24.0
	16	l	4	42	198	8.0
	17	m	4	81	395	18.7
	18	n	4	107	496	24.4
	19	p	4-5	126	734	28.5
	21	q	5	71	134	4.0*
	22	r	5	73	294	12.8
	23	s	5	78	525	28.0
	25	t	5	34	69	1.4*
TOTALS		18	5	1644	7135	310.8

* Detached soundings not listed in mileage.

**TIDAL NOTE
to accompany**

**SHEET NO. 13,
French Frigate Shoals, T. H.**

A portable-automatic tide gauge located at East Island, French Frigate Shoals, furnished the tides for reduction of most of the soundings on this sheet. MLLW for the staff was determined both by independent computation and by simultaneous comparison with the Honolulu gauge.

Where French Frigate Shoals tides were not available, Honolulu tides were used, corrected for range and time.

(5)

APPROVAL SHEET
to accompany

SHEET NO. 13,
French Frigate Shoals, T.H.
1928

The smooth sheet, records and descriptive report of the accompanying sheet have been examined and approved by me.

The usual amount of supervision was had over the field work. The boat sheet was examined by me daily as the work progressed and was discussed with the officer in charge.

On plotting the smooth sheet it was found that the location of "Buoy" did not check. A temporary location for immediate use on the boat sheet had been obtained by the launch party. A topographic location was then obtained, but it did not check the hydrographic location. It was assumed that the distortion in the boat sheet would account for the difference, but an additional pair of theodolite cuts were taken. On the smooth sheet, the topographic location was found to be in error, and the position used was an intersection of the theodolite cuts and one or two sextant cuts. This location will differ slightly from that on sheet #11, but inasmuch as #11 was on a 1:40,000 scale, it is thought that it will not have to be replotted.

A great deal of study was spent over the adoption of a location of buoys "Buoy", "Low" and "Big", and the positions on this sheet should be accepted.

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

TIDAL NOTE
to accompany

SHEET NO. 13,
French Frigate Shoals, T. H.

A portable-automatic tide gauge located at East Island, French Frigate Shoals, furnished the tides for reduction of most of the soundings on this sheet. MLLW for the staff was determined both by independent computation and by simultaneous comparison with the Honolulu gauge.

Where French Frigate Shoals tides were not available, Honolulu tides were used, corrected for range and time.

7
C. & G. SURVEY
L. & A.
JUN 8 1929
Acc. No.

APPROVAL SHEET
to accompany

SHEET NO. 13,
French Frigate Shoals, T.H.
1928

The smooth sheet, records and descriptive report of the accompanying sheet have been examined and approved by me.

The usual amount of supervision was had over the field work. The boat sheet was examined by me daily as the work progressed and was discussed with the officer in charge.

On plotting the smooth sheet it was found that the location of "Buoy" did not check. A temporary location for immediate use on the boat sheet had been obtained by the launch party. A topographic location was then obtained, but it did not check the hydrographic location. It was assumed that the distortion in the boat sheet would account for the difference, but an additional pair of theodolite cuts were taken. On the smooth sheet, the topographic location was found to be in error, and the position used was an intersection of the theodolite cuts and one or two sextant cuts. This location will differ slightly from that on sheet #11, but inasmuch as #11 was on a 1:40,000 scale, it is thought that it will not have to be replotted.

A great deal of study was spent over the adoption of a location of buoys "Buoy", "Low" and "Big", and the positions on this sheet should be accepted.

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

Section of field records

M.A.C.
E.A.L.

August 17, 1929.

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in
6 volumes of sounding records for

HYDROGRAPHIC SHEET 4902

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.

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

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.

Starnamer
Chief, Division of Tides and Currents.

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

AND REFER TO No. 11-WSW

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

WASHINGTON

August 27, 1930.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4902

Southerly end of shoal - French Frigate Shoal

Surveyed in 1928

Instructions dated March 26, 1928. (Guide)

Chief of Party, K. T. Adams.

Surveyed by F. B. Quinn.

Protracted by K. T. Adams, F. L. Gallen, V. M. Gibson.

Soundings pencilled by F. L. Gallen.

Verified and inked by G. Risegari.

