

8209

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-2454 Office No. H-8209

LOCALITY

State California

General locality Gulf of the Farallones

Locality S. E. Farallon to Neenday Rock

1945

CHIEF OF PARTY

H. C. Applequist

LIBRARY & ARCHIVES

DATE February 2, 1956

B-1870-1 (1)

8209

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. <sup>8209</sup>~~H-5019~~

Field No. ~~BO-2454~~

State California

General locality Gulf of the Farallones

Locality S.E. Farallon to Nonnday Rock

Scale 1 : 20,000 Date of survey 23 Aug. 1954 to 18 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 H.C. Applequist, F.W. Lingenfelter

Fathograms checked by A.L. Powell, D.E. Hamilton

Protracted by G.E. Cook

Soundings penciled by C. A. J. Pauw

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

REMARKS:

J.H.S.

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SURVEY ~~H-5013 & H-9805~~ H-8209

(Field No. BO-2454 & ~~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 <sup>H-8209</sup>~~H-5013~~ (Field BO-2454) ✓  
and Nos. 66S and S-111 were used on ~~H-9805~~ (Field BO-2354).  
<sup>H-8208</sup>

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 308 Fathometers Nos. 66S and S-111.

Velocity corrections were obtained from temperature and salinity observations. The data and calculations are appended to this report. ✓  
(Fath. # 66S has calibrated velocity of 820 fms/sec.)

CONTROL OF HYDROGRAPHY:

Hydrography on this survey was controlled by shore. 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, #5*

COMPARISON WITH CHARTS:

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

DANGERS AND SHOALS:

No new dangers or shoals were found. *However, lesser depths were found on several existing shoals* ✓

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-4980b (BO-2354)  
H-5013 (BO-2454)

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				BOLINAS		
DISTANCE (DRIFT)				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
				DRIFT		
RATE						
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  
 $99.815 - 0.019 = 99.796$

DRIFT

Zero Check 99.814  
 $99.814 - 0.010 = 99.804$

RATE

Zero Check 99.807  
 $99.807 - 0.012 = 99.795$

RATE

Zero Check 99.807  
 $99.807 + 0.004 = 99.811$

Zero checks ~~in~~ of Zero Corrections:

REYES \* RATE 99.795; DRIFT 99.796

BOLINAS - RATE 99.811; DRIFT 99.804

*The sounding volumes contain no references to topo details or control within the area of operations.*

*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.*

R.E.E.

## 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.

PROCESSING OFFICE NOTES

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

G. 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 66 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  $+1.8\%$  to  $-13.16\%$ . 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 rescamed. *Review, par. 7d*

The corrected soundings result in reasonable crossings and compare favorably with the old surveys. *except B & C days. (add'l. corrections effected reasonable agreement)*

I. 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. ✓

J. CROSSLINES

On sheet 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. *Not applicable to present survey*

K. 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.  $37^{\circ} 53'$  N, Long.  $123^{\circ} 19'$  W, sheet H-4980b. *do*

L. COMPARISON WITH CHARTS

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

Chart	Depth	Latitude and Longitude	
	New Survey		
37	47	Lat. $37^{\circ} 53'.45$	Long. $123^{\circ} 18'.65$ <i>Not applicable</i>
50	53 to 54	$37^{\circ} 51'.90$	$123^{\circ} 18'.7$ " " ✓



- 2 -  
 \* indicates not applicable to present survey

Chart	Depth		Latitude and Longitude	
		New Survey		
*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	37		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✓	3.7-		37° 41'.42✓	122° 59'.65✓
No sndg✓	16✓		37° 40'.90✓	122° 58'.85-
" "	19		37° 45'.30	123° 04'.80
18	17.6		37° 45'.35-	123° 05'.40-
22	19✓		37° 45'.73-	123° 07'.15✓
24✓	62.6 (See Review RC)		37° 47'.62-	123° 09'.95✓
29	27✓		37° 45'.05✓	123° 07'.05✓
22	19		37° 45'.73	123° 07'.15 repeat of 3 lines above
No sndg	20		37° 45'.15	123° 07'.75
17	12.6		37° 43'.65-	123° 02'.63✓
43	39-		37° 47'.10-	123° 08'.25-
39	42.1		37° 47'.66-	123° 08'.00-
38	41-42		37° 47'.80-	123° 07'.00-

