

9794

Diagram No. 5530-5

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SERVICE

DESCRIPTIVE REPORT

Type of Survey .. Hydrographic.....

Field No. .... RA-10-3-78 .....

Registry No. .... H-9794 .....

LOCALITY

State ..... California .....

General Locality San Francisco Bay .....

Sublocality Yerba Buena Island to .....

Brooks Island .....

19 78

CHIEF OF PARTY  
CAPT J.P. Randall

LIBRARY & ARCHIVES

DATE ..... July 8, 1981 .....

9794

Area 3

Ref L-112(82) L100476

✓ 18650

✓ 18649

18651 ABC

✓ 18653

Cartog

Survey

Navigation

HYDROGRAPHIC TITLE SHEET

H-9794

INSTRUCTIONS - 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.

RA-10-3-78

State California

General locality San Francisco Bay

Locality Yerba Buena Island to Brooks Island

Scale 1:10,000 Date of survey Oct. 6 to Nov. 22, 1978

Instructions dated 10 August 1978 Project No. OPR-L123-RA-78

Vessel NOAA Ship RAINIER Launches RA-3 (2123), RA-5 (2125), RA-6 (2126)

Chief of party Captain J. P. Randall  
LTJG D. Brockhouse, LTJG M. Molchan, LTJG S. Miller, ENS D. Keller,

Surveyed by ENS. D. Stotler, ENS J. Greene, ENS B. Hillard

Soundings taken by echo sounder, ~~hand lead, etc.~~ Ross Fathometer (1070) (1040) (1042)

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Verification PMC  
~~XXXXXX~~ by Thelma Jones Automated plot by Xynetics Plotter

Evaluation XXXXXX by James Green

Soundings in ~~XXXXXX~~ feet at MLW XXXX

REMARKS: Time meridian is GMT. Comments in black are made by the evaluator.

Separates have been removed and filed with the survey records.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

KWW 10/6/92 ADVIS and SURF ✓ 8/81 RND

Appd to STD 10-6-87 RND

122°10'

122°20'

122°30'

PROGRESS SKETCH  
 OPR-L123-RA-78  
 HYDROGRAPHIC SURVEY  
 SAN FRANCISCO BAY, CALIFORNIA  
 SEPT. 27-NOV. 18, 1978  
 NOAA Ship RAINIER  
 JAMES P. RANDALL, CAPT., NOAA  
 COMD'G.

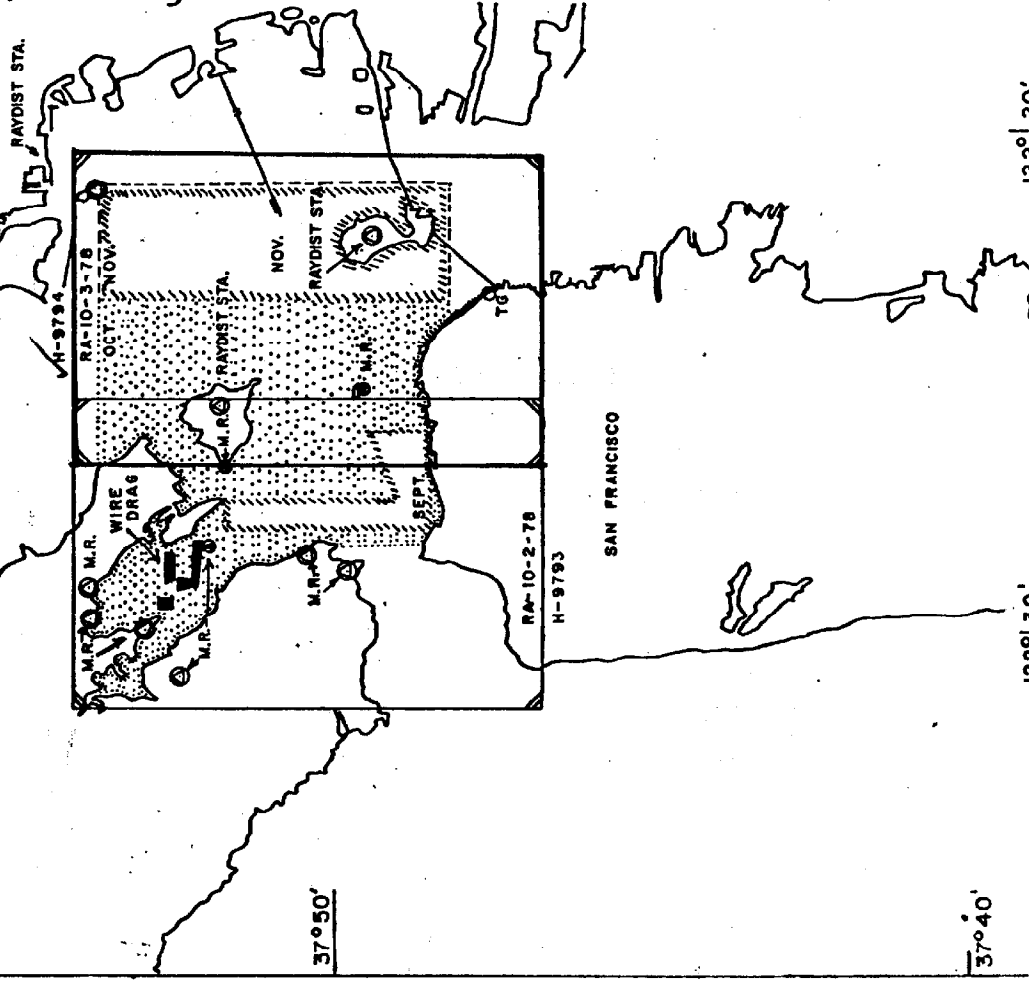
FROM CHART NO. 18680

37°50'

37°50'

37°40'

37°40'



	SEPT.	OCT.	NOV.
L.N.M. WIRE DRAG	0	0	15.5
SQ. N.M. SOUNDING	2.44	20.91	7.55
L.N.M. MISCELLANEOUS DISTANCE	31.0	401	171.0
L.N.M. SOUNDING LINE	54.0	719.6	376.5
BOTTOM SAMPLES (GRAB)	0	117	129
WATER SAMPLES ANALYZED (SALINITY)	0	8	0
CONTROL STATIONS (ELECTRONICS)	3	9	0
TEMPERATURE, DEPTH, CONDUCTIVITY	0	1	0
NANSEN CAST	0	1	0
TIDE GAGE	1	0	0
STATIONS LOCATED BY TRAVERSE	0	15	24
SQ. N.M. WIRE DRAG	0	0	0.11

L.N.M. WIRE DRAG  
 SQ. N.M. SOUNDING  
 L.N.M. MISCELLANEOUS DISTANCE  
 L.N.M. SOUNDING LINE  
 BOTTOM SAMPLES (GRAB)  
 WATER SAMPLES ANALYZED (SALINITY)  
 CONTROL STATIONS (ELECTRONICS)  
 TEMPERATURE, DEPTH, CONDUCTIVITY  
 NANSEN CAST  
 TIDE GAGE  
 STATIONS LOCATED BY TRAVERSE  
 SQ. N.M. WIRE DRAG

A. PROJECT

This hydrographic survey was conducted in accordance with Project Instructions OPR-L123-RA-78, San Francisco Bay, California, dated August 10, 1978; Change No. 1, Supplement to Instructions, dated August 21, 1978; and Change No. 2, Amendment to Instructions, dated August 28, 1978. ✓

B. AREA SURVEYED

The portion of San Francisco Bay which was surveyed during OPR-L123-RA-78 was bounded on the north by 37°53'48" N, and 37°48'06" N on the south. The western and eastern boundaries are 122°26'00" and 122°21'00" respectively. The area includes Alcatraz Island, Treasure Island, and most of Angel Island. The area was surveyed at a scale of 1:10,000. Hydrographic survey operations began on 6 October 1978 (JD 279) and were completed on 22 November 1978 (JD ~~297~~). ✓

323

C. SOUNDING VESSELS

The RAINIER's aluminum launches RA-3 (2123, Hull 1007) and RA-6 (2126, Hull 1013) were used to conduct the hydrographic survey. Each launch utilized sounding equipment whose respective serial numbers are found in Section D, "Sounding Equipment". ✓

The RAINIER's Launch RA-5 (2125, Hull 1003) was used to obtain bottom samples during the last part of the survey. ✓

D. SOUNDING EQUIPMENT

For RA-10-3-78, all echo soundings were obtained using Ross Fathometer Systems which include the following components: Ross Model 4000 Transceiver, Ross Model 5000 Analog Recorder, Ross Model 6000 Digitizer and 100 KHz transducer. The following table summarizes the serial number of the various components used in each vessel: ✓

Component	RA-3 (2123)	RA-5 (2125)	RA-6 (2126)
Transceiver	1080	1040	1042
Analog Recorder	1071	1040	1042, 1070
Digitizer	1080	1040	1041-4

The survey was conducted in units of feet. For information detailing the procedures to obtain Corrections to Echo Soundings, refer to Echo Sounding Report, OPR-L123-RA-78.

### E. HYDROGRAPHIC SHEETS

Hydrographic field sheets (including smooth field sheets) were compiled using the PDP8/e HYDROLOT systems on the RAINIER (EDP Number 2120). The following table represents the serial numbers of the various components used for compilation of field sheets.

	<u>S/N RAINIER (2120)</u>
PDP 8/e Digital Computers	01015, 11430
DEC High Speed Readers	15150, 06400
Houston Complot Plotters	5848-18, 6166-23
Teletype Corp. ASR-33, Teletypes	567924, 321393

A modified transverse mercator projection was used for plotting of hydrographic data. A list of parameters used to define the projection is attached as a separate report.

Soundings plotted on RAINIER's smooth sheets have been corrected for predicted tides, launch draft, and preliminary velocity corrections. No discernable distortion of mylar sheets was observed during smooth field plotting of hydrographic data.

Two hydrographic sheets were used to cover the survey area, RA-10-3A-78 and RA-10-3B-78. Two 1:10,000 scale smooth sounding plots and two 1:10,000 scale position plots were submitted with the field data. Also submitted were 6 expansion sheets covering areas of closely spaced developments; 4 at 1:2500 scale on sheet 3A, 1 at 1:2500 scale on sheet 3B, and 1 at 1:5000 scale on sheet 3B. All data and accompanying field records were transferred to Pacific Marine Center, Seattle, Washington, for verification. Expansion sheets not forwarded, no longer available.

### F. CONTROL STATIONS

Three Raydist stations were established in this survey: Angel Island, Treasure Island, and Brooks Island. Angel Island Peak 3, 1956, is an existing Triangulation Station. The station on Treasure Island was positioned by intersection using third order Class I procedures and described as "ALLEY 1978". Brooks Island Raydist station was set up eccentric on range between Triangulation Station BROOKS ISLAND 2, 1905, and RM No. 2.

In addition, several fixed aids to navigation were located by Third-Order methods and used for Mini-Ranger calibration and as visual signals during digital sextant hydrography.

Refer to Horizontal Control Report OPR-L123-RA-78 for details on these stations and all other triangulation stations established for survey support.

G. HYDROGRAPHIC POSITION CONTROL

Sounding line position control during this survey was provided by either range-range (Raydist), visual methods, or dead reckoning. Range-range methods were utilized wherever possible while Digital sextant methods (positions being determined by three-point sextant fixes) were restricted to areas where adequate Raydist control could not be established. ✓

Position control on detached positions was provided by one of the above methods or by three-point sextant fixes (manual sextants). ✓

At no time, while using either range-range (Raydist) or visual control, were weak geometric configurations encountered or unusual atmospheric conditions experienced that might have degraded the positional accuracy of the soundings taken during the survey. ✓

*See ER  
Section 4  
No add'l work*

Dead reckoning methods were utilized in confined areas where the launch could be accurately located by reference to shoreline features. Distances and directions to reference features were accurately noted on a boat sheet or diagrams of the area, while data was being collected. Three-point visual fixes were scaled as soon after data was collected as possible to permit automated data processing. Dead reckoning methods were restricted to the piers along the San Francisco waterfront where visual signals could not be seen and Raydist signals could not be received. ✓

*Attrib to oversight*

Three RAINIER launches, RA-3 (Electronic Data Processing Number 2123), RA-5 (EDP No. 2125), and RA-6 (EDP No. 2126) were used during the survey. Positioning equipment used aboard the three launches was as follows: ✓

RAYDIST EQUIPMENT

Vessel No.	Raydist Transmitter	Raydist Navigator	Raydist Position Indicator	Hazlow Navigation Interface
2123	170	117	120	3
2125	166	114	117	17
2126	167	115	118	35

DIGITAL SEXTANT EQUIPMENT

Vessel No.	Left Digital Sextant	Right Digital Sextant	Hazlow Navigation Interface
2123	TG-0322	TG-0321	3
2126	TU-3601	TU-3600	35

Three Raydist shore stations, Station ANGEL ISLAND PEAK 3 1956, Signal 105, Station ALLEY 1978, Signal 106, and Station BROOKS ISLAND ECC. 1978, Signal 112, were established and used for controlling hydrography on sheet H-9794. Station ANGEL ISLAND PEAK 3 1956 was equipped with Red Raydist transmitter S/N 232; Station ALLEY 1978 was equipped with Green Raydist transmitter S/N 233; while Station BROOKS ISLAND ECC. 1978 was equipped with Red Raydist transmitter S/N 242. For a detailed discussion of the three Raydist shore stations see Electronic Control Report OPR-L123-RA-78. ✓

Raydist equipment calibrations were performed at least twice daily except when obviated by equipment failures. The following two methods of calibrating were used. ✓

Static: The vessel was positioned alongside a station of known geodetic location, then predetermined lane counts entered into the navigation system. At least three readings were then made to obtain sufficient data to calculate a mean corrector to the partial (fractional) lane count. All sets of data for any single day were meaned to obtain the correctors used in plotting of survey data. ✓

Visual: Calibrations were accomplished by means of three-point sextant fixes with check angle using PDP 8/e software RF 561 for processing and determining lane counts. ✓

When digital sextants were used for hydrography the index correction on both digital sextants in a pair was checked frequently and noted on the Raw Data Printout. The index correction was checked by zeroing both sextants in the pair and annotating the digital readouts in half minutes. This was done at the beginning of each day, at the end of each series of lines and whenever there was a change in angleman. Whenever an error of more than 1.5 minutes was noted, the sextants were rezeroed. ✓

A daily breakdown of vessels used, type of control used, and explanatory remarks concerning control is ~~on the following pages.~~ ✓

filed with field records.

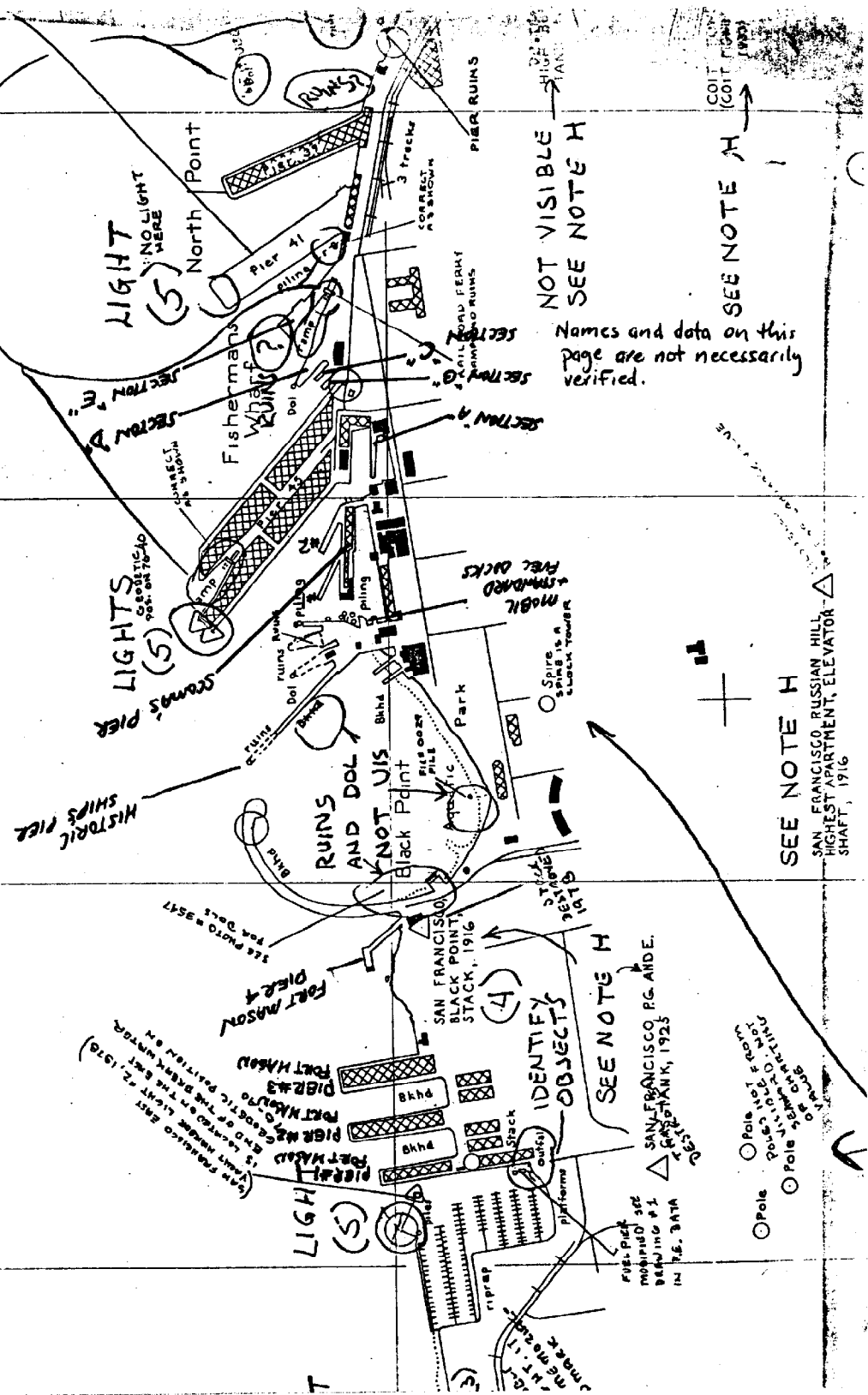
#### H. SHORELINE

Shoreline for H-9794 was transferred from unedited Class III shoreline manuscripts TP-00526, TP-00528, and TP-00529. These shoreline manuscripts were field edited during the course of the survey and include all areas covered by field sheet H-9794. Changes and corrections noted during field edit were not transferred to the field sheet. Contact was maintained between the field editor and the hydrographer to prevent duplication of fix information. TP-00527 was field edited in 1979. ✓

See ER  
Sect 2

SHOW ALL CABLE & WIRE PHOTO

ARE THESE OBJECTS SHOWN AND LABELED CORRECTLY



NOT VISIBLE SEE NOTE H

SEE NOTE M

Names and data on this page are not necessarily verified.

SEE NOTE H

SAN FRANCISCO RUSSIAN HILL HIGHEST APARTMENT ELEVATOR SHAFT, 1916

- Pole
- Pole
- Pole
- Pole

SEE NOTE H

SAN FRANCISCO R.G. AND E. GAS TANK, 1923

IDENTIFY OBJECTS

LIGHT (S)

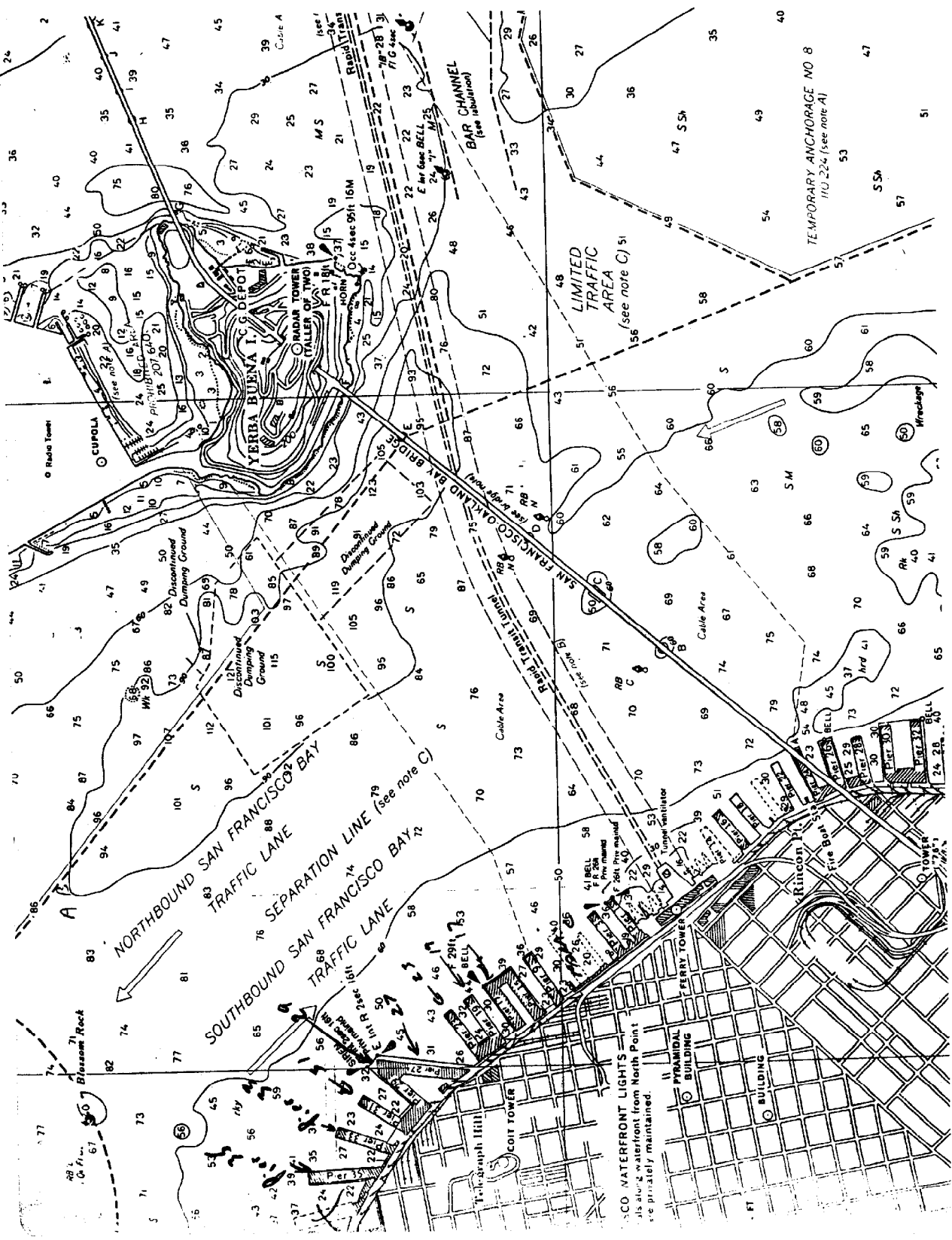
STACK (S)

PLANK (S)

MARK (S)

MARK (S)





24  
 2  
 36  
 40  
 35  
 40  
 41  
 39  
 47  
 35  
 36  
 34  
 45  
 27  
 29  
 24  
 25  
 23  
 27  
 38  
 34  
 27  
 39  
 Code A  
 19  
 15  
 16  
 12  
 13  
 14  
 15  
 16  
 17  
 18  
 19  
 20  
 21  
 22  
 23  
 24  
 25  
 26  
 27  
 28  
 29  
 30  
 31  
 32  
 33  
 34  
 35  
 36  
 37  
 38  
 39  
 40  
 41  
 42  
 43  
 44  
 45  
 46  
 47  
 48  
 49  
 50  
 51  
 52  
 53  
 54  
 55  
 56  
 57  
 58  
 59  
 60  
 61  
 62  
 63  
 64  
 65  
 66  
 67  
 68  
 69  
 70  
 71  
 72  
 73  
 74  
 75  
 76  
 77  
 78  
 79  
 80  
 81  
 82  
 83  
 84  
 85  
 86  
 87  
 88  
 89  
 90  
 91  
 92  
 93  
 94  
 95  
 96  
 97  
 98  
 99  
 100  
 101  
 102  
 103  
 104  
 105  
 106  
 107  
 108  
 109  
 110  
 111  
 112  
 113  
 114  
 115  
 116  
 117  
 118  
 119  
 120  
 121  
 122  
 123  
 124  
 125  
 126  
 127  
 128  
 129  
 130  
 131  
 132  
 133  
 134  
 135  
 136  
 137  
 138  
 139  
 140  
 141  
 142  
 143  
 144  
 145  
 146  
 147  
 148  
 149  
 150  
 151  
 152  
 153  
 154  
 155  
 156  
 157  
 158  
 159  
 160  
 161  
 162  
 163  
 164  
 165  
 166  
 167  
 168  
 169  
 170  
 171  
 172  
 173  
 174  
 175  
 176  
 177  
 178  
 179  
 180  
 181  
 182  
 183  
 184  
 185  
 186  
 187  
 188  
 189  
 190  
 191  
 192  
 193  
 194  
 195  
 196  
 197  
 198  
 199  
 200

CUPOLA  
 YERBA BUENA I. DEPOT  
 RADAR TOWER  
 HALL OF TWO  
 SAN FRANCISCO OAKLAND BAY BRIDGE  
 SAN FRANCISCO-TIBURON TUNNEL  
 SAN FRANCISCO FERRY TOWER  
 PYRAMIDAL BUILDING  
 COIT TOWER  
 TELEGRAPH HILL  
 BLOSSOM ROCK  
 DISCONTINUED DUMPING GROUND  
 CABLE AREA  
 LIMITED TRAFFIC AREA  
 TEMPORARY ANCHORAGE NO 8  
 IRVING 224 (see note A)

(see note A)  
 (see note B)  
 (see note C)  
 (see note D)  
 (see note E)  
 (see note F)  
 (see note G)  
 (see note H)  
 (see note I)  
 (see note J)  
 (see note K)

CO. WATERFRONT LIGHTS -  
 All along waterfront from North Point  
 to the Ferry Building are privately maintained.

