9872

Diagram No. 5402-3

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. PHP-10-2-80

Office No. H-9872

LOCALITY

State California

General Locality San Francisco Bay

Locality San Lorenzo Creek to San Mateo-Hayward Bridge

1980

CHIEF OF PARTY
LCDR D.R.Taylor

LIBRARY & ARCHIVES

DATE December 10, 1982

☆U.S. GOV. PRINTING OFFICE: 1980—766-230

AREA 5
CHTS:
18651 } to sign off see
18652 A } Record of Application

NOAA FORM 77-28 (11-72) | U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION | REGISTER NO.

HYDROGRAPHIC TITLE SHEET

H-9872

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. PHP-10-2-80

State CALIFORNIA

General locality SAN FRANCISCO BAY

Locality SAN MATEO-HAYWARD BRIDGE TO SAN LORENZO CREEK

Scale 1:10,000 Date of survey May 13 - December 5, 1980

Instructions dated February 22, 1979 Project No. OPR-L123-PHP-80

Vessel NOAA Launch 1016

Chief of party LCDR D. R. Taylor

Surveyed by LCDR D. Taylor, LTJG D. Smith, F. Rosario

Soundings taken by echo sounder, ~~hand lead~~ ~~pole~~ Ross Fineline Models 5000 & 5500

Graphic record scaled by Pacific Hydrographic Party Personnel

Graphic record checked by Pacific Hydrographic Party Personnel

Verified by ~~Processed by~~ L. Deodato Automated plot by PMC Xynetics Plotter

Evaluated by ~~Verification by~~ K. M. Scott

Soundings in ~~fathoms~~ feet at ~~MLW~~ MLLW

REMARKS: All times are Greenwich Mean Time (G.M.T.)

Revisions and marginal notes in black were made by the Evaluator.

STANDARDS CK'D 1-23-84

C.Loy

Awois Checked ✓ Rud

RWW 9/23/92

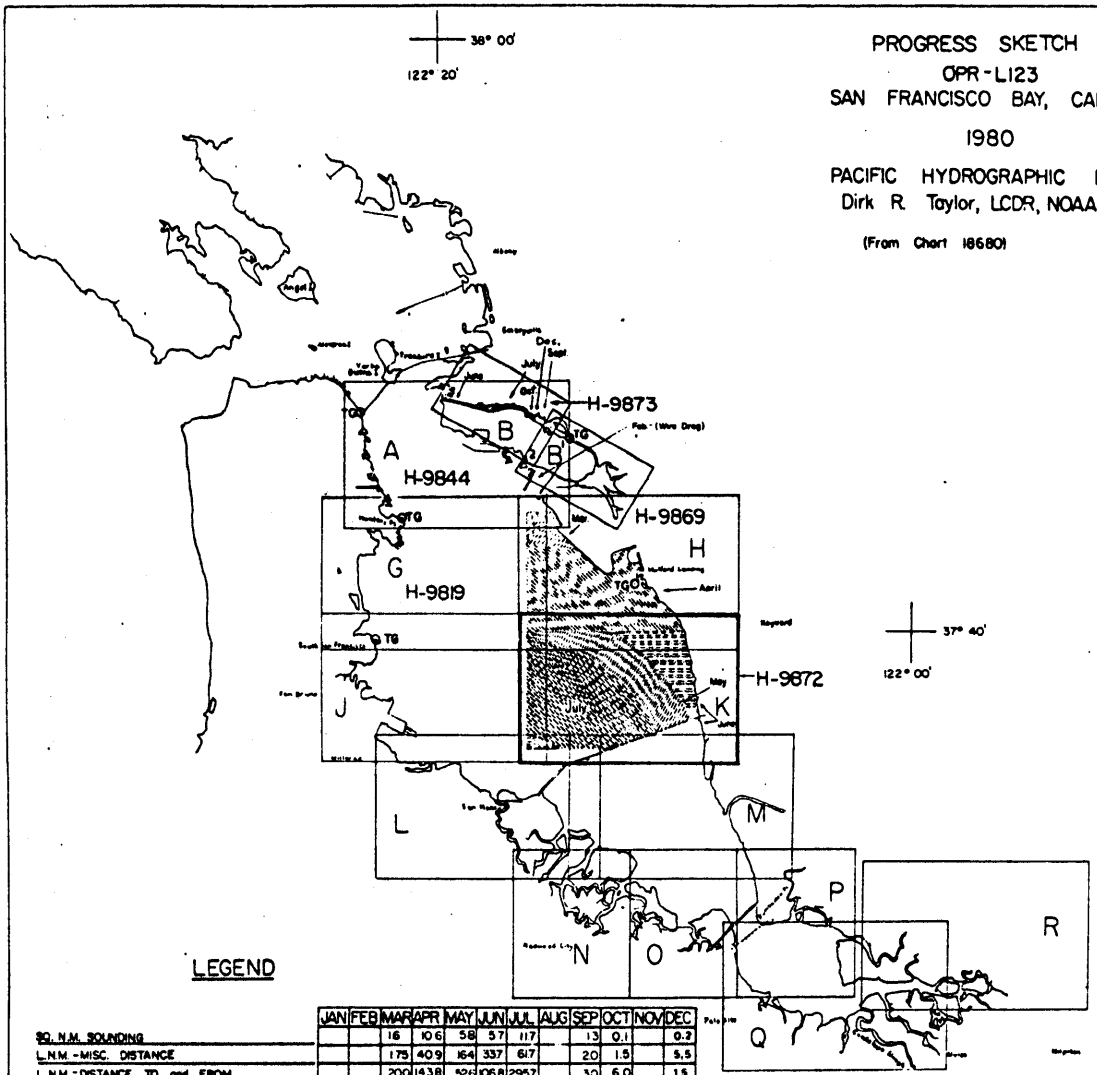
NOAA FORM 77-28 SUPERSEDES FORM C&GS-537.

☆ U. S. GOVERNMENT PRINTING OFFICE: 1976—665-661/1222 REGION NO. 6

PROGRESS SKETCH
OPR-L123
SAN FRANCISCO BAY, CALIF
1980

PACIFIC HYDROGRAPHIC PARTY
Dirk R. Taylor, LCDR, NOAA, Chief of Party

(From Chart 18680)



LEGEND

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SQ. N.M. SOUNDING			16	106	58	57	117		13	0.1		0.2
L.N.M. - MISC. DISTANCE			175	409	164	337	617		20	1.5		5.5
L.N.M. - DISTANCE TO and FROM			200	1438	526	1068	2957		30	6.0		15
L.N.M. - SOUNDING LINE (Launch 1016)			406	281.2	127.7	106.2	367.9		80	11.8		7.5
BOTTOM SAMPLES (GRAB)				28			19					
WATER SAMPLES ANALYZED (Salinity)												
CONTROL STATIONS	12		2		9					16	4	
TEMPERATURE, DEPTH, CONDUCTIVITY												
NANSEN CAST												
TIDE GAGE			1									
L.N.M. - FIELD EDIT				74	206	173			139			
L.N.M. - SOUNDING LINE												

BAY
AREA
SURVEY
EXPEDITION

A. PROJECT

Survey H-9872 (PHP-10-2-80) was accomplished in accordance with Project Instructions OPR-L123-PHP-79, San Francisco Bay, Bay Area Survey Expedition (BASE), dated February 22, 1979; amended by Change No. 1, dated November 27, 1979, and Change No. 2, dated May 15, 1980.

See Ver/Eval Rpt Sect. 1

B. AREA SURVEYED

Survey H-9872 was conducted in San Francisco Bay, California, from May 13 to December 15, 1980. The survey encompassed a roughly rectangular portion of southeast San Francisco Bay (22.5 square nautical miles) lying immediately north of the San Mateo-Hayward Bridge and east of the San Bruno Shoal Channel. The boundaries of the sheet are defined as follows:

North - Lat 37°40'00"N
South - Lat 37°36'00"N and the San Mateo-Hayward Bridge
East - Alameda County shoreline (City of Hayward)
West - Long 122°16'15"W

C. SOUNDING VESSELS

Vessel	Hull No.	EDP No.	Data Collection System	Usage
PHP Launch 1016	1016	0656	ASI Logger	Range/Range Hydro Range/Azimuth Hydro Bottom Samples Dive Investigations

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

Sounding Equipment

Soundings for H-9872 were recorded with a Ross Fineline fathometer and digitizing system using a single 7-1/2°, 100 KHz, narrow beam transducer. The system used before July 29, 1980 (JD 211), was a standard Ross unit consisting of a model 4000 transceiver, model 5000 analog recorder, and model 6000 digitizer. On July 29, 1980 (JD 211), these components were replaced with a new solid state system consisting of a model 5500 analog recorder, model 4500 transceiver, and model 6000 digitizer. A modification of the new system by PMC electronics division allowed phase adjustment in the analog recorder to be accomplished by changing the speed of the stylus belt drive motor (this has the same effect as adjusting stylus belt length on the old system). This was done by increasing or decreasing the frequency of the A.C. power supplied to the synchronous motor driving the stylus belt. The adjustment pot is located on the "precision frequency generator" card in the transceiver unit.

The Ross system consisted of the following components:

System 1 (Data before JD 211)

Component	Model No.	S/N
Recorder	5000	1087
Transceiver	4000	1097
Digitizer	6000	3787
Power Supply	None	1041-7

System 2

Recorder	5500	9073
Transceiver	4500	3787
Digitizer	6000	1097

Sound Velocity Correctors

Depths in this survey ranged from 0 to 50 ft. with depths over 25 ft. occurring only in a very small area of the southwest corner of the sheet (San Bruno Shoal Channel). The shallow depths allowed bar checks to be made through the entire water column of the working area on a daily basis. Sound velocity correctors for the point values measured during the bar check (5 ft. intervals) were computed using the following formula:

Velocity Corrector at Depth A = Bar Depth A - Mean Digital Depth Value at Bar Depth A + Static Transducer Draft

The point values were plotted on a depth versus velocity corrector grid and connected by a smooth curve which was the source of the sound velocity corrector table used to process the survey data. Bar checks were made daily (unless seas were too rough to collect usable data) using an 11 ft. x 1 ft. aluminum bar suspended on 1/4" steel chains with painted markings at 5 ft. intervals. The chain markings were checked for accuracy prior to beginning the survey and after its completion. Bar checks were abstracted daily using an estimated static draft value of 1.5 ft. Sound velocity correctors were computed using the mean of the daily values for each bar depth and the computed static draft of 1.25 ft. The slightly irregular shape of the velocity curve for depths greater than 20 feet can be attributed to the low number of samples used to compute these values and the different characteristics of the water column in the deep area (an isolated deep water channel running through extensive shallows). The values for depths greater than 20 feet are based on only two daily bar checks taken on the days when hydrography included the deep channel in the southwest corner of the sheet. Soundings on the field sheet are corrected for sound velocity.

See Ver/Eval Rpt Sect. I

Static Transducer Draft

The static transducer draft of launch 1016 was determined experimentally using the bar check data from several surveys. The static transducer draft was

defined as the difference between the actual bar depth and the mean digitized depth recorded with the bar set at 5 ft. (i.e. sound velocity and instrument error were assumed to be 0 at a bar depth of 5 ft. and all difference was attributed to transducer draft). The final static transducer draft determined by this method and applied on the TRA abstracts and TC/TI tapes was 1.25 ft. An estimated transducer draft of 1.5 ft. was applied to all corrector tapes since the actual draft could not be computed until the end of the survey.