Respectfully submitted,

*William M. Martin*  
 William M. Martin  
 Cartographer, C&GS

Approved and forwarded

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

GEOGRAPHIC NAMES

Survey No. H-8209

Name on Survey	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		
	A	B	C	D	E	F	G	H		K
<u>California</u>										1
<u>Wulf of the</u>										2
<u>Farallones</u>										3
<u>Southeast Farallon</u>										4
<u>Hurst Shoal</u>										5
<u>Middle Farallon</u>										6
<u>North Farallon</u>										7
<u>Noonday Rock</u>										8
										9
										10
										11
										12
										13
										14
										15
<u>Fort Point</u>										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

} for title

(term "island" not used with Farallon except for group)

BGN

Names approved  
3-15-56. L. Heck  
see chart 5502 for  
placement of names

(tide station)

DIVISION OF CHARTS  
REVIEW SECTION - NAUTICAL CHART BRANCH  
REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-8209

FIELD NO. BO-2454

California, Gulf of the Farallones, S.E. Farallon to  
Noonday Rock

Project No. Special Instructions of 21 May 1954

Surveyed - August - 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 - F. P. Saulsbury  
Reviewed by - T. A. Dinsmore      21 Sept. 1956  
Inspected by - R. H. Carstens

1. Shoreline and Control

This is an offshore survey. The shoreline of Southeast Farallon Island is reproduced from that shown on H-5013 (1929) which is considered to be the basic survey of this area.

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 except in the inshore areas which were not surveyed.

Shoals, ridges and knolls contribute to the irregularities in the bottom. Such conspicuous submarine features are apparent on the smooth sheet.

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 Surveys

H-290 (1851) 1:375,000	H-1298c (1876) 1:5,000
H-721 (1858-60) 1:100,000	H-4980a (1929) 1:80,000
H-721a (1886) 1:5,000	H-4980b (1929), 1:20,000
<u>H-1298b (1874) 1:20,000</u>	<u>H-5013 (1929) 1:20,000</u>

The present survey falls within the area covered by these prior surveys. H-5013 supersedes, for the most part, the other prior surveys listed above. A comparison of the prior and present surveys reveals no appreciable changes in bottom. Three shoal soundings (13 - 14 fms) in the vicinity of lat.  $37^{\circ}42.2'$ , long.  $123^{\circ}01.6'$ , on H-5013 have been rejected as strays and so indicated on the smooth sheet of that survey. 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 present survey position of Noonday Rock in the northwestern part of the survey falls about 160 meters northwestward of the position on H-5013. This difference was found to also exist between other features common to the two surveys in the Noonday Rock area. Inasmuch as the shore-controlled position of Noonday Rock on the present survey was considered to be more reliable than the position on H-5013, the hydrography from H-5013 was transferred to the present survey and arbitrarily shifted 160 meters northwestward. This adjustment effected agreement in the depths of the two surveys. In the Noonday Rock area outlined on both survey sheets, the present survey supersedes H-5013. In the remaining area south-eastward, critical information from the present survey has been carried forward to H-5013 in colored ink. Except in the Noonday Rock area, the present survey supplements H-5013 which is considered to be the basic survey of the area covered. In the unsurveyed area lying between Noonday Rock and North Farallon on H-5013, the present survey supersedes the other prior surveys.

Depth curves have been generally harmonized between H-5013 and the present survey. However, where differences remain, the present survey curve delineation is considered the more reliable.

The 23-fm. sounding charted in lat.  $37^{\circ}48.2'$ , long.  $123^{\circ}10.6'$ , from H-721 should be disregarded. Falling in depths of 37 fms. on both H-5013 and the present survey, the prior sounding is considered to be erroneous or out of position.

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

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

The  $2\frac{1}{2}$ -fm. sounding charted on Noonday Rock in lat.  $37^{\circ}47.6'$ , long.  $123^{\circ}09.92'$ , originates with a depth of 14 ft. reported in Notice to Mariners No. 4 of 1875. A depth of 3.1 fms. was obtained over the rock on H-5013 (1929). It is recommended that the  $2\frac{1}{2}$ -fm. sounding be retained on the chart.

Except as noted above, 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

The aids to navigation located on the present survey are in substantial agreement with the charted aids and adequately mark the features intended.

7. Condition of Survey

a. The original smooth-plotted survey was submitted on a blue line print of survey H-5013. 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-inked 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 the probable calibration value of fathometer 66. Although the fathometer was used on six surveys, only three entries regarding the fathometer calibration were 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. References to near-by topographic features were not obtained in the offshore islands area.