Walking hydrography was done along all the pier faces and bulkheads extending east from Fort Mason Pier #1. The soundings were taken with a lead line and spaced at 20 to 30 meters. There is a good comparison between these soundings and those taken from the hydro launch 15 meters off the piers. A sounding volume with the raw data has been submitted. A summary of the average depths in feet along each pier face and a diagram of piers follows:

	AVERAGE DEPTH*	
FORT MASON PIER #1		Chart compiler note this
Northern face	29'	
Western face	21'	
Southern face (between Pier #1 and #2)	18'	
FORT MASON PIER #2		
Eastern face	23'	
Northern face	38'	
Western face	27'	
Southern face (between Pier #2 and #3)	19'	
FORT MASON PIER #3		
Eastern face	24'	
Northern face	35'	
Western face	24'	
FORT MASON PIER #4		
Eastern face	8'	
Southern face	13'	
Northern face	16'	
Western face	10'	
HISTORIC SHIP PIER (near <sup>A</sup> aquatic <sup>P</sup> park)		
Eastern face	20'	
Western face	20'	
MOBIL and STANDARD FUEL DOCKS	11'	
E. W. RUNNING BULKHEAD	7'	

\*The average depth represents reduced depths (with tide corrector applied) rounded off to the nearest foot.

Refer to sounding overlay appended to this report.

	AVERAGE DEPTH *
SCOMA'S PIER	
Southern face	7'
Northern face	10'
along #1 diagonal	
Western face	13'
Eastern face	12'
along #2 diagonal	
Western face	8'
Eastern face	11'
FISHERMAN'S WHARF AREA	
Section "A"	
E. W. Bulkhead #1	6'
Southern face	9'
Northern face	12'
E. W. Bulkhead #2	10'
← PIER 45	
Western face	24'
indentation at Northern face	
Western face	31'
Eastern face	25'
Eastern face Pier 45	28'
Section "B"	
Western face	11'
Eastern face	16'
Section "C"	
Western face	13'
Eastern face	16'
Section "D"	
Western face	10'
Eastern face	9'
Section "E"	
Northern face	24'
Eastern face	13'
PIER 41	
Western face	18'
Eastern face	11'
PIER 39	
Western face	23'
Northern face	38'
Eastern face	22'
E. W. Bulkhead (between Pier 39 and 35)	26'
PIER 35	
Western face	32'
Northern face	41'
Eastern face	25'
Small Pier (between 35 and 33)	15'

	AVERAGE DEPTH *
PIER 33	
Western Face	24'
Eastern face	29'
Southern face (between 33 and 31)	24'
PIER 31	
Western face	26'
Northern face	32'
Eastern face	28'
Southern face (between Pier 31 and 29)	22'
PIER 29	
Western face	35'
Northern face	52'
PIER 27	
Eastern face	33'
Southern face (between 27 and 23)	5'
PIER 23	
Western face	37'
Eastern face	30'
Southern face (between 23 and 19)	22'
PIER 19	
Western face	24'
Eastern face	27'
Southern face (between 19 and 17)	15'
PIER 17	
Western face	25'
Northern face	36'

#### I. CROSSLINES

Crosslines for the survey totaled 65.1 nautical miles or 13% of the main scheme sounding lines. With the exception of the shore lines, all crosslines were run normal to the main scheme lines. A comparison of crossline and main scheme soundings was conducted over only those soundings found to be touching one another. It was felt that a comparison of those soundings not touching would be meaningless due to positioning differences, and interpolation of depth values in even a regular bottom would be stretching the credibility of the comparison. Soundings in areas of greater relief differed the most, but, in general, agreement between crosslines and main scheme soundings was excellent. A summary of 579 depth comparisons is as follows:

DEPTHS	AGREEMENT				
	Exact	1 ft	2 ft	3 ft	3-6 ft
0-30 ft.	185	110	2	2	1
31-60 ft.	44	56	13	2	0
61-90 ft.	34	38	17	1	3
91-120 ft.	16	15	9	1	3
120 ft.	15	9	2	1	0

(maximum depth = 155 ft.)

Depths at crossline-main scheme intersections; agree exactly at 51% of intersections, differ by 1 foot or less 90% of intersections, differ by 2 feet or less 98% of intersections, and 99% of all intersections differ by 3 feet or less. All crosslines were smooth plotted in red ink. ✓

J. JUNCTIONS

H-9794 (RA-10-3-78) was a survey comprised of two boatsheets, "A" and "B". The junction between the boatsheets is a line running north-south along longitude 122°23.5'W from the southern to the northern survey boundary. There was no overlap at this junction because the same launch, fathometer, and Raydist control were used in running the junction lines. A check of the depth curves between the two junctioning sheets shows the continuity to be excellent. ✓

H-9794 does not junction with any contemporary surveys. It does junction with H-9793 (RA-10-2B-78) along the western most boundary, 122°26.0'W. This junctioning line is broken up into two parts by Angel Island. South of Angel Island there were no overlapping lines run. The same Raydist control, launch and fathometer were used to run the lines where the two sheets junction. The continuity of the depth curves was checked and found to be excellent. SEE ER Sect 5

From the north shore of Angel Island to the northern boundary of the survey, overlapping occurs between the Raydist control used on Sheet "3A" and the visual control used on Sheet "2B". A comparison of 29 soundings between 50 and 100 feet yielded the following: ✓

- 28% agreed exactly
- 31% agreed to within 1 ft.
- 20% agreed to within 2 ft.
- 11% agreed to within 3 ft.
- 10% agreed to within 5 ft.

Only a few of these soundings were exactly on top of the other; therefore, the larger discrepancies can be attributed to positioning differences. The maximum difference found was 5 feet. Also sand ridges rise to 12 ft with isolated differences of 15 feet. See E.R., Sect 3.

K. COMPARISON WITH PRIOR SURVEYS

~~Following is a discussion of each presurvey review item falling within the limits of survey H 9794, including a description of the item, the~~

K. COMPARISON WITH PRIOR SURVEYS

Following is a discussion of each presurvey review item falling within the limits of survey H-9794, including a description of the item, the method of investigation, the results, and a charting recommendation. ✓

✓ PSR Item #8

Description: A dangerous sunken wreck, charted at latitude 37°52'09", longitude 122°25'11", originated with a U. S. Navy survey of 1952 (Bp-49005) and is described only as a derelict. ✓

The wreck should be searched for in the vicinity of the charted position. No further investigation will be required if strong evidence of the wreck is found utilizing an echo sounder. However, should corrected least depth of 51 feet or less be obtained, then the hydrographer should ensure that no lesser depths exist. Standard wreck sounding techniques described in the Hydrographic Manual or diver investigation should be employed. ✓

Method of Investigation: Launch hydrographic development.

Results: A hydrographic development using 10 meter spacing was run in the vicinity of the charted position and soundings of 55 feet were recorded. No further investigation was performed. It is recommended that the wreck remain as described on the chart. ~~For further details, refer to RA 10 3A 78, Expansion #4, 1:2500 scale.~~ Concur. \*51672  
A least depth has not been determined.

PSR Item #12

Description: Submerged pier ruins, charted in the vicinity of latitude 37°48'35", longitude 122°24'27", were reported by a USCG Auxiliary observer in 1975 and described to be the remains of a pier destroyed by fire (CL 1905/75). The hydrographer should determine if the ruins, as charted, continue to exist. Any indication that the area is foul will be cause to discontinue further investigation and report that ruins remain. ✓

Method of Investigation: No investigation needed.

Results: The remains of Pier 37 (pilings) were all removed and a yacht marina was built over the former location. The marina is an extension of the new complex built on Pier 39 including a floating breakwater in front of the marina. For details on this new construction see field edit sheet TP-00528. See ER Sect 6

PSR Item #25

Description: The 44-foot sounding, charted at latitude 37°49'44", longitude 122°24'45", originated with a U. S. Corps of Engineers survey in 1977 and was subsequently reported in LNM 21/77. The area northeast of Alcatraz Island is reported to be shoaling to depths less than 50 feet. The extent of the shoaling should be ascertained.

Method of Investigation: Hydrographic development, 10 meter spacing. SEE ER

Results: The above mentioned position was investigated with 10 meter spacing and a 43 foot shoal was discovered. Four other hydrographic developments were performed to the northeast of Alcatraz Island and three 48 foot shoals and one 51 foot shoal were discovered. It is recommended that this survey be used to supercede all prior surveys in this area. For details on these developments see RA-10-3A-78, Expansion #1, 1:2500 scale. Sect 7a

PSR Item #26

Description: The submerged piles, charted in the vicinity of latitude 37°48'33", longitude 122°25'17", originated from a report by a USCG Auxiliary member that the charted piles were removed (CL 258/78). (Aquatic Park) Further information relative to the removal of the piles may be obtained from the above observer. Should the hydrographer determine that the information is sufficient to recommend removal of the piles from the chart, it should be so stated. An attempt to verify or disprove the piles through an onsite search will require the use of a wire sweep. ✓

Method of Investigation: Diver investigation.

Results: A thorough investigation of the area was made using a 50 meter line between 3 divers. No obstructions of any kind were encountered. Therefore it is recommended that these "submerged piles" be removed from the chart. For further details and position data, refer to Diver Investigation Report, OPR-L123-RA-78. Filed in OA/C5131 Concur

There are seven prior surveys that lie within the limits of H-9794. They are H-7619 (1947, 1:10,000), H-7620 (1947, 1:10,000), H-7621 (1947, 1:10,000), H-7622 (1947, 1:5,000), H-7704 (1948, 1:10,000), H-7705 (1948, 1:10,000) and H-7706 (1948, 1:5,000), H-7716 (1948, 1:5,000)

A comparison with H-7619 yielded the following results:

- 14 (33%) agreed exactly
- 18 (42%) agreed to within 1 foot
- 8 (19%) agreed to within 3 feet
- 3 (6%) agreed to within 6 feet

SEE ER  
Sect 6

H-7619 covers the area east of Angel Island <sup>to the south of Yerba Buena</sup> and ~~north of Treasure~~ Island. From a total sample of 43, 75% of the soundings agreed to within 1 foot.

A comparison with H-7620 resulted in the following:

- 7 (50%) agreed exactly
- 2 (14%) agreed to within 2 feet
- 3 (22%) agreed to within 3 feet
- 2 (14%) agreed to within 6 feet

SEE ER  
Sect 6

H-7620 covers the area north-northeast of Angel Island. This comparison was taken from a small sample of soundings (14) but shows good overall agreement with H-9794.

The following shows the results of a general comparison with H-7621:

- 10 (40%) agreed exactly
- 4 (16%) agreed to within 1 foot
- 4 (16%) agreed to within 3 feet
- 2 (8%) agreed to within 5 feet
- 5 (20%) differed by more than 8 feet

SEE ER  
Sect 6

H-7621 covers an area south of Angel Island to the north shore of San Francisco. There are 5 soundings in the comparison which differed greatly from H-9794. When overlapping the two sheets it was apparent that the area south of Alcatraz Island <sup>50' located in area</sup> shoaling has occurred. In some areas where the depths were 160 feet in 1947, soundings of 85 feet were recorded on H-9794. This shoaling action is apparent throughout the bay because of strong tidal currents acting on sandy silty bottoms. The sediment transport is proven by the 0-2 foot visibility found in the bay. The RAINIER recommends that these shoaler areas be charted in accordance with this survey's data. \* <sup>area of discontinued dumping ground</sup>

SEE  
ER  
Sect 7a

H-7622 consists of the shoreline soundings off Treasure Island and Yerba Buena Island. Since there is a difference in scale, a comparison was made between H-9794 and nine hand plotted fixes from H-7622. Eight of nine soundings agreed within 3 feet but one sounding differed by 8 feet. When comparing the two sheets, it was found that shoaling had occurred in the cove between Treasure Island and Yerba Buena Island. The average depth in 1947 was 30 feet. Now it has an average depth of 20 feet.

SEE  
ER  
Sect 6

The following is a general comparison of prior survey H-7704:

- 5 (42%) agreed exactly
- 3 (25%) agreed to within 1 foot
- 3 (25%) agreed to within 3 feet
- 1 (8%) agreed to within 5 feet

SEE ER  
Sect 6



This sample of 12 soundings was taken from hand plotted fixes from H-7704. It shows very good agreement overall but there were two areas of shoaling just south of Angel Island that were developed using 10 meter spacing. In both cases the shoaling agreed to within 1 foot of the prior survey; therefore, both shoals should remain as they are charted. ~~For details refer to RA-10-3A-78, Expansion #3, 4:2500 scale.~~

A comparison of H-7705 yielded the following results:

- 12 (43%) agreed exactly
- 10 (36%) agreed within 1 foot
- 5 (18%) agreed within 2 feet
- 1 (3%) agreed within 4 feet

SEE ER  
Sect 6

H-7705 covers an area from the east side of Angel Island northeast to Brooks Island. 97% of these soundings were within 2 feet of those on H-9794. No significant changes occurred in this area.

H-7706 covers a small area along north San Francisco's waterfront. Only 5 soundings were transferred to the 1:10,000 scale; 4 agreed exactly and 1 was 4 feet deeper than the prior survey. Overall the depths showed excellent agreement between the two surveys.

SEE ER  
Sect 6

In general, comparisons of prior and present surveys were very good. One can attribute any small differences to the following: date and methods used in early surveys for positioning of soundings, inferior sounding methods, errors in transferring sounding positions from prior survey to present survey sheets, and from actual changes to the bottom due to erosion and deposition. In the area south of Alcatraz Island where shoaling of 75 feet has occurred, there exists very strong tidal currents that are capable of moving and depositing the soft silty sand that exists in the bay. The 0-2 foot visibility that is found in the bay demonstrates the amount of sediment carried in the water. In areas where significant scouring has occurred in the last 30 years, a considerable amount of development hydrography, at 10 meter spacing, was run in order to disprove shoaler prior survey soundings, to prevent their being carried forward onto the present survey, and to eventually effect their removal from the chart. It was not feasible, however, to so thoroughly develop all scoured areas. In those less developed areas the general deepening trend shown by the present mainscheme hydrography is considered sufficient to discredit the shoaler prior survey soundings, and these obsolete lesser depths should not be carried forward.

\* area of  
discontinued  
dumping  
ground  
SEE ER  
Sect 7a

L. COMPARISON WITH THE CHART

The survey area is found on two charts--No. 18650, 34th edition, May 20, 1978 (1:20,000) and No. 18649, 45th edition, February 4, 1978 (1:40,000). No. 18650, the larger scale chart, covers all areas south of latitude 37°51.3'N; therefore, all areas north of this latitude must be compared to the small scale chart, No. 18649. ✓

~~In order to compare the RAINIER's soundings to Chart No. 18650, an~~

In order to compare the RAINIER's soundings to Chart No. 18650, an enlargement (1:10,000 scale) was used. *Destroyed.*

The comparison of the area south of Alcatraz Island is good. The depth curves and soundings are all good except just off the southern most tip of Alcatraz Island. The RAINIER's survey shows a 26 foot shoal where the chart shows a 60 foot curve. This occurs on a steep slope and could be an error in positioning between the survey and chart. A number of hydrographic developments were run around Alcatraz Island to investigate 40 foot shoals noted on Chart 18650. This survey produced a 46 foot shoal where the previous 40 foot shoal existed, approx. (37°49.7'N, 122°25.1'W). Strong currents carrying sediment cause a scouring effect around Alcatraz Island; therefore, the RAINIER recommends that these shoals be charted at 46 feet. *Revised during verification*  
~~For more detailed information see RA-10-3A-78, Expansion #1, using present survey information. Refer also to E.R. Sect 7a PRR Item 25~~

The soundings and depth curves north of Alcatraz Island to Angel Island compare very good. It should be noted that strong tide rips were experienced just off the southeast tip of Angel Island (Pt. Blunt). The charted wreck northeast of Angel Island was discussed in Section K, Presurvey Review Item #8.

Two degaussing ranges charted at 37°51.3'N, 122°24.7'W, and 37°52.8'N, 122°24.1'W are deactivated and have not been used for approximately 15 years. The degaussing range charted at 37°49.0'N, 122°26.2'W is presently in an inactive status and has not been used for approximately 5-6 years. It is scheduled to be deactivated in February 1979 by the United States Navy. The RAINIER recommends that all three degaussing ranges be removed from the chart. For information regarding degaussing ranges, contact Mr. Donald Blair, Technical Director, Degaussing Facility Naval Station, San Diego, California (714-225-6631).

The area north and northeast of Angel Island can only be compared to Chart No. 18649 which is a 1:40,000 scale chart. This area was a very consistent gradual change in topography. Consequently the depth curve comparisons are excellent in this area. *"Area of sand waves" added to smooth sheet.*

The area from Brooks Island south to Treasure Island is very shallow and has a consistent bottom topography. The soundings in this area of the survey are excellent in comparison with Chart No. 18649.

Detached positions were taken (Fix ~~#593-597~~ <sup>1593-1597</sup>) on the rock, the pile and two piers off the south end of Brooks Island. All 4 D.P.'s agreed exactly with those on Chart 18649. The west pier should be charted as ruins on future charts. It should be noted that no field edit was required for this area. See E.R. Sect 6, H7705

A dive investigation was performed on the submerged pile at the west end of Berkeley pier. The pile no longer exists but the ruins at the end of the pier still remain; therefore, it is recommended that the submerged pile be removed from the chart. For more information, refer to Dive Investigation Report, OPR-L123-RA-78. See FE-242, AWOIS Item 5061, for disposition of this feature.

~~The 20 foot shoal charted east of Treasure Island (37°49'44"N, 122~~

from H 7619 (1947) Add wk 1950

The 20 foot shoal, charted east of Treasure Island (37°49'44N, 122°21'23"W) was developed with 10 meter spacing. The shallowest point found was 29 feet at the same position; therefore, it is recommended that this shoal be charted as 29 feet. For details see RA 10-3B-78, Expansion #2, 1:5,000 scale. It was also noted that the 30 foot depth curve no longer extends down to 37°49'44"N, 122°21'37"W. The entire finger shaped curve has been scoured to an average depth of 34 feet. This is also shown on Expansion #2 (RA 10-3B-78). \* Do not concur, the 20 ft has been carried forward from H 7619. SEE ER Sect 6 H 7619

The wreck charted at 68 feet (37°48'58"N, 122°22'53"W) was investigated by hydrographic development with 10 meter spacing. The wreck was found to be in the exact same position but at a depth of 710 feet. Refer to C/L 74/76 \* uncorrected depth Item 22. Chart present survey information in some areas. 51986

When comparing the survey to the chart, soundings along the rapid transit tunnel are deeper by an average of 15 feet. This change in depth could be caused by the excavation work done while constructing the tunnel. ✓

There are a number of charted pier ruins along the east shore of Treasure Island that no longer exist. For details on these ruins see field edit sheet TP 00529. SEE ER Sect 6 H 7622

M. ADEQUACY OF THE SURVEY

This survey (H-9794) is complete and adequate to supersede all prior surveys for charting purposes. All fathograms were scanned and checked for peaks and deeps and appropriate changes made to the original records where necessary. SEE ER Sect 6

N. AIDS TO NAVIGATION

Detached positions were taken on 17 buoys in the survey area (H-9794). All but one of these are charted on either Chart 18649 or Chart 18650. The following is a comparison of the buoys' present positions with their charted positions:

1.\* This is a spherical white and orange horizontally striped buoy that is not found in the USCG Light List, 1978. The buoy is located 30 feet south of an exposed rock, southeast of Point Blunt on Angel Island. The detached position was taken on the exposed rock, not the buoy. It is recommended that the charted position of the buoy remain the same. Concur. ✓

2. This buoy is one of seven white and orange horizontally striped buoys located south of Brooks Island. This buoy is a can buoy where the rest are spherical. It is designated SPC on Chart 18649. It is recommended that it be designated SPC "SH" in the future. All seven of these special purpose buoys are used by Berkeley Yacht Club for racing course markers. Concur ✓

\*These notes are listed on Charted Buoy Comparison.

