

8208

Diag. Cht. No. 5402-2

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. BO-2354 Office No. H-8208

LOCALITY

State California

General locality Approaches to San Francisco Bay

Locality N. W. of Farallon Islands

194/54

CHIEF OF PARTY

H. C. Applequist

LIBRARY & ARCHIVES

DATE February 2, 1956

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

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.

REGISTER No. ^{H-8208}
~~H-4980b~~

Field No. BO-2354

State California

General locality ~~California Coast~~ Approaches to San Francisco Bay

Locality N.W. of Farallon ~~Is~~ Islands

Scale 1 : 20,000 Date of survey 18 Sept. 1954 to 24 Sept. 1954

Instructions dated 21 May 1954

Vessel Ship BOWIE

Chief of party H.C. Applequist

Surveyed by HCA, ALP & GEC

Soundings taken by fathometer, ~~graphic recorder, hand lead, wire~~

Fathograms scaled by F.W. Lingenfelter

Fathograms checked by D.E. Hamilton

Protracted by G.E. Cook

Soundings penciled by C. A. J. Pauw

Soundings in fathoms ~~feet~~ at MLLW
and are true depths

REMARKS:

DESCRIPTIVE REPORT
to accompany
HYDROGRAPHIC SURVEY ~~H-5013 & 4980~~ ⁸²⁰⁸ H-8208
(Field No. ~~BO-2354~~ BO-2354)

Gulf of the Farallons
Scale: 1 : 20,000
Ship BOWIE

S.E. Farallon to Noonday Rock
August to September 1954
H.C. Applequist
Chief of Party

PROJECT:

The hydrographic survey was executed in accordance with instructions dated 21 May 1954. The purpose of the survey was to provide closer line spacing and fill in holidays in the 1929 Survey.

VESSELS AND EQUIPMENT:

All hydrography was done with Ship BOWIE.

808J Fathometers Nos. 66S was used on H-~~5013~~ ⁸²⁰⁹ (Field BO-2454) and Nos. 66S and S-111 were used on ~~4980~~ ^{H-8208} (Field BO-2354).

TIDE AND CURRENT STATIONS:

The data from the standard tide gage at San Francisco (Fort Point) were used to reduce the soundings.

No current stations were occupied.

SMOOTH SHEET:

The smooth sheets including the shoran arcs were prepared by the Washington Office. Tracing paper overlays were used as boat sheets. They were discarded.

CONTROL STATIONS:

Shoran was used to control the survey. One station was established at Pt. Reyes and another at Bolinas. A list of positions for these stations is appended to this report.

SOUNDINGS:

Soundings were measured by 808 Fathometers Nos. 66S and S-111.

Velocity corrections were obtained from temperature and salinity observations. The data and calculations are appended to this report.

CONTROL OF HYDROGRAPHY:

Hydrography on this survey was controlled by shore~~an~~. An abstract of corrections is appended to this report. ✓

ADEQUACY OF SURVEY:

Since no soundings were plotted a comparison can not be made, but soundings were observed very closely as they were obtained and no radical unexpected soundings were observed. From these observations it is believed that the survey is complete and adequate. ✓

CROSSLINES:

The soundings on the crosslines were observed the same as in the paragraph above and were found to be satisfactory. ✓

COMPARISON WITH PRIOR SURVEYS:

No comparisons other than that referred to above were made. Review, par. 5

COMPARISON WITH CHARTS:

The note under the previous paragraph also applies to charts. Review, par. 6

DANGERS AND SHOALS:

No new dangers or shoals were found. ✓

COAST PILOT INFORMATION:

No changes or additions are recommended. ✓

AIDS TO NAVIGATION:

No aids to navigation were located. ✓

LANDMARKS FOR CHARTS:

No additional ones are recommended. ✓

GEOGRAPHIC NAMES:

No changes or additional ones are recommended. ✓

Respectfully submitted:

Allen L. Powell

Allen L. Powell
Lieut. Comdr., USC&GS

APPROVED:

H.C. Applequist

H.C. Applequist
Commander, USC&GS
Commanding Ship BOWIE

APPROVAL SHEET

HYDROGRAPHIC SURVEYS REGISTER NOS. ^{H-8208}~~H-4980b~~ (BO-2354)
~~H-5013~~ (BO-2454)
^{H-8209}

Vicinity of Farallon Islands

The records for these surveys have been examined and found complete.