Settlement and Squat Corrections

Settlement and squat trials for 1016 were conducted on August 16, 1979 near Hunters Point naval shipyard on San Francisco Bay. Changes in transducer draft were measured by sighting from a stable level gun (Lietz B1, S/N 214303) on the beach to a third order level rod held perpendicularly on the launch cabin top above the transducer. Change in transducer draft at a specific speed was computed as the difference in rod elevation measured with the launch at rest and underway. Measurements were made at each speed with the launch running towards and away from the level gun. Several rod readings taken during each run were averaged and static rod elevation was determined by averaging rod readings taken before and after each run with the launch dead in the water. This procedure eliminates any error due to changing tide level. No changes in equipment load or hull modifications were made after the trials. Changes in transducer draft due to settlement and squat were measured at regular intervals through the speed range of the launch (0-2700 RPM) with all surveying equipment installed and a normal fuel and crew load on board. These point values were plotted and connected to yield a continuous RPM versus draft correction curve. A trial summary and draft correction curve are appended to this report. Settlement and squat corrections are not applied to the field sheet, but are incorporated on the TC/TI tape.

Sounding Instrument Corrections

The Ross echo sounding system simultaneously produces an analog fathogram and a digitized depth value. Digitized depths sampled by the logging system are the primary source of data on the field sheet, but these are supplemented by depths scaled from the analog record in areas where digitized soundings were insufficient or incorrect. The digitizing system sometimes recorded erroneous depths by triggering on a return from a source other than the bottom (weeds, fish, etc.) or an instrument generated source such as the initial or blanking trace. In these instances, the digitized depths were replaced by values scaled from the fathogram. Error in the analog trace is due primarily to incorrect initial adjustment and phase error. Initial error occurs when the fathometer's transmit pulse trace is not adjusted to coincide with zero on the fathogram paper. The initial trace alignment was monitored and adjusted during survey operations. Any depths scaled from fathograms with initial error were corrected before being applied to the survey. Phase errors are caused by faulty stylus belt timing in the analog recorder due to belt stretching or improper internal adjustment. The system was checked for phase error daily by introducing simulated "exact" depths into the analog recorder from the digitizer (phase calibrate mode) and comparing the analog trace value to the digital value. Survey operations were not conducted when phase error exceeded 0.2 ft. in the range of depth encountered in the survey area.

Manual Sounding Corrections

Leadline soundings are plotted without corrections. Leadlines were checked for accuracy with a steel tape prior to the survey.

E. HYDROGRAPHIC SHEETS

The hydrographic sheet was divided into two field sheets (PHP-10-2-80 north and PHP-10-2-80 south) along latitude 37°38'00"N because of plotter size limitations. The sheets were constructed on a modified transverse Mercator projection with control latitude 4,150,000 m north of latitude zero and central meridian 122°10'10" west. A rough sounding plot was made as the work progressed. The field sheet plotting was begun on November 1 and finished January 2, 1981. No discernible distortion was detected. Developments, bottom samples, and dive investigations were plotted on an overlay to avoid congestion on the field sheet. Two developments where the soundings were unreadable at 1:10,000 scale were plotted on an expansion sheet at 1:2,500 scale to allow evaluation of the data. Development soundings necessary to fully define the depth curves or represent the shoalest soundings in an area were transferred to the field sheet in violet ink.

Preliminary TRA corrections, sound velocity corrections, and predicted tidal corrections (See Field Tide Note, Separates to the Text) were applied to all data on the field sheet.

Field records will be forwarded to the Pacific Marine Center, Seattle, Washington for verification and smooth plotting.

F. CONTROL STATIONS

Horizontal control for this survey was provided by three newly established control stations and existing triangulation. Stations recovered for survey control and location of new stations were:

RIDGE 2 1906
POINT SAN MATEO 1925
TRANS AMERICA BUILDING 1976*
BAY PARK 1932
POINT SAN BRUNO 1925
FORBES TOWER MONUMENT 1976*
BALLENA BAY LIGHT 1980*
SAN BRUNO SHOAL CHANNEL LIGHT 8 1976*
PG&E, 50TH AVE. GAS HOLDER 1955
HAYWARD, CALIFORNIA HOME BRANDS TANK 1931
SAN MATEO BRIDGE TRANSMISSION TOWER NO 2 1955

*Field Geographic Position

New stations BLOCK 1980 and KORET 1980 were established by third order Class I techniques using intersection and spur traverse methods. Both stations were monumented and described.

A temporary station, SAN LEANDRO OBSERVATION PLATFORM, was established by resection to third order Class I specifications. The station was located on a platform which was later removed and is not recoverable.

Geodetic computations were based on 1927 North American Datum. Hydrographic data was processed using unadjusted field geographic positions for the new stations established by the party. See Horizontal Control Report, 1980, OPR-L123-PHP-80, San Francisco Bay, California, for a complete discussion of horizontal control procedures, equipment, computations, and observations.

G. HYDROGRAPHIC POSITION CONTROL

Launch position for this survey was controlled primarily by a Teledyne-Hastings Raydist radio navigation system configured for range-range operation at a frequency of 3290.400 KHz. A small portion of the survey completed after the Raydist sites were dismantled was controlled by range-range and range-azimuth methods using a Motorola Mini-Ranger ultra-high frequency transponder system for range measurements.

The following positioning equipment was used for this survey:

Raydist Mobile Station, Launch 1016

Transmitter	Model TA-96	S/N 25
Navigator	Model ZA-75c-1	S/N 118
Position Indicator	Model GA-50B	S/N 122

Raydist Base Station "Red"
Station #200, KORET, 1980

Transmitter	Model AA-60A	S/N 241
Power Supply	Model SA-192	S/N 94

Raydist Base Station "Green"
Station #202, BLOCK, 1980

Transmitter	Model AA-60A	S/N 242
Power Supply	Model SA-192	S/N 34

Mini-Ranger Mobile Station, Launch 1016

Mini-Ranger Console	S/N 713165
Mini-Ranger Range Transponder	S/N 4931 (Magnetron)

Mini-Ranger Reference Stations

Mini-Ranger Transponder Code 7	S/N 713600
Mini-Ranger Transponder Code 5	S/N 713598

The north ("Red") Raydist shore station was located on a large flat topped building approximately 1/2 mile from the water's edge at an elevation of 37 meters with the ground plane radials spread out across the roof. The south station ("Green") was located on a small concrete block building located on filled land 20 m from the water's edge at an elevation of 7 meters. The ground plane radials were run from the base of the antenna atop the block

house, down the sides of the building, and out at ground level. Both base stations consisted of a 35 ft. whip antenna atop two 10 ft. tower sections. Both were powered by 120V A.C. through a Raydist power supply and a storage battery buffer. No equipment failures occurred with the shore station equipment. Some problems were encountered with vandalism of the ground plane wires at station BLOCK.

No movement in the survey area appreciably altered the land path over which the Raydist radio signal passed. No significant aberrations in the Raydist signal due to proximity of structures (San Mateo Bridge) or atmospheric effects were discovered during the survey. All navigational LOP's used for position control intersected at at least 30°. No weak geometric intersections were encountered. Some problems were encountered with the Mini-Ranger signals due to blockage and reflection near the San Mateo-Hayward Bridge. All questionable data was rejected.

Raydist equipment was calibrated at a fixed point (third order Class I station) at the beginning and end of each day. Initial lane values computed for the calibration point were entered in the Raydist navigation interface and the phase tracking mechanism activated with the launch antenna as close to the calibration point as possible. With the receiver tracking, ten sample rates were recorded to determine the partial lane correctors applied during the working day. At the end of the day, this procedure was repeated to verify the whole lane count and obtain another set of partial lane correctors. The daily correctors used in data processing were the mean of the morning and evening values. On several days, rough seas prevented the launch from approaching the calibration point closely enough to obtain accurate partial lane values at the end of the day. On these days, the whole lane count was verified as correct at the calibration point to insure no lane losses had occurred and the data was processed using the morning partial lane correctors. The Raydist signal proved very steady. Very little "drift" was experienced from morning to evening. Lane jumps occurred on JD's 191 and 192. These were identified and corrected in processing.

Mini-Ranger systems checks were performed before and after each survey day (at third order Class I stations) to insure the equipment was operating properly. The mean of ten sample range values collected during the systems check was required to lie within ±5 m of the computed value for the calibration point to be acceptable. Correctors used in data processing were determined from baseline calibrations performed May 20, 1980, and September 25, 1980. Calibration data is appended to this report. *(See Project Folder)*

Location of shore station equipment during the survey is outlined as follows:

Station No.	Station Name	M/R Code/Raydist "Color"	Dates on Station
200	KORET	Red	May 13-Jul 17, 1980
202	BLOCK	Green	May 13-Jul 17, 1980
500	KORET	Code 7	Jul 22-23, 1980
		Code 5	Jul 25
502	BLOCK	Code 5	Jul 22-23, 1980
			Dec 2, 1980
205	SAN LEANDRO OBSERVATION PLATFORM	Code 7	Jul 25, 1980
207	POINT SAN MATEO 1925	Code 7	Dec 2, 1980
			Dec 5, 1980

H. SHORELINE

Shoreline was transferred to the sheet from a 1:10,000 scale enlargement of third class, unedited, 1:20,000 shoreline manuscript TP-00535. Field edit was carried on concurrently with hydrography. Changes noted during field edit were not applied to the field sheet. One area of shoreline about .75 miles north of the San Mateo-Hayward Bridge has been extensively modified and is left in blue (unverified) on the field sheet. Although the MHWL did not change, inshore detail has been modified as shown on drawings submitted with TP-00535. Close contact was maintained between the hydrographer and field editor to prevent duplication of positional data. Field edit data for TP-00535 was submitted to PMC for verification and application and should be the final source of shoreline for this sheet.

I. CROSSLINES

Crosslines constituted 8% of mainscheme mileage on this survey. Crossline agreement was very good over the entire survey area. Differences never exceeded 1 ft. at crossings. The small differences can be attributed to a difference in predicted and actual tides. Discrepancies between predicted and actual times for high and low tide were observed by the party in the field.

J. JUNCTIONS

H-9872 junctions on the north with contemporary survey H-9869 along latitude 37°40'00"N. Agreement at the overlap was good with very few differences over 1 ft. and good continuity of depth curves between the sheets. Any small differences can be attributed to different predicted tide correctors applied on the two sheets at the junction.

K. COMPARISON WITH PRIOR SURVEYS

This survey was compared with prior survey H-8027, 1:20,000, 1955-56. The general hydrographic features delineated on the two surveys show few changes, but depths on H-9872 range from 1 to 4 feet deeper than the prior survey, causing a displacement of the depth curves in comparison. This general difference in depth is probably due to errors in tidal correction, either in the predicted tides applied to H-9872 or the zoning of the actual correctors applied to H-8027.

See Ver/Eval Rpt Sect. 6

A large shoal area of about 1 mile in radius, centered at latitude 37°36'45", longitude 122°14'45", on H-8027, is shown with least depths of 1/2 ft. and average depths of 3 to 5 ft. An extensive area of the southwest corner of the sheet, including most of this shoal, has been dredged (borrow dredging) and now has a bottom 10 to 25 ft. in depth. Several peaks caused by incomplete dredging in the borrow area were developed at close line spacing.