CHARTED BUOY COMPARISON

<u>CHARTED LOCATION (SCALED)</u>	<u>CHARACTERISTICS</u>	<u>PRESENT LOCATION/RECOMMENDATION</u>	<u>LOCATED BY</u>	<u>CHART/BOAT SHEET</u>
37/49/40/122/25/38	RB Bell Buoy	37/49/40.53/122/25/35.64	Hydro. D.P. Pos. 2485, 2126 Day 322 7353	18650/3A
37/51/04/122/25/05	W Or SP "BP" 1 Priv. Maint.	37/51/06.12/122/25/05.30	Pos. 3055, 2123 Day 297	18650/3A
37/50/00/122/23/43	R "2" FIR 6 SEC	37/49/58.88/122/23/44.06 (Position of Rock)	Pos. 5785, 2123 Day 322	18650/3A
37/50/59/122/23/43	R "4" FIR 4 SEC HORN	37/51/00.71/122/23/41.24	Pos. 5786, 2123 Day 322	18650/3A
37/49/06/122/24/08	RB "BR" 1 QK FI BELL	37/49/06.56/122/24/08.86	Pos. 5784, 2123 Day 322	18650/3A
37/48/06/122/22/30	RBN	37/48/02.50/122/22/28.71	Pos. 2046, 2126 Day 322	18650/3B
37/48/14/122/21/21	E Int 6 SEC Bell "1"	37/48/13.61/122/21/22.28	Pos. 2047, 2126 Day 322	18650/3B
37/51/53/122/23/45	R "6" FIR 4 SEC BELL	37/51/54/36/122/23/42.70	Pos. 5787, 2123 Day 322	18649/3A
37/51/49/122/24/28	BW "A" Mo(A)	37/51/50.15/122/24/30.78	Pos. 5789, 2123 Day 322	18649/3A
37/52/32/122/23/02	W OrC "SH" Priv. 2 Maint.	37/52/39.53/122/22/59.04	Hydrographic Pos. 540, 2126 Day 316	18649/3B
37/52/30/122/22/39	W Or SP "G" Priv. Maint.	37/52/26.17/122/22/42.03	Pos. 539, 2126 Day 316	18649/3B

CHARTED BUOY COMPARISON

<u>CHARTED LOCATION (SCALED)</u>	<u>CHARACTERISTICS</u>	<u>PRESENT LOCATION/RECOMMENDATION</u>	<u>LOCATED BY</u>	<u>CHART/BOAT SHEET</u>
37/53/07/122/22/02	W Or SP "H" Priv. Maint.	37/53/12.68/122/22/20.47	Pos. 538, 2126 Day 316	18649/3B
37/53/10/122/21/04	W Or SP "A" Priv. Maint.	37/53/21.88/122/21/19.43	Pos. 537, 2126 Day 316	18649/3B
37/52/16/122/21/27	W Or SP "X" Priv. Maint.	37/52/15.58/122/21/29.47	Pos. 536, 2126 Day 316	18649/3B
37/51/46/122/22/33	W Or SP "F" Priv. Maint.	37/51/42/31/122/22/31.78	Pos. 541, 2126 Day 316	18649/3B
37/51/16/122/21/50	W Or SP "E" Priv. Maint.	37/51/17.22/122/21/45.82	Pos. 535, 2126 Day 316	18649/3B
Not on Chart 3	W Or SP "M" 3	37/48/38.52/122/25/54.13	Pos. <del>2845</del> , 2123 Day 322 <i>data from H-9793</i>	18649/3A

3. This is the only buoy not found on the chart. It is a spherical orange and white horizontally striped racing buoy designated WOrSP "M". It is located to the north of Pier 2 at Fort Mason. It is recommended that it be charted at 37°48'39"N, 122°25'54"W. Black Point

SEE  
ER  
Sect 7c

All of the buoys above that are Coast Guard maintained are located in the USCG Light List 1978. The remaining buoys are privately maintained and not found in the Light List.

It is recommended that the present positions obtained by the RAINIER be used to supersede all prior positions. Refer to Horizontal Control Report OPR-L123-RA-78 and NOAA Form 76-40, Non-Floating Aids to Navigation and Landmarks for information on geodetically located fixed aids to navigation.

0. STATISTICS

The survey contains 5944 positions in 667.2 nautical miles of hydrography, covering 20.3 square nautical miles. The following is a breakdown of the survey statistics:

<u>Vessel</u>	<u>No. of Positions</u>	<u>N. M. Hydrography</u>
RA-3 (2123)	608	40.0
RA-5 (2125)	207	*
RA-6 (2126)	5129	627.2

\*Launch RA-5 was used for obtaining bottom samples on H-9794. There were 176 bottom samples taken during the survey.

In addition, one tide station was maintained during the survey. For additional information refer to Field Tide Note, OPR-L123-RA-78; Echo Sounding Report, OPR-L123-RA-78; and the Abstract of Positions for details regarding the positions used by each launch.

P. MISCELLANEOUS

The walk hydrography completed along the pier faces and bulkheads extending east from Port Mason Pier #1 was not smooth plotted. The raw data (sounding volumes, ~~raw~~ master printouts, ~~raw~~ master tape, and corrector tape) only were submitted to PMC. \* approx. lat 37°48'30"N long 122°25'55"W

See E.R.  
Sect 1

contains procs. fixes

Q. RECOMMENDATIONS

The survey is complete and adequate to supersede all previous hydrography in the area, with exceptions noted.

SEE  
ER  
Sect 9

Due to the rapid shifting of bottom sediments in the Bay Area, the rapid changes to shoreline topography, and the increasing volume of deep draft and dangerous cargo vessels calling in San Francisco, it is recommended that a Chart Evaluation Survey be scheduled for San Francisco Harbor every 5-10 years.

R. DATA PROCESSING PROCEDURES

Data acquisition and processing were accomplished per instructions in the Hydrographic Manual, Fourth Edition, 1976 and the PMC OORDER.

Soundings and positions were taken by a Hydroplot system using range-range program RK 111 or visual programs RK 171, RK 175, and RK 176. There are daily master tapes and corresponding corrector tapes which include the TRA for the launches, electronic control calibration correctors, and all depth corrections. Velocity tapes were generated from Nansen Cast Data. The following is a list of all computer programs and version dates used during the survey. ✓

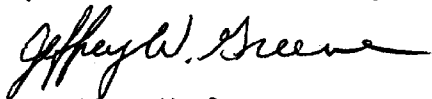
<u>PDP 8/e</u>		<u>Version Date</u>
RK 111	Range-Range Real Time Hydroplot	01/30/76
RK 171	Visual Hydrolog Loader	05/18/76
RK 175	Visual Hydrolog	05/03/76
RK 176	Visual Hydrolog Restarter	05/01/74
RK 201	Grid, Signal, and Lattice Plot	07/12/75
RK 211	Range-Range Non Real Time Plot	01/15/76
RK 212	Visual Station Table Load and Plot	04/01/74
RK 215	Visual Non-Real Time Plot	08/16/74
RK 300	Utility Computations	02/10/76
RK 330	Reformat and Data Check	05/04/76
RK 360	Electronic Corrector Abstract	02/02/76
RK 407	Geodetic Inverse/Direct Computation	10/23/75
RK 409	Geodetic Utility Package	05/15/73
AM 500	Predicted Tide Generator	11/10/72
RK 530	Layer Corrections for Velocity	05/10/76
RK 561	H/R Geodetic Calibration	02/19/75
AM 602	Elinore - Line Oriented Editor	05/21/75
AM 603	Tape Consolidator	10/10/72
RK 606	Tape Duplicator	08/22/74

S. REFERRAL TO REPORTS

This report when submitted to Pacific Marine Center was accompanied by the following supplemental reports:

Corrections to Echo Soundings Report, OPR-L123-RA-78 ✓  
Horizontal Control Report, OPR-L123-RA-78  
Coast Pilot Report, OPR-L123-RA-78  
Field Edit Report, TP-00526, 00528, 00529  
Dive Investigation Report, OPR-L123-RA-78

RESPECTFULLY SUBMITTED,



Jeffrey W. Greene  
Ensign, NOAA

FIELD TIDE NOTE  
OPR-L123-RA-78  
H-9793 , H-9794  
San Francisco Bay, California

The Presidio tide station (#941-4290) was utilized as the control gage for tidal datums with predicted tides being generated using PROGRAM AM 500, PREDICTED TIDE GENERATOR (version November 10, 1972). One historic tide station was occupied and monitored by a contract tide observer. The gage was operated on Pacific Standard Time to maintain uniformity with the gages that were installed by the California Tide Party.

T1, Pier 22 1/2, 941-4317

The tide station at LAT  $37^{\circ} 47'25''N$ , LONG  $122^{\circ} 23'13.5''W$  was occupied from September 25, 1978 to November 22, 1978. A Fisher-Porter ADR gage, SN 7304A1380M11, was installed with 9.90 feet on the gage corresponding to 0.00 feet on the tide staff. Metric installation levels and removal levels, connecting the tide staff to 5 benchmarks, were run on September 23, 1978 and November 20, 1978 respectively.

	Difference of Elevations	
	September 23, 1978	November 20, 1978
staff stop - BM 179	+0.926 m	+0.922 m
BM 179 - BM 1	+1.391 m	+1.394 m
BM 1 - BM M329	-0.398 m	-0.400 m
BM M329 - BM V813	-0.161 m	-0.164 m
BM 1 - BM DD109	+4.767 m	+4.764 m

Staff to gage comparison observations were conducted on September 26, 1978 from before high tide to after low tide with a total of 35 observations for comparison. The maximum deviation from the mean observation was 0.09 feet, as the upper bound, and 0.08 feet, as the lower bound.

The time was reset for this gage on two separate occasions, the first for being 3 minutes fast and the second for being 6 minutes fast. From 1206 L on November 20, 1978 to 1136 L on November 21, 1978 the gage double punched or punched intermittently and as such the data is suspect.

T1 to Predicted Tide Comparison

A table comparing T1 data with predicted tides for three distinct three day sequences follows, in the format of time of high, time of low, and tidal range. All times are local.



	Predicted Tides	T1
September 27, 1978	2046 0230 4.84 feet	2030 0221 4.91 feet
September 28, 1978	2136 0310 5.06 feet	2121 0300 5.24 feet
September 29, 1978	2220 0344 5.06 feet	2212 0324 5.31 feet
October 10, 1978	1829 0018 5.72 feet	1824 0006 5.78 feet
October 11, 1978	1949 0121 5.72 feet	1954 0106 5.99 feet
October 12, 1978	0907 0216 6.05 feet	0851 0203 5.88 feet
November 13, 1978	1031 1707 7.48 feet	1027 1645 7.27 feet
November 14, 1978	1106 1746 7.48 feet	1054 1739 7.40 feet
November 15, 1978	1142 1825 7.37 feet	1148 1833 7.34 feet

#### Recommended Zoning

Zoning is recommended using the discrete tidal zoning method due to tidal differences within the broad survey limits on H-9793 and H-9794.

#### Comments

The remaining tide gages, as called for in the project instructions dated August 10, 1978, were installed, operated, and maintained by the California Tide Party.

ASCII SIGNAL TAPE  
OPR-L123-RA-78  
SAN FRANCISCO BAY, CA

FINAL VERSION

101	3	37	49	34672	122	25	15758	250	0068	000000
102	0	37	51	50727	122	28	07118	250	0002	000000
103	2	37	51	40053	122	26	42297	250	0021	000000
105	3	37	51	42422	122	25	45399	250	0210	329649
106	3	37	49	30968	122	22	01346	250	0012	329649
107	3	37	50	06483	122	28	17136	250	0017	000000
108	3	37	52	24607	122	26	52462	139	0016	000000
109	6	37	52	06598	122	26	15682	139	0000	000000
110	0	37	52	49460	122	26	15595	139	0003	000000
111	3	37	52	41199	122	31	05202	250	0080	000000
112	3	37	53	47307	122	21	16205	254	0061	329649
113	3	37	53	39120	122	29	50774	250	0027	000000
114	3	37	52	43800	122	29	53198	250	0037	000000
200	3	37	48	30219	122	27	08821	139	0003	000000
201	3	37	53	44358	122	29	16945	250	0000	000000
202	1	37	49	31878	122	28	38028	250	0010	000000
203	7	37	51	40011	122	26	42445	243	0017	000000
300	3	37	48	50676	122	28	36431	139	0230	000000
301	3	37	49	32024	122	28	41266	139	0230	000000
302	3	37	55	26169	122	35	43992	139	0810	000000
303	1	37	51	11835	122	25	05197	139	0015	000000
304	3	37	48	08783	122	24	17037	139	0100	000000
305	4	37	48	20492	122	22	07603	139	0000	000000
306	0	37	48	03080	122	22	26257	139	0000	000000
307	4	37	47	44337	122	22	46339	139	0000	000000
308	0	37	47	26921	122	23	04994	139	0000	000000
309	3	37	47	42830	122	24	06072	139	0000	000000
310	3	37	45	19566	122	27	05920	139	0000	000000
311	3	37	45	18581	122	27	05918	139	0000	000000
312	3	37	45	19078	122	27	06993	139	0000	000000
313	4	37	48	34964	122	21	51400	139	0000	000000
315	3	37	51	21528	122	28	03372	139	0000	000000
316	3	37	51	41447	122	28	39624	139	0000	000000
317	3	37	51	55754	122	29	07232	139	0000	000000
318	3	37	50	11764	122	28	16033	139	0000	000000
319	3	37	54	44193	122	22	37471	139	0000	000000
320	3	37	51	03391	122	29	50563	139	0332	000000
321	3	37	52	55248	122	23	56940	139	0000	000000

322	1	37	50	52109	122	21	34089	139	0000	000000
323	3	37	51	45429	122	25	04444	139	0000	000000
324	3	37	53	31707	122	26	51629	139	0000	000000
325	3	37	55	44700	122	25	47312	139	0052	000000
326	3	37	56	24061	122	29	09321	139	0000	000000
327	3	37	56	41440	122	30	16200	139	0000	000000
328	3	37	51	58017	122	26	05308	139	0000	000000
329	3	37	50	02970	122	28	29150	139	0000	000000
330	3	37	47	43804	122	23	33029	139	0000	000000
332	3	37	48	26462	122	21	40177	139	0000	000000
336	3	37	48	00632	122	19	50118	139	0000	000000
338	3	37	48	28021	122	19	11606	139	0000	000000
341	3	37	47	09761	122	23	28898	139	0000	000000
342	3	37	45	21857	122	22	50749	139	0000	000000
343	3	37	49	02432	122	22	10919	139	0000	000000
344	3	37	49	09438	122	22	13131	139	0000	000000
345	3	37	49	08432	122	21	56470	139	0000	000000
346	3	37	52	19650	122	15	24221	139	0000	000000
347	3	37	49	54680	122	17	25860	139	0000	000000
348	3	37	49	26790	122	19	11570	250	0000	000000
349	3	37	49	27150	122	19	09800	250	0000	000000
350	3	37	47	04220	122	17	47120	139	0000	000000
400	5	37	52	13385	122	27	37666	252	0000	000000
500	3	37	52	19170	122	27	34765	243	0000	000000
501	4	37	52	18750	122	27	16500	243	0000	000000
502	0	37	52	19300	122	26	58210	243	0000	000000
503	3	37	52	34090	122	26	31730	243	0000	000000
504	4	37	52	06920	122	26	02510	243	0000	000000

MASTER STATION LIST  
OPR-L123-RA-78  
SAN FRANCISCO BAY, CA

FINAL VERSION

101 3	37 49	34672	122 25	15758	250 0068	000000	
/ALCATRAZ LIGHTHOUSE 1910 M/R							371221(4120)
102 0	37 51	50727	122 28	07118	250 0002	000000	
/CONE ROCK LIGHT 1977 M/R							371221(4139)
103 2	37 51	40053	122 26	42297	250 0021	000000	
/PT STUART LIGHTHOUSE 1928 M/R							371221(4176)
105 3	37 51	42422	122 25	45399	250 0210	329649	
/ANGEL ISLAND PEAK 3 1956 (RED RAYDIST)							371221(4003)
106 3	37 49	30968	122 22	01346	250 0012	329649	
/ALLEY 1978 (GREEN RAYDIST)							371221
107 3	37 50	06483	122 28	17136	250 0017	000000	
/RANGE 1931 M/R							371221(4062)
108 3	37 52	24607	122 26	52462	139 0016	000000	
/TIB 1978							371221
109 6	37 52	06598	122 26	15682	139 0000	000000	
/IONE 1978							371221
110 0	37 52	49460	122 26	15595	139 0003	000000	
/RACCOON STRAIT LT 5 1978							371221
111 3	37 52	41199	122 31	05202	250 0080	000000	
/ZAN 1978 M/R							371224
112 3	37 53	47307	122 21	16205	254 0061	329649	
<del>/BROOKS ISLAND ECC. (RAYDIST)</del>							
BROOKS ISLAND 2 1905 ECC							
113 3	37 53	39120	122 29	50774	250 0027	000000	
/PRESERVE 1978 M/R							

114 3	37 52	43800	122 29	53198	250 0037	000000	
/HYDRO 1978 M/R							
200 3	37 48	30219	122 27	08821	139 0003	000000	
/ANITA ROCK LIGHT 1965						371221(4322)	
201 3	37 53	44358	122 29	16945	250 0000	000000	
/AZMO 1978 M/R						371221	
202 1	37 49	31878	122 28	38028	250 0010	000000	
/LIME POINT LIGHT 1977 M/R						371221(4028)	
203 7	37 51	40011	122 26	42445	243 0017	000000	
/PT STUART LT ECC.							
300 3	37 48	50676	122 28	36431	139 0230	000000	
/GOLDEN GATE BRIDGE SOUTH PIER 1954						371221(4143)	
301 3	37 49	32024	122 28	41266	139 0230	000000	
/GOLDEN GATE BRIDGE NORTH PIER 1954						371221(4142)	
302 3	37 55	26169	122 35	43992	139 0810	000000	
/MOUNT TAMALPAIS RADAR DOME 1962						371224(1017)	
303 1	37 51	11835	122 25	05197	139 0015	000000	
/POINT BLUNT LIGHT 1978						371221	
304 3	37 48	08783	122 24	17037	139 0100	000000	
/COIT MONUMENT 1933						371221(4137)	
305 4	37 48	20492	122 22	07603	139 0000	000000	
/SAN FRANCISCO OAKLAND BAY BRIDGE PIER 1 1954						371221(4189)	
306 0	37 48	03080	122 22	26257	139 0000	000000	
/SAN FRANCISCO-OAKLAND BAY BRIDGE PIER 2 1954						371221(4190)	
307 4	37 47	44337	122 22	46339	139 0000	000000	
/SAN FRANCISCO OAKLAND BAY BRIDGE PIER 3 1954						371221(4191)	
308 0	37 47	26921	122 23	04994	139 0000	000000	
/SAN FRANCISCO-OAKLAND BAY BRIDGE PIER 4 1954						371221(4192)	
309 3	37 47	42830	122 24	06072	139 0000	000000	
/TRANS AMERICAN BLDG. 1976						371221	
310 3	37 45	19566	122 27	05920	139 0000	000000	
/MT SUTRO N ANTENNA 1976						371221	
311 3	37 45	18581	122 27	05918	139 0000	000000	
/MT SUTRO S ANTENNA 1976						371221	

312 3	37 45	19078	122 27	06993	139 0000	000000	
/MT SUTRO W ANTENNA 1976						371221	
313 4	37 48	34964	122 21	51400	139 0000	000000	
/USCG VTS RADAR, YBI						371221	
315 3	37 51	21528	122 28	03372	139 0002	000000	
/SAUSALITO CHAN LT 2 1978						371221	
316 3	37 51	41447	122 28	39624	139 0002	000000	
/SAUSALITO CHAN LT 4 1978						371221	
317 3	37 51	55754	122 29	07232	139 0002	000000	
/SAUSALITO CHAN LT 6 1978						371221	
318 3	37 50	11764	122 28	16033	139 0020	000000	
/YELLOW BLUFF LIGHT 1978						371221	
319 3	37 54	44193	122 22	37471	139 0119	000000	
/POINT RICHMOND PG AND E GAS TANK 1951						371221(4175)	
320 3	37 51	03391	122 29	50563	139 0335	000000	
/SAUSALITO RADIO STATION KDFC-KEAR TOWER 1960						371221(4220)	
321 3	37 52	55248	122 23	56940	139 0000	000000	
/SOUTHAMPTON SHOAL LIGHT 1978							
322 1	37 50	52109	122 21	34089	139 0000	000000	
/BERKELEY BREAKWATER LIGHT 2 1978							
323 3	37 51	45429	122 25	04444	139 0000	000000	
/SAN FRANCISCO BAY N CHANNEL LT 5 1978							
324 3	37 53	31707	122 26	51629	139 0000	000000	
/CALIFORNIA CITY NAVAL NET DEPOT STANDPIPE 1947						371221(4122)	
325 3	37 55	44700	122 25	47312	139 0052	000000	
/RED ROCK 1851						371221	
326 3	37 56	24061	122 29	09321	139 0000	000000	
/SAN QUENTIN ARSENAL TOWER 1962						371221(4213)	
327 3	37 56	41440	122 30	16200	139 0000	000000	
/GREEN BRAE RED BRICK STACK 1951						371224(1040)	
328 3	37 51	58017	122 26	05308	139 0000	000000	
/ANGEL ISLAND AYALA COVE FLAG POLE 1978							
329 3	37 50	02970	122 28	29150	139 0000	000000	
/OKE 1948						371221(4152)	

330 3 37 47 43804 122 23 33029 139 0000 000000  
/SAN FRANCISCO FERRY BLDG. FLAGSTAFF 1910 371221(4186)

332 3 37 48 26462 122 21 40177 139 0000 000000  
/YERBA BUENA LIGHT HOUSE 1919 371221(4227)

336 3 37 48 00632 122 19 50118 139 0000 000000  
/OAK. HARBOR LIGHT HOUSE 1919 371221(4155)

338 3 37 48 28021 122 19 11606 139 0000 000000  
/OAK. NAVY SUPPLY DEPOT RED&WHITE CHECKERED TANK 1947 371221(4158)

341 3 37 47 09761 122 23 28898 139 0000 000000  
/SAN FRANCISCO UNION OIL CO BLDG TOWER 1978

342 3 37 45 21857 122 22 50749 139 0000 000000  
/SAN FRANCISCO PG&E POTERERO PLANT STACK 1977

343 3 37 49 02432 122 22 10919 139 0000 000000  
/TREASURE ISLAND BUILDING ONE CUPOLA 1978

344 3 37 49 09438 122 22 13131 139 0000 000000  
/TREASURE ISLAND RED&WHITE RADIO TOWER 1978

345 3 37 49 08432 122 21 56470 139 0000 000000  
/SHORT RADIO TOWER

346 3 37 52 19650 122 15 24221 139 0000 000000  
/CAMPANILE, UNIV. OF CALIF. 1916 371221(4136)

347 3 37 49 54680 122 17 25860 139 0000 000000  
/E. J. IRON WORKS CENTER STACK 1978

348 3 37 49 26790 122 19 11570 139 0000 000000  
/RADIO TOWER, WEST OF THREE 1978

349 3 37 49 27150 122 19 09800 139 0000 000000  
/RADIO TOWER, CENTER OF THREE 1978

350 3 37 47 04220 122 17 47120 139 0000 000000  
/ALAMEDA RED & WHITE TANK 1978

400 5 37 52 13385 122 27 37666 252 0000 000000  
/PILING HYDRO SIGNAL

500 3 37 52 19170 122 27 34765 243 0000 000000  
/WEST YACHT HARBOR BREAKWATER(PHOTO SIGNAL) TP-00526

501 4 37 52 18750 122 27 16500 243 0000 000000  
/EAST YACHT HARBOR BREAKWATER(PHOTO SIGNAL) TP-00526

502 0 37 52 19300 122 26 58210 243 0000 000000  
/ROCK-PT. TIBURON(PHOTO SIGNAL) TP-00526

503 3 37 52 34090 122 26 31730 243 0000 000000  
/ROCK, KIEL COVE(PHOTO SIGNAL) TP-00526

504 4 37 52 06920 122 26 02510 243 0000 000000  
/FERRY PIER ANGEL IS.(PHOTO SIGNAL) TP-00526

CALBRATION VALUES:

AT STATION 200

106 - 170.51 105 - 137.96 112 - 286.76

AT STATION 110(RACoon STRAIT LT 5)

106 - 191.91 112 - 165.67

AT STATION 322(BERKELEY BREAKWATER LT 2)

105 - 139.48 106 - 56.96 112 - 119.23

AT STATION TREASURE IS N END LT 6

105 - 131.97 106 - 21.36 112 - 157.71



Replaces C&GS Form 567.