The smooth sheet has been protracted but the soundings have not been plotted at the time of this report.

H.C. Applequist
H.C. Applequist
Commander, USC&GS
Commanding Ship BOWIE

SHORAN CORRECTIONS

The corrections to the Shoran distances were obtained by taking readings simultaneously with sextant three point fixes on triangulation stations. The three point fixes were computed through the geographic positions and plotted to a large scale using as origin one position from which an inverse to the Shoran Station had been plotted, the azimuth was drawn to this point and the other positions projected to this azimuth line and the corrections scaled off.

The abstract of these corrections follows:

REYES DISTANCE (DRIFT)				BOLINAS DISTANCE (RATE)		
POS.	TRUE	OBSERVED	CORR.	TRUE	OBSERVED	CORR.
1.	30.5805	30.600	-0.0195	14.6546	14.650	+ 0.0046
2.	30.5926	30.616	-0.0234	14.6512	14.646	+ 0.0052
3.	30.6148	30.630	-0.0152	14.6495	14.642	+ 0.0053
4.	30.6223	30.642	-0.0197	14.6331	14.630	+ 0.0031
5.	30.6345	30.651	-0.0165	14.6269	14.626	+ 0.0003
TOTAL			-0.0943			+ 0.0185
MEAN			-0.0189			+ 0.0037
RATE				DRIFT		
6.	30.7036	30.716	-0.0124	14.6208	14.630	-0.0092
7.	30.7177	30.732	-0.0143	14.5931	14.620	(-0.0269)R
8.	30.7276	30.740	-0.0124	14.5994	14.615	-0.0156
9.	30.7408	30.754	-0.0132	14.5977	14.605	-0.0073
10.	30.7597	30.769	-0.0093	14.5875	14.597	-0.0095
TOTAL			-0.0616			-0.0406
MEAN			-0.0123			-0.0102

DRIFT
Zero Check 99.815
99.815 - 0.019 = 99.796

RATE
Zero Check 99.807
99.807 - 0.012 = 99.795

Zero checks for of Zero Corrections:

REYES RATE 99.795; DRIFT 99.796

BOLINAS - RATE 99.811; DRIFT 99.804

Date of calibration not known - The calibration was not made in the area of hydrographic operations.

Simultaneous sextant and shoran fixes are not recorded in the sounding volumes.

REF

TIDE NOTE

The data from the San Francisco (Fort Point) gage were used with a 0.9 range correction and a - 45 minute time correction.

Mean Lower Low Water on the staff is 2.1 feet. See Director's letter dated 10 August 1954, file 36-vjb.

STATISTICS

for

HYDROGRAPHIC SURVEY (BO-2354) 4980b

VOL. NO.	DAY LETTER	NO. OF POSITIONS	STATUTE MILES OF SDGS.	VESSEL
1	A	96	15.4	BOWIE
1	B	238	46.0	BOWIE
2	B	226	47.2	BOWIE
TOTAL		610	108.6	

Square statute miles - 7.3

PROCESSING OFFICE NOTES

H-8208 H-8209
~~H-4980b~~ (BO-2354) and ~~H-5013~~ (BO-2454)

E. SMOOTH SHEET

The smooth sheets including the shoran arcs were prepared in the Washington office. The positions were plotted, connected and numbered by the field party. The choice of day letter color for these sheets is not too desirable. ✓

H. SOUNDINGS

While plotting soundings it was found that there were numerous discrepancies in crossings. The fathograms were examined and Fathometer 66s was found to be operating in an erratic manner. All of the fathograms were checked for speed and corrections were applied where necessary and checked. The corrections ranged from +8 to -18%. The discrepancies probably would have been discovered by the field party, had they plotted the soundings on the overlay. Apparently the fathograms were not checked for speed when they were rescanned.

