H10223

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. PHP-10-02-86

Registry No. H-10223

LOCALITY

State California

General Locality San Pablo Bay

Sublocality Mare Island Strait &
Western Approach to Carquinez Strait

19 86

CHIEF OF PARTY
LTJG J.A. Miller

LIBRARY & ARCHIVES

DATE February 2, 1989

DIAGRAM 5533-1

Charts

18654
18655
18652 C&D
18656

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.

H-10223

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 10-2-86

State California

General locality San Pablo Bay

Locality Mare Island Strait and Western Approach to Carquinez Strait

Scale 1:10,000 Date of survey Aug. 20, 1986 to April 30, 1987

Instructions dated March 14, 1985 Project No. OPR-L123-PHP-86

Vessel Launch 1101 (EDP 0651), Whaler (EDP 0654), Land Vehicle (EDP 0650)

Chief of party LTJG J.A. Miller

Surveyed by LTJG Miller, LTJG Porta

Soundings taken by echo sounder, hand lead, pole All three methods

aphic record scaled by J.M., T.P., F.R., M.B., B.L., T.M.

Graphic record checked by J.M., T.P.

Verification by:
~~Protracted by~~ L. Deodato Automated plot by PMC Xynetics Plotter

Evaluation by:
~~Verification by~~ A. Luceno

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

REMARKS: Revisions and marginal notes in black generated during office processing. Separates are filed with the hydrographic data

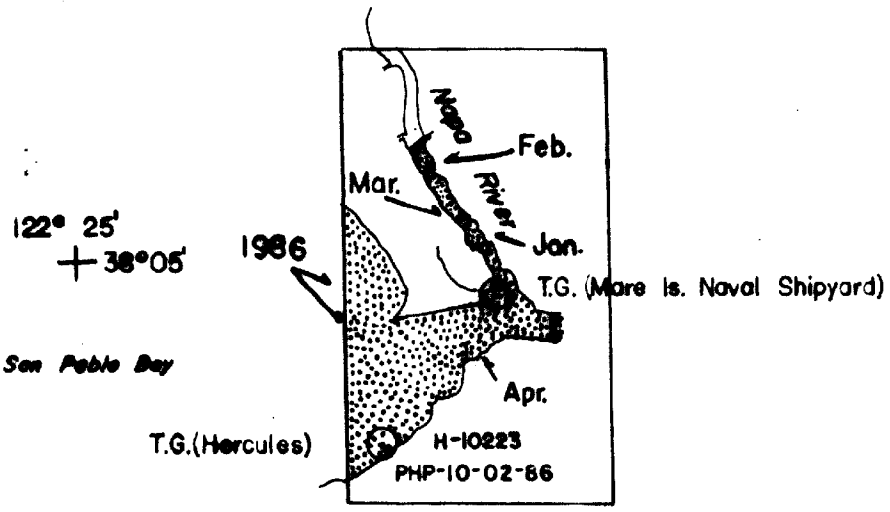
5C2-5-97 ✓ AWOIS and SURF Rud 7/89

☆ U.S. GOVERNMENT PRINTING OFFICE: 1978-665-010-1174

PROGRESS SKETCH TO ACCOMPANY ANNUAL FIELD OPERATIONS REPORT

OPR-LI23
SAN PABLO BAY, CALIFORNIA
JANUARY - 1987

PACIFIC HYDROGRAPHIC PARTY
Chief of Party
LT(jg) John A. Miller, NOAA



122° 25'
37°55'