**NONFLOATING AIDS**

**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
FOR CHARTS**

**U.S. DEPARTMENT OF COMMERCE**

TO BE CHARTED  
 TO BE REVISED  
 TO BE DELETED

REPORTING UNIT  
(Field Party, Ship or Office)  
Photogrammetric Branch  
PMC Seattle, Wa.

LOCALITY  
San Francisco and San  
Pablo Bays

DATE  
March 1980

The following objects HAVE  BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.  
OPR PROJECT NO. 411

JOB NUMBER  
CM - 7704

STATE  
California

DATUM  
N.A. 1927

ORIGINATING ACTIVITY  
 HYDROGRAPHIC PARTY  
 GEODETIC PARTY  
 PHOTO FIELD PARTY  
 COMPILATION ACTIVITY  
 FINAL REVIEWER  
 QUALITY CONTROL & REVIEW GRP  
 COAST PILOT BRANCH  
(See reverse for responsible personnel)

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses.)	POSITION				METHOD AND DATE OF LOCATION (See instructions on reverse side)	CHARTS AFFECTED
		LATITUDE		LONGITUDE			
		° / ' "	° / ' "	D.P. Meters	D.P. Meters		
LIGHT	Raccoon Strait Light 4 (Point Stuart Lighthouse, 1928)	37° 51' 12.34.9	122° 26' 12.297"	1033.9		Triang. Reo. 10/78	18649
LIGHT	Raccoon Strait Light 5, 1978 (Unadjusted Field Position)	37° 52' 1524.9	122° 26' 15.595"	381.1		F-1-6-L 10/78	18649
LIGHT	Cone Rock Light, 1977	37° 51' 50.727"	122° 28' 07.117"	174.0	77B(P) 3491 Mar. 18, 1977	Triang. Reo. 10/78	18649
LIGHT	Sausalito Channel Light 2, 1978 (Unadjusted Field Position)	37° 51' 21.528"	122° 28' 03.372"	82.4	77B(P) 3491 Mar. 18, 1977	F-3-6-L 10/78	18649
LIGHT	Sausalito Channel Light 4, 1978 (Unadjusted Field Position)	37° 51' 663.7	122° 28' 39.624"	968.6	77B(P) 3491 Mar. 18, 1977	F-3-6-L 10/78	18649
LIGHT	Sausalito Channel Light 6, 1978 (Unadjusted Field Position)	37° 51' 1277.8	122° 29' 07.232"	176.8	77B(P) 3491 Mar. 18, 1977	F-3-6-L, 13/79	18649
LIGHT	Corte Madera Channel Light 2 (Preliminary Adjusted Field Position 1979)	37° 55' 12.029"	122° 28' 02.053"	50.1	77B(P) 3521 Mar. 18, 1977	F-3-6-L, 3/79	18649
LIGHT	Corte Madera Channel Light 4 (Private Aid)	37° 55' 1450	122° 28' 15.72"	384	77B(P) 3521 Mar. 18, 1977	F-V-Vis 3/79	18649
LIGHT	Corte Madera Channel Light 5 (Private Aid)	37° 55' 52.97"	122° 28' 39.68"	969	77B(P) 3521 Mar. 18, 1977	F-V-Vis 3/79	18649
LIGHT	Corte Madera Channel Light 6 (Private Aid)	37° 55' 1633	122° 28' 38.04"	929	77(B) 3521 Mar. 18, 1977	F-V-Vis 3/79	18649

1980-12-15

Replaces C&GS Form 567.

**NONFLOATING AIDS**

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
**FOR CHARTS**

CHARTING NAME	REPORTING UNIT (Field Party, Ship or Office) Photogrammetric Branch PWC Seattle, Wa.	STATE California	LOCALITY San Francisco and San Pablo Bays	DATE March 1980	ORIGINATING ACTIVITY	
					<input type="checkbox"/> HYDROGRAPHIC PARTY	<input type="checkbox"/> GEODETIC PARTY
CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses.)	LATITUDE ° / ' / "	LONGITUDE ° / ' / "	OFFICE	FIELD	CHARTS AFFECTED
LIGHT	Corte Madera Channel Light 7 (Private Aid)	37° 56' 43"	122° 29' 02.21"	77B(P) 3521 Mar. 18, 1977	F-V-Vis. 3/79	18649
LIGHT	Corte Madera Channel Light 8 (Private Aid)	37° 56' 127"	122° 29' 00.70"	77B(P) 3521 Mar. 18, 1977	F-V-Vis. 3/79	18649
LIGHT	Corte Madera Channel Light 9 (Private Aid)	37° 56' 309"	122° 29' 24.65"	77B(P) 3521 Mar. 18, 1977	F-V-Vis. 3/79	18649
LIGHT	Corte Madera Channel Light 10 (Private Aid)	37° 56' 392"	122° 29' 23.10"	77B(P) 3521 Mar. 18, 1977	F-V-Vis. 3/79	18649
LIGHT	Corte Madera Channel Light 11 (Private Aid)	37° 56' 579"	122° 29' 47.54"	77B(P) 3521 Mar. 18, 1977	F-V-Vis. 3/79	18649
LIGHT	Corte Madera Channel Light 12 (Private Aid)	37° 56' 657"	122° 29' 45.62"	77B(P) 3521 Mar. 18, 1977	F-V-Vis. 3/79	18649
LIGHT	Corte Madera Channel Light 13 (Private Aid)	37° 56' 791"	122° 30' 00.00"	77B(P) 3521 Mar. 18, 1977	F-V-Vis. 3/79	18649
LIGHT	Corte Madera Channel Light 14 (Private Aid)	37° 56' 865"	122° 29' 57.83"	77B(P) 3521 Mar. 18, 1977	F-V-Vis. 3/79	18649
LIGHT	Corte Madera Channel Light 15 (Private Aid)	37° 56' 1000"	122° 30' 14.12"	77B(P) 3521 Mar. 18, 1977	F-V-Vis. 3/79	18649
LIGHT	Corte Madera Channel Light 16 (Private Aid)	37° 56' 1077"	122° 30' 09.95"	77B(P) 3521 Mar. 18, 1977	F-V-Vis. 3/79	18649

Replaces C&GS Form 567.

**NONFLOATING AIDS**

STATE

REPORTING UNIT  
(Field Party, Ship or Office)  
Photogrammetric Branch  
PMO Seattle, Wa.

LOCALITY

San Francisco and San Pablo Bays

DATE

March 1978

The following objects HAVE  HAVE NOT  been inspected from seaward to determine their value as landmarks.  
OPR PROJECT NO.      JOB NUMBER      SURVEY NUMBER

411      CM - 7704      TP - 00526

CHARTING NAME      DESCRIPTION  
(Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses.)

LIGHT      Corte Madera Channel Light 17  
(Private Aid)

LIGHT      Corte Madera Channel Light 19  
(Private Aid)

AERO OBSTR LIGHT      Richmond-San Rafael Bridge Light  
West Span East Light  
(Unadjusted Field Position)

AERO OBSTR LIGHT      Richmond-San Rafael Bridge Light  
West Span West Light  
(Unadjusted Field Position)

AERO OBSTR LIGHT      Richmond-San Rafael Bridge Light  
East Span West Light  
(Unadjusted Field Position)

AERO OBSTR LIGHT      Richmond-San Rafael Bridge Light  
East Span East Light  
(Unadjusted Field Position)

LIGHT      Southampton Shoal Channel Light 1, 1979  
(Preliminary Adjusted Field Position)

LIGHT      Southampton Shoal Channel Light 2, 1979  
(Preliminary Adjusted Field Position)

LIGHT      Southampton Shoal Channel Light 2A, 1979  
(Preliminary Adjusted Field Position)

LIGHT      Southampton Shoal Channel Light, 1978  
(Unadjusted Field Position)

**U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
FOR CHARTS**

**ORIGINATING ACTIVITY**

- HYDROGRAPHIC PARTY
- GEODETIC PARTY
- PHOTO FIELD PARTY
- COMPILATION ACTIVITY
- FINAL REVIEWER
- QUALITY CONTROL & REVIEW GRP.
- COAST PILOT BRANCH

(See reverse for responsible personnel)

**METHOD AND DATE OF LOCATION**  
(See instructions on reverse side)

OFFICE

FIELD

POSITION

LATITUDE

LONGITUDE

D.M. Meters

D.P. Meters

° /

° /

° /

° /

° /

37° 56'

37° 56'

37° 56'

37° 56'

37° 56'

32.79"

1011

34.41"

1061

06.198"

191.1

07.090"

218.6

02.859"

88.1

01.962"

60.5

16.297"

502.5

18.741"

577.8

45.751"

1410.5

55.248"

1703.4

122° 30'

122° 30'

122° 26'

122° 26'

122° 25'

122° 25'

122° 25'

122° 25'

122° 25'

122° 23'

122° 23'

17.24"

421

20.97"

512

30.172"

736.8

43.584"

1064.3

40.154"

980.6

26.742"

653.1

18.507"

452.1

09.419"

230.1

11.392"

278.3

56.940"

1391.5

77B(P) 3521

Mar. 18, 1977

F-V-Vis.

3/79

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

18649

Replaces C&GS Form 567.

**NONFLOATING AIDS**

**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
FOR CHARTS**

**ORIGINATING ACTIVITY**  
 HYDROGRAPHIC PARTY  
 GEODETIC PARTY  
 PHOTO FIELD PARTY  
 COMPILATION ACTIVITY  
 FINAL REVIEWER  
 QUALITY CONTROL & REVIEW GRP.  
 COAST PILOT BRANCH  
*(See reverse for responsible personnel)*

**REPORTING UNIT**  
*(Field Party, Ship or Office)*  
 Photogrammetric Branch  
 PMC Seattle, Wa.  
**LOCALITY**  
 San Francisco and San Pablo Bays  
**DATE**  
 March 1980

**STATE**  
 California

**HAVE**  **HAVE NOT**   
 been inspected from seaward to determine their value as landmarks.  
**DATUM**  
 N.A. 1927

**CHARTING NAME**  
 411

**DESCRIPTION**  
*(Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)*  
 (Southampton Shoal Channel Light 5, 1979 (Preliminary Adjusted Field Position))  
 (Richmond Harbor Channel Light 2, 1979 (Preliminary Adjusted Field Position))  
 (Richmond Harbor Channel Approach Range Front Light, 1979 (Preliminary Adjusted Field Position))  
 (Richmond Harbor Channel Approach Range Rear Light, 1979 (Preliminary Adjusted Field Position))  
 (Richmond Harbor Channel Light 4, 1979 (Preliminary Adjusted Field Position))  
 (Richmond Harbor Channel Light 3, 1979 (Preliminary Adjusted Field Position))  
 (Richmond Harbor Channel Light 5, 1979 (Preliminary Adjusted Field Position))  
 Point Richmond Fog Signal; Light exhibits only when fog signal is in operation. Private aid.  
 (Richmond Harbor Jetty Daybeacon, 1979 (Preliminary Adjusted Field Position))  
 Richmond Harbor Channel Light 6

**JOB NUMBER**  
 CM - 7704  
**SURVEY NUMBER**  
 TP - 00526

**METHOD AND DATE OF LOCATION**  
*(See instructions on reverse side)*  
**OFFICE**  
**FIELD**

**CHARTS AFFECTED**  
 18649  
 18649  
 18649  
 18649  
 18649  
 18649  
 18649  
 18649  
 18649

CHARTING NAME	LATITUDE	LONGITUDE	POSITION		D.P. Meters
			D.M. Meters	D.P. Meters	
LIGHT	37° 55'	122° 25'	18.771"	33.381"	815.3
LIGHT	37° 55'	122° 25'	10.880"	08.720"	213.0
LIGHT	37° 54'	122° 23'	02.958"	25.608"	625.6
LIGHT	37° 53'	122° 23'	55.817"	15.691"	383.4
LIGHT	37° 54'	122° 23'	22.498"	59.517"	1154.0
LIGHT	37° 54'	122° 24'	693.6	27.845"	680.2
LIGHT	37° 54'	122° 23'	55.503"	54.361"	1328.0
LIGHT	37° 54'	122° 23'	1711.2	29.76"	727
HORN	37° 54'	122° 23'	29.26"	29.76"	673.7
DAYBEACON	37° 54'	122° 23'	902	27.578"	616
LIGHT	37° 54'	122° 23'	13.720"	25.58"	625

NOAA FORM 71-40  
(8-74)

Replaces C&GS Form 367.

TO BE CHARTED  
 TO BE REVISED  
 TO BE DELETED

REPORTING UNIT  
(Flag Party, Ship or Office)  
Photogrammetric Branch  
PNC Seattle, Wa.

STATE  
California

LOCALITY  
San Francisco and San  
Pablo Bays

FOR CHARTS

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

ORIGINATING ACTIVITY

HYDROGRAPHIC PARTY  
 GEODETIC PARTY  
 PHOTO FIELD PARTY  
 COMPILATION ACTIVITY  
 FINAL REVIEWER  
 QUALITY CONTROL BRANCH  
 COAST PILOT BRANCH  
(See reverse for responsible personnel)

DATE  
March 1980

DATE

The following objects HAVE  HAVE NOT  been inspected from seaward to determine their value as landmarks.

METHOD AND DATE OF LOCATION  
(See instructions on reverse side)

OFFICE

FIELD

CHARTS AFFECTED

OPR PROJECT NO. 411

JOB NUMBER

TP - 00526

DATE

CHARTING NAME

DESCRIPTION  
(Record reason for deletion of landmark or aid to navigation.  
Show triangulation station names, where applicable; in parentheses.)

POSITION

DATE

LIGHT

Richmond Harbor Channel Light 8

37° 54' 17.09" N, 122° 23' 01.27" W

P-5-L 4/79, 77B(P) 3534, 77B(P) 3532

SIREN

Standard Oil Wharf Fog Signal  
(Private Maintained)

37° 55' 21.63" N, 122° 24' 22.35" W

P-5-L 3/79 (Sketch #5)

BELL

Standard Oil Wharf Inner Fog Signal  
(Private Maintained)

37° 55' 30.23" N, 122° 24' 16.50" W

77B(P) 3532, P-5-L 3/79

LIGHT

Molate Point Wharf South End Light

37° 56' 12.72" N, 122° 25' 33.21" W

77B(P) 3532, P-5-L 3/79 (Sketch #2)

LIGHT

Molate Point Wharf North End Light

37° 56' 41.94" N, 122° 25' 33.62" W

77B(P) 3532, P-5-L 3/79 (Sketch #2), 18649

LIGHT

Point Orient Wharf South Lights  
(Bell is 56 Ft. north of South Lights)

37° 57' 19.53" N, 122° 25' 37.64" W

77B(P) 3532, P-5-L 10/78, 18649, 18654

LIGHT

Point Orient Wharf North Lights

37° 57' 21.48" N, 122° 25' 38.22" W

77B(P) 3532, P-5-L 3/79 (Sketch #1), 18649

LIGHT

(San Francisco Bay North Channel Lt 5,  
1978 (Unadjusted Field Position))

37° 51' 45.429" N, 122° 25' 24.144" W

F-3-6-L 10/78, 18649

LIGHT

(San Francisco Bay North Channel Lt 7,  
1979 (Preliminary Adjusted Field Pos.))

37° 53' 39.593" N, 122° 26' 54.648" W

F-3-6-L 4/79, 18649

LIGHT

(San Francisco Bay North Channel Lt 17,  
1979 (Preliminary Adjusted Field Pos.))

37° 51' 26.103" N, 122° 27' 21.590" W

F-3-6-L 4/79, 18649, 18654

Replaces C&GS Form 567.

NONFLOATING AIDS

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
FOR CHARTS

REPORTING UNIT (Field Party, Ship or Office)		STATE		LOCALITY		DATE		ORIGINATING ACTIVITY			
<input checked="" type="checkbox"/> TO BE CHARTED	<input type="checkbox"/> TO BE REVISED	<input type="checkbox"/> TO BE DELETED	Photogrammetric Branch PWC Seattle, Wa.		San Francisco and San Pablo Bays		March 1980		<input type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> COMPILATION ACTIVITY <input type="checkbox"/> FINAL REVIEWER <input type="checkbox"/> QUALITY CONTROL & REVIEW GRP <input type="checkbox"/> COAST PILOT BRANCH (See reverse for responsible personnel)		
OPR PROJECT NO.		JOB NUMBER		SURVEY NUMBER		DATUM		METHOD AND DATE OF LOCATION (See instructions on reverse side)		CHARTS AFFECTED	
411		CM - 7704		TP - 00526		N. A. 1927		OFFICE		FIELD	
CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses.)	LATITUDE		LONGITUDE		POSITION					
		° / ' "	D.M. Meters	° / ' "	D.P. Meters	° / ' "	D.P. Meters				
LIGHT	San Rafael Creek Range Front Light	37° 58'	15.41"	122° 29'	14.20"			77B(P) 3530 Mar. 18, 1977	P-V-Vis. 4/79	18649 18654	
LIGHT	San Rafael Creek Range Rear Light; insufficient data submitted for location, no position determined									18649 18654	
LIGHT	San Rafael Creek Light 1	37° 57'	11.87"	122° 28'	18.56"			77B(P) 3530 Mar. 18, 1977	P-V-Vis. 3/79	18649 18654	
LIGHT	San Rafael Creek Light 3 (Not in position at time of Field Edit)										
LIGHT	San Rafael Creek Light 5	37° 57'	59.12"	122° 28'	59.14"			77B(P) 3530 Mar. 18, 1977	P-V-Vis. 3/79	18649 18654	
LIGHT	(San Pablo Bay Light 4, 1979 (Preliminary Adjusted Field Position))	37° 58'	1632	122° 24'	1451					18649 18654	
LIGHT	San Pablo Bay Channel Light 5 (Not in position at time of Field Edit)	37° 58'	52.62"	122° 24'	59.883"					18649 18654	
LIGHT	San Pablo Bay Channel Light 5 (Not in position at time of Field Edit)										
MARKER	(Richardson Bay Salt Works Channel Day Mark No 1, 1978 (Unadjusted Field Position))	37° 52'	25.53"	122° 29'	36.266"					18649	
MARKER	(Richardson Bay Salt Works Channel Day Mark No 2, 1978 (Unadjusted Field Position))	37° 52'	787.2		806.4					18649	
MARKER	(Richardson Bay Salt Works Channel Day Mark No 1, 1978 (Unadjusted Field Position))	37° 52'	26.520	122° 29'	33.356"					18649	
MARKER	(Richardson Bay Salt Works Channel Day Mark No 2, 1978 (Unadjusted Field Position))	37° 52'	817.6		815.2					18649	
MARKER	(Richardson Bay Salt Works Channel Day Mark No 1, 1978 (Unadjusted Field Position))	37° 52'	41.413	122° 29'	38.716"					18649	
MARKER	(Richardson Bay Salt Works Channel Day Mark No 2, 1978 (Unadjusted Field Position))		1276.8		946.2					18649	

NOAA FORM 76-40  
11/1980

NOIA FORM 78-40  
(8-74)  
Replaces CAGS Form 567.

### NONFLOATING AIDS

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
**FOR CHARTS**

<input checked="" type="checkbox"/> TO BE CHARTED <input type="checkbox"/> TO BE REVISED <input type="checkbox"/> TO BE DELETED	REPORTING UNIT (If Aid Ports, Ship or Office) Photogrammetric Branch PNO Seattle, Wa.	STATE California	LOCALITY San Francisco and San Pablo Bays
The following objects HAVE <input checked="" type="checkbox"/> BEEN INSPECTED from seaward to determine their value as landmarks. OPR PROJECT NO.		DATE March 1980	
JOB NUMBER CM - 7704		SURVEY NUMBER TP - 00526	

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	LATITUDE		LONGITUDE		METHOD AND DATE OF LOCATION (See instructions on reverse side)	CHARTS AFFECTED
		° / ' "	D.M. Meters	° / ' "	D.P. Meters		
MARKER	(Richardson Bay Salt Works Channel Day Mark No 5, 1978 (Unadjusted Field Position))	37° 53' 41.0.2	13.306	122° 29' 51.861"	1267.3	F-3-6-L 10/78	18649
MARKER	(Richardson Bay Salt Works Channel Day Mark No 6, 1978 (Unadjusted Field Position))	37° 53' 191.2	15.932	122° 29' 51.224"	1251.7	F-3-6-L 10/78	18649
MARKER	(Richardson Bay Salt Works Channel Day Mark No 7, 1978 (Unadjusted Field Position))	37° 53' 17.686	17.686	122° 29' 53.578"	1309.2	F-3-6-L 10/78	18649
MARKER	(Richardson Bay Salt Works Channel Day Mark No 9, 1978 (Unadjusted Field Position))	37° 53' 32.597	54.5.3	122° 29' 59.481"	1453.4	F-3-6-L 10/78	18649
MARKER	(Richardson Bay Salt Works Channel Day Mark No 10, 1978 (Unadjusted Field Position))	37° 53' 32.958	1005.0	122° 29' 57.756"	1411.2	F-3-6-L 10/78	18649

ORIGINATING ACTIVITY  
 HYDROGRAPHIC PARTY  
 GEODETIC PARTY  
 PHOTO FIELD PARTY  
 COMPILATION ACTIVITY  
 FINAL REVIEWER  
 QUALITY CONTROL & REVIEW GRP.  
 COAST PILOT BRANCH  
 (See reverse for responsible personnel)

NOAA FORM 76-40  
(8-74)

Replaces C&GS Form 567.