The portion of the San Bruno Shoal Channel in the extreme southwest corner of the sheet is substantially deeper on H-9872. This is a maintained channel and indicates deeper dredging since the prior survey.

The San Mateo-Hayward Bridge depicted on H-8027 has been replaced with a new structure built approximately 50 m north of the old structure.

Numerous minor changes to the shoreline have occurred since the 1955 survey. These are addressed in the field edit data and report for TP-00535.

Presurvey review item number 32 was resolved as follows:

The item consisted of a submerged pile; latitude 37°36'58.2", longitude 122°15'00.6"; a submerged snag, latitude 37°37'05.4", longitude 122°14'27.6"; and a submerged snag, latitude 37°36'40.8", longitude 122°14'52.2", all of which originated with survey H-5129, 1930-31. Depths in the area at the time of the original survey ranged from 1 to 3 ft. It has since been dredged to 10 to 13 ft. in depth which should have destroyed the obstructions. In addition, a dive search was conducted for each item. A fifty pound lead weight was dropped at the charted position of each obstruction and used as the center of a circular line search by the divers. A 25 m, 3/8" line was attached to the weight with a swivel, stretched along the bottom, and swept in a circle with a diver at the end and middle of the line. This achieved a bottom sweep of 25 m radius centered at the charted position of each obstruction. No obstructions were found and it is recommended that the three objects be deleted from the chart.

See Ver/Eval Rpt Sect. 6

L. COMPARISON WITH THE CHART

H-9872 was compared with a 1:10,000 scale enlargement of chart 18651, 1:40,000, 29th edition, August 12, 1978. The source of most of the soundings on the chart appears to be H-8027 and the comments concerning general depth agreement and borrow areas in COMPARISON WITH PRIOR SURVEYS also apply in comparison with the chart. The chart should be revised to reflect the new depths and borrow dredging.

See Ver/Eval Rpt Sect. 7

The San Mateo-Hayward Bridge shown on the chart is the new bridge and is correct as shown. Discrepancies in shoreline compilation are resolved in the field edit data and report for TP-00535. The shoreline on the chart should be revised to reflect the changes.

M. ADEQUACY OF SURVEY

Survey H-9872 is complete and adequate to supersede all prior surveys for charting purposes. All fathograms were scanned for peaks and deeps with appropriate changes made to the original records.

N. AIDS TO NAVIGATION

There were no fixed or floating aids to navigation in the survey area.

See Ver/Eval Rpt Sect. 7

O. STATISTICS

Vessel No.	EDP No.	Sq NM of Hydro	Linear Miles of Sounding Lines	Bottom Samples	No. of Detached Positions	No. of Positions
1016	0656	22.5	553.6	20	25	4579

Number of tide stations established - 3

P. MISCELLANEOUS

None.

Q. RECOMMENDATIONS

None.

R. AUTOMATED DATA PROCESSING

The survey was processed using a PDP 8/e Hydroplot System and the following software:

Program	Name	Version
RK201	Grid, Signal, and Lattice Plot	4/18/75
RK211	Range-Range Non-Real Time Plot	1/15/76
RK300	Utility Computations	2/05/76
RK330	Reformat and Data Check	5/04/76
PM360	Electronic Corrector Abstract	2/02/76
AM500	Predicted Tide Generator	11/10/72
AM602	Elinore-Line Oriented Editor	5/20/75

S. REFERRAL TO REPORTS

Field Edit Report, TP-00535	September 1980
Coast Pilot Report	January 1981
Horizontal Control Report, 1980	
OPR-L123-PHP-80	January 1981

Respectfully Submitted,

Douglas D. Smith
Lt.(JG.), NOAA

FIELD TIDE NOTE

MAY-DECEMBER 1980

OPR-L123-PHP-80

H-9872 PHP-10-1-80

Soundings on the field sheet were reduced on the basis of predicted tides for San Francisco (Golden Gate), California, and corrected for the survey areas as follows:

Time of high water	+50 minutes
Time of low water	+1 hour 13 minutes
Height ratio	1.33

(Corrections supplied by the tides & water levels branch Rockville, Md.)

Tidal reducers were computed at 0.2 foot intervals using a PDP 8/E computer system and program AM 500, "Predicted Tide Generator."

Tide control for the survey was provided by ADR gages installed at three sites as follows:

Site	Position	Period
San Leandro #941-4688	37° 41.7' N 122° 11.5' W	May-December 1980
Oyster Point #941-4392	37° 39.9' N 122° 22.8' W	May-December 1980
Hunters Point #941-4358	37° 43.8' N 122° 21.4' W	May-December 1980

San Leandro

Fischer Porter ADR gage, SN 6903A5568M13, was in place on San-Leandro Marina channel marker #15 for the entire time span of the survey. A new tide staff was installed and leveled on November 11, 1980. Observations were made to the old and new staffs at the time of the new staff installation. The gage time was reset whenever it differed from standard time by 3 minutes.

Oyster Point

Fischer Porter ADR gage, SN 7403A3402, was in place at the beginning of the survey and was removed on October 14, 1980 for repairs to the floatwell.

Manual readings of the staff were recorded in a tide volume on J.D. 340 when hydrography was run without the gage installed . The tide gage time was reset whenever it varied more than 3 minutes from standard time.

Hunters Point

Fischer Porter ADR SN7504A2689M24, was in place and operating for the entire time span of this survey. Gage time was reset whenever it varied more than 3 minutes from standard time.

Levels

No significant variations from historical elevation data for tidal benchmarks was observed during leveling.

NOAA FORM 76-155
(11-72)

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

SURVEY NUMBER

H-9872

GEOGRAPHIC NAMES

Name on Survey	A ON CHART NO.	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	K	
SAN LORENZO CREEK										1
SULPHUR CREEK										2
HAYWARD LANDING										3
JOHNSON LANDING										4
SAN FRANCISCO BAY										5
SAN MATEO-HAYWARD BRIDGE										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
					Approved:					19
										20
					Charles E. Harrington					21
					Chief Geographer - N/CG2x5					22
					17 JUNE 1983					23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

ABSTRACT OF TIME OF HYDROGRAPHY

AND/OR FIELD EDIT

Date 1/26/81

Project No. OPR-L123-PHP-80 Vessel 0656

Date of Survey May - December 1980

Field Sheet No. PHP-10-2-80 Registry No. H-9872

Field Sheet is Complete

J.D.	Time (Z)		J.D.	Time (Z)	J.D.	Time (Z)		J.D.	Time (Z)
134	160000	–	134	213800			–		
148	173000	–	148	220000			–		
150	170000	–	150	240000			–		
156	173000	–	156	230000			–		
175	160000	–	175	210000			–		
177	160000	–	177	210000			–		
178	130000	–	178	230000			–		
187	130000	–	187	190000			–		
188	130000	–	188	180000			–		
189	150000	–	189	200000			–		
190	140000	–	190	220000			–		
191	160000	–	191	220000			–		
192	160000	–	192	220000			–		
193	150000	–	193	190000			–		
194	150000	–	194	220000			–		
196	160000	–	196	220000			–		
198	150000	–	198	220000			–		
204	160000	–	204	200000			–		
205	170000	–	205	190000			–		
207	180000	–	207	210000			–		
337	170000	–	337	190000			–		
340	170000	–	340	190000			–		

ABSTRACT OF DIRECT COMPARISONS

BAR DEPTH(FT)	MEAN DIGITIZED DEPTH + STATIC DRAFT (1.25 FT)	CORRECTION(FT)
5.0	4.96	+0.04
10.0	9.81	+0.19
15.0	14.79	+0.21
20.0	19.55	+0.45
25.0	24.60	+0.40
30.0	29.85	+0.15
35.0	34.05	+0.95
40.0	38.85	+1.15

An estimated transducer draft of 1.5 ft. was applied on the individual direct comparison logs. The actual static transducer draft (1.25 ft) determined at the end of the survey was used to compute the values abstracted above.

Mean digital depth values were computed from direct comparison logs for the following Julian Days:

148	192
150	196
189	198
190	207
191	

(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)

CORRECTIONS IN FEET, ~~FATHOMS~~

NOAA FORM 75-21 (10-72) — U.S. DEPARTMENT OF COMMERCE — NOAA — NATIONAL OCEAN SURVEY

VELOCITY CORRECTIONS

Ship PACIFIC HYDROGRAPHIC PARTY

LCDR. D.R. TAYLOR Comdg.

These corrections are to be used

between _____ 19___ and _____ 19___

in the locality SAN FRANCISCO BAY, HAYWARD, CALIFORNIA

for hydrographic surveys Nos. H-9872

(For deep water add a 0 to these figures)

DEPTHS IN FEET
~~DEPTHS IN FATHOMS~~

10 20 30 40 50 ~~60~~ 0 ~~70~~ 5 ~~80~~ 10 ~~90~~ 15 ~~100~~ 20 ~~110~~ 25 ~~120~~ 30 ~~130~~ 35 ~~140~~ 40 ~~150~~ 45 ~~160~~ 50 170 180 190

DEPTH		CORRECTOR
~~8.0~~ 6.6	—	0.0
~~16.0~~ 16.3	—	0.2
~~23.9~~ 30.0	—	0.4
~~31.9~~ 31.9	—	0.6
~~39.9~~ 33.5	—	0.8
37.6	—	1.0
~~47.8~~ 42.6	—	1.2
~~55.8~~ 47.5	—	1.4
52.5	—	1.6
53.6	—	1.8

EXTRAPOLATED VALUES

⊙ = DIRECT COMPARISON DATA POINT

0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3

46 1240

K&E 20 X 20 TO THE 7H • 7 X 10 INCHES KEUFFEL & ESSER MADE IN U.S.A.

☆ U.S. GOV. PRINTING OFFICE: 1975—668-16

VELOCITY TAPE LISTINGS

TABLE 1

000066 0 0000 0001 000 065600 009872

000162 0 0002

000300 0 0004

000319 0 0006

000338 0 0008

000376 0 0010

000428 0 0012

000475 0 0014

000525 0 0016

999999 0 0018

NOAA LAUNCH 1016 (EDP #0656)

SETTLEMENT AND SQUAT

ABSTRACT

H-9872

RPM	CHANGE IN DRAFT (FROM STATIC POSITION)
800	+0.1 FT
1200	+0.05 FT
1500	-0.09 FT
1600	-0.15 FT
1800	-0.24 FT
2100	-0.42 FT
2200	-0.49 FT
2300	-0.57 FT
2400	-0.64 FT

(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)

CORRECTIONS IN FEET, ~~FATHOMS~~

NOAA FORM 76-21 (10-72) U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEAN SURVEY NOAA

Settlement and Squat ~~REDUCTION~~ CORRECTIONS

Ship Pacific Hydrographic Field Party

Lieutenant Dirk R. Taylor Comdg

These corrections are to be used

between July 19 79 and ____ 19__

in the locality ____

for hydrographic surveys Nos. ____

NOAA LAUNCH 1016

DEPTH IN FATHOMS

REVOLUTIONS PER MINUTE

10 20 30 40 50 60 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 190

Feet of Change from Static Position

-.1 0 .1 .2 .3 .4 .5 .6 .7 .8 .9 1.0

46 1240

K·E 20 X 20 TO 7 KEUFFEL & ESSER CO. MADE IN USA

☆ U.S. GOV. PRINTING OFFICE: 1975—668-

DIRECT COMPARISON LOG

Bar check ✓ Vertical cast _____

Vessel ID no. 0656 (#1016) Jul date 148 (Tues. 5/27/80) Time 173123 Z

Wind NW 8-11 Kts Sea 1/2 - 1 ft. NW Depth units Feet Draft 1.5 Initial setting 0.0

Instrument Koss Fineline Model 5000 Recorder serial no. 1082 Latitude _____ Longitude _____

A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q
				Analog observed depth						Digital observed depth					
Line depth	Line corr	Actual depth	Gain	Scale	Down	Up	Mean	Mean + draft	Corr (C-I)	Down	Up	Mean	Mean + draft	Corr (C-N)	Analog to digital corr (J-P)
		5	AGC	0-100	3.6	3.5	3.6	5.1	-0.1	3.6	3.5	3.6	5.1	-0.1	0.0
		10	↓	↓	8.5	8.5	8.5	10.0	0.0	8.5	8.5	8.5	10.0	0.0	0.0
		15	↓	↓	13.5	—	13.5	15.0	0.0	13.5	—	13.5	15.0	0.0	0.0

Computed by FLR

Note: Depths are averages of 3 readings at each bar setting.