Review,
 par. 7d

The corrected soundings result in reasonable crossings and compare favorably with the old surveys. *after add'l corrections were made*

J. ADEQUACY OF SURVEY

It is believed that the survey is adequate. The depth curves can be adequately drawn. Soundings from prior surveys were given less weight when drawing depth curves. ✓

K. CROSSLINES

On sheet ⁸²⁰⁸ ~~H-4980b~~ the percentage of crosslines was about 20 per cent, though most of these lines do not cross the other work entirely. All crossings appear reasonable. ✓

L. COMPARISON WITH PRIOR SURVEYS

In general the agreement with the prior survey is reasonably good though some shift appears to be necessary in the R. A. R. in the vicinity of Lat. 37° 53' N, Long. 123° 19' W, sheet H-4980b. Review,
 par. 5

M. COMPARISON WITH CHARTS

⁸²⁰⁸ Both ~~H-4980b~~ and ~~H-5013~~ ^{has} ~~have~~ been compared with chart 5502. A list of soundings on the chart that are not substantiated follows:

Chart	Depth New Survey	Latitude and Longitude
37	47	Lat. 37° 53'.45 Long. 123° 18'.65
50	53 to 54	37° 51'.90 123° 18'.7


Review, par. 5b
 " "

Chart	Depth New Survey	Latitude and Longitude	
20	36 to 38	Lat. 37° 49'.00	Long. 123° 12'.65
20	37	37° 48'.55	123° 12'.25
25	40	37° 48'.5	123° 12'.03
26	38 to 40	37° 49'.15	123° 11'.95
27	3735	37° 48'.70	123° 12'.00
36	44 to 47	37° 49'.57	123° 10'.13
20	18	37° 40'.50	122° 58'.60
4	3	37° 41'.42	122° 59'.65
No sndg	16	37° 40'.90	122° 58'.85
" "	19	37° 45'.30	123° 04'.80
18	17	37° 45'.35	123° 05'.40
22	19	37° 45'.73	123° 07'.15
24	62	37° 47'.62	123° 09'.95
29	27	37° 45'.05	123° 07'.05
22	19	37° 45'.73	123° 07'.15
No sndg	20	37° 45'.15	123° 07'.75
17	12	37° 43'.65	123° 02'.63
43	39	37° 47'.10	123° 08'.25
39	42	37° 47'.66	123° 08'.00
38	42	37° 47'.80	123° 07'.00

Review,
par. 5 b.

Not applicable
to present
survey

Respectfully submitted,



William M. Martin
Cartographer, C&GS

Approved and forwarded



L. S. Hubbard, Captain, C&GS
Seattle District Officer

~~Division of Coastal Surveys:~~

Division of Charts: R. H. Carstens

HYDROGRAPHIC SHEET 8208

Chief of Party: H. C. Applequist
Plane of reference is mean lower low water, reading
5.6 ft. on tide staff at Presidio, San Francisco
13.5 ft. below B. M. 180 (1936)

Height of mean high water above plane of reference is 5.2 feet.

NOTE: Tide reducers were computed and verified using Presidio, San Francisco observations with the following allowances:

<u>Time Difference</u>	<u>Ratio of Range</u>
- 45 minutes	0.9

William H. Hoag
Branch
~~Chief, Division of Tides and Currents.~~

GEOGRAPHIC NAMES

Survey No. **H-8208**

Name on Survey

A

B

C

D

E

F

G

H

K

On Chart
No.

On previous survey
No.

On U. S. quadrangle
Maps

From local
information

On local Maps

P. O. Guide or Map

Rand McNally Atlas

U. S. Light List

California

N.W. of

Farallon Islands

} for title

BGN

1

Fanny Shoal

3

Gulf of the

Farallones

} Approaches to San Francisco Bay

ixd

4

5

6

Names approved

7

3-15-56. L. Heck

8

See ch 5502 for place-
ment of names

9

10

11

12

Fort Point

(tide station)

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. ~~8208~~.....

Records accompanying survey:

Boat sheets; sounding vols. 2...; wire drag vols.;
bomb vols.; graphic recorder rolls 1-Envelope
special reports, etc. 1-Smooth sheet and 1-Descriptive report.....
.....