TO BE CHARTED  
 TO BE REVISED  
 TO BE DELETED

REPORTING UNIT  
(Field Party, Ship or Office)  
Photogrammetric Branch  
PMC, Seattle, WA

STATE  
California

LOCALITY  
San Francisco and San  
Pablo Bays

DATE  
Mar, 1980

ORIGINATING ACTIVITY  
 HYDROGRAPHIC PARTY  
 GEODETIC PARTY  
 PHOTO FIELD PARTY  
 COMPILATION ACTIVITY  
 FINAL REVIEWER  
 QUALITY CONTROL & REVIEW GRP  
 COAST PILOT BRANCH  
(See reverse for responsible personnel)

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
FOR CHARTS

OPR PROJECT NO. 411

JOB NUMBER CM-7704

DATE NA 1927

METHOD AND DATE OF LOCATION  
(See instructions on reverse side)

DESCRIPTION  
(Record reason for deletion of landmark or aid to navigation.  
Show triangulation station names, where applicable, in parentheses)

DATUM

POSITION

CHARTS AFFECTED

LATITUDE

LONGITUDE

OFFICE

FIELD

Paradise Cay Light  
(Not in position at time of Field Edit)

37° 55.0'

122° 28.4'

Destroyed  
4/79

Richmond Harbor Channel Light 7  
(Not in position at time of Field Edit)

37° 54.4'

122° 23.0'

Light  
Destroyed.  
4/79

Corte Madera Channel Light 3  
(Not in position at time of Field Edit)

37° 55.7'

122° 28.3'

Light  
Destroyed  
3/79

\*\*Richmond Harbor Channel Light 7 and  
Corte Madera Channel Light 3 are destroyed  
and marked by buoys. Buoys were Hydro  
located.



NOAA FORM 74-40  
(8-74)

Replaces C&GS Form 567.

TO BE CHARTED  
 TO BE REVISED  
 TO BE DELETED

REPORTING UNIT  
(Field Party, Ship or Office)  
Photogrammetric Branch  
PMC Seattle Wa.

**NONFLOATING AIDS**

STATE

California

LOCALITY

San Francisco and San Pablo Bays

DATE

March 1980

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

**FOR CHARTS**

**ORIGINATING ACTIVITY**

- HYDROGRAPHIC PARTY
  - GEODETIC PARTY
  - PHOTO FIELD PARTY
  - COMPILATION ACTIVITY
  - FINAL REVIEWER
  - QUALITY CONTROL & REVIEW GRP.
  - COAST PILOT BRANCH
- (See reverse for responsible personnel)

OPR PROJECT NO.

111

JOB NUMBER

CM - 7704

HAVE  HAVE NOT

DATUM

N.A. 1927

been inspected from seaward to determine their value as landmarks.

SURVEY NUMBER

TP - 00526

CHARTING NAME

POINT

LIGHT

DESCRIPTION  
(Record reason for deletion of landmark or aid to navigation. Show triangulation station name, where applicable, in parentheses.)  
Point Blunt Light  
Point Blunt Light, 1978  
(Unadjusted Field Position)  
East Brother Island Light  
(East Brother Island Lighthouse, 1932)  
Preliminary Adjusted Field Position 1979

LATITUDE

° / ' "

37° 51' 11.835"

37° 57' 47.807"

LONGITUDE

° / ' "

122° 25' 05.197"

122° 25' 56.698"

D.P. Meters

364.9

127.1

1384.0

METHOD AND DATE OF LOCATION  
(See instructions on reverse side)

OFFICE

77B(P) 3576  
Mar. 18, 1977

FIELD

F-3-6-L  
10/78

F-3-6-L  
4/79

CHARTS AFFECTED

18649

18654  
18649

Replaces C&GS Form 567.

- TO BE CHARTED
- TO BE REVISED
- TO BE DELETED

REPORTING UNIT  
(If field party, Ship or Office)  
Photogrammetric Branch  
PMC Seattle, Wa.

STATE  
California

LOCALITY  
San Francisco and San Pablo Bays

DATE  
April 11 1980

The following objects HAVE  BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.

OPR PROJECT NO.  
411

JOB NUMBER  
CM - 7704

SURVEY NUMBER  
TP - 00526

DATUM  
N.A. 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	LATITUDE		LONGITUDE		METHOD AND DATE OF LOCATION (See instructions on reverse side)		CHARTS AFFECTED
		D.M. Meters	° / "	D.P. Meters	° / "	OFFICE	FIELD	
TOWER	(Gallinas Creek, South Transmission Tower, 1922)	38° 00'	55.98" / 1726.0	122° 30'	01.52" / 37.1	77B(P) 3557 Mar. 18, 1977	F-V-Vis. 4/79	18654
TOWER	(San Quentin Tower No 3, 1962)	37° 56'	13.81" / 425.9	122° 29'	17.203" / 420.1	77B(P) 3480 Mar. 18, 1977	F-V-Vis. 4/79	18649
STACK	(Green Brae, Red Brick Stack, 1951)	37° 56'	41.44" / 127.7	122° 30'	16.20" / 395.6	77B(P) 3480 Mar. 18, 1977	F-V-Vis. 4/79	18649
STANDPIPE	(California City Naval Net Depot Standpipe, 1947)	37° 53'	31.707" / 977.6	122° 26'	51.629" / 1261.5	77B(P) 3519 Mar. 18, 1977	Triang. Rec. 4/79	18649
FLAGPOLE	(Angel Island Ayala Cove Flagpole, 1978 (Unadjusted Field Position))	37° 51'	58.017" / 1788.7	122° 26'	05.308" / 129.7		F-2-6-L 10/78	18649
GABLE		37° 51'	34.45" / 1062	122° 26'	31.95" / 781	77B(P) 3518 Mar. 18, 1977	F-V-Vis. 10/78	18649
STACK	(Brick, 1916)	37° 58'	57.477" / 1772.1	122° 27'	39.554" / 965.3	77B(P) 3478 Mar. 18, 1977	Triang. Rec. April 4, 1979	18649 18654
STACK	East of three	37° 58'	59.06" / 1821	122° 27'	39.42" / 962	77B(P) 3478 Mar. 18, 1977	F-V-Vis. 4/79	18649 18654
STACK	West of three	37° 58'	59.52" / 1835	122° 27'	41.10" / 1003	77B(P) 3478 Mar. 18, 1977	F-V-Vis. 4/79	18649 18654

NOAA FORM 76-40  
(8-74)

Replaces C&GS Form 367.

TO BE CHARTED  
 TO BE REVISED  
 TO BE DELETED

REPORTING UNIT  
(Field Party, Ship or Office)  
Photogrammetric Branch  
PNC Seattle, Va.

STATE  
California

LOCALITY  
San Francisco and San  
Pablo Bays

DATE  
April 1980

ORIGINATING ACTIVITY  
 HYDROGRAPHIC PARTY  
 GEODETIC PARTY  
 PHOTO FIELD PARTY  
 COMPILATION ACTIVITY  
 FINAL REVIEWER  
 QUALITY CONTROL & REVIEW GRP.  
 COAST PILOT BRANCH  
(See reverse for responsible personnel)

The following objects HAVE  BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.  
 HAD NOT BEEN INSPECTED

JOB NUMBER  
CM - 7704

DATUM  
N.A. 1927

POSITION  
LATITUDE  
D.M. Meters  
//

OFFICE  
77B(P)3480  
Mar. 18, 1977

CHARTS  
AFFECTED  
18649  
18649  
18649  
18650

111

WP - 00526

CHARTING NAME  
DESCRIPTION  
(Record reason for deletion of landmark or aid to navigation.  
Show triangulation station name, where applicable, in parentheses)

TOWER  
(San Quentin Arsenal Tower, 1962)

FLAGPOLE  
Sausalito Yacht Club Flagpole

BELL  
Point Knox, Angel Island Bell

FIELD  
Triang. Rec.  
4/79

METHOD AND DATE OF LOCATION  
(See instructions on reverse side)

LONGITUDE  
D.P. Meters  
//

24.061" 122° 29' 09.321"

741.8 227.6

24.61" 122° 28' 37.86"

759 926

22.71" 122° 26' 29.30"

700 716

NOAA FORM 76-40  
(8-74)

**NONFLOATING AIDS**

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
FOR CHARTS

Replaces CAGS Form 367.  
 TO BE CHARTED  
 TO BE REVISED  
 TO BE DELETED  
The following objects HAVE  I HAVE NOT  been inspected from seaward to determine their value as landmarks.  
OPR PROJECT NO. 411  
JOB NUMBER GN-7704  
SURVEY NUMBER TP-00527

REPORTING UNIT  
(If field party, ship or office)  
Photogrammetric Branch,  
PMS, Seattle, Wa.  
STATE California  
LOCALITY San Francisco and San  
Pablo Bays  
DATE 06/06/80

ORIGINATING ACTIVITY  
 HYDROGRAPHIC PARTY  
 GEODETIC PARTY  
 PHOTO FIELD PARTY  
 COMPILATION ACTIVITY  
 FINAL REVIEWER  
 QUALITY CONTROL & REVIEW GRP.  
 COAST PILOT BRANCH  
(See reverse for responsible personnel)

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	LATITUDE		LONGITUDE		POSITION		METHOD AND DATE OF LOCATION (See instructions on reverse side)		CHARTS AFFECTED
		° / ' "	D.M. Meters	° / ' "	D.P. Meters	OFFICE	FIELD			
LIGHT	Berkeley Marina Channel Light 3	37° 51'	27.60"	22° 20'	53.96"	1319		P-5 04/04/79 77B(P) 3694	18649	
LIGHT	Berkeley Breakwater Light 1	37° 51'	54.82"	22° 19'	04.64"	114		F-V-Vis. 04/15/79	18649	
LIGHT	Berkeley Breakwater Center Light	37° 51'	58.19"	22° 19'	06.63"	162		P-L-5, 4/11/79 Field Sketch #6 77B(P) 3694	18649	
LIGHT	Berkeley Breakwater Light 2	37° 52'	01.15"	22° 19'	08.67"	212		F-V-Vis 3/26/79	18649	
LIGHT	(Berkeley Marina North Light, 1979 (Field Position))	37° 52'	01.64"	22° 19'	01.88"	46.0		F-3-6-L 04/15/79	18649	
LIGHT	(Berkeley Marina South Light, 1979 (Field Position))	37° 51'	58.132"	22° 19'	00.565"	13.8		F-3-6-L 04/15/79	18649	
LIGHT	Berkeley Reef Light 1	37° 52'	27.41"	22° 19'	56.63"	1384		P-5, 04/04/79 77B(P) 3694	18649	
LIGHT	Brickyard Cove Harbor Light 1	37° 54'	25.82"	22° 22'	54.58"	1334		F-V-Vis. 03/25/79	18649	
LIGHT	Brickyard Cove Harbor Light 2	37° 54'	24.98"	22° 22'	53.62"	1310		F-V-Vis. 03/25/79	18449	
LIGHT	Richmond Harbor Channel Light 9	37° 54'	19.15"	122° 22'	27.92"	682		F-V-Vis. 03/25/79	18449	

No  
Corr  
L-12(02)

12.1.15

NOAA FORM 74-40  
(8-74)

NONFLOATING AIDS

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
FOR CHARTS

Replaces C&GS Form 567.  
 TO BE CHARTED  
 TO BE REVISED  
 TO BE DELETED

REPORTING UNIT  
Photogrammetric Br.  
PMC, Seattle, Wa.

STATE  
California

LOCALITY  
San Francisco and San Pablo Bays

DATE  
06/06/80

ORIGINAL REVIEW CRP.  
 QUALITY CONTROL BRANCH  
 COAST PILOT BRANCH  
(See reverse for responsible personnel)

ORIGINATING ACTIVITY  
 HYDROGRAPHIC PARTY  
 GEODETIC PARTY  
 PHOTO FIELD PARTY  
 COMPILATION ACTIVITY  
 FINAL REVIEWER

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
FOR CHARTS

OPR PROJECT NO. 411

JOB NUMBER CM-7704

SURVEY NUMBER TP-00527

DATE 06/06/80

REPORTING UNIT  
Photogrammetric Br.  
PMC, Seattle, Wa.

STATE  
California

LOCALITY  
San Francisco and San Pablo Bays

DATE  
06/06/80

ORIGINATING ACTIVITY  
 HYDROGRAPHIC PARTY  
 GEODETIC PARTY  
 PHOTO FIELD PARTY  
 COMPILATION ACTIVITY  
 FINAL REVIEWER

OPR PROJECT NO. 411

JOB NUMBER CM-7704

SURVEY NUMBER TP-00527

DATE 06/06/80

REPORTING UNIT  
Photogrammetric Br.  
PMC, Seattle, Wa.

STATE  
California

LOCALITY  
San Francisco and San Pablo Bays

DATE  
06/06/80

ORIGINATING ACTIVITY  
 HYDROGRAPHIC PARTY  
 GEODETIC PARTY  
 PHOTO FIELD PARTY  
 COMPILATION ACTIVITY  
 FINAL REVIEWER

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
FOR CHARTS

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	LATITUDE		LONGITUDE		METHOD AND DATE OF LOCATION (See instructions on reverse side)		CHARTS AFFECTED
		D.M. Meters	° ' "	D.P. Meters	° ' "	OFFICE	FIELD	
LIGHT	(Richmond Harbor Channel Light 10, 1979 (Preliminary Adjusted Field Position))	37° 54' 13.315"	22° 22' 41.0.5"	1410.5	740.9	F-3-6-L 04/04/79	18649	
LIGHT	Richmond Harbor Channel Light 12	37° 54' 05.89"	22° 21' 1407.2	182	57.60"	F-V-Vis. 03/29/79	18649	
LIGHT	Richmond Harbor Channel Light 14	37° 54' 13.04"	22° 21' 402	182	35.03"	F-V-Vis. 03/29/79	18649	
DAYBEACON	Richmond Harbor Channel Daybeacon 16 (Now listed as Buoy#16, Nov.1981,Final Review)	37° 54' 29.33"	122° 21' 904	904	34.21"	F-V-Vis. 03/29/79	18649	

Nd  
Co. V  
L-112(82)

12.30.5

NOAA FORM 76-40  
(8-74)

Replaces C&GS Form 367.

TO BE CHARTED  
 TO BE REVISED  
 TO BE DELETED

REPORTING UNIT  
(If field party, ship or office)  
Photogrammetric Branch  
PMC, Seattle, Wa.

STATE

California

LOCALITY

San Francisco and San  
Pablo Bays

DATE

06/06/80

OPR PROJECT NO.  
411

JOB NUMBER  
CM-7704

SURVEY NUMBER  
TP-06527

DATUM  
North American 1927

METHOD AND DATE OF LOCATION  
(See instructions on reverse side)

OFFICE  
FIELD

CHARTS  
AFFECTED

CHARTING  
NAME

DESCRIPTION  
(Record reason for deletion of landmark or aid to navigation.  
Show triangulation station names, where applicable, in parentheses)

LATITUDE

LONGITUDE

D.P. Meters

D.P. Meters

CHARTS  
AFFECTED

CHARTS  
AFFECTED

CHARTS  
AFFECTED

CHARTS  
AFFECTED

CHARTS  
AFFECTED

CHARTS  
AFFECTED

CHARTS  
AFFECTED

CHARTS  
AFFECTED

CHARTS  
AFFECTED

CHARTS  
AFFECTED

CHARTS  
AFFECTED

CHARTS  
AFFECTED

CHARTS  
AFFECTED

CHARTS  
AFFECTED

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY

HYDROGRAPHIC PARTY  
 GEODETIC PARTY  
 PHOTO FIELD PARTY  
 COMPILATION ACTIVITY  
 FINAL REVIEWER  
 QUALITY CONTROL & REVIEW GRP  
 COAST PILOT BRANCH  
(See reverse for responsible personnel)

No  
of  
L-112 (82)

7 of 5

NOAA FORM 76-40  
(8-74)

Replaces C&GS Form 567.

- TO BE CHARTED
- TO BE REVISED
- TO BE DELETED

The following objects HAVE  NOT

OPR PROJECT NO. 411

JOB NUMBER CM-7704

SURVEY NUMBER TP-00527

REPORTING UNIT (If not Party, Ship or Office)  
Photogrammetric Branch

CMC, Seattle, Wa

STATE California

LOCALITY San Francisco And San Pablo Bays

DATE 06/06/80

ORIGINATING ACTIVITY

HYDROGRAPHIC PARTY

GEODETIC PARTY

PHOTO FIELD PARTY

COMPILATION ACTIVITY

FINAL REVIEWER

QUALITY CONTROL & REVIEW GRP.

COAST PILOT BRANCH

(See reverse for responsible personnel)

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
**LANDMARKS FOR CHARTS**

LOCALITY

San Francisco And San Pablo Bays

DATE 06/06/80

ORIGINATING ACTIVITY

HYDROGRAPHIC PARTY

GEODETIC PARTY

PHOTO FIELD PARTY

COMPILATION ACTIVITY

FINAL REVIEWER

QUALITY CONTROL & REVIEW GRP.

COAST PILOT BRANCH

(See reverse for responsible personnel)

REPORTING UNIT (If not Party, Ship or Office)  
Photogrammetric Branch

CMC, Seattle, Wa

STATE California

LOCALITY San Francisco And San Pablo Bays

DATE 06/06/80

ORIGINATING ACTIVITY

HYDROGRAPHIC PARTY

GEODETIC PARTY

PHOTO FIELD PARTY

COMPILATION ACTIVITY

FINAL REVIEWER

QUALITY CONTROL & REVIEW GRP.

COAST PILOT BRANCH

(See reverse for responsible personnel)

DESCRIPTION  
(Record reason for deletion of landmark or aid to navigation.  
Show triangulation station names, where applicable, in parentheses)

(pinole, Hercules Powder Co., Tank, 1947)

DATUM North American 1927

POSITION

LATITUDE 38° 00' 14.10.1

LONGITUDE 122° 17' 06.329

D.P. Meters 154.4

METHOD AND DATE OF LOCATION

OFFICE 77B(P) 3474

FIELD Triang. Rec. Mar. 28, 1979

CHARTS AFFECTED 18652

Mc Coy  
L-112(82)

A415

Replaces C&GS Form 567.

TO BE CHARTED  
 TO BE REVISED  
 TO BE DELETED

REPORTING UNIT  
*(Perf. Ship or Office)*  
Photogrametric Br.,  
PWC, Seattle, Wa.

STATE  
California

LOCALITY  
San Francisco and San  
Pablo Bays

DATE  
06/06/80

OPR PROJECT NO.  
411

JOB NUMBER  
CN-7704

SURVEY NUMBER  
TP-00527

DATUM  
North American 1927

POSITION

LATITUDE  
° / ' / D.M. Meters

LONGITUDE  
° / ' / D.P. Meters

DESCRIPTION  
*(Record reason for deletion of landmark or aid to navigation.  
Show triangulation station names, where applicable, in parentheses)*

CHARTING  
NAME

METHOD AND DATE OF LOCATION  
*(See instructions on reverse side)*

OFFICE

FIELD

CHARTS  
AFFECTED

ORIGINATING ACTIVITY  
 HYDROGRAPHIC PARTY  
 GEODETIC PARTY  
 PHOTO FIELD PARTY  
 COMPILATION ACTIVITY  
 FINAL REVIEWER  
 QUALITY CONTROL & REVIEW BRP.  
 COAST PILOT BRANCH  
*(See reverse for responsible personnel)*

CHARTING NAME	DESCRIPTION	LATITUDE		LONGITUDE		METHOD AND DATE OF LOCATION		CHARTS AFFECTED
		° / ' / D.M. Meters	° / ' / D.P. Meters	° / ' / D.M. Meters	° / ' / D.P. Meters	OFFICE	FIELD	
TANK	(San Pablo, Amer. R. and S. S. Corp., Single Tank, 1947) Listed as lost in current control quad 371-244 and not recovered or verified by field editor.	37° 58' 1156.4	122° 21' 02.918"	18652	18649			
TANK	(San Pablo Amer. R. and S. S. Corp., Double Tank, 1947) Listed as lost in current control quad 371-224 and not recovered or verified by field editor.	37° 58' 858.8	122° 21' 07.45"	18652	18649			
	*Have been deleted from Chart, Nov. 1981 Final Review.							

No  
Coast  
1-1/2 (82)

8-5-85



NOAA FORM 76-10  
(8-74)

Replaces C&GS Form 567.

TO BE CHARTED  
 TO BE REVISED  
 TO BE DELETED

The following objects HAVE  BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.

OPR PROJECT NO. 411

REPORTING UNIT  
(Field Party, Ship or Office)  
CPM-33 photogrammetry  
Br

STATE  
California

LOCALITY  
San Francisco and  
San Pablo Bays

DATE  
5/27/80

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NONFLOATING AIDS FOR CHARTS

ORIGINATING ACTIVITY  
 HYDROGRAPHIC PARTY  
 GEODETIC PARTY  
 PHOTO FIELD PARTY  
 COMPILATION ACTIVITY  
 FINAL REVIEWER  
 QUALITY CONTROL & REVIEW GRP.  
 COAST PILOT BRANCH  
(See reverse for responsible personnel)

JOB NUMBER  
CM-7704

SURVEY NUMBER  
TP-00528

DATUM  
N.A. 1927

POSITION

LATITUDE

LONGITUDE

DESCRIPTION  
(Record reason for deletion of landmark or aid to navigation.  
Show triangulation station names, where applicable, in parentheses.)

METHOD AND DATE OF LOCATION  
(See instructions on reverse side)

CHARTS  
AFFECTED

FIELD

CHARTING NAME	LATITUDE	LONGITUDE	DESCRIPTION	METHOD AND DATE OF LOCATION		CHARTS AFFECTED
				OFFICE	FIELD	
LIGHT	37 48	122 28	Golden Gate Bridge South Pier Light (1964)	77B(P)3549- Mar. 18, 1977	Triang Rec. 10/78	18650
LIGHT	37 49	122 28	Golden Gate Bridge Mid Channel Fog Signal	77B(P)3548 Mar. 18, 1977	V-Vis 10/78	18650
LIGHT	38 48	122 27	(Anita Rock Light, 1965)	77B(P)3549 Mar. 18, 1977	Triang Rec. 10/78	18650
LIGHT	37 48	122 26	San Francisco Submarine Outfall Light	77B(P)3548 Mar. 18, 1977	V-Vis 10/78	18650
LIGHT	37 48	122 26	(San Francisco West Yacht Harbor Light 2, 1978 (Field Position))		F-4-6-L 10/78	18650
LIGHT	37 48	122 25	(San Francisco East Yacht Harbor Light 2, 1978 (Field Position))		F-4-6-L 10/78	18650
LIGHT	37 49	122 25	Alcatraz Light (Alcatraz Lighthouse, 1910)	77B(P)3493 Mar. 18, 1977	Triang Rec 10/78	18650
HORN	37 49	122 25	Alcatraz South Fog Signal		P-5-L 77B(P)3547	18650
HORN	37 49	122 25	Alcatraz North Fog Signal		F-4-8-L 11/78	18650
LIGHT	37 48	122 25	Pier 45 East Light (San Francisco Waterfront Pier 45 East Light, 1978 (Field Position))		F-4-6-L 11/78	18650

No  
Corr  
L-101(8)

TP00528

NOAA FORM 74-40  
(8-74)

Replaces C&GS Form 567.

TO BE CHARTED  
 TO BE REVISED  
 TO BE DELETED

REPORTING UNIT  
(Aid Party, Ship or Office)

CPM-33 Photogrammetry

PMC Seattle, Wa.

STATE

California

LOCALITY

San Francisco and  
San Pablo Bays

DATE

5/27/80

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NONFLOATING AIDS TO NAVIGATION FOR CHARTS

ORIGINATING ACTIVITY

- HYDROGRAPHIC PARTY
- GEODETIC PARTY
- PHOTO FIELD PARTY
- COMPILATION ACTIVITY
- FINAL REVIEWER
- QUALITY CONTROL & REVIEW GRP.
- COAST PILOT BRANCH

(See reverse for responsible personnel)

OPR PROJECT NO.