DIRECT COMPARISON LOG

Bar check ✓ Vertical cast _____

Vessel ID no. 0656 (#1016) Jul date 150 (Thurs 5/29/80) Time 173944 Z

Wind Calm Sea Calm Depth units Feet Draft 1.5 Feet Initial setting 0.0

Instrument Ross Fineline Model 5000 Recorder serial no. 1082 Latitude _____ Longitude _____

A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q
				Analog observed depth						Digital observed depth					
Line depth	Line corr	Actual depth	Gain	Scale	Down	Up	Mean	Mean + draft	Corr (C-I)	Down	Up	Mean	Mean + draft	Corr (C-N)	Analog to digital corr (J-P)
		5	AGC	0-100	3.7	3.6	3.6	5.1	-0.1	3.8	3.6	3.7	5.2	-0.2	-0.1
		10			8.6	8.5	8.5	10.0	+0.0	8.7	8.4	8.5	10.0	+0.0	0.0
		15			13.5	13.5	13.5	15.0	0.0	13.5	13.6	13.5	15.0	+0.0	+0.0
		20			18.4	18.4	18.4	19.9	+0.1	18.4	18.4	18.4	19.9	+0.1	0.0
		25			23.5	23.5	23.5	25.0	0.0	23.5	23.5	23.5	25.0	0.0	0.0
		30	↓	↓	28.6	—	28.6	30.1	-0.1	28.7	—	28.7	30.2	-0.2	-0.1

Computed by FLR
CK by NWP

Note: Depths are averages from 3 readings at each bar setting.

DIRECT COMPARISON LOG

Bar check ✓ Vertical cast _____

Vessel ID no. 0656 (*1016) Jul date 189 7/7/88 Monday Time 151603 Z

Wind _____ Sea 1½-2' NW Depth units Feet Draft 1.5 Initial setting 0.0

Instrument Ross Fineline Model 5000 Recorder serial no. 1082 Latitude _____ Longitude _____

A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q
Line depth	Line corr	Actual depth	Gain	Analog observed depth						Digital observed depth					Analog to digital corr (J–P)
				Scale	Down	Up	Mean	Mean + draft	Corr (C–I)	Down	Up	Mean	Mean + draft	Corr (C–N)	
		5	AGC	0-100'	3.5	3.6	3.5	5.0	0.0	3.6	3.6	3.6	5.1	-0.1	-0.1
		10	↓	↓	8.5	8.5	8.5	10.0	0.0	8.5	8.5	8.5	10.0	0.0	0.0
		~~15~~	↓	↓											

Compiled by F.L.R.

V by MEB

DIRECT COMPARISON LOG

Bar check ✓ Tues Vertical cast ____

Vessel ID no. 0656 (#1016) Jul date 190 7/8/80 Time 145749 Z

Wind N.W. 8-11 KTS Sea ½-1 FT N.W. Depth units FEET Draft 1.5 Initial setting 0.0

Instrument Ross FINELINE Model 5000 Recorder serial no. 1082 Latitude ____ Longitude ____

A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q
				Analog observed depth						Digital observed depth					
Line depth	Line corr	Actual depth	Gain	Scale	Down	Up	Mean	Mean + draft	Corr (C-I)	Down	Up	Mean	Mean + draft	Corr (C-N)	Analog to digital corr (J-P)
		5	AGC	0-100	3.8	3.8	3.8	5.3	-0.3	3.8	3.7	3.8	5.3	-0.3	0
		10	↓	↓	8.7	8.6	8.6	10.1	-0.1	8.7	8.6	8.6	10.1	-0.1	0
		15	↓	↓	13.6	13.5	13.6	15.1	-0.1	13.6	13.5	13.6	15.1	-0.1	0

Depths Are Averages of 3 Readings At Each Bar Setting

DIRECT COMPARISON LOG

Bar check ✓ Vertical cast _____

Vessel ID no. 0656 (#1016) Jul date 191 7/9/80 Time 164620 Z

Wind CALM Sea CALM Depth units FEET Draft 1.5 Initial setting 0.0

Instrument Ross Fineline Model # 5000 Recorder serial no. 1082 Latitude _____ Longitude _____

A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q
				Analog observed depth						Digital observed depth					
Line depth	Line corr	Actual depth	Gain	Scale	Down	Up	Mean	Mean + draft	Corr (C-I)	Down	Up	Mean	Mean + draft	Corr (C-N)	Analog to digital corr (J-P)
		5	AGC	0-100	3.8	3.7	3.8	5.3	-0.3	3.8	3.7	3.8	5.3	-0.3	0
		10	"	"	8.7	8.7	8.7	10.2	-0.2	8.7	8.7	8.7	10.2	-0.2	0
		15	"	"	13.4	13.3	13.4	13.9	+0.1	13.5	13.5	~~13.5~~ 13.6	15.0	0	+0.1

Depths Are Averages of 3 bar readings at each bar setting

DIRECT COMPARISON LOG

Bar check ✓ Vertical cast _____

Vessel ID no. 0656 (#1016) Jul date 192 7/10/80 Time _____

Wind CALM Sea 0 (CALM) Depth units FEET Draft 1.5 Initial setting 0.0

Instrument Ross FineLine Model #5000 Recorder serial no 1082 Latitude _____ Longitude _____

A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q
Line depth	Line corr	Actual depth	Gain	Analog observed depth						Digital observed depth					Analog to digital corr (J–P)
				Scale	Down	Up	Mean	Mean + draft	Corr (C–I)	Down	Up	Mean	Mean + draft	Corr (C–N)	
		5	AGC	0-100	3.7	3.7	3.7	5.2	-0.2	3.7	3.7	3.7	5.2	-0.2	0
		10	↓	↓	8.6	8.6	8.6	10.1	-0.1	8.6	8.6	8.6	10.1	-0.1	0
		15	↓	↓	13.8	13.8	13.8	15.3	-0.3	13.8	13.8	13.8	15.3	-0.3	0

Depths Are Averages of 3 readings at each bar setting

DIRECT COMPARISON LOG

Bar check ✓ 196 7 14 Vertical cast _____

Vessel ID no. 0656 (#1016) Jul date 148 5/24/80 Time 181859 Z

Wind 10-25 NW Sea 1'-2' NW Depth units FEET Draft 1.5 FT Initial setting 0.0

Instrument Ross Fineline Model 5000 Recorder serial no. 1082 Latitude _____ Longitude _____

A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q
Line depth	Line corr	Actual depth ∅	Gain	Analog observed depth: Scale	Down	Up	Mean	Mean + draft	Corr (C-I)	Digital observed depth: Down	Up	Mean	Mean + draft	Corr (C-N)	Analog to digital corr (J-P)
		105	AGC	0-100	3.7	3.7	3.7	5.2	-0.2	3.7	3.7	3.7	5.2	-0.2	0
		1610	↓	↓	8.6	8.7	8.6	10.1	-0.1	8.6	8.7	8.6	10.1	-0.1	0
		15	↓	↓	13.6	13.6	13.6	15.1	-0.1	13.6	13.6	13.6	15.1	-0.1	0

DIRECT COMPARISON LOG

Bar check V Vertical cast _____

Vessel ID no. 0656 (#1016) Jul date 198 7/16/80 Time _____

Wind _____ Sea _____ Depth units FEET Draft 1.5 Initial setting 0.0

Instrument Ross Fineline Model 5000 Recorder serial no. 1082 Latitude _____ Longitude _____

A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q
				Analog observed depth						Digital observed depth					
Line depth	Line corr	Actual depth	Gain	Scale	Down	Up	Mean	Mean + draft	Corr (C-I)	Down	Up	Mean	Mean + draft	Corr (C-N)	Analog to digital corr (J-P)
		5	AGC	0-100	3.7	3.6	3.6	5.1	-0.1	3.7	3.7	3.7	5.2	-0.2	+0.1
		10	↓	↓	8.3	8.3	8.3	9.8	+0.2	8.5	8.5	8.5	10.0	0	+0.2
		15			13.3	13.2	13.2	14.7	+0.3	13.4	13.4	13.4	14.9	+0.1	+0.2
		20			18.1	18.1	18.1	19.6	+0.4	18.2	18.1	18.2	19.7	+0.3	+0.1
		25			23.1	23.1	23.1	24.6	+0.4	23.2	23.2	23.2	24.7	+0.3	+0.1
		30			27.9	28.9	27.9	29.4	+0.6	27.8	28.0	27.9	29.4	+0.6	0
		~~35~~40			32.8	32.6	32.7	34.2	+0.8	32.6	32.6	32.8	34.3	+0.7	+0.1
		40			37.5	37.7	37.6	39.1	+0.9	37.6	37.7	37.6	39.1	+0.9	0

Depths Are Averages of 3 Readings For each bar Setting

DIRECT COMPARISON LOG

Bar check ✓ Vertical cast _____

Vessel ID no. 0656 (1016) Jul date 207 (7/25/80) Time _____

Wind Calm Sea CALM Depth units FEET Draft 1.5 Initial setting 0.0

Instrument Ross Fineline Model #500 Recorder serial no. 1082 Latitude _____ Longitude _____

A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q
				Analog observed depth						Digital observed depth					
Line depth	Line corr	Actual depth	Gain	Scale	Down	Up	Mean	Mean + draft	Corr (C-I)	Down	Up	Mean	Mean + draft	Corr (C-N)	Analog to digital corr (J-P)
5	0	5	AGC	0-100	3.8	3.8	3.8	5.3	-0.3	3.9	3.8	3.8	5.3	-0.3	0
10	0	10	↓	↓	8.5	8.5	8.5	10.0	0.0	8.5	8.6	8.6	10.1	-0.1	+0.1
15	0	15	↓	↓	13.5	13.4	13.4	14.9	0.1	13.4	13.5	13.4	14.9	+0.1	0
										~~18.6~~					