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.

e. As previously noted in paragraph 5, conflicts between H-5013 (1929) and the present survey in the area of Noonday Rock were resolved by arbitrarily shifting the soundings of H-5013 northwestward about 160 meters. This shift is shown on the present survey which supersedes H-5013 in that particular area.

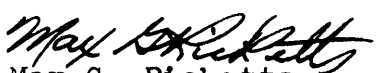
8. Compliance with Project Instructions

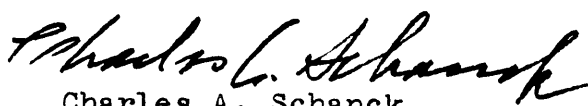
The survey adequately complies with the special instructions for this survey.

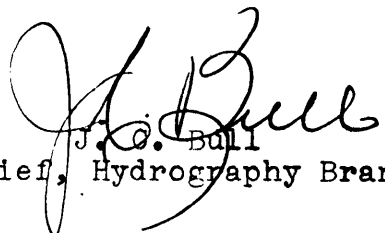
9. Additional Field Work

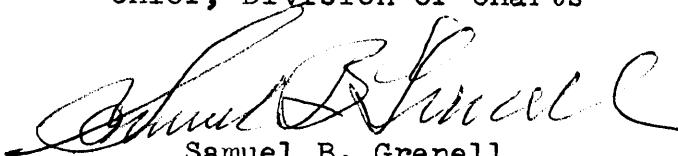
No additional field work is required for this supplementary survey.

Examined and Approved:

  
Max G. Ricketts  
Chief, Nautical Chart Branch

  
Charles A. Schanck  
Chief, Division of Charts

  
J. O. Bull  
Chief, Hydrography Branch

  
Samuel B. Grenell  
Chief, Division of Coastal Surveys

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. ~~8207~~.....

Records accompanying survey:

Boat sheets .....; sounding vols. <sup>6</sup>...; wire drag vols. ....;  
 bomb vols. ....; graphic recorder rolls ~~2~~-<sup>Envelopes</sup>.....  
 special reports, etc. ~~1~~-<sup>Smooth sheet</sup> & ~~1~~-<sup>Descriptive report</sup>.....  
 .....

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

Number of positions on sheet	.....	1676
Number of positions checked	.....	84
Number of positions revised	.....	9
Number of soundings revised (refers to depth only)	.....	8.50
Number of soundings erroneously spaced	.....	0
Number of signals erroneously plotted or transferred	.....	0
Topographic details	Time	2 hrs
Junctions	Time	60 hrs
Verification of soundings from graphic record	Time	20 hrs

Verification by *F. P. Saulebury* ..... Total time *322 hrs* \* Date *9-7-56* .....

Reviewed by *J. A. Dinsmore* ..... Time *48* ..... Date *21 Sept. 1956* .....

\* Includes re-inking of all position numbers on litho copy, and additional inking on blue line necessary for photo litho print.

STATISTICS

for

HYDROGRAPHIC SURVEY (BO-2454), H-5013

VOL. NO.	DAY LETTER	NO. OF POSITIONS	STAT. MILES OF SDGS.	VESSEL
1	A	124	37.4	BOWIE
1	B	119	22.8	BOWIE
2	B	101	15.9	BOWIE
2	C	99	26.4	BOWIE
2	D	44	11.2	BOWIE
2	E	22	7.2	BOWIE
3	E	175	44.4	BOWIE
3	F	184	38.2	BOWIE
4	F	233	40.6	BOWIE
4	G	172	27.0	BOWIE
5	G	167	25.0	BOWIE
5	H	220	45.9	BOWIE
6	H	16	5.3	BOWIE
TOTAL		1676	347.3	

Square statute miles - 22.3



RHC

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Coast and Survey~~

21 March 1956

Division of Charts: R. H. Carstens

Plane of reference approved in  
6 volumes of sounding records for

HYDROGRAPHIC SHEET 8209

Locality Gulf of the Farallones, Calif.