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

Number of positions on sheet	..610..
Number of positions checked	...20..
Number of positions revised✓
Number of soundings revised (refers to depth only)	*173
Number of soundings erroneously spaced✓
Number of signals erroneously plotted or transferred✓
Topographic details	Time ...9..
Junctions	Time ...9..
Verification of soundings from graphic record	Time ...20..

Verification by J. T. Gallagher Total time 28.5.. Date Aug. 30, 1956

Reviewed by J. A. Dinsmore Time 20.. Date 27 Sept. 1956

* Revisions due to fathometer speed corrections

CORRECTIONS IN FEET, FATHOMS

Add -1 fm to each of these
Corrections. In: set at 2 fms.
Correct In: 1 fm.

VELOCITY CORRECTIONS

U.S. Coast and Geodetic Survey

Ship *BOWIE*

H. C. Applequist Comdg.

These corrections are to be used
between 19 and 19
in the locality *Fanning Islands*

for hydrographic surveys Nos.

Depth	Cor. fm
0 to 18.0	0.0
18.1 to 39.0	-0.2
39.1 to 57.5	-0.4
57.6 to 72.6	-0.6

Phase Correction Fath. 66.5 + 1.0 ft.

Fath. Corrections "0" scale (Fath. 66.5)

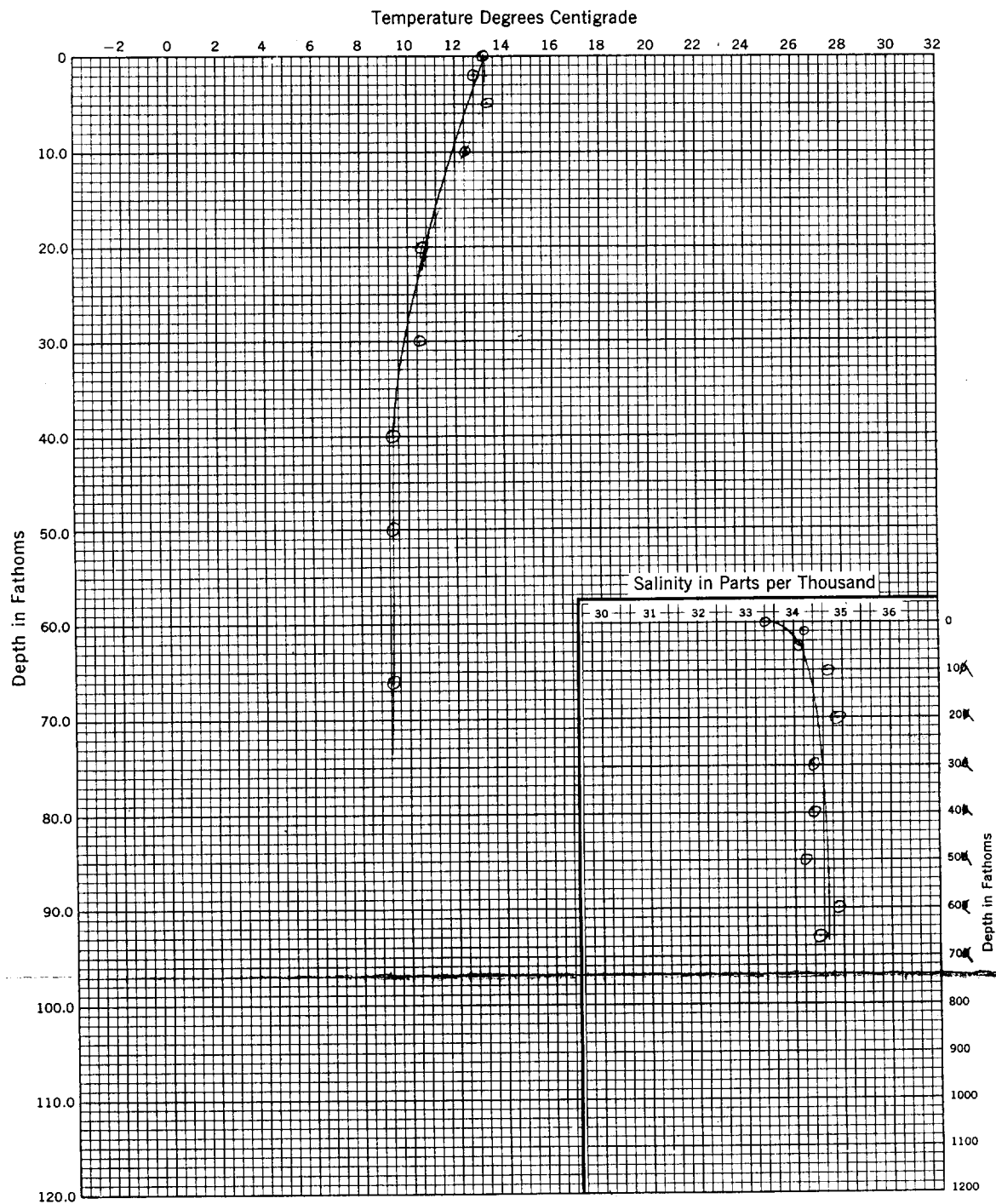
35.0 to 39.0	-0.0
39.1 to 57.5	-0.2
57.6 to 72.6	-0.4