TRA (TC/TI) TAPE: VESSEL 0656(1016) SURVEY H-9872 FATHOMETER S/N 1082 YR 80 PAGE 1 OF 4

From TIME	TRA CORR.	DAY	VEL. TBL.	TRA corr. is the algebraic sum of these columns INITIAL	SCALE-PHASE	DRAFT	F. ARC	S./ SQUAT	COMMENTS
162430	+0.61	134	00001			1.25		-0.64	2400 RPM
174354	+0.61	148	00001			1.25		-0.64	2400 RPM
173944	+0.61	150	00001			1.25		-0.64	2400 RPM
203918	+ 0.83	150	00001			1.25		-0.42	2100 RPM
210340	+0.61	150	00001			1.25		-0.64	2400 RPM
232254	+1.01	150	00001			1.25		-0.24	1800 RPM
233124	+0.76	150	00001			1.25		-0.49	2200 RPM
233200	+1.01	150	00001			1.25		-0.24	1800 RPM
180457	+0.61	156	00001			1.25		-0.64	2400 RPM
171318	+0.61	175	00001			1.25		-0.64	2400 RPM
184549	+0.83	175	00001			1.25		-0.42	2100 RPM
193957	+0.61	175	00001			1.25		-0.64	2400 RPM
171003	+0.83	177	00001			1.25		-0.42	2100 RPM
173254	+0.68	177	00001			1.25		-0.57	2300 RPM
173613	+0.61	177	00001			1.25		-0.64	2400 RPM
175737	+1.01	177	00001			1.25		-0.24	1800 RPM

TRA (TC/TI) TAPE: VESSEL 0656(1016) SURVEY H-9872 FATHOMETER S/N 1082 YR 80

From TIME	TRA CORR.	DAY	VEL. TBL.	TRA corr. is the algebraic sum of these columns INITIAL	SCALE-PHASE	DRAFT	F. ARC	S./ SQUAT	COMMENTS
180532	+0.61	177	00001			1.25		-0.64	2400 RPM
183638	+1.01	177	0001			1.25		-0.24	1800 RPM
184056	+0.61	177	0001			1.25		-0.64	2400 RPM
190438	+1.01	177	0001			1.25		-0.24	1800 RPM
190900	+0.61	177	0001			1.25		-0.64	2400 RPM
192902	+1.01	177	0001			1.25		-0.24	2400 RPM
193620	+0.61	177	0001			1.25		-0.64	2400 RPM
194532	+0.61	177	0001			1.25		-0.64	2400 RPM
194902	+1.01	177	0001			1.25		-0.24	1800 RPM
195932	+0.83	177	0001			1.25		-0.42	2100 RPM
200924	+1.01	177	0001			1.25		-0.24	1800 RPM
191822	+1.26	178	0001			1.25		+0.10	800 RPM
193752	+1.30	178	0001			1.25		+0.05	1200 RPM
194316	+1.01	178	0001			1.25		-0.24	1800 RPM
200657	+0.83	178	0001			1.25		-0.42	2100 RPM
200833	+0.61	178	0001			1.25		-0.64	2400 RPM

TRA (TC/TI) TAPE: VESSEL 0656(1016) SURVEY H-9872 FATHOMETER S/N 1082 YR 80 PAGE 3 OF 4

From TIME	TRA CORR.	DAY	VEL. TBL.	TRA corr. is the algebraic sum of these columns INITIAL	SCALE-PHASE	DRAFT	F. ARC	S./ SQUAT	COMMENTS
205633	+0.83	178	0001			1.25		-0.42	2100 RPM
210703	+0.61	178	0001			1.25		-0.64	2400 RPM
215551	+0.76	178	0001			1.25		-0.49	2200 RPM
140000	+0.61	187	0001			1.25		-0.64	2400 RPM
135106	+0.61	188	0001			1.25		-0.64	2400 RPM
161613	+0.61	189	0001			1.25		-0.64	2400 RPM
151312	+0.61	190	0001			1.25		-0.64	2400 RPM
165936	+0.61	191	0001			1.25		-0.64	2400 RPM
165218	+0.61	192	0001			1.25		-0.64	2400 RPM
163236	+0.61	193	0001			1.25		-0.64	2400 RPM
161905	+0.61	194	0001			1.25		-0.64	2400 RPM
192424	+1.16	194	0001			1.25		-0.09	1500 RPM
195649	+1.25	194	0000			1.25		000	D.P. At Rest
165431	+0.61	196	0001			1.25		-0.64	2400 RPM
165430	+0.61	198	0001			1.25		-0.64	2400 RPM
172448	+1.16	198	0001			1.25		-0.09	1500 RPM

TRA (TC/TI) TAPE: VESSEL 0656(1016) SURVEY H-9872 FATHOMETER S/N ~~1082~~ YR ~~80~~ PAGE 4 OF 4

From TIME	TRA CORR.	DAY	VEL. TBL.	TRA corr. is the algebraic sum of these columns INITIAL	SCALE-PHASE	DRAFT	F. ARC	S./ SQUAT	COMMENTS
180724	+0.61	198	0001			1.25		-0.64	2400 RPM
185842	+1.16	198	0001			1.25		-0.09	1500 RPM
193706	+0.61	198	0001			1.25		-0.64	2400 RPM
195336	+1.16	198	0001			1.25		-0.09	1500 RPM
200512	+0.61	198	0001			1.25		-0.64	2400 RPM
205341	+1.25	198	0000			1.25		000	D.P. At Rest
163601	+1.25	204	0000			1.25		000	D.P. At Rest
175746	+0.61	205	0001			1.25		-0.64	2400 RPM
183748	+0.61	207	0001			1.25		-0.64	2400 RPM
175428	+1.01	337	0001			1.25		-0.24	1800 RPM
190005	+1.25	340	0000			1.25		000	D.P. At Rest

TC/TI TAPE LISTING H-9872

162430 0 0006 0001 134 065600 000000

174354 0 0006 0001 148 065600 000000

173944 0 0006 0001 150 065600 000000

203918 0 0008 0001 150 065600 000000

210340 0 0006 0001 150 065600 000000

232254 0 0010 0001 150 065600 000000

233124 0 0008 0001 150 065600 000000

233200 0 0010 0001 150 065600 000000

180457 0 0006 0001 156 065600 000000

171318 0 0006 0001 175 065600 000000

184549 0 0008 0001 175 065600 000000

193957 0 0006 0001 175 065600 000000

171003 0 0008 0001 177 065600 000000

173254 0 0007 0001 177 065600 000000

173613 0 0006 0001 177 065600 000000

175737 0 0010 0001 177 065600 000000

180532 0 0006 0001 177 065600 000000

183638 0 0010 0001 177 065600 000000

184056 0 0006 0001 177 065600 000000

190438 0 0010 0001 177 065600 000000

190900 0 0006 0001 177 065600 000000

192902 0 0010 0001 177 065600 000000

193620 0 0006 0001 177 065600 000000

194532 0 0006 0001 177 065600 000000

194902 0 0010 0001 177 065600 000000

195932 0 0008 0001 177 065600 000000

200924 0 0010 0001 177 065600 000000

191822 0 0013 0001 178 065600 000000

193752 0 0013 0001 178 065600 000000

194~~316~~ 5338 0 0010 0001 178 065600 000000

200657 0 0008 0001 178 065600 000000

200833 0 0006 0001 178 065600 000000

205633 0 0008 0001 178 065600 000000

210703 0 0006 0001 178 065600 000000

215551 0 0008 0001 178 065600 000000

140000 0 0006 0001 187 065600 000000

135106 0 0006 0001 188 065600 000000

161613 0 0006 0001 189 065600 000000

151312 0 0006 0001 190 065600 000000

165936 0 0006 0001 191 065600 000000

165218 0 0006 0001 192 065600 000000

163236 0 0006 0001 193 065600 000000

161905 0 0006 0001 194 065600 000000

192424 0 0012 0001 194 065600 000000

195649 0 0013 0000 194 065600 000000

165431 0 0006 0001 196 065600 000000

165430 0 0006 0001 198 065600 000000

172448 0 0012 0001 198 065600 000000

180724 0 0006 0001 198 065600 000000

185842 0 0012 0001 198 065600 000000

193706 0 0006 0001 198 065600 000000

195336 0 0012 0001 198 065600 000000

200512 0 0006 0001 198 065600 000000

205341 0 0013 0000 198 065600 000000

163601 0 0013 0000 204 065600 000000

175746 0 0006 0001 205 065600 000000

183748 0 0006 0001 207 065600 000000

175428 0 0010 0001 337 065600 000000

190005 0 0013 0000 340 065600 000000

235959 0 0000 0000 340 065600 000000

ELECTRONIC CORRECTOR ABSTRACT

Vessel : 1016 (Vesno 0656) SHEET : H-9872

TIME	DAY	PATTERN 1	PATTERN 2
162430	134	+00034	-00007
174354	148	+00032	-00007
181100	150	+00046	+00017
180457	156	+00003	-00006
220146 57	156	-00001	-00000
171318	175	-00050	-00011
171003	177	+00034	-00018
184728	178	+00035	-00009
140000	187	+00036	-00010
135106	188	+00030	-00011
161613	189	-00047	-00001
151312	190	-00056	-00018
165936	191	-00056	-00015
203500 / 19230C	191	-00056	-00115
165218	192	-00056	-00013
200748	192	-00056	-00113
202448 54	192	-00056	-00013
202754	192	-00056	-00113
164154	193	-00056	-00028
161905	194	-00054	-00039
165431	196	+00037	-00021
165430	198	-00056	-00011
4135 163601	204	-00000	-00001
175746	205	-00000	-00000
183748	207	-00000	-00001
4552 175428	337	-00000	-00000
190005	340	-00000	-00000

Station List: H-~~9869~~ 9872

Station	O	Latitude	Longitude	CRT	Elev.	F. KHZ.	Source	Name
200	1	37 39 13074 (66)	122 22 54117 (72)	250	0037	329040	PHP 1980	Koret (Raydist) 1980
202	1	37 34 24464	122 16 41876	250	0007	329040	PHP 1980	BLOCK (Raydist) 1980
~~203~~	~~1~~	~~37 45 49066~~	~~122 16 53582~~	~~139~~	~~0002~~	~~000000~~	~~PHP 1980~~	~~BALLENA BAY LIGHT 1 1980~~
204	1	37 36 17801	122 17 21180	139	0003	000000	PPP 1977	SOUTH SAN FRANCISCO BAY SOUTH CHANNEL LIGHT 8 1977
205	1	37 40 19860	122 13 20124	254	0003	000000	PHP 1980	~~SAN LEANDRO OBSERVATION PLATFORM 1980~~ T.P.
~~206~~	~~1~~	~~37 35 19970~~	~~122 16 07022~~	~~139~~	~~0003~~	~~000000~~	~~PHP 1980~~	~~SOUTH SAN FRANCISCO BAY SOUTH CHANNEL LIGHT 8A 1980~~
207	1	37 35 28848	122 19 06017	250	0003	000000	Q. 3712211 #3036	POINT SAN MATEO 1925
500	1	37 39 13074 (66)	122 22 54117 (72)	250	00037	000000	PHP 1980	KORET (MINIRANGER) 1980
502	1	37 34 24464	122 16 41876	250	0007	000000	PHP 1980	BLOCK (MINIRANGER) 1980