Chief of Party: H. C. Applequist in 1954  
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)

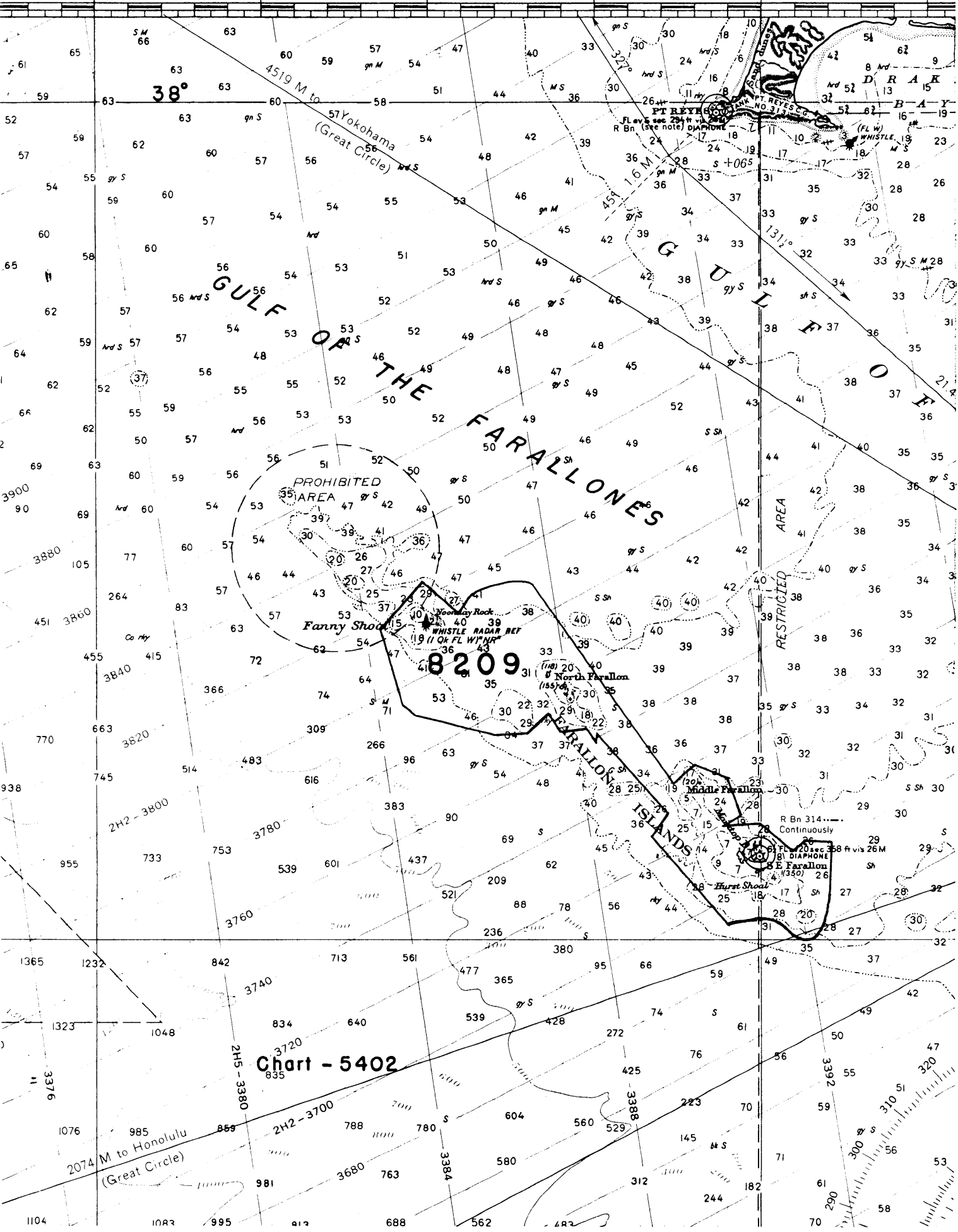
Height of mean high water above plane of reference is 5.2 feet.

Condition of records satisfactory except as noted below:

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. ...*  
Branch  
Chief, ~~Division of Tides and Currents~~



# NAUTICAL CHARTS BRANCH

SURVEY NO. H-8209

## Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
6-5-56	5052	JAE	Before <del>After</del> Verification and Review <sup>No correction</sup> at this scale
10/4/56	5598	JAE	<del>Before</del> After Verification and Review <span style="float: right;">3/11/02</span>
10/15/56	5020	H. Benson	<del>Before</del> After Verification and Review <sup>No correction</sup> at this scale Applied thru new chart 5598
			Before After Verification and Review
7/25/57	5002	M. Rogers	<del>Before</del> After Verification and Review <sup>applied thru chart 402</sup>
9/12/58	5502	John M. McAlinden	<del>Before</del> After Verification and Review <sup>completely thru</sup> chart 5598
11/13/58	5052	S.M.	<del>Before</del> After Verification and Review (no correction)
4-3-64	5072 New chart 4/14/64	Earl W. Proganj	<del>Before</del> After Verification and Review <sup>Comp applied</sup> thru chart 5598
			Before After Verification and Review
			Before After Verification and Review
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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.