No. Phase correction - Fath. 511

DEPTHS IN FATHOMS

5 10
10 20
15 30
20 40
25 50
30 60
35 70
40 80
45 90
50 100
55 110
60 120
65 130
70 140
150
160
170
180
190

GRAPH OF TEMPERATURES AND SALINITIES U.S. COAST AND GEODETIC SURVEY



Ship BOWIE
 H. L. Alphington Com'd'g.
 Date.....
 Locality Ensign Island

Thermometer (Makers) No. 45862
 Hydrometer No. 4242

Serial No.
 Position: Lat.°..
 Long.°..
 Salinities by ALP

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-8208

FIELD NO. BO-2354

California, Approaches to San Francisco Bay, N. W of
Farallon Islands

Project No. Instructions of 21 May 1954

Surveyed in September 1954

Scale 1:20,000

Soundings:

Control:

808 Fathometer

Shoran

Chief of Party - H. C. Applequist
Surveyed by - H. C. Applequist, A. L. Powell and G. E. Cook
Protracted by - G. E. Cook
Soundings plotted by - C. A. J. Pauw
Verified and inked by - J. T. Gallahan
Reviewed by - T. A. Dinsmore 27 Sept. 1956
Inspected by - R. H. Carstens

1. Shoreline and Control

There is no land within the area of this offshore survey sheet.

The origin of the control is given in the Descriptive Report.

2. Sounding Line Crossings

Depths at crossings are in good agreement considering the irregularities in the bottom.

3. Depth Curves and Bottom Configuration

The usual depth curves are adequately delineated. Shoals, ridges and depressions contribute to the irregularities in the bottom. No unusual submarine features are apparent.

4. Adjoining Surveys

Inasmuch as the present survey was accomplished to supplement prior hydrography, no junctions were transferred to the present survey. However, charted depths from the prior surveys are in harmony with the depths at the limits of the present survey.

5. Comparison with Prior Surveysa. H-721 (1858-60) and H-889 (1866) at scales of 1:100,000

These early small-scale reconnaissance surveys may be disregarded as lacking sufficient reliable information for a comparison of any value.

b. H-4980b (1929) 1:20,000

The present survey falls within the area covered by this prior survey. A comparison of the prior and present depths reveals no appreciable changes in bottom. However, differences in depths do occur between the two surveys. These differences are attributed largely to the irregularities in the bottom and in part to erroneous fathometer soundings (strays) on the prior survey. Numerous shoal soundings on the prior survey have been rejected as strays and so indicated on the smooth sheet of that survey. The following soundings presently charted are among those rejected:

<u>Latitude</u>	<u>Longitude</u>	<u>Charted Depth</u>
37°53.45'	123°18.62'	37
37°49.58'	123°13.6'	30
37°49.02'	123°12.63'	20
37°49.15'	123°11.95'	26
37°48.73'	123°11.95'	27
37°48.52'	123°12.25'	20
37°48.04'	123°11.61'	25
37°48.3'	123°10.0'	29

On the basis of remarks pertaining to strays in the old sounding volumes and the bottom configuration revealed by the present development, the prior soundings are considered discredited.