PPP - Pacific Photo Party

PHP - Pacific Hydrographic Party

ABSTRACT OF POSITIONS: H-9872 (Page 1 of 2)

Vessel: 1016 (Vesno 0656)

Day	Positions	CTRL	S1	S2	Remarks
134	0001-0282	04	202	200	Hydro
148	0283-0639				
150	0640-0934				
156	1003-1102				
175	1103-1194				
175	1198-1285				
177	1286-1546				
178	1547-1753				
178	1758-1796				
187	1797-1848				
187	1950-2179				
188	2180-2390				
189	2391-2609				
190	2610-2921				
190	2923-3032				
191	3033-3447				Hydro
191	3119-3137				(Not plotted. Crossline run 2nd time)
192	3448-3920				Hydro
193	3921-4027				
194	4028-4303				Hydro
194	7000-7011				Bottom Samples
196	4304-4360				Development lines.
196	4363-4369				" "
196	4371-4404				" "
198	4405-4532				" "
198	7012-7019	04	202	200	Bottom Samples

Vessel: 1016 (Vesno 0656)

Day	Positions	CTRL	S1	S2	Remarks
204	4533-4535	~~08~~ 04	~~202~~ 502	~~204~~ 500 (Initial)	Dive Investigation. D.P.'s.
205	4537-4583	04	~~202~~ 502	~~200~~ 500	Hydro
207	4584-4604	↓	↓	↓	
207	4607-4626				Hydro
207	4633-4662				Hydro-Shoreline
337	6000-6023	06	207	204(Initial)	Hydro
340	4663	06	207	204(Initial)	D.P.-Dive Investigation

NOAA FORM 75-44
(11-72)

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

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

VESSEL	PROJ. NO.	YEAR		CHECKED BY	DATE CHECKED
NOAA Launch 1016	L123-PHP-80	1980	Hydrographic Survey H-9872		

SERIAL NO.	DATE Julian	SAMPLE POSITION LATITUDE North	SAMPLE POSITION LONGITUDE West	DEPTH (Fathoms) Feet	WEIGHT OF SAMPLER	APPROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
7000	194	37/37 12.367	122/09 38.780	5.0	2#	6"	N/A	gy gn	M,Cl,Sh		
7001	194	37/37 45.916	122/10 14.385	6.1				gy	M,Cl,Sh		
7002	194	37/38 45.622	122/09 42.648	5.1				gy	M,Cl,Sh		
7003	194	37/39 48.685	122/10 55.018	5.8				gy	Cl,Sh		
7004	194	37/39 42.785	122/12 12.431	2.7				gy	M,Cl,Sh		
7005	194	37/38 46.564	122/12 12.240	9.6				gy	M.Cl,Sh		
7006	194	37/37 42.411	122/12 12.154	2.0				gy	M,Cl,Sh		
7007	194	37/36 43.567	122/12 15.184	11.4				gy	M,Cl,Sh		
7008	194	37/36 08.924	122/13 43.822	13.6				gy wh br	M,Cl,smlSh	Tube Worms	
7009	194	37/37 17.958	122/13 43.133	2.1				gy wh br	M,Cl,smlSH	Tube Worms	
7010	194	37/38 16.319	122/13 42.682	2.1				br gy	M,Cl,Sh		
7011	194	37/39 24.115	122/13 57.789	2.3				gn gy	M,Cl,Sh		
7012	198	37/39 43.057	122/15 07.087	13.3				gn br gy	M,Sh		
7013	198	37/39 18.459	122/16 11.464	17.5				gy gn	M,Sh		
7014	198	37/39 41.091	122/14 29.232	12.2				gy	M,Sh	Sample lost	
7015	198	37/38 39.809	122/15 07.103	13.5				gn gy	M,Sh		
7016	198	37/37 12.096	122/16 15.990	11.6				gn gy	M,		

Use more than one line per sample if necessary.

☆U.S. Government Printing Office: 1975 – 665-661/1130, Region No. 6

NOAA FORM 75-44
(11-72)

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

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

VESSEL	PROJ. NO.	YEAR		CHECKED BY	DATE CHECKED
NOAA Launch 1016	L123-PHP-80	1980	Hydrographic Survey H-9872		

SERIAL NO.	DATE Julian	SAMPLE POSITION LATITUDE North	SAMPLE POSITION LONGITUDE West	DEPTH (Fathoms) Feet	WEIGHT OF SAMPLER	APPROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
7000	194	37/37 12.367	122/09 38.780	5.0	2#	6"	N/A	gy gn	M,Cl,Sh		
7001	194	37/37 45.916	122/10 14.385	6.1				gy	M,Cl,Sh		
7002	194	37/38 45.622	122/09 42.648	5.1				gy	M,Cl,Sh		
7003	194	37/39 48.685	122/10 55.018	5.8				gy	Cl,Sh		
7004	194	37/39 42.785	122/12 12.431	2.7				gy	M,Cl,Sh		
7005	194	37/38 46.564	122/12 12.240	9.6				gy	M.Cl,Sh		
7006	194	37/37 42.411	122/12 12.154	2.0				gy	M,Cl,Sh		
7007	194	37/36 43.567	122/12 15.184	11.4				gy	M,Cl,Sh		
7008	194	37/36 08.924	122/13 43.822	13.6				gy wh br	M,Cl,sml Sh	Tube Worms	
7009	194	37/37 17.958	122/13 43.133	2.1				gy wh br	M,Cl,sml SH	Tube Worms	
7010	194	37/38 16.319	122/13 42.682	2.1				br gy	M,Cl,Sh		
7011	194	37/39 24.115	122/13 57.789	2.3				gn gy	M,Cl,Sh		
7012	198	37/39 43.057	122/15 07.087	13.3				gn br gy	M,Sh		
7013	198	37/39 18.459	122/16 11.464	17.5				gy gn	M,Sh		
7014	198	37/39 41.091	122/14 29.232	12.2				gy	M,Sh	Sample lost	
7015	198	37/38 39.809	122/15 07.103	13.5				gn gy	M,Sh		
7016	198	37/37 12.096	122/16 15.990	11.6				gn gy	M,		

Use more than one line per sample if necessary.

☆U.S. Government Printing Office: 1975 — 665-861/1130, Region No. 6

NOAA FORM 75-44
(11-72)

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

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

VESSEL	PROJ. NO.	YEAR		CHECKED BY	DATE CHECKED
NOAA Launch 1016	L123-PHP-80	1980	Hydrographic Survey H-9872		

SERIAL NO.	DATE Julian	SAMPLE POSITION LATITUDE North	SAMPLE POSITION LONGITUDE West	DEPTH (Fathoms) Feet	WEIGHT OF SAMPLER	APPROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
7000	194	37/37 12.367	122/09 38.780	5.0	2#	6"	N/A	gy gn	M,Cl,Sh		
7001	194	37/37 45.916	122/10 14.385	6.1				gy	M,Cl,Sh		
7002	194	37/38 45.622	122/09 42.648	5.1				gy	M,Cl,Sh		
7003	194	37/39 48.685	122/10 55.018	5.8				gy	Cl,Sh		
7004	194	37/39 42.785	122/12 12.431	2.7				gy	M,Cl,Sh		
7005	194	37/38 46.564	122/12 12.240	9.6				gy	M.Cl,Sh		
7006	194	37/37 42.411	122/12 12.154	2.0				gy	M,Cl,Sh		
7007	194	37/36 43.567	122/12 15.184	11.4				gy	M,Cl,Sh		
7008	194	37/36 08.924	122/13 43.822	13.6				gy wh br	M,Cl,smlSh	Tube Worms	
7009	194	37/37 17.958	122/13 43.133	2.1				gy wh br	M,Cl,smlSH	Tube Worms	
7010	194	37/38 16.319	122/13 42.682	2.1				br gy	M,Cl,Sh		
7011	194	37/39 24.115	122/13 57.789	2.3				gn gy	M,Cl,Sh		
7012	198	37/39 43.057	122/15 07.087	13.3				gn br gy	M,Sh		
7013	198	37/39 18.459	122/16 11.464	17.5				gy gn	M,Sh		
7014	198	37/39 41.091	122/14 29.232	12.2				gy	M,Sh	Sample lost	
7015	198	37/38 39.809	122/15 07.103	13.5				gn gy	M,Sh		
7016	198	37/37 12.096	122/16 15.990	11.6				gn gy	M,		

Use more than one line per sample if necessary.

☆U.S. Government Printing Office: 1975 -- 665-661/1130, Region No. 6

NOAA FORM 75-44
(11-72)

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

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

VESSEL	PROJ. NO.	YEAR		CHECKED BY	DATE CHECKED
NOAA Launch 1016	L123-PHP-80	1980	Hydrographic Survey H-9872		

SERIAL NO.	DATE Julian	SAMPLE POSITION LATITUDE North	SAMPLE POSITION LONGITUDE West	DEPTH (Fathoms) Feet	WEIGHT OF SAMPLER	APPROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
7000	194	37/37 12.367	122/09 38.780	5.0	2#	6"	N/A	gy gn	M,Cl,Sh		
7001	194	37/37 45.916	122/10 14.385	6.1				gy	M,Cl,Sh		
7002	194	37/38 45.622	122/09 42.648	5.1				gy	M,Cl,Sh		
7003	194	37/39 48.685	122/10 55.018	5.8				gy	Cl,Sh		
7004	194	37/39 42.785	122/12 12.431	2.7				gy	M,Cl,Sh		
7005	194	37/38 46.564	122/12 12.240	9.6				gy	M.Cl,Sh		
7006	194	37/37 42.411	122/12 12.154	2.0				gy	M,Cl,Sh		
7007	194	37/36 43.567	122/12 15.184	11.4				gy	M,Cl,Sh		
7008	194	37/36 08.924	122/13 43.822	13.6				gy wh br	M,Cl,smlSh	Tube Worms	
7009	194	37/37 17.958	122/13 43.133	2.1				gy wh br	M,Cl,smlSH	Tube Worms	
7010	194	37/38 16.319	122/13 42.682	2.1				br gy	M,Cl,Sh		
7011	194	37/39 24.115	122/13 57.789	2.3				gn gy	M,Cl,Sh		
7012	198	37/39 43.057	122/15 07.087	13.3				gn br gy	M,Sh		
7013	198	37/39 18.459	122/16 11.464	17.5				gy gn	M,Sh		
7014	198	37/39 41.091	122/14 29.232	12.2				gy	M,Sh	Sample lost	
7015	198	37/38 39.809	122/15 07.103	13.5				gn gy	M,Sh		
7016	198	37/37 12.096	122/16 15.990	11.6				gn gy	M,		

Use more than one line per sample if necessary.

☆U.S. Government Printing Office: 1975 – 665-861/1130, Region No. 6

NOAA FORM 75-44
(11-72)

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

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

VESSEL	PROJ. NO.	YEAR		CHECKED BY	DATE CHECKED
NOAA Launch 1016	L123-PHP-80	1980	Hydrographic Survey H-9872		

SERIAL NO.	DATE Julian	SAMPLE POSITION LATITUDE North	SAMPLE POSITION LONGITUDE West	DEPTH (Fathoms) Feet	WEIGHT OF SAMPLER	APPROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
7017	198	37/36 06.541	122/16 01.791	49.6				gy gn rd	Grs,M,Sh	Worms	
7018	198	37/36 46.374	122/15 08.643	13.4				gn gy	M,	Worms	
7019	198	37/37 45.365	122/15 10.246	19.8				gn gy	M,Sh	Worms	

Use more than one line per sample if necessary.