411

JOB NUMBER

CM-7704

HAVE NOT been inspected from seaward to determine their value as landmarks.

HAVE [X] BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.

DATUM

N.A. 1927

POSITION

CHARTING NAME  
*(Record reason for deletion of landmark or aid to navigation. Show triangulation station name, where applicable, in parentheses)*

LIGHT  
Pier 45 West Light (San Francisco Waterfront Pier 45 West Light, 1978 (Field Position))

AERO  
(Golden Gate Bridge North Aero Light, 1964)

AERO  
(Golden Gate Bridge South Aero Light, 1964)

LIGHT  
(Lime Point Light, 1977)

LIGHT  
(Yellow Bluff Light, 1978 (Field Position))

LATITUDE  
° / ' " D.M. Meters

37 48 1261.0

37 49 988.7

37 48 1563.7

37 49 982.8

37 50 111.764

LONGITUDE  
° / ' " D.P. Meters

122 25 10.043

122 28 40.705

122 28 35.872

122 28 38.028

122 28 16.033

METHOD AND DATE OF LOCATION  
*(See instructions on reverse side)*

OFFICE

FIELD

CHARTS AFFECTED

F-4-6-L  
11/78

Triang Rec.  
10/78

Triang Rec.  
10/78

Triang Rec.  
10/78

Triang Rec.  
10/78

P-3-6-L  
10/78

18650

18650

18650

18650

18650

18650

18650

18650

18650

18650

18650

18650

18650

18650

18650

18650

18650

18650

18650

18650

18650

18650

18650

18650

18650

18650

18650

18650

18650

18650

NOAA FORM 74-40  
(8-74)  
Replaces CHS Form 567.

**REPORTING UNIT**  
 TO BE CHARTED  
 TO BE REVISED  
 TO BE DELETED

**REPORTING UNIT**  
 (Ship or Office)  
 CPM-33 Photogrammetry Br.  
 PMC Seattle, Wa.

**STATE**  
 California

**LOCALITY**  
 San Francisco and  
 San Pablo Bays

**DATE**  
 5/27/80

**U.S. DEPARTMENT OF COMMERCE**  
**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION**  
**LANDMARKS FOR CHARTS**

**OPR PROJECT NO.** 411  
**JOB NUMBER** CM-7704  
**SURVEY NUMBER** TP-00528

**DESCRIPTION**  
 (Record reason for deletion of landmark or aid to navigation.  
 Show triangulation station name, where applicable, in parentheses.)

**CHARTING NAME**  
 COIT TOWER  
 (New object rejected, see addendum to comp. report  
~~FLAGPOLE at south edge of Sausalito~~)  
 DOME  
 Light inoperable  
 (San Francisco, Saint Francis Yacht  
 Club, Naval Beacon, 1932)  
 GABLE  
 (Sausalito, Powerhouse Gable, 1916)  
 RADIO TOWER  
 704 foot tower on a building  
 TOWER  
 U.S. Army Radio Station  
 Mars - A/W6USA  
 FLAGPOLE  
 U.S. Coast Guard Flagpole Pesidio  
 CUPOLA  
 U.S. Naval Degaussing Station  
 (Currently Not charted, December 1981)  
 WATER TANK  
 (Alcatraz Water Tank, 1940)

**DATUM**  
 N.A. 1927

**POSITION**

LATITUDE	LONGITUDE	POSITION	
		D.M. Meters	D.P. Meters
37 48 08.783	122 24 17.037	08.783	17.037
37 48 270.8	416.8	270.8	416.8
<del>37 50 48.34</del>	<del>122 28 34.86</del>	<del>48.34</del>	<del>34.86</del>
<del>37 50 1490</del>	<del>852</del>	<del>1490</del>	<del>852</del>
37 48 10.86	122 26 50.28	10.86	50.28
37 48 335	1230	335	1230
37 48 27.446	122 26 33.920	27.446	33.920
846.2	829.8	846.2	829.8
37 50 43.639	122 28 44.438	43.639	44.438
1345.4	1086.5	1345.4	1086.5
37 47 35.61	122 24 47.33	35.61	47.33
1098	1158	1098	1158
37 47 39.44	122 27 47.50	39.44	47.50
1216	1162	1216	1162
37 48 20.80	122 27 57.69	20.80	57.69
641	1411	641	1411
37 48 26.47	122 26 12.18	26.47	12.18
816	298	816	298
37 49 39.411	122 25 21.835	39.411	21.835
1215.1	534.0	1215.1	534.0

**METHOD AND DATE OF LOCATION**  
 (See instructions on reverse side)

OFFICE	FIELD	CHARTS AFFECTED
77B(P)3547 Mar. 18, 1977	Triang Rec. 10/78	18650
	<del>F-4-8-L</del> <del>10/78</del>	<del>18650</del>
77B(P)3548 Mar. 18, 1977	V-Vis 11/78	18650
77B(P)3548 Mar. 18, 1977	Triang Rec. 10/78	18650
77B(P)3492 Mar. 18, 1977	Triang Rec. 10/78	18650
77B(P)3494 Mar. 18, 1977	V-Vis. 10/78	18650
77B(P)3549 Mar. 18, 1977	V-Vis. 10/78	18650
	F-4-8-L 10/78	18650
77B(P)3548 Mar. 18, 1977	V-Vis 10/78	18650
77B(P)3493 Mar. 18, 1977	Triang Rec 10/78	18650

**ORIGINATING ACTIVITY**  
 HYDROGRAPHIC PARTY  
 GEODETIC PARTY  
 PHOTO FIELD PARTY  
 COMPILATION ACTIVITY  
 FINAL REVIEWER  
 QUALITY CONTROL & REVIEW GRP.  
 COAST PILOT BRANCH  
 (See reverse for responsible personnel)

N6  
 Corr  
 L-112(62)

NOAA FORM 76-40 (8-74)		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION			ORIGINATING ACTIVITY		
Replace C&GS Form 567.		LANDMARKS FOR CHARTS			<input type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> COMPILATION ACTIVITY <input type="checkbox"/> FINAL REVIEWER <input type="checkbox"/> QUALITY CONTROL & REVIEW GRP. <input type="checkbox"/> COAST PILOT BRANCH <small>(See reverse for responsible personnel)</small>		
REPORTING UNIT (Activity, Division, or Office)		LOCALITY			DATE		
<input checked="" type="checkbox"/> TO BE CHARTED <input type="checkbox"/> TO BE REVISED <input type="checkbox"/> TO BE DELETED		San Francisco and San Pablo Bays			5/27/80		
The following objects HAVE <input checked="" type="checkbox"/> BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS. <input type="checkbox"/> HAVE NOT BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.		STATE			METHOD AND DATE OF LOCATION <small>(See instructions on reverse side)</small>		
OPR PROJECT NO.		California			OFFICE		
JOB NUMBER		DATUM			FIELD		
CM-7704		N.A., 1927			77B(P)3547 Mar. 18, 1977		
TP-00528		POSITION			18650		
DESCRIPTION <small>(Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)</small>		LATITUDE			LONGITUDE		
PYRAMIDAL BUILDING Transamerica ( <del>Trans-America</del> Building, 1976)		° / ' " D.M. Meters			° / ' " D.P. Meters		
411		37 47 42.825 122 24 06.079			148.7		
JOB NUMBER CM-7704		SURVEY NUMBER TP-00528					
CHARTING NAME							
PYRAMIDAL BUILDING							
CHARTING NAME							
PYRAMIDAL BUILDING							
CHARTING NAME							
PYRAMIDAL BUILDING							
CHARTING NAME							
PYRAMIDAL BUILDING							
CHARTING NAME							
PYRAMIDAL BUILDING							
CHARTING NAME							
PYRAMIDAL BUILDING							
CHARTING NAME							
PYRAMIDAL BUILDING							
CHARTING NAME							
PYRAMIDAL BUILDING							

No. 687  
L-112 (8-2)

Replaces C&GS Form 567.

- TO BE CHARTED
- TO BE REVISED
- TO BE DELETED

REPORTING UNIT  
(If laid Party, Ship or Office)

CPM-33 Photogrammetry Br  
PMC Seattle, Wa.

STATE

California

LOCALITY

San Francisco and  
San Pablo Bays

DATE

5/27/80

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

**LANDMARKS FOR CHARTS**

The following objects HAVE  HAVE NOT  been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.

411

CM-7704

TP-00528

DATUM

N.A. 1927

POSITION

CHARTING NAME

DESCRIPTION  
(Record reason for deletion of landmark or aid to navigation.  
Show triangulation station names, where applicable, in parentheses.)

CUPOLA

U.S. Coast Guard Station Cupola, Not  
most prominent object in area. New  
name determined

TOWER

Destroyed, Currently Not charted  
Dec/81

STACK

Destroyed, Currently Not charted Dec/81  
(San Francisco, Black Point Stack, 1916)

BUILDING

\*Building is not prominent, area is sky-  
lined by large buildings. Area adequately  
represented by PYRAMIDAL BUILDING  
-37 47.5

LATITUDE

37 48

37 48

37 48

LONGITUDE

122 27

122 27

122 25

D.M. Meters

19.8

610

11.6

358

28.2

869

OFFICE

77B(P) 3549  
Mar. 18, 1977

77B(P) 3549  
Mar. 18, 1977

77B(P) 3494  
Mar. 18, 1977

FIELD

V-Vis  
10/78

V-Vis. (Dest.)  
10/78

V-Vis. (Dest.)  
10/78

\*V-VIS  
10/78

METHOD AND DATE OF LOCATION  
(See instructions on reverse side)

CHARTS  
AFFECTED

18650

18650

18650

18650

ORIGINATING ACTIVITY

- HYDROGRAPHIC PARTY
  - GEODETIC PARTY
  - PHOTO FIELD PARTY
  - COMPILATION ACTIVITY
  - FINAL REVIEWER
  - QUALITY CONTROL & REVIEW GRP.
  - COAST PILOT BRANCH
- (See reverse for responsible personnel)

No  
Copy  
L-112(82)

77-00529  
 31 Oct 8

NOAA FORM 76-40 (8-74)		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION				ORIGINATING ACTIVITY	
NONFLOATING AIDS		FOR CHARTS		DATE		<input type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> COMPILATION ACTIVITY <input type="checkbox"/> FINAL REVIEWER <input type="checkbox"/> QUALITY CONTROL & REVIEW SRP <input type="checkbox"/> COAST PILOT BRANCH (See reverse for responsible personnel)	
<input checked="" type="checkbox"/> TO BE CHARTED <input type="checkbox"/> TO BE REVISED <input type="checkbox"/> TO BE DELETED		REPORTING UNIT Field Party, Ship or Office	STATE	LOCALITY	DATE		
		Photogrammetric Branch	California	San Francisco and San Pablo Bays	07/08/80		
<input type="checkbox"/> The following objects HAVE NOT been inspected from seaward to determine their value as landmarks. <input checked="" type="checkbox"/> HAVE		PNC, Seattle, WA. SURVEY NUMBER TP-00529		DATUM North American 1927			
CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses.)	LATITUDE		LONGITUDE		METHOD AND DATE OF LOCATION (See instructions on reverse side)	CHARTS AFFECTED
		° / ' / ''	D.M. Meters	° / ' / ''	D.P. Meters		
BELL	Pier I Fog Signal	37 48 58.68	1809	122 21 05.15	126	P-F-L, 11-78	18650
BELL	Pier J Fog Signal	37 49 00.65	20	122 20 59.16	1447	P-F-L, 11-78	18650
BELL	Pier K Fog Signal	37 49 02.59	80	122 20 53.23	1302	P-F-L, 11-78	18650
	San Francisco Waterfront						
LIGHT	(San Francisco Waterfront Pier 27 - 29 West Light, 1978 (Field Position))	37 48 27.609	851.2	122 23 59.327	1451.8	F-4-6-L 11-78	18650
LIGHT	(San Francisco Waterfront Pier 27 - 29 East Light, 1978 (Field Position))	37 48 26.394	813.8	122 23 57.687	1411.1	F-4-6-L, 11-78	18650
LIGHT	(San Francisco Waterfront Pier 17 Light, 1978 (Field Position))	37 48 10.914	336.5	122 23 45.624	1116.1	F-4-6-L, 11-78	18650
LIGHT	(San Francisco Waterfront Pier 1 North Light, 1978 (Field Position))	37 47 53.648	1654.0	122 23 31.437	769.1	F-4-6-L, 11-78	18650
LIGHT	(San Francisco Waterfront Pier 1 South Light, 1978 (Field Position))	37 47 52.928	1631.8	122 23 30.766	752.7	F-4-6-L, 11-78	18650
BELL	Pier 26 Fog Signal	37 47 22.51	694	122 23 02.90	71	F-4-6-L, 11-78	18650

No Copy L-11(82)

NOAA FORM 76-40  
(8-74)

Replaces C&GS Form 367.

**NONFLOATING AIDS**

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
**FOR CHARTS**

ORIGINATING ACTIVITY  
 HYDROGRAPHIC PARTY  
 GEODETIC PARTY  
 PHOTO FIELD PARTY  
 COMPILATION ACTIVITY  
 FINAL REVIEWER  
 QUALITY CONTROL & REVIEW GRP.  
 COAST PILOT BRANCH  
*(See reverse for responsible personnel)*

REPORTING UNIT  
*(If not Party, Ship or Office)*  
Photogrammetric Branch  
PNC, Seattle, Wa.

STATE  
California

LOCALITY  
San Francisco and San  
Pablo Bays

DATE  
07/08/80

The following objects  HAVE NOT been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO. CM-7704

JOB NUMBER TP-00529

DATUM  
North American 1927

METHOD AND DATE OF LOCATION  
*(See instructions on reverse side)*

CHARTING NAME	DESCRIPTION <i>(Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)</i>	LATITUDE		LONGITUDE		FIELD	CHARTS AFFECTED
		° /	'	° /	'		
	San Francisco - Oakland Bay Bridge West Crossing						
SIREN	Pier A Fog Signal	37 47	27.05 834	122 23	04.66 114	P-5-L 11-78	18650
SIREN	Pier B Fog Signal	37 47	43.76	122 22	45.86	P-5-L 11-78	18650
BELL	Pier C East Side Fog Signal	37 47	54.33 1675	122 22	35.52 869	P-F-L 11-78	18650
BELL	Pier C West Side Fog Signal	37 47	53.00 1634	122 22	37.08 907	P-F-L 11-78	18650
SIREN	Pier D Fog Signal	37 48	03.67 113	122 22	26.57 650	P-F-L 11-78	18650
SIREN	Pier E Fog Signal	37 48	19.92 614	122 22	07.24 177	P-F-L 11-78	18650
	San Francisco - Oakland Bay Bridge East Crossing						
SIREN	Pier C Fog Signal	37 48	51.99 1603	122 21	27.11 663	P-F-L 11-78	18650
SIREN	Pier H Fog Signal	37 48	56.50 1742	122 21	10.88 266	P-F-L 11-78	18650

28 28

N. 607  
L-11262

2. 3. 28

NOAA FORM 78-40 (8-74)									
U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION									
NONFLOATING AIDS FOR CHARTS									
Replaces C&GS Form 567.		REPORTING UNIT (If not Party Ship or Office) Photogrammetric Branch PNC, Seattle, Wa		STATE California		LOCALITY San Francisco and San Pablo Bays		DATE 07/08/80	
The following objects HAVE <input checked="" type="checkbox"/> BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.		JOB NUMBER CM-7704		SURVEY NUMBER TP-00529		DATUM North American 1927		METHOD AND DATE OF LOCATION (See instructions on reverse side)	
CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses.)	LATITUDE		LONGITUDE		OFFICE	FIELD	CHARTS AFFECTED	
		D.M. Meters	D.P. Meters	D.M. Meters	D.P. Meters				
	Oakland Inner Harbor								
LIGHT	Oakland Inner Harbor Light 2	37 47	51.86 1599	122 19	53.46 1308	77B(P)3513 18 Mar., 1977	V-Vis., 11-78	18650	
	Emeryville Marina								
LIGHT	(Emeryville Marina Light 1, 1978 (Field Position))	37 50	25.292 779.8	122 19	10.490 256.5		F-3-6-L, 11-78	18650	
LIGHT	(Emeryville Marina Light 2, 1978 (Field Position))	37 50	24.242 747.4	122 19	09.246 226.1		F-3-6-L, 11-78	18650	
	San Francisco Bay								
LIGHT	(Treasure Island North End Light 6, 1977 (Field Position))	37 49	59.877 1846.1	122 22	17.071 417.5	77B(P)3545 18 Mar. 1977	F-3-6-L, 03-77	18650	
LIGHT	Treasure Island North End Light 8	37 49	51.25 1580	122 21	55.53 1358	77B(P)3545 18 Mar. 1977	V-Vis 11-78	18650	
LIGHT	(Berkeley Breakwater Light 2, 1978 (Field Position)) Berkeley Marina Channel Light 2	37 50	52.109 1606.6	122 21	34.089 833.4	77B(P)3445 18 Mar. 1977	F-3-6-L 11-78	18650	

No  
Corr.  
L-112(8)



8

9

Pg. 4 of 8

NOAA FORM 78-40 (8-74)		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION				ORIGINATING ACTIVITY		
NONFLOATING AIDS		FOR CHARTS		DATE		<input type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> COMPILATION ACTIVITY <input type="checkbox"/> FINAL REVIEWER <input type="checkbox"/> QUALITY CONTROL & REVIEW GRP. <input type="checkbox"/> COAST PILOT BRANCH (See reverse for responsible personnel)		
Replaces C&GS Form 567. <input checked="" type="checkbox"/> TO BE CHARTED <input type="checkbox"/> TO BE REVISED <input type="checkbox"/> TO BE DELETED		REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY		DATE		
		Photogrammetric Branch	California	San Francisco and San Pablo Bays		07/08/80		
The following objects HAVE <input checked="" type="checkbox"/> <b>HAVE NOT</b> <input type="checkbox"/> been inspected from seaward to determine their value as landmarks. OPR PROJECT NO.		JOB NUMBER	DATUM <th colspan="2">POSITION</th> <th colspan="2">METHOD AND DATE OF LOCATION (See Instructions on reverse side)</th>	POSITION		METHOD AND DATE OF LOCATION (See Instructions on reverse side)		
		CH-7704	North American 1927					
CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	LATITUDE		LONGITUDE		OFFICE	FIELD	CHARTS AFFECTED
		° / ' / D.M. Meters	° / ' / D.P. Meters	° / ' / D.M. Meters	° / ' / D.P. Meters			
BELL	Pier 32 Fog Signal	37 47	09 50	122 23	00 57		P-5, 11-78 77B(P)3495	18650
LIGHT (HORN)	Yerba Buena Island Light (Yerba Buena Lighthouse, 1919)	37 48	26 46.2	122 21	40 17.7	77B(P)2542 4 Mar., 1977	Triang. Rec. 11-78	18650
LIGHT	Yerba Buena Island Wharf Light, 1978 (Field Position)	37 48	29 42.6	122 21	35 86.2		F-3-6-L, 11-78	18650
LIGHT	Oakland Outer Harbor							
LIGHT	Oakland Outer Harbor Range B Front Light	37 48	57 50	122 19	25 23	77B(P)2543 4 Mar., 1977	V-Vis. 11-78	18650
LIGHT	Oakland Outer Harbor Range B Rear Light (Oakland Outer Harbor East Side Beacon 337, 1948)	37 49	03 16.3	122 19	15 06.7	77B(P)2542 4 Mar., 1977	Triang. Rec. 1976	18650
LIGHT	Oakland Outer Harbor Range A Front Light	37 48	56 53	122 19	37 98	77B(P)2542 4 Mar., 1977	V-Vis. 11-78	18650
LIGHT	(Oakland Outer Harbor Range A Rear Light, 1978 (Field Position))	37 49	02 13.4	122 19	27 09.4	77B(P)2542 4 Mar., 1977	F-3-6-L, 11-78	18650
LIGHT	(Oakland Outer Harbor Entrance Channel Exposed Cable Barrier North Light, 1978 (Field Position))	37 48	41 45.8	122 20	14 07.0		F-3-6-L, 11-78	18650
LIGHT	(Oakland Outer Harbor Entrance Channel Exposed Cable Barrier South Light, 1978 (Field Position))	37 48	40 96.8	122 20	14 12.2		F-3-6-L, 11-78	18650
LIGHT	(Oakland Outer Harbor Entrance Channel Exposed Cable Barrier South Light, 1978 (Field Position))	37 48	1263.1		345.4			

46 Cont  
L-112(82)

250-8

NOAA FORM 76-40 (8-74)		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION				ORIGINATING ACTIVITY	
NONFLOATING AIDS		FOR CHARTS		METHOD AND DATE OF LOCATION (See instructions on reverse side)		CHARTS AFFECTED	
REPLACES CGCS FORM 567.		REPORTING UNIT (Field Party, Ship or Office)		DATE			
TO BE CHARTED		PHOTOGRAMMETRIC BRANCH		07/08/80			
TO BE REVISED		PNC, Seattle, Wa.					
TO BE DELETED		Pablo Bays					
The following objects HAVE <input checked="" type="checkbox"/> BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.		DATUM					
OPR PROJECT NO.		SURVEY NUMBER		North American 1927			
JOB NUMBER		TP-00529					
CM-7704		California		San Francisco and San Pablo Bays			
STATE		LOCALITY					
DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)		LATITUDE		LONGITUDE			
		D.M. Meters		D.P. Meters			
		° / ' "		° / ' "			
AEROBEACON	San Francisco Oakland Bay Bridge Pier A Aerobeacon	37 47	26.92 830	122 23	04.99 122	F-L-Vis. 11/78	18650
AEROBEACON	San Francisco Oakland Bay Bridge Pier B Aerobeacon	37 47	44.34 1367	122 22	46.34 1134	F-L-Vis. 11/78	18650
AEROBEACON	San Francisco Oakland Bay Bridge Pier E Aerobeacon	37 48	20.49 632	122 22	07.60 186	F-L-Vis. 11/78	18650
AEROBEACON	(San Francisco Oakland Bay Bridge Pier G Aerobeacon, 1978 (Field Position))	37 48	51.721 1594.6	122 21	26.906 658.1	F-3-6-L 11/78	18650
AEROBEACON	(San Francisco Oakland Bay Bridge Pier H Aerobeacon, 1978 (Field Position))	37 48	56.950 1755.8	122 21	10.683 261.3	F-3-6-L 11/78	18650

No  
Cor  
= 112  
(82)

NOAA FORM 78-40 (8-74)  
 Replaces CGCS Form 567.

**NONFLOATING AIDS FOR CHARTS**

U.S. DEPARTMENT OF COMMERCE  
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

<input type="checkbox"/> TO BE CHARTED <input checked="" type="checkbox"/> TO BE REVISED <input type="checkbox"/> TO BE DELETED	REPORTING UNIT (Field Party, Ship or Office) Photogrammetric Branch PNC, Seattle, Wa.	STATE California	LOCALITY San Francisco and San Pablo Bays	DATE 07/08/80	ORIGINATING ACTIVITY <input type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> COMPILATION ACTIVITY <input type="checkbox"/> FINAL REVIEWER <input type="checkbox"/> QUALITY CONTROL & REVIEW GRP. <input type="checkbox"/> COAST PILOT BRANCH (See reverse for responsible personnel)
---	--	---------------------	--	------------------	---

The following objects HAVE  BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.