1. The records conform to, and the plan and character of development fulfill the requirements of the general instructions.
2. The plan and extent of development satisfy the specific instructions.
3. There are practically no crossings on the sheet to assist in checking the character of the work, it appears, however, to be of a good character from other determinations.
4. The depth curves can be completed within the scope of the survey.
5. Attention might be called here regarding the protracting of boats positions using signals, Big Buoy and Low.
 - a. An examination of the protracting of the boats' positions also shows that different locations of the signals Buoy and Big were used. In view of the statement of the Chief of Party in the descriptive report, page 5, and also of the doubtful value of an office adjustment of the signals, the boats' positions using signals Buoy and Big as well as signal Low were accepted as plotted on the smooth sheet by the Field Records Section.
6. The junction with H. 4871 (North) is satisfactory.
 - a. The junction with H. 4866 (East) is satisfactory.

- b. The junction with H. 4867 (South) is satisfactory.
- c. The junction with H. 4901 (West-lower) is not yet completed at this date but will be reported on when finished.
- d. The junction with H. 4800 (West-upper) appears to be inadequate in the vicinity of Lat. $23^{\circ}47'$ and Long. $166^{\circ}10'$ (see H. 4900), although it is possible that a reef may extend across this unsurveyed area and failure by the field party to make mention of this fact. In any case the limits of the reef are not well defined concerning this area.
7. The area between Lat. $23^{\circ}46'$ and Lat. $23^{\circ}48'$ at Long. $166^{\circ}10'$ (See H. 4900) appears not sufficiently developed, though it is not possible from the information on hand to tell whether or not a reef exists across this area.
8. As a matter of interest a crossing was made over the outer reef vicinity of Lat. $23^{\circ}45'$, Long. $166^{\circ}04'$. The descriptive report states this can be done only on a very smooth day. It was deemed proper to enter a note on the sheet stating this fact..
9. Character and scope of the surveying --- good.
- a. Field drafting --- good.
10. Review by G. Risegari, May 15, 1930.

Approved:

A. M. Bohieralski
Chief, Section of Field Records (CHARTS)

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

11-WSW

August 27, 1930.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4902

Southerly end of shoal - French Frigate Shoal

Surveyed in 1928

Instructions dated March 26, 1928.

(Guide)

Chief of Party, K. T. Adams.

Surveyed by F. B. Quinn.

Protracted by K. T. Adams, F. L. Gallen, V. M. Gibson.

Soundings pencilled by F. L. Gallen.

Verified and inked by G. Risegari.

1. The records conform to, and the plan and character of development fulfill the requirements of the general instructions.
2. The plan and extent of development satisfy the specific instructions.
3. There are practically no crossings on the sheet to assist in checking the character of the work, it appears, however, to be of a good character from other determinations.
4. The depth curves can be completed within the scope of the survey.
5. Attention might be called here regarding the protracting of boats positions using signals, Big Buoy and Low.
 - a. An examination of the protracting of the boats' positions also shows that different locations of the signals Buoy and Big were used. In view of the statement of the Chief of Party in the descriptive report, page 5, and also of the doubtful value of an office adjustment of the signals, the boats' positions using signals Buoy and Big as well as signal Low were accepted as plotted on the smooth sheet by the Field Records Section.
6. The junction with H. 4871 (North) is satisfactory.
 - a. The junction with H. 4866 (East) is satisfactory.

- b. The junction with H. 4867 (South) is satisfactory.
 - c. The junction with H. 4901 (West-lower) is not yet completed at this date but will be reported on when finished.
 - d. The junction with H. 4800 (West-upper) appears to be inadequate in the vicinity of Lat. $23^{\circ}47'$ and Long. $166^{\circ}10'$ (see H. 4900), although it is possible that a reef may extend across this unsurveyed area and failure by the field party to make mention of this fact. In any case the limits of the reef are not well defined concerning this area.
- 7. The area between Lat. $23^{\circ}46'$ and Lat. $23^{\circ}48'$ at Long. $166^{\circ}10'$ (See H. 4900) appears not sufficiently developed, though it is not possible from the information on hand to tell whether or not a reef exists across this area.
 - 8. As a matter of interest a crossing was made over the outer reef vicinity of Lat. $23^{\circ}45'$, Long. $166^{\circ}04'$. The descriptive report states this can be done only on a very smooth day. It was deemed proper to enter a note on the sheet stating this fact..
 - 9. Character and scope of the surveying --- good.
 - a. Field drafting --- good.
 - 10. Review by G. Risegari, May 15, 1930.

Approved:

Chief, Section of Field Records (CHARTS)

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

Applied to Chart 4182 7/25/40 *[Signature]*

Applied to chart 4172 Aug 2 1946 *[Signature]*