☆U.S. Government Printing Office: 1975 – 665-661/1130, Region No. 6

APPROVAL SHEET

HYDROGRAPHIC SURVEY H-9872

PHP-10-2-80

OPR-L123-PHP-80

The field records and data were inspected and approved on a daily basis by the Chief of Party. This survey is complete and adequate to supersede prior surveys for charting purposes.

Dirk R Taylor

Dirk R. Taylor
LCDR. NOAA
Chief of Party

NOAA FORM 77-27 (5-77) | U. S. DEPARTMENT OF COMMERCE NOAA | HYDROGRAPHIC SURVEY NUMBER

HYDROGRAPHIC SURVEY STATISTICS

H-9872

RECORDS ACCOMPANYING SURVEY: To be completed when survey is registered.

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	BOAT SHEETS & PRELIMINARY OVERLAYS	12
DESCRIPTIVE REPORT	1	SMOOTH OVERLAYS: POS. ARC, EXCESS	6

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES						
CAHIERS	0		1-Raw			
VOLUMES						
BOXES						

T-SHEET PRINTS (List): TP-00535 (enlargement) copy

SPECIAL REPORTS (List):

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS: PRE-VERIFICATION	VERIFICATION	TOTALS
POSITIONS ON SHEET			4506
POSITIONS CHECKED		4506	
POSITIONS REVISED		564	
SOUNDINGS REVISED		573	
SOUNDINGS ERRONEOUSLY SPACED		--	
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED		--	
	TIME – HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	4	*(VER)/(EVAL)	4
VERIFICATION OF CONTROL		06/03	9
VERIFICATION OF POSITIONS		25/00	25
VERIFICATION OF SOUNDINGS		122/21	143
COMPILATION OF SMOOTH SHEET		21/35	56
APPLICATION OF TOPOGRAPHY		06/01	7
APPLICATION OF PHOTOBATHYMETRY		00/00	0
JUNCTIONS		03/04	7
COMPARISON WITH PRIOR SURVEYS & CHARTS		00/17	17
VERIFIER'S REPORT		00/17	17
OTHER		00/29	29
TOTALS	4	183/127	314

Pre-Verification by: J. S. Green	*Beginning Date*: 5/12/81	*Ending Date*: 5/12/81
Verification by: L. T. Deodato Evaluated by K. M. Scott	*Beginning Date*: 6/15/81	*Ending Date*: 10/21/82
Verification Check by: S. H. Otsubo; J. S. Green	*Time (Hours)*: 37	*Date*: 10/25/82
Marine Center Inspection by: HIT	*Time (Hours)*: 8	*Date*: 11/3/82
Quality Control Inspection by	*Time (Hours)*	*Date*
Requirements Evaluation by	*Time (Hours)*	*Date*

* Time in this column is for Verification (VER) and Evaluation (EVAL)

PACIFIC MARINE CENTER
VERIFICATION/EVALUATION REPORT

REGISTRY NO: H-9872 FIELD NO: PHP-10-2-80

California, San Francisco Bay, San Lorenzo Creek to San Mateo-Hayward Bridge

SURVEYED: May 13 to December 5, 1980

SCALE: 1:10,000 PROJECT NO: OPR-L123-PHP-80

SOUNDINGS: Ross Fineline
Models 5000 & 5500

CONTROL: Raydist-Range/Range; Mini-Ranger Range/Range; Mini-Ranger Range/Azimuth

Chief of Party.....LCDR D. R. Taylor

Surveyed by.....LCDR D. Taylor
LTJG D. Smith
F. Rosario

Automated Plot by.....PMC Xynetics Plotter

Verified by.....L. Deodato

Evaluated by.....K. M. Scott

1. INTRODUCTION

NOTE: This survey has been processed utilizing a procedure developed to work in conjunction with the Verification Branch realignment, which established an evaluation process. The survey data was first verified and a smooth sheet compiled by a verifier. Then an evaluator reviewed the work of the verifier, made the necessary comparisons with prior surveys and charts and wrote the Verification/Evaluation Report.

H-9872 is a basic hydrographic survey conducted by the Pacific Hydrographic Party in accordance with Project Instructions dated February 22, 1979, Change 3 dated November 13, 1980 and Change 4 dated January 14, 1981.

This survey lies west of the city of Hayward, north of the San Mateo-Hayward Bridge and southwest of Oakland. With the exception of the channel located at the southwest corner of the survey, the shoal nature of this area precludes navigation of larger vessels.

Predicted tides based on the San Francisco (Golden Gate) gage with time and range adjustments were utilized for reducing the field sheet soundings. Tides used for the reduction of final soundings are zoned directly from the San Mateo Bridge gage on JD134 and further zoned from the San Leandro gage for the remainder of the survey. (See appended approved Tide Note.)

The projection parameters and signal list have been revised during the verification process. All corrected information is listed in the smooth printouts accompanying the smooth sheet.

2. CONTROL AND SHORELINE

The stations used to control hydrography within the survey limits were recovered or established as stated in the Descriptive Report, Section F. Geographic position coordinates consisted of field positions of Block, 1980, and Koret, 1980, and published adjusted positions for San Francisco Bay South Channel Light 8, 1977, and Point San Mateo, 1925.

Raydist and mini-ranger employed in the range/range mode and mini-ranger in the range/azimuth made controlled survey hydrography. Additional information is provided in the Descriptive Report, Section G.

Shoreline was applied from a 1:10,000 enlargement of TP-00535 "Hydrographic Maintenance Print" reviewed and updated with photography accomplished in 1977 and field edit performed during 1980 and 1981. The zero curve as portrayed on the manuscript has been revised by the hydrographic information.

3. HYDROGRAPHY

Crosslines incorporated within this survey are in good agreement with main scheme soundings agreeing within a foot.

The bottom configuration, determination of least depths and development of standard depth curves are adequate. Bottom samples were taken during survey operations and adequately portray the bottom composition.

4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records, and reports are adequate and conform to the requirements of the Hydrographic Manual of July 4, 1976 and Changes 1 and 2 with the following exceptions:

a. Frequency of bottom samples is inadequate for an anchorage area as noted on the chart, and does not meet the criteria of frequency for other inshore surveys.

b. The ten foot sounding at latitude 37°37'43.3"N, longitude 122°15'34.3"W is the shoalest sounding in the area. There was no development run to support this peak and no assurance that this is the shoalest sounding.

5. JUNCTIONS

H-9872 joins H-9869 (1:10,000) 1980 at the northern limits. There are few soundings overlapping between surveys. These agree within one foot. Those soundings affecting or justifying the depth curves have been transferred. The junction note and curves are inked in agreement.

There are no contemporary surveys to the west or south. Penciled curves and notes have been applied to the smooth sheet.

6. COMPARISONS WITH PRIOR SURVEYS

H-8026 (1955-1956) 1:10,000
H-8027 (1955-1956) 1:20,000

H-8026 is the prior survey covering the southwest corner of H-9872. Soundings on the present survey are generally deeper with the greatest difference of 22 feet at approximate latitude 37°37'15"N and longitude 122°16'25"W. The 18 foot curve is drawn slightly shoaler; however, depths greater than 18 feet are comparable with 4 feet being the biggest discrepancy. A 27 foot sounding has been transferred at the edge of the channel.

The remainder of H-9872 was preceded by H-8027. The northwest portion of the present survey north of latitude 37°38'30"N and west of longitude 122°15'00"W, shows considerable deepening. Additionally, the area between latitudes 37°37'00"N and 37°38'30"N and west of longitude 122°14'00"W is as much as 15 feet deeper but shows a general deepening of 1 to 10 feet. In the eastern portion current soundings are one to two feet deeper. As a result, the zero curve has moved shoreward with the greatest migration approximately 900m at latitude 37°39'50"N and the least 100m at latitude 37°39'23"N. A portion of the breakwater ruins not shown on the present manuscripts has been transferred to this survey in violet. General deepening of soundings incorporated in the present survey is attributed to dredging.

Part of presurvey review item 30 lies at the western limits of hydrography. This submerged pile PA at latitude 37°36'46"N and longitude 122°16'23"W was not addressed by the hydro party. This pile originated from a U. S. Power Squadron report of 1967 (CL 1630/67) and was revised by CL 406/71. Wire drag was recommended for disproval. The future survey which will join H-9872 to the west should recommend appropriate disposition.

Presurvey review item 32 is entirely located within the limits of the survey. These submerged snags and submerged pile were addressed by the field party. They fall within a borrow dredging area where soundings differ from the prior by seven to ten feet deeper. Due to these considerations, the objects are considered removed and deletion of the charted symbols is recommended.

H-9872 is adequate to supersede all prior surveys within the limits of common hydrography.

7. COMPARISON WITH CHART

18651 (31st Ed., July 12, 1980)

Chart comparison was accomplished using the addition of the chart required by direction of Project Instructions Change 4.

a. Hydrography - All charted information with the exception of the shoreline, San Mateo-Hayward Bridge and the submerged pile PA at latitude 37°36'46"N, longitude 122°16'23"W originates from the aforementioned prior surveys. The shoreline and bridge are from unidentified sources and the pile originates with the CL 1630/67. (See Section 6 of this report.)

Shoreline north of Johnson Landing is charted 50m west of the current photogrammetric shoreline. Hayward Landing has changed as have the ruins offshore. Johnson Landing has changed shape. The foul area north of Sulphur Creek is not confirmed by H-9872; however, an uncharted foul area off the mouth of San Lorenzo Creek has been transferred to the survey from photo manuscripts. Shoreline should be charted from current sources.

H-9872 is adequate to supersede all charted hydrography within the common area.

b. Controlling Depths - There are no controlling depths within the limits of the survey.

c. Aids to Navigation - There is one landmark at the northeast corner of H-9872, a surge tower. This is not presently charted, but is portrayed on the smooth sheet.

8. COMPLIANCE WITH PROJECT INSTRUCTIONS

H-9872 (PHP-10-2-79) adequately complies with Project Instructions OPR-L123-PHP-80, San Francisco Bay, California.

9. ADDITIONAL FIELD WORK

This is a good basic survey. No additional field work is required.

Respectfully submitted,

Karol M. Scott

Karol M. Scott
Cartographer
October 21, 1982

Examined and Approved,

James S. Green
Chief, Verification Branch

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

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

LANDMARKS FOR CHARTS

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

(See reverse for responsible personnel)

- [XX] TO BE CHARTED
- [ ] TO BE REVISED
- [ ] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
Pacific Hydro Party PMC, Seattle, WA	CA	San Francisco Bay	7/29/80

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

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
	CM-7704	TP-00535	NA 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
CONTROL TOWER	Metropolitan Oakland Int. Airport Control Tower	37 42	45.02 1388	122 12	47.93 1174	77B(P)3708 3/18/77	V-Vis 5/21/80	18651 18652
TANK	(Hayward California Home Brand Tank, 1931)	37 40	03.187 98.2	122 06	05.936 145.5	77B(P)2653 3/4/77	Triang. Rec. 5/21/80	"
RADIO TOWER	S.W. of four (KFAX)	37 37	54.59 1683	122 07	49.96 1225	77B(P)3712 3/18/77	V-Vis 5/22/80	"
AERO ROT W&G	Hayward Airport Rotating Beacon	37 39	45.71 1409	122 07	12.68 311		F-4-6-L 6/4/80	"
SURGE TOWER	Red clearance light atop square surge tower (20ft.sides, height 65 ft.) on pump house at ORO LOMA Sewage Treatment	37 40	03.48 107	122 09	35.84 878		F-4-6-L 6/12/80	"
	Plant. New landmark recommended by field editor.							
	see L-625(82)							

April 17, 1981

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): 941-4458 San Mateo Bridge, California
941-4688 San Leandro, California

Period: May 13 - December 5, 1980

HYDROGRAPHIC SHEET: H-9872

OPR: L123

Locality: South San Francisco Bay, California

Plane of reference (mean lower low water): 941-4458 = 14.67 ft.
941-4688 = 5.70 ft.