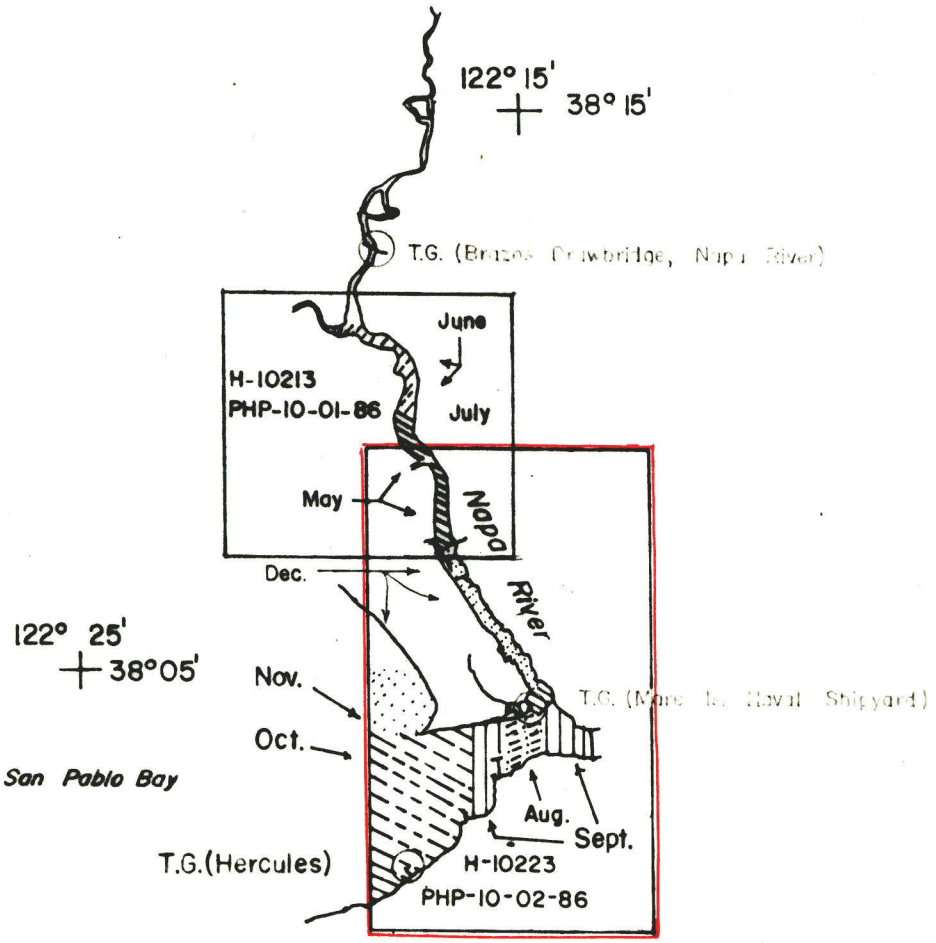
	Jan.	Feb.	Mar.	Apr.	May	Jun.	July	Aug.	Sep.	Oct.	Nov.	Dec.
SQ. N.M., Sdgs.	0.5	0.5	0.1	0.1								
L.N.M. Misc. Dist.	15.0	13.0	22.0	3.0								
L.N.M. Dist. To & Fr.	22.0	9.8	35.0	20.0								
L.N.M. Sdg. Line	15.5	13.9	1.5	1.1								
Bottom Samples	18	—	—	—								
Control Stations	—	—	1	1.								
Tide Gauges	—	—	-	-								
Shoreline Verification L.N.M.	4.0	—	—	-								
Wire Drag, SQ.N.M.	-	0.05	0.10	-								

PROGRESS SKETCH TO ACCOMPANY ANNUAL FIELD OPERATIONS REPORT

OPR-L123
SAN PABLO BAY, CALIFORNIA
MAY - DECEMBER, 1986

PACIFIC HYDROGRAPHIC PARTY
Chief of Party:
Lt(jg) JOHN A. MILLER, NOAA
SEPT. — DEC., 1986