The depth curves on H-4980b and the present survey are generally in harmony. However, where differences remain, the present survey curve delineation is considered the more reliable.

The present survey supplements H-4980b which is now considered to be the basic survey of the area covered.

6. Comparison with Chart 5502 (Latest print date 5/7/56)A. Hydrography

Charted hydrography originates principally with the previously discussed survey which needs no further consideration.

The charting of the area covered by the present survey should be governed by the information given in paragraph 5 of this review.

B. Aids to Navigation

No aids to navigation are charted within the limits of the present survey.

7. Condition of Survey

a. The original smooth-plotted survey sheet was submitted on a blue-line print of survey H-4980b. This copy was unsatisfactory for the registered survey and consequently a photo-lithographic print was made in order to eliminate the blue soundings and irrelevant information. The position numbers were re-linked on the registered copy.

b. The sounding records and Descriptive Report were complete except as follows:

(1) The calibration of fathometer 66 was not adequately recorded, necessitating a search of all the 1954 records of the ship BOWIE in order to establish its probable calibration value. Although the fathometer was used on six surveys, only three entries regarding the fathometer calibration was entered in the sounding volumes, and no mention of fathometer calibration was made in the other survey records and reports.

(2) The dates of shoran calibration are not known. The calibrations were made outside the area of hydrographic operations and the calibration records are not included in the sounding volumes or other survey reports.

c. The smooth plotting was accurately done.

d. Faulty fathometer speed ranging from +8% to -14% was detected during the smooth plot of the survey. An average speed correction for several sections of lines applied in the Processing Office was revised to the indicated fathometer speed correction over shorter sections in order to eliminate some conflicts with the adjacent hydrography. Several line sections affected by erroneous paper travel are evidently the result of paper slippage as a correction for speed causes conflicts with the adjacent hydrography. Although general agreement of the soundings was obtained by these revisions, complete reliability of depths is questionable.


8. Compliance with Project Instructions

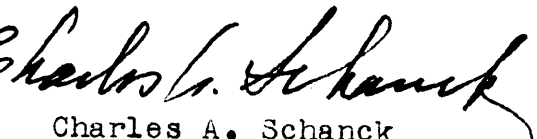
The survey adequately serves the purpose intended which was to provide closer sounding-line spacing and to fill in holidays on H-4980b (1929).


9. Additional Field Work

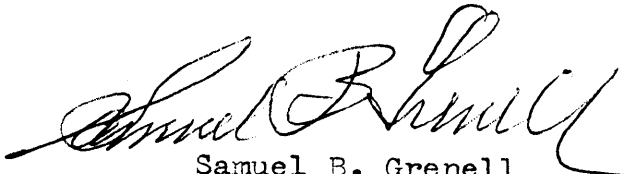
No additional field work is required for this supplementary survey.

Examined and Approved:


H. R. Edmonston
Chief, Nautical Chart Branch


Charles A. Schanck
Chief, Chart Division


J. C. Bull
Chief, Hydrography Branch


Samuel B. Grenell
Chief, Coastal Surveys Division

20°

10°

(JOINS CHART 5502)