CHARTING NAME	JOB NUMBER	SURVEY NUMBER	DATUM		POSITION		METHOD AND DATE OF LOCATION		CHARTS AFFECTED
			LATITUDE	LONGITUDE	OFFICE	FIELD			
LIGHT	CM-7704	TP-00529	North American 1927	North American 1927					
(Oakland Harbor Lighthouse, 1919) Lighthouse destroyed and replaced by									
Oakland Inner Harbor Light 1			37 48	122 19	50.32	1231	V.-Vis. 11/78		18650

No. 607  
 1-11-82

1470

NOAA FORM 76-40 (8-74)  
 Replaces C&GS Form 567.

**LANDMARKS FOR CHARTS**

U.S. DEPARTMENT OF COMMERCE  
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

REPORTING UNIT: Photoграмmetric Branch  
 (Field Party, Ship or Office)  
 POC: Seattle, Wa.

STATE: California  
 LOCALITY: San Francisco and San Pablo Bays

DATE: 07/08/80

CHARTS AFFECTED:  HYDROGRAPHIC PARTY  
 GEODETIC PARTY  
 PHOTO FIELD PARTY  
 COMPILATION ACTIVITY  
 FINAL REVIEWER  
 QUALITY CONTROL & REVIEW GRP.  
 COAST PILOT BRANCH  
 (See reverse for responsible personnel)

OPR PROJECT NO.: CM-7704  
 SURVEY NUMBER: TP-00529  
 DATUM: North American 1927

The following objects HAVE  BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses.)	LATITUDE		LONGITUDE		METHOD AND DATE OF LOCATION (See instructions on reverse side)	CHARTS AFFECTED
		° / ' "	° / ' "	D.P. Meters	D.P. Meters		
RADIO TOWER	Center of three, KDIA	37 49	122 19	09.81	240	77B(P)3514 18 Mar. 1977	18650
RADIO TOWER	West of three, KDIA	37 49	122 19	11.57 283	240	77B(P)3514 18 Mar. 1977	18649
RADIO TOWER	(Treasure Island Red and White Radio Tower, 1978 (Field Position))	37 49	122 22	13.188 322.6	240	77B(P)3546 18 Mar. 1977	18650
CUPOLA	(Treasure Island Building One Cupola, 1978 (Field Position))	37 49	122 22	10.977 268.5	240	77B(P)3514 18 Mar. 1977	18650
RADAR TOWER	(USCG Vessel Traffic System Radar YBI, 1976 (Field Position))	37 48	122 21	34.964 1078.0	51.400 1257.3	77B(P)3514 18 Mar. 1977	18650
TANK	(Oakland Navy Supply Depot Checkered Tank, 1947)	37 48	122 19	28.021 863.9	11.606 283.9	77B(P)2599 .04 Mar. 1977	18650
TOWER	Octagonal wooden tower, 40 ft.	37 48	122 20	14.37 443	22.69 555		18650
TANK	Wooden Tank	37 48	122 19	01.40 43	39.53 967		18650
MARKER	(Oakland Estuary West Rear Range, 1953)	37 47	122 19	56.296 1737.7	38.909 951.9		18650
MARKER	Measured Nautical Mile Marker	37 47	122 19	48.55 1497	41.42 1013		18650

No Corr  
 L-112(82)  
 1  
 D-100(76)

No Corr  
 L-100(76)

No Corr  
 L-112(82)

29.80

NOAA FORM 76-40 (8-74)				U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION				ORIGINATING AGENCY	
REPLACES C&GS Form 567.		REPORTING UNIT (Field Party, Ship or Office)		LOCALITY		DATE		ACTIVITY	
<input checked="" type="checkbox"/> TO BE CHARTED	<input type="checkbox"/> TO BE REVISED	Photogrammetric Branch		San Francisco and San Pablo Bays		07/08/80		<input type="checkbox"/> HYDROGRAPHIC PARTY	<input type="checkbox"/> GEODETIC PARTY
<input type="checkbox"/> TO BE DELETED	The following objects HAVE <input checked="" type="checkbox"/> BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.		STATE		SURVEY NUMBER		<input checked="" type="checkbox"/> PHOTO FIELD PARTY		<input type="checkbox"/> COMPILATION ACTIVITY
OPR PROJECT NO.	JOB NUMBER	CALIFORNIA		TE-00529		TE-7704		<input type="checkbox"/> FINAL REVIEWER	<input type="checkbox"/> QUALITY CONTROL & REVIEW GRP.
	CM-7704	North American 1927		DXTUM		DXTUM		<input type="checkbox"/> COAST PILOT BRANCH	(See reverse for responsible personnel)
CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses.)	LATITUDE		LONGITUDE		OFFICE	METHOD AND DATE OF LOCATION (See instructions on reverse side)	CHARTS AFFECTED	
		° / ' / " D.M. Meters	° / ' / " D.P. Meters	° / ' / " D.M. Meters	° / ' / " D.P. Meters			FIELD	
MARKER	Measured Nautical Mile Marker	37 47	48.28 1487	122 19	41.52 1016		F-4-8-L 11-78		18650
TOWER	(San Francisco Ferry Building Flagstaff, 1910)	37 47	43.804 1305.5	122 23	33.022 808.1	77B(P)2523 04 Mar., 1977	Triang. Rec. 11-78		18650
TOWER ("76")	(San Francisco Union Oil Co. Bldg. Tower, 1978 (Field Position))	37 47	09.761 300.9	122 23	28.898 707.1	77B(P)2524 18 Mar., 1977	F-3-6-L 11-78		18650
CLOCK TOWER	(San Francisco Schmidt Building Tower, 1932)	37 47	01.424 43.9	122 23	34.798 851.5	77B(P)2524 4 Mar., 1977	Triang. Rec. 11-78		18650

No. Corr. L-11203

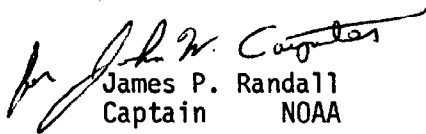
APPROVAL SHEET  
DESCRIPTIVE REPORT TO ACCOMPANY  
HYDROGRAPHIC SURVEY

H-9794

RA-10-3-78

In producing this sheet, standard procedures were observed in accordance with the Provisional Hydrographic Manual, PMC OORDER, and the Instruction Manual for Automated Hydrographic Surveys. The data was examined daily during the execution of the survey.

The boatsheet and accompanying records have been examined and are complete and adequate for charting purposes and are approved.

  
James P. Randall  
Captain NOAA

May 31, 1979

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SURVEY

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Pacific Marine Center:

Hourly heights are approved for

Tide Station Used (NOAA Form 77-12): 941-4290 San Francisco, CA  
941-4317 San Francisco Bay, CA

Period: September 26 - November 18, 1978

HYDROGRAPHIC SHEET: H-9794

OPR: L 123

Locality: San Francisco Bay, California

Plane of reference (mean lower low water): 5.75 ft. - San Francisco (941-4290)  
3.25 ft. - San Francisco Bay (941-4317)

Height of Mean High Water above Plane of Reference is  
5.5 ft. - zone 1; 5.2 ft. - zones 2 and 3

Remarks: Recommended zoning:

- (1) South of a line extending from 37°47.9'N, 122°23.8'W, to 37°49.1'N, 122°22.0'W, and then to 37°49.3'N, 122°19.8'W zone direct on San Francisco Bay.
- (2) North and east of a line extending from the northwest tip of Treasure Island to Point Blunt on Angel Island zone on San Francisco applying +20 minute time correction and range ratio xl.03.
- (3) South and west of the line in (2) zone on San Francisco applying +10 minute time correction and range ratio xl.03.

*James R. Hubbard*  
Chief, Datums and Information Branch

GEOGRAPHIC NAMES

H-9794

Name on Survey	A ON SURVEY NO. 18649, 18650 B ON PREVIOUS SURVEY NO. C ON U.S. QUADRANGLE MAPS D FROM LOCAL INFORMATION E ON LOCAL MAPS F P.O. GUIDE OR MAP G RAND McNALLY ATLAS H U.S. LIGHT LIST I MANU-SCRIPTS									
	A	B	C	D	E	F	G	H	I	
ALCATRAZ ISLAND	X									1
ANGEL ISLAND	X									2
AQUATIC PARK	X									3
BIRD ISLAND								X		4
BLACK PT	X									5
BLOSSOM ROCK	X									6
BLUFF POINT								X		7
BROOKS ISLAND	X									8
FISHERMANS WHARF								X		9
NORTH PT	X									10
PIER 9	X									11
PIER 15	X									12
PIER 17	X									13
PIER 19	X									14
PIER 23	X									15
PIER 27	X									16
PIER 29	X									17
PIER 31	X									18
PIER 33	X									19
PIER 35	X									20
PIER 39	X									21
PIER 41	X									22
PIER 45	X									23
PT BLUNT	X									24
PT CAMPBELL	X									25



GEOGRAPHIC NAMES

Name on Survey	Source of Name										
	A	B	C	D	E	F	G	H	K		
	<small>           ON CHART NO. 18649, 18650            ON PREVIOUS SURVEY            CON U.S. QUADRANGLE MAPS            FROM LOCAL INFORMATION            T-5293            BP-35006            RAND McNALLY ATLAS            U.S. LIGHT LIST            TPT Sheets         </small>										
PIER 43					X						1
PIER 47A						X					2
PT SIMPTON	X										3
QUARRY PT	X										4
RACCOON STRAIT	X										5
SAN FRANCISCO	X										6
SAN FRANCISCO BAY	X										7
SAN FRANCISCO -											8
OAKLAND BAY BRIDGE	X										9
SOUTHAMPTON SHOAL	X										10
TELEGRAPH HILL	X										11
TREASURE ISLAND	X										12
YERBA BUENA ISLAND	X										13
											14
											15
											16
											17
											18
											19
											20
											21
											22
											23
											24
											25

NOAA FORM 77-27(H) (9-83)		U.S. DEPARTMENT OF COMMERCE		REGISTRY NUMBER		
HYDROGRAPHIC SURVEY STATISTICS				H-9794		
RECORDS ACCOMPANYING SURVEY: To be completed when survey is processed.						
RECORD DESCRIPTION		AMOUNT		RECORD DESCRIPTION		
SMOOTH SHEET		1		SMOOTH OVERLAYS: POS., ARC, EXCESS		
DESCRIPTIVE REPORT		1		FIELD SHEETS AND OTHER OVERLAYS		
DESCRIP- TION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR- GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS	
ACCORDION FILES						
ENVELOPES						
VOLUMES	1					
CAHIERS	3					
BOXES						
SHORELINE DATA						
SHORELINE MAPS (List):						
PHOTOBATHYMETRIC MAPS (List):						
NOTES TO THE HYDROGRAPHER (List):						
SPECIAL REPORTS (List):						
NAUTICAL CHARTS (List):						
OFFICE PROCESSING ACTIVITIES The following statistics will be submitted with the cartographer's report on the survey						
PROCESSING ACTIVITY				AMOUNTS		
				VERIFICATION	EVALUATION	TOTALS
POSITIONS ON SHEET						6190
POSITIONS REVISED						484
SOUNDINGS REVISED						510
CONTROL STATIONS REVISED						
				TIME-HOURS		
				VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION						
VERIFICATION OF CONTROL						
VERIFICATION OF POSITIONS				293		293
VERIFICATION OF SOUNDINGS				304		304
VERIFICATION OF JUNCTIONS						
APPLICATION OF PHOTOBATHYMETRY						
SHORELINE APPLICATION/VERIFICATION						
COMPILATION OF SMOOTH SHEET				228		228
COMPARISON WITH PRIOR SURVEYS AND CHARTS				72	18	90
EVALUATION OF SIDE SCAN SONAR RECORDS						
EVALUATION OF WIRE DRAGS AND SWEEPS						
EVALUATION REPORT				215	114	329
GEOGRAPHIC NAMES						
OTHER: Digitizing						
*USE OTHER SIDE OF FORM FOR REMARKS				TOTALS	1112	132
Pre-processing Examination by A. E. Eichelberger				Beginning Date 4/27/79	Ending Date 4/2/79	
Verification of Field Data by T. O. Jones				Time (Hours) 825	Ending Date 2/13/81	
Verification Check by J.H. Stringham, J.S. Green				Time (Hours) 67	Ending Date 3/3/81	
Evaluation and Analysis by T.O. Jones, J.S. Green				Time 132	Ending Date 7/22/86	
Inspection by D.Hill				Time (Hours) 13	Ending Date 8/22/86	

PACIFIC MARINE CENTER  
EVALUATION REPORT  
H-9794

1. INTRODUCTION

H-9794 is a basic hydrographic survey of a portion of San Francisco Bay, conducted in accordance with the Project Instructions for OPR-L123-RA-78, San Francisco Bay, California, dated August 10, 1978, Change 1, dated August 21, 1978 and Change 2, dated August 28, 1978.

This survey extends from the San Francisco waterfront and latitude 37°48'00"N north to 37°53'50"N and between longitudes 124°21'00"W and 122°26'00"W. This includes the downtown San Francisco waterfront from Aquatic Park to Pier 15, Alcatraz Island, Treasure and Yerba Buena Islands, eastern Angel Island and southern Brooks Island. Survey depths range from 186 feet south of Point Blunt to the MLLW at Brooks Island. This area is characterized by strong currents and a changing sea floor to the south and west and a shoal, mud bottom to the northeast. The area is heavily developed and trafficked.

H-9794 was previously approved for chart application on May 14, 1981. The quality control inspection noted discrepancies in the survey, so it was returned to the marine center for additional processing. It was further determined that additional field work would be required to resolve some of the noted discrepancies. This additional field work was accomplished in 1983 by NOAA Ship RAINIER and processed as FE-242. The areas superseded by FE-242 are delineated on H-9794. The evaluator's report, the smooth sheet, and the automated file have been revised in accordance with the quality control inspector's comments.

Lead line soundings along the pier faces were plotted on an overlay which has been inserted into the Descriptive Report. The soundings are shown at half-size so as to incorporate more data and avoid congestion with the pier faces and depth curves. It must be emphasized that the overlay shows shoaler depths than those shown on the smooth sheet.

Soundings plotting on piers were manually offset. The approximate positions of the areas of these soundings are;

Latitude 37°49'47"N, Longitude 122°21'54"W	Treasure Island
Latitude 37°48'56"N, Longitude 122°22'09"W	Treasure Island
Latitude 37°48'30"N, Longitude 122°25'48"W	Black Point
Latitude 37°48'30"N, Longitude 122°25'00"W	Fisherman's Wharf
Latitude 37°48'35"N, Longitude 122°24'39"W	Piers 39 and 41
Latitude 37°49'12"N, Longitude 122°22'27"W	Treasure Island
Latitude 37°48'08"N, Longitude 122°23'50"W	Pier 17
Latitude 37°48'15"N, Longitude 122°24'00"W	Pier 27

Duplicate position numbers exist for positions 2046, 2047, 2051 and 2052.

Projection parameters used to prepare the smooth field sheet have been revised to center the hydrography on the smooth sheet. Parameters used by the Pacific Marine Center are appended to the smooth printout.

Predicted tides for the Presidio tide station were used to reduce soundings on the field sheet. Approved tides from San Francisco tide station were used for the final reduction on the smooth sheet.

## 2. CONTROL AND SHORELINE

Horizontal control and positioning are adequately described in Sections F and G of the Descriptive Report, and the Horizontal Control Report, OPR-L123-RA-78.

Horizontal control station positions used to plot this survey are published and unadjusted field positions based on the North American 1927 Datum.

Three stations, 106, 313, and 344 (on Treasure Island and Yerba Buena Island), on the present survey were found to be misplotted by as much as 5 meters on reviewed shoreline map TP-00529. Two stations, 313 and 344 (a radar tower on Yerba Buena Island and a radio tower on Treasure Island), are charted landmarks. The present survey positions should be used for these landmarks.

The shoreline was applied using the following reviewed Class I manuscripts:

	<u>Scale</u>	<u>Dates of Photography</u>	<u>Date of Field Edit</u>
TP-00526	1:20,000	March 1977	November 1978 April 1979
TP-00527	1:20,000	March 1977	April 1979
TP-00528	1:10,000	March 1977 May 1981	October 1978
TP-00529	1:10,000	March 1977	November 1978

The shoreline in the vicinity of North Point, latitude 37°48'36"N, longitude 122°24'36"W, at piers 41, 39, and former pier 37 (Presurvey Review Item 12) has undergone major reconstruction (which includes a new marina) since the original compilation of TP-00528. During final review this section of shoreline was recompiled from revision photography of May 1981. The new high water line delineation is shown on the present smooth sheet.

The rock on the east side of Bird Island is not shown on TP-00527 (see position 1593, latitude 37°53'45"N, longitude 122°21'28"W). Recommend charting as a rock uncovering 7 feet at MLLW.

The two piers shown on the smooth sheet along the south shore of Brooks Island in the vicinity of latitude 37°53'39"N, longitude 122°21'15"W are plotted from the field sheet without supporting positional information. They are shown as submerged ruins from comments in the raw records. The area is depicted as foul with ruins on TP-00527.

TP-00528 depicts the ruins of Berkeley Pier as a dashed double line feature and on the adjoining manuscript, TP-00527, it is shown as a dashed single line. This is due to the difference in scales between TP-00527 (1:20,000) and TP-00528 (1:10,000) and it is recommended that the ruins remain as charted.

### 3. HYDROGRAPHY

Crosslines are in excellent agreement with the main scheme soundings. Soundings agree within one foot. The differences are probably caused by a slight difference in positioning.

The bottom configuration and least depths are adequately determined. Standard depth curves could be adequately drawn except along the waterfront. The 36-foot and 90-foot supplementary curves were added to the smooth sheet to conform to the published chart. The 90-foot supplementary curve is inadvertently shown in violet.

In the vicinity of latitude 37°53'20"N, longitude 122°25'50"W, north of Angel Island, for an approximate radius of 300 meters, significant sand ridges rising up to 15 feet off the bottom were detected on the graphic record. The soundings were scanned and only the shoalest values were selected for plotting on the smooth sheet.

There were 176 bottom samples taken during this survey and it was determined that the bottom consists mainly of sand and mud.

### 4. CONDITION OF SURVEY

The hydrographic records and reports are adequate and conform to the requirements of the Hydrographic Manual, 4th edition, revised through Change 3, with the exception of:

a. The station listed as Berkeley Breakwater Light 2 1978 (Signal 322) is Berkeley Marina Channel Light 2 in the 1978 Light List. This difference should have been noted in the Descriptive Report (Section 4.5.13.1 of the Hydrographic Manual).

b. Numerous rocks and islets around Angel Island were not investigated by the hydrographer (Section 4.1.1.7 of the Hydrographic Manual). These features were carried forward as awash from the prior survey.

c. A Chart Adequacy Survey of 1976 (Chart Letter 716 of 1976, item 55) substantiates the existence of ruins around Treasure Island and Yerba Buena Island. The present survey is considered deficient in that it failed to ascertain least depths with any suitable method such as drift soundings with a hand lead, intensive development by echo sounder, or possibly an improvised wire drag in areas where piers and ruins existed in the prior survey and on the charts. As a result, the ruins had to be carried forward from the prior survey during office processing (Section 4.5.8 of the Hydrographic Manual).

d. The pier areas at North Point were not adequately investigated. As a result, additional field work is being requested to confirm or disprove the existence of pier ruins.

e. Soundings along pier faces were controlled using the "see field sheet method" and subsequently provided with pseudofixes in the field to facilitate plotting. Many of the angles (resection angles) provided were geometrically weak which resulted in erroneous positions. "See field sheet" soundings were plotted directly on the smooth sheet without supporting positional information.

#### 5. JUNCTIONS

H-9794 junctions to the west with H-9793 (1978). Soundings and depth curves are in agreement. Several soundings were transferred from H-9793 to accomplish the junction of depth curves.

H-9811 (1979) and H-9810 (1979) junction to the north and east respectively. The soundings and depth curves are in good agreement.

H-9794 junctions with H-9844 (1979) to the south. Soundings and depth curves are in agreement, however, the junction note on H-9844 is shown as adjoins since H-9794 had been previously processed.

#### 6. COMPARISON WITH PRIOR SURVEYS

H-7619 (1947-50)	1:10,000
H-7620 (1947)	1:10,000
H-7621 (1947)	1:10,000
H-7622 (1947)	1:5,000
H-7704 (1948-51)	1:10,000
H-7705 (1948)	1:10,000
H-7706 (1948-49)	1:5,000
H-7716 (1948)	1:5,000

#### H-7619

H-7619 is common to the southeast portion of the present survey. It includes the offshore area around Treasure Island and extends north to latitude 37°52'00"W. Soundings from H-7619 generally agree with the present survey within 1 to 5 feet.

Southeast of Yerba Buena Island in the vicinity of latitude 37°48'22", longitude 122°21'18"W, adjacent to the charted tunnel area, depths are as much as 30 feet deeper on the present survey, probably attributable to scouring.

The V-shaped pier and dolphin at the end of the Berkeley Pier, latitude 37°50'52"N longitude 122°21'34"W, were not found during this survey. They were further investigated and ruins disproved by wire drag on FE-242 (1983). Refer to FE-242, AWOIS Item 50561, for additional information on these features.

The following depths were carried forward to the smooth sheet due to inadequate investigations of shoals during the present survey.

<u>Depth(ft)</u>	<u>Latitude N</u>	<u>Longitude W</u>
20	37°49'44"	122°21'23"
20	37°49'39"	122°22'48"
15	37°49'56"	122°22'41"

#### H-7620

H-7620 is common to the present survey in the area north of Angel Island. The prior survey soundings are from 0-5 feet shoaler or deeper than those on the present survey.

#### H-7621

H-7621 is common to the present survey in the area south of Angel Island to just north of the waterfront. The sounding differences between this and the present survey vary widely.

In the area of the 40-foot shoal on the prior at latitude 37°49'48"N, longitude 122°25'07"W, there are now depths of 61, 64 and 65 feet.

At latitude 37°49'44"N, longitude 122°24'44"W, in the vicinity of PSR Item 25, there is a 43-foot sounding on the present survey, compared to 60, 63, and 64 feet on the prior.

There is a shoal on the present survey south of Alcatraz Island in the vicinity of latitude 37°49'20"N, longitude 122°25'14"W, with a minimum observed depth of 50 feet. The shoalest depth in the area on the prior is 112 feet, the difference is attributed to the deposition of spoil. This area is within the charted "Discontinued Dumping Ground". See Section 7 of this report for additional information on this feature.

The shoal area in the vicinity of latitude 37°49'06"N, longitude 122°25'03"W shows 60 feet on present survey compared to 52 feet on the prior.

A 45-foot sounding at latitude 37°48'49"N, longitude 122°24'06"W, and the annotation "rocky" have been carried forward from H-7621, as the shoal on the prior is substantiated by the present survey.

In the area covered by H-7621, there are strong currents, tide rips and eddies. This is especially true of the area northeast and south of Alcatraz Island. These conditions in conjunction with a soft bottom would tend to create the large differences from the prior survey depths.

The entire area in the vicinity of Alcatraz Island and west has been subsequently superseded by FE-242. The smooth sheet has been annotated with a limit line defining this area.