Height of Mean High Water above Plane of Reference is 941-4458 = 6.98 ft.
941-4688 = 6.69 ft.

REMARKS: Recommended Zoning:

For J Day 134 zone direct on 941-4458 San Mateo Bridge, California. — Zone 1

For J Days 148-340 zone on 941-4688, San Leandro, California. From latitude 37°40.0' south to latitude 37°36.4' zone direct. From 37°36.4' south to 37°35.3' apply a x1.06 range ratio.

Chief, Datums and Information Branch

APPROVAL SHEET
FOR
SURVEY H-9817

A. This hydrographic survey has been verified, evaluated and inspected. It meets the requirements of the Hydrographic Manual except as noted in the Verification/Evaluation Report. The automated data file has been updated to reflect the data presented on the smoothsheet.

Date: 11/1/82

Signed: [signature]

Title: Chief, Verification Branch

B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic Manual. Exceptions are listed in the Verification/Evaluation Report.

Date: 11/3/82

Signed: [signature]

Title: Chief, Marine Surveys Division

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Pacific Marine Center
1801 Fairview Avenue East
Seattle, Washington 98102

November 4, 1982

TO: C3 - C. William Hayes

FROM: CPM - Charles K. Townsend

SUBJECT: Administrative Approval of H-9872, San Lorenzo Creek to San Mateo-Hayward Bridge, San Francisco Bay, California

The smooth sheet and reports of this survey have been examined and the survey is adequate for charting and to supersede common areas of prior surveys.

ADDENDUM TO EVALUATION REPORT FOR H-9872

The Evaluation Report for this survey is supplemented by the following statement:

The digital records for this survey have been updated to include categories of information required to comply with N/CG2 Hydrographic Survey Guideline No. 23, Completion of Digital Hydrographic Surveys, September 7, 1983. Certain descriptive information, however, may not be included in the digital record due to the restrictions of the presently available cartographic codes. The user should refer to the smooth sheet for complete information.

Respectfully submitted,

James S. Green
Supervisory Cartographer
~~October 17, 1983~~
December 8 1983

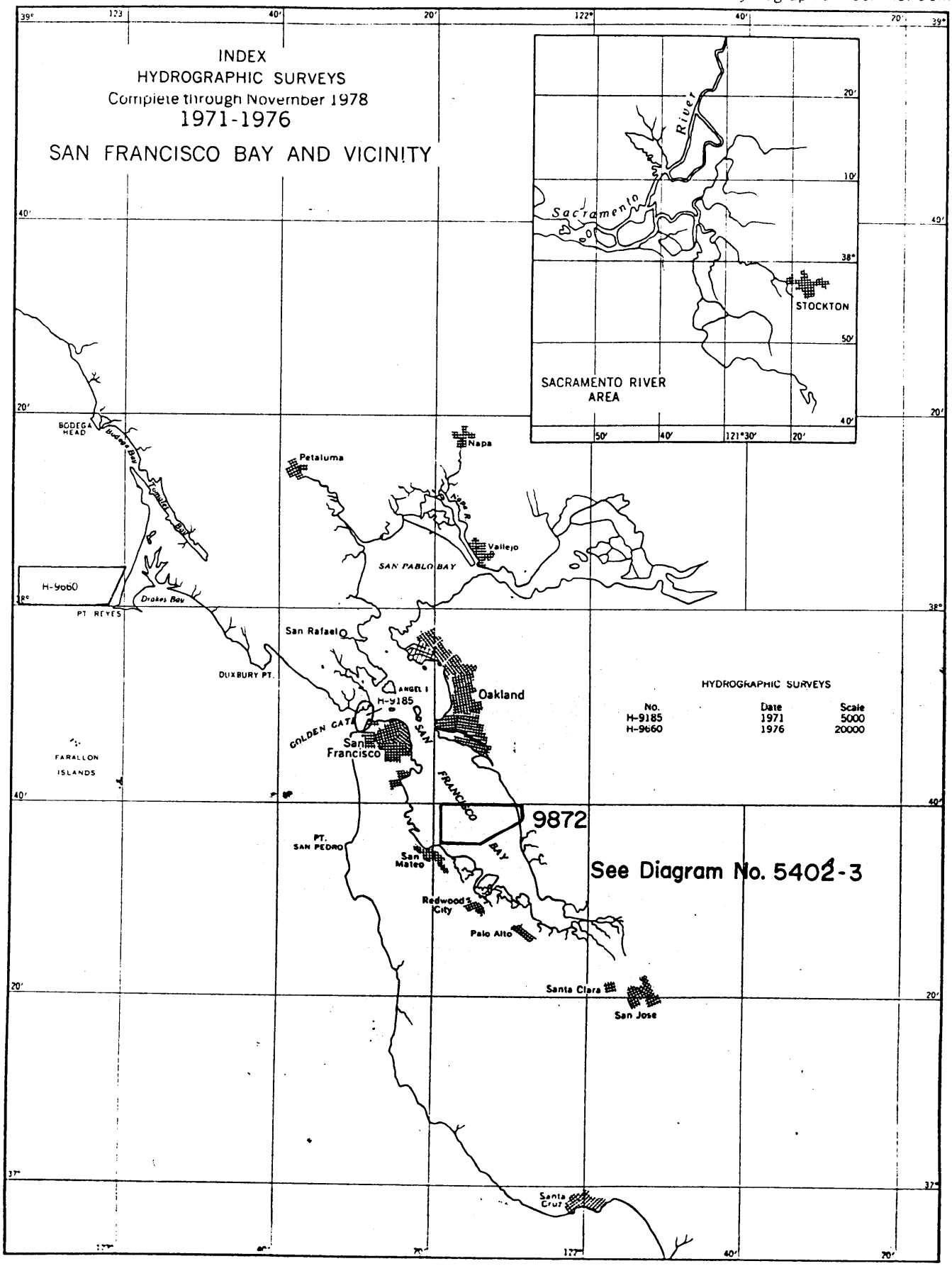
APPROVED:

12/9/83

Ned C. Austin
Chief, Nautical Chart Branch

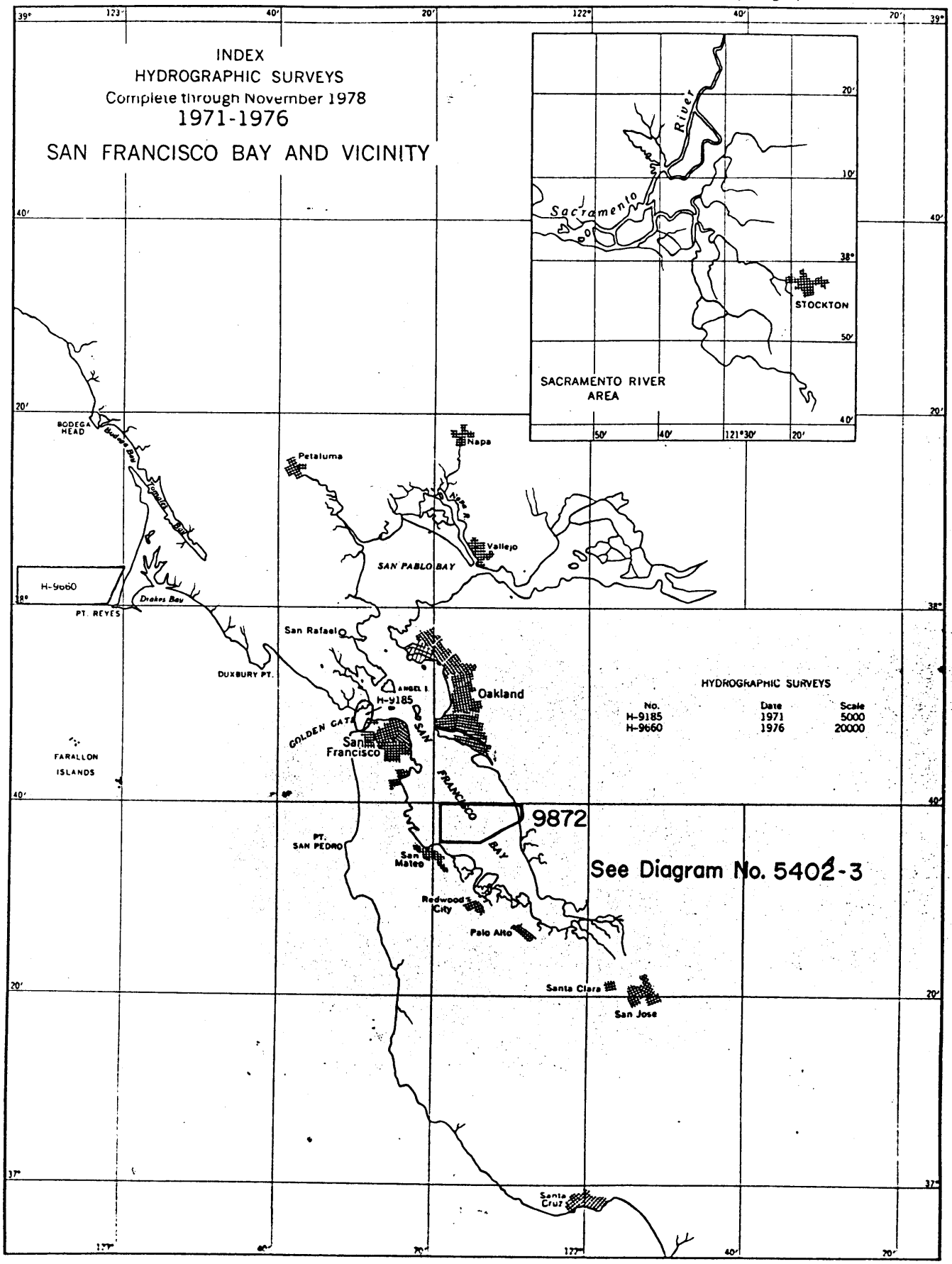
DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Rockville, Maryland

Hydrographic Index No. 95M



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

Hydrographic Index No. 96M



FORM C&GS-8352
(3-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9872

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
18651	4.4.84	Peter Shumai	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 40
18652	10/10/86	Cordts	Full ~~Part Before~~ After Verification Review Inspection Signed Via
Page A			Drawing No. 28
			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.

FORM C&GS-8352 SUPERSEDES ALL EDITIONS OF FORM C&GS-975. USCOMM-DC 8558-P63