123°

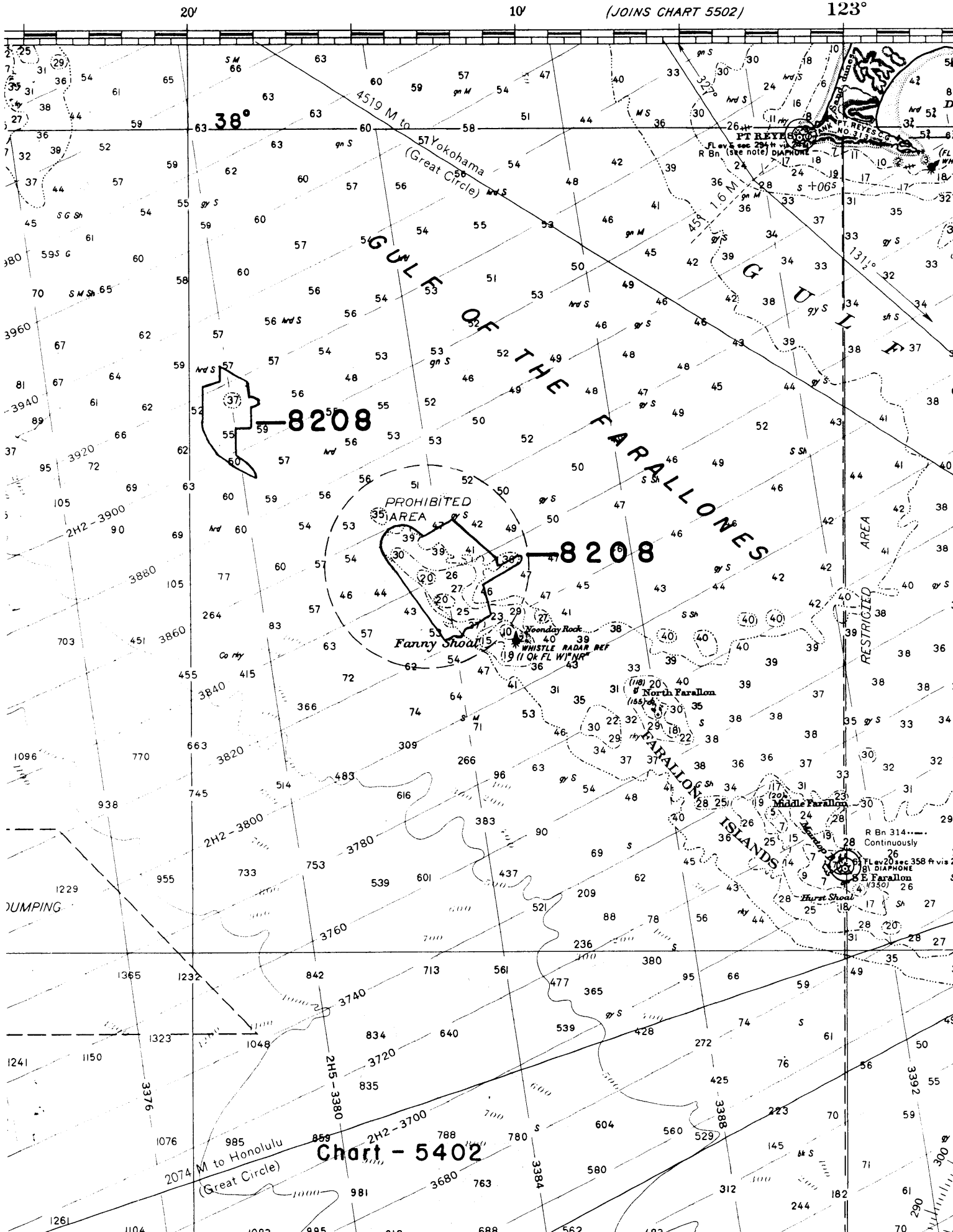


Chart - 5402

NAUTICAL CHARTS BRANCH

SURVEY NO. H-8208

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
6/5/56	5052	JHE	Before After Verification and Review <i>No correction at this scale</i>
7/25/56	5502	Jam	Before After Verification and Review <i>Examined only.</i>
10/16/56	5598	JHE	Before After Verification and Review <i>JHE</i>
10-17-56	5052	J.M.A.	Before After Verification and Review <i>Complete</i>
10-25-56	5402	J.H. Benson	Before After Verification and Review <i>Applied thru new chart 5598 above.</i>
12-6-56	5021	C.R. Wittmann	Before After Verification and Review <i>Applied thru chart 5402</i>
7/27/57	5002	m. Rogers	Before After Verification and Review <i>Applied thru chart 5402</i>
8/12/58	5502	John M. McAlinden	Before After Verification and Review <i>Completely applied</i>
11/13/58	5052	Jam	Before After Verification and Review <i>changed 1 sounding.</i>
4-3-64	5072 <i>new chart</i>	<i>Con. for J. J. J.</i>	Before After Verification and Review <i>Comp. applied port direct & port thru chart 5598.</i>

M-2168-1

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.