H-7622

This survey consists mainly of the shoreline soundings around Treasure Island and Yerba Buena Island. Sounding differences vary between 0-5 feet, except for the cove between the two islands. Extensive shoaling has occurred in the cove, with depths up to 15 feet shoaler.

Many piers and piles around Treasure Island and Yerba Buena Island were not verified or disproved. They have been carried forward as submerged features at the following locations:

	<u>Latitude</u>	<u>Longitude</u>
Dolphin	37°49'44"N,	122°21'50"W
Pier	37°49'42"N,	122°21'54"W
Pier	37°49'30"N,	122°21'45"W
Pier & dolphins	37°49'21"N	122°21'39"W
Pier & dolphins	37°48'49"N	122°22'06"W
Pier & dolphins	37°48'43"N,	122°21'33"W
Piling	37°49'02"N,	122°22'18"W
Piling	37°49'21"N,	122°22'31"W
Pier	37°48'30"N,	122°22'37"W
Pier	37°48'49"N,	122°21'45"W
Piers	37°48'59"N to	122°21'51"W to
	37°49'06"N	122°22'07"W

H-7704

H-7704 is common to the present survey in areas around Angel Island. Sounding comparisons range from 0-4 feet deeper on H-9794. Exceptions are as follows:

The area northeast of Angel Island presently shows two isolated deeps with depths up to 14-feet deeper than on the prior survey.

The shoreline in the Point Campbell area has receded approximately 40-50 meters.

The area north of latitude 37°50'49"N to latitude 37°51'15"N and west of longitude 122°24'50"W has been superseded by FE-242(1983) with the exception of two islets at latitude 37°51'16.7"N, longitude 122°25'29.7"W, and latitude 37°51'16.9"N, longitude 122°25'29.8"W. These features are depicted as a rock awash on the present survey. Refer to FE-242 for the comparison within this area.

Numerous rocks, an outfall, a submerged pier ruin, and a dolphin not addressed by the hydrographer were carried forward to the present survey.



H-7705

H-7705 is common to the northeast portion of the present survey. Sounding differences vary from 0-4 feet with shoaler depths on the present survey. One exception is a 12-foot deep at latitude 37°53'09"N, longitude 122°21'09"W, compared to 6 feet on the prior.

A dolphin located independently by both the present hydrographic (position 1594) and topographic surveys is located approximately 20 meters west of hydrographically determined signal BOS (latitude 37°53'35"N, longitude 122°21'12"W). A description of the signal is not provided by H-7705 however, a pile charted in the vicinity was described by N/CG241 as originating with this prior survey. A pile was not carried forward to the present survey inasmuch as the dolphin is probably the same item.

H-7706, H-7716

These two prior surveys cover that portion of the San Francisco waterfront included in this survey. The soundings on H-9794 in Aquatic Park vary from being 2 feet deeper inshore to 4 feet shoaler near the entrance. An exception is the area in the vicinity of latitude 37°48'37"N, longitude 122°25'21"W, where there are 20-foot soundings, compared to 15 feet on the prior.

There apparently has been dredging along some of the piers as evidenced by the large variation of soundings ranging from 14 feet shoaler to 17 feet deeper.

There have been extensive cultural changes to the shoreline. Most notable is the reconstruction of the Pier 39 complex, discussed in Section 2, "Control and Shoreline", which also includes Pier 37 (Presurvey Review Item #12) and Pier 41.

Portions of Piers 41, 43, and 47A at latitude 37°48'40"N longitude 122°24'44"W, latitude 37°48'38"N, longitude 122°24'49"W and latitude 37°48'35"N, longitude 122°25'06"W respectively, did not appear on the shoreline map and were not considered disproved by the present survey. They were, however, investigated on FE-242 (1983). Refer to FE-242 Item 14, 15, and 16 for the disposition of these features.

Piers 25, 27, and 29 in the vicinity of latitude 37°48'27"N, longitude 122°24'00"W have been reconstructed; pier 37 (PSR Item 12) in the vicinity of latitude 37°38'35"N, longitude 122°24'27"W, has been removed and replaced with a small craft facility and breakwater. The hydrographer failed to specifically address the possibility of submerged remains in the prior pier locations, therefore the disposition of the prior piers is unknown. However, there is minimal chance the submerged hazards remain in the area since these present facilities are substantial and are apparently in continuous use. No submerged remains have been carried forward to the present survey.

With the exception of features carried forward from the prior surveys and the areas common to FE-242, H-9794 is adequate to supersede all prior surveys within common areas.

7. COMPARISON WITH CHART

18650 (34th Ed., May 20, 1978)

18649 (45th Ed., February 4, 1978)

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys which require no further consideration, supplemented by U.S. Army Corps of Engineer surveys, various chart letters (e.g. Chart Adequacy Surveys, Chart Letter 716 of 1976, and Chart Letter 967 of 1976), and blueprints.

PSR Items #8 and 26 were investigated and are adequately discussed by the hydrographer in section K.

The following pre-survey review item discussed in Section K of the Descriptive Report is supplemented as follows:

PSR Item #25, is described as a "44 foot sounding" charted at latitude  $37^{\circ}49'44''\text{N}$ , longitude  $122^{\circ}24'45''\text{W}$ . In addition to the 43-foot shoal mentioned by the hydrographer, there is a 42-foot shoal 200 meters to the north-west. The charted depth is superseded by the present survey. It is recommended that the area be revised from present survey information.

The two charted discontinued dumping grounds originating with Chart Letter 1300 of 1971 in the vicinity of latitude  $37^{\circ}49'18''\text{N}$ , longitude  $122^{\circ}25'09''\text{W}$  (south of Alcatraz Island) have been reactivated and the limits revised by the U.S. Army Corps of Engineers, as addressed in Chart Letter 147 of 1982. A shoaler depth of 50 feet (not necessarily the least depth) was observed during the present survey and reported through Local Notice to Mariners 10 of 1982. This 50-foot sounding was investigated during FE-242 (1983), where it is identified as AWOIS Item 50571 (PSR Item 11). FE-242 superseded the results of the present survey.

The charted discontinued dumping ground in the vicinity of latitude  $37^{\circ}48'36''\text{N}$ , longitude  $122^{\circ}22'36''\text{W}$  (west of Yerba Buena Island) was not intensively investigated during the present survey; however, the area was surveyed at 100-meter line spacing. It is recommended charted depths within the limits of this dumping ground be revised from the present survey and from CL-716 of 1976, a Chart Adequacy Survey.

The dolphin charted at latitude  $37^{\circ}51'16.1''\text{N}$ , longitude  $122^{\circ}25'04.1''\text{W}$  (Point Blunt) which originates from Chart Letter 545 of 1963 (as several dolphins) was not verified or disproved by the present survey and should remain as charted.

b. Controlling Depths

There are no channels with controlling depths within the limits of this survey.

c. Aids to Navigation

All fixed and floating aids to navigation adequately mark the features intended. With the exception of the white and orange buoys located south of Brooks Island, they compare well with the charted positions. These buoys may be frequently moved, since they are reported to be racing buoys.

The positioning data and description for the uncharted buoy at latitude 37°48'39"N, longitude 122°25'54"W, was included in the junction survey H-9793. The data was incorporated into this survey, since the buoy is within its limits. (See position 2845, DN 322, vessel 2123, and the position/sounding printout.)

The fixed aid at the end of Berkeley Pier at latitude 37°50'52.1"N, longitude 122°21'34.1"W, was listed by the hydrographer as Berkeley Breakwater Light 2. The correct name according to the 1978 Light List, is Berkeley Marina Channel Light 2.

Geographic names shown on the smooth sheet originate from the charts discussed in this section, as well as TP-00526 and TP-00528, except for Piers 43 and 47 which originate from T-5923 and BP-95006, respectively.


With the exceptions included in this section, H-9794 is adequate to supersede charted hydrography.

8. COMPLIANCE WITH INSTRUCTIONS

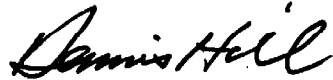
With the exception of the items listed in Section 4, this survey adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

This is an adequate hydrographic survey. Many of the items requiring additional field work were identified and investigated as part of FE-242 (1983). Additional items are identified in Section 2, 4, 6, and 7. The investigation of these features should be considered prior to the completion of Project OPR-L123.

  
James S. Green  
Cartographer

This survey has been examined and it meets Charting and Geodetic Services standards and requirements for use in nautical charting. The survey is recommended for approval.



Dennis Hill  
Chief, Hydrographic Section

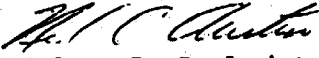


**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL OCEAN SERVICE

Pacific Marine Center  
1801 Fairview Avenue East  
Seattle, Washington 98102-3767

AUG 20 1986 MOP211/JG

TO: N/CG2 - J. Austin Yeager

FROM:  N/MOP - Robert L. Sandquist

SUBJECT: Additional Processing of Survey H-9794

REF: C35 Memorandum dated September 9, 1982, "Return of Survey H-9794 for Additional Verification"

The additional processing required in the referenced memorandum has been completed and H-9794 is resubmitted.

Several of the noted items were resolved by additional field work on FE-242 (1983). Those areas superseded by FE-242 are so noted on the H-9794 smooth sheet and in the descriptive report. FE-242 supplements other charted areas in this vicinity so it should be referred to by the nautical chart compiler for additional information.

Specific processing requirements were identified on attachments to the C35 memorandum referenced above. The actions and/or comments related to each specific processing requirement are summarized on an attachment to this memorandum.

With the completion of this processing, Survey H-9794 is considered adequate for use in revising nautical charts within the common area.

cc: N/MOP21



H-9794 Processing Comments

a. Attachment A - Horizontal Displacement of Sounding Data.

The resurvey of the areas south of Angel Island and the vicinity of Alcatraz Island on FE-242 resulted in supersession of the areas questioned in this attachment except for the items in the vicinity of Pier 39. Revised shoreline is now shown on H-9794 and soundings have been adjusted or rejected as necessary.

b. Attachment B - Smooth Sheet Changes, not related to Attachment A.

The positional discrepancies on the north shore of Angel Island were resolved by rejecting positions 308401 to 308701. Descriptive information regarding rocks, ruins, and pipes was retained on the smooth sheet as considered appropriate.

c. Attachment C - Background Information

No action was required.

d. Attachment D - Deficiencies to be Addressed or Corrected.

The corrective actions requested in this attachment have been accomplished except for providing the expansion field sheets, which are no longer available.

e. Attachment E - Copies of the Descriptive Report and Verifier's Report.

The comments noted on copies of the Descriptive Report and Verifier's Report along with those contained in Attachment F - Additional Comments and Recommendations, have been considered and the Descriptive Report has been annotated. An Evaluation Report considering these comments has been written to supersede the Verifier's Report.

f. Attachment F - Additional Comments and Recommendations.

Attachment F comments and recommendations were written in relation to the format of the Verifier's Report. They have been incorporated into the Evaluation Report considering the results of FE-242 and current Hydrographic Section procedures.

g. Attachment G - Correction Overlay of Smooth Sheet.

The corrections noted on the smooth sheet overlay have been applied to H-9794 smooth sheet considering FE-242 and current Hydrographic Section procedures.

h. Attachment H - Supportive Data.

No actions were required by this attachment.



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SURVEY  
Rockville, Md. 20852

SEP 8 1982

C352:RWD

TO: CPM3 - Ned C. Austin  
FROM: C35 - Glen R. Schaefer *Glen R. Schaefer*  
SUBJECT: Return of Survey H-9794 for Additional Verification  
REF: C35x1:DEW memo, 9/7/82

It was determined during quality evaluation that a significant horizontal control problem exists on Survey H-9794 (1978), California, San Francisco Bay, Yerba Buena Island to Brooks Island, due to incomplete digital sextant information. The present smooth sheet also reflects erroneous actions and decisions made during verification. Additional complications have resulted from inadequate photogrammetric support on this project. Therefore, I am requesting you to revise parts of the Descriptive Report, Verifier's Report, and smooth sheet so that the present survey can be considered adequate for charting purposes. Specific explanations, which will assist the verifier to address and/or resolve problems, are contained in the following attachments:

- A. Horizontal Displacement of Sounding Data.
- B. Smooth Sheet Changes, not Related to Attachment A.
- C. Background Information for reviewed shoreline maps and NOAA forms 76-40 submitted subsequent to verification of the present smooth sheet.
- D. Deficiencies to be Addressed or Considered.
- E. Copies of the Descriptive Report and Verifier's Report (being forwarded under separate cover). These reports have comments and recommendations annotated in blue which the verifier may wish to address or consider. Other notations in red are to be inked in the Descriptive Report or added to the Verifier's Report when typed.
- F. Additional Comments and Recommendations. This attachment is keyed to the Verifier's Report by section headings, such as 1. INTRODUCTION; and contain statements which are to be included in the final retyped report after appropriate actions have been made. These statements are preceded by a single asterisk (\*). Statements preceded with a double asterisk (\*\*) are for general information.
- G. Correction overlay of smooth sheet (being forwarded under separate cover).



V

H. Supportive data. Copies of chart letters, blueprints, work overlays, etc. are being forwarded under separate cover. Hydrographic Maintenance Prints of TP-00526 through 529, pertinent copies of NOAA form 76-40, and copies of the Chart Adequacy Surveys of 1976 (Chart Letters 716 and 967 of 1976 with their pertinent accompanying blueprints) have been previously forwarded to CPM3 under separate cover.

Questions related to the attachments should be directed to Mr. Robert W. DerKazarian (C352), telephone 443-8266.

Attachments (5)

Separate cover:  
Attachments E, G, and H

cc:  
C3  
CPM



ATTACHMENT TO DESCRIPTIVE REPORT FOR H-9794


I have reviewed the smooth sheet, accompanying data, and reports of this hydrographic survey. Except as noted in the Evaluation Report, the hydrographic survey meets or exceeds Charting and Geodetic Services (C&GS) standards, complies with instructions, and is accurately and completely represented by the smooth sheet and digital data file for use in nautical charting.

8/20/86  
Chief, Nautical Chart Branch (Date)

CLEARANCE:

N/MOP2:LWMordock

SIGNATURE AND DATE:

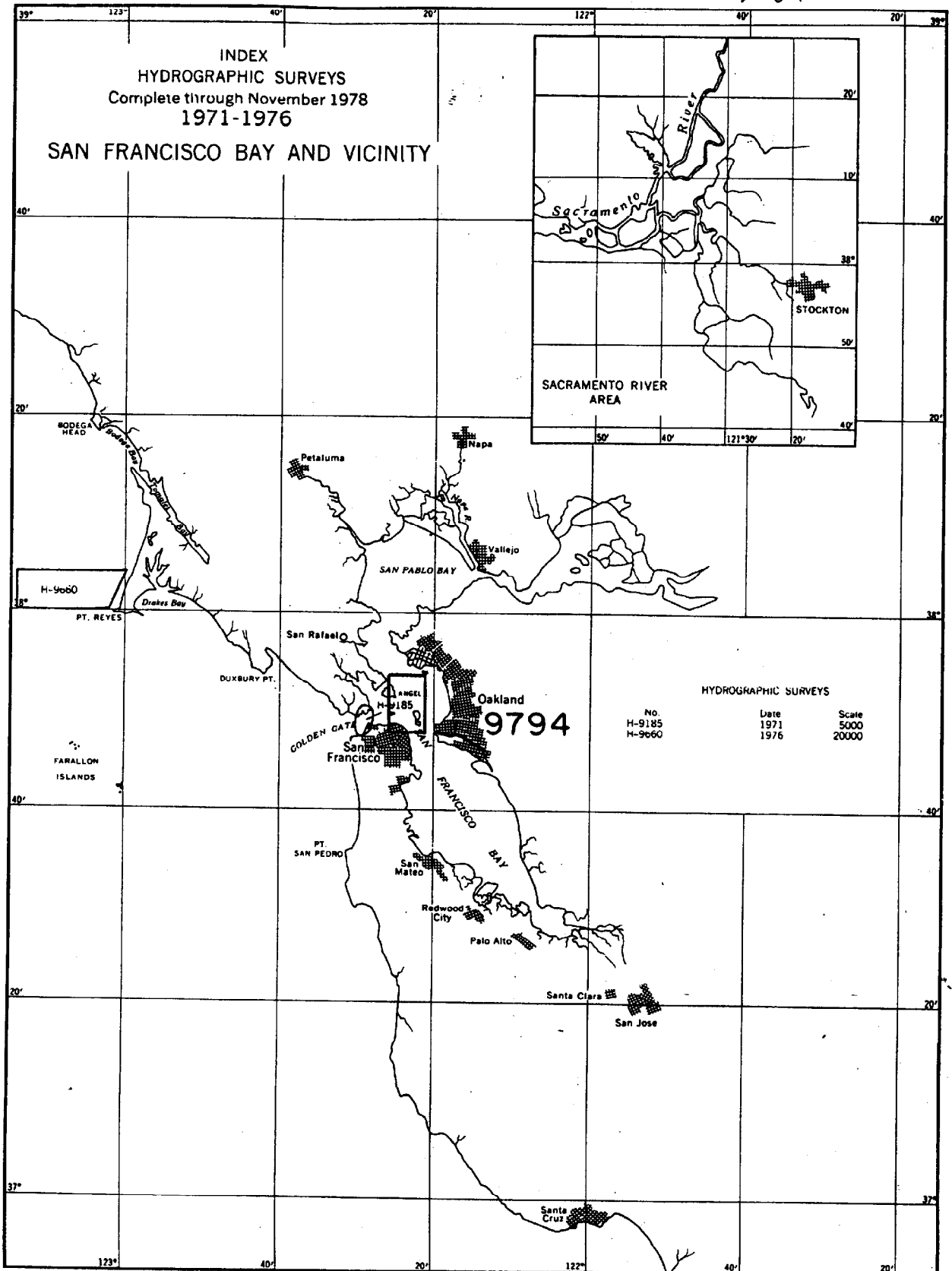
8/20/86

After review of the smooth sheet and accompanying reports, I hereby certify this survey is accurate, complete, and meets appropriate standards with only the exceptions as noted above. The above recommendations are forwarded with my concurrence.

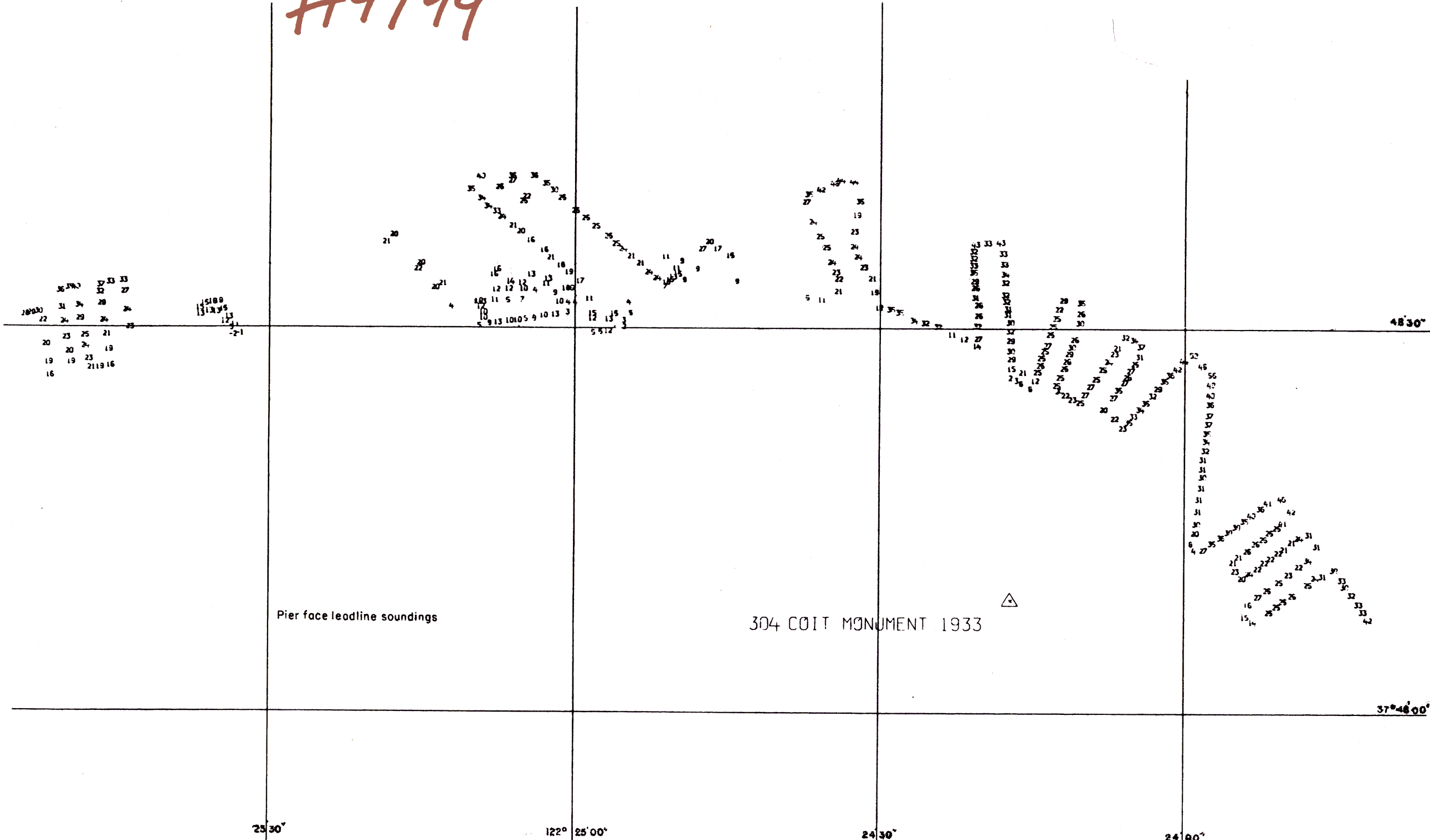
8/20/86  
Director, Pacific Marine Center (Date)

DEPARTMENT OF COMMERCE  
 National Oceanic and Atmospheric Administration  
 National Ocean Survey  
 Rockville, Maryland

Hydrographic Index No. 96M



H9794



Pier face leadline soundings

304 COIT MONUMENT 1933

25°30'

122°25'00"

24°30'

24°00'

48°30'

37°48'00"

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. 9794

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
18650	11/19/87	<i>Condit WW</i>	<del>Full Part Before</del> After Verification Review Inspection Signed Via Drawing No. 58, 40 <sup>th</sup> Ed.
18653	12/2/87	<i>Neil R. Myer</i>	<del>Full Part Before</del> After Verification Review Inspection Signed Via Drawing No. 1 new chart
18649	12/9/87	<i>Condit WW</i>	<del>Full Part Before</del> After Verification Review Inspection Signed Via Drawing No. 67, 52 <sup>nd</sup> Ed. <i>Examined for Critical Corrections</i>
18652-SC ABC	12/30/87	<i>Condit WW</i>	<del>Full Part Before</del> After Verification Review Inspection Signed Via Drawing No. 29, 25 <sup>th</sup> Ed.
18653	11-27-89	<i>Ed Martin</i>	<del>Full Part Before</del> After Verification Review Inspection Signed Via Drawing No. 2
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.