Lt(jg) PAUL T. STEELE, NOAA
JAN. — AUG., 1986



	Jan.	Feb.	Mar.	Apr.	May	Jun.	July	Aug.	Sep.	Oct.	Nov.	Dec.
SQ. N.M., Sdgs.					1.3	2.0	0.7	1.0	1.5	1.5	0.2	0.5
L.N.M. Misc. Dist.					15.0	62.0	10.0	14.0	42.0	55.0	7.0	37.0
L.N.M. Dist. To & Fr.					9.0	50.7	20.0	12.0	49.0	48.0	12.5	47.0
L.N.M. Sdg. Line					49.4	40.4	12.0	16.6	85.1	171.8	16.1	57.7
Bottom Samples					0	8	-	-	-	-	-	33
Control Stations					21	-	-	1	2	4	1	0
Tide Gauges					1	-	-	-	1	-	-	0
Shoreline Verification L.N.M.					10.0	-	-	2.0	4.0	2.0	-	2.0
Wire Drag, SQ.N.M.					-	-	-	-	-	-	-	0

A. PROJECT.

Survey H-10223 (field number PHP-10-2-86) was accomplished in accordance with project instructions OPR-L123-PHP-86, San Pablo Bay, California, dated March 14, 1985. Changes to the above project instructions which apply to this survey are Change Number 1, dated March 19, 1985, Change Number 2, dated March ~~14,~~ 1986, and Change Number 3, dated October 9, 1986.

B. AREA SURVEYED.

Survey H-10223 was conducted in the east portion of San Pablo Bay, the western approach to Carquinez Strait, and Mare Island Strait. Hydrographic operations on Survey H-10223 began on August 20, 1986 (Day 232/86), and ended on April 30, 1987 (Day 120/87).

Limits of Survey H-10223 are bounded on the north by 38/05/00N in San Pablo Bay, and at 38/07/13N in the Napa River. The eastern limits of the survey are at 122/13/00 W in Carquinez Strait. The southern limit of the survey is 38/01/40N in San Pablo Bay. The western limit of the survey is 122/18/13W in San Pablo Bay.

C. SOUNDING VESSELS.

Vessel	Hull No.	EDP No.
Launch	1101	0651
Skiff	-	0654
Land Vehicle	-	0650

Launch 1101, a 29 foot Jensen aluminum survey launch, propelled by a turbo-charged jet drive, was used for most sounding data acquisition. PHP's skiff, a 17 foot Boston Whaler, was used to acquire detached positions during item investigations of Mare Island Strait and the Napa River.

Some items were positioned from the shore (example: position taken on outfall during shoreline verification, using a theodolite and EDM; no boats involved). For plotting purposes the tapes for these positions use 0650 as the vessel number.

Refer to the Abstract of Positions, Appendix VII, filed with the hydrographic data for a list of positions and dates associated with each EDP (electronic data processing) number.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS.

Launch 1101 is equipped with a standard Ross Fineline fathometer and digitizing system which utilizes a centerline mounted, 7.5 degree, 100 khz transducer. Launch 1101 is also equipped with

two side looking digital transducers for navigational use in sloughs and creeks. The Ross system on Launch 1101 consists of the following instruments:

Component	Model No.	S/N
Power inverter	2000	1003 (Day 232 to 346/86)
Power inverter	2000	1071 (Day 347/86 to end of survey)
Transceiver	4000	1040-6
Analog recorder	5000	1082 (Day 232 to 295/86)
Analog recorder	5000	1080 (Day 295/86 to end of survey)
Digitizer	6000	3787

The analog recorder, serial number 1082, was removed from Launch 1101 for a routine maintenance and over-haul. Data quality with this recorder was not suspect. It was replaced with a similar unit that had been over-hauled (serial number 1080).

The power inverter, serial number 1003, was removed from Launch 1101 because it was generating higher than normal AC power. Data quality when this inverter was used is not suspect. It was replaced with a similar unit (serial number 1071).

During a haul-out of Launch 1101, the housing for the 100 khz transducer was found to be cracked and the face of the transducer severely scratched. It is believed that the crack and the scratches were received on the same day (Day 307/86), when the launch struck a submerged rock collecting a sounding line along the southeast shore of San Pablo Bay. The launch began to take on water, and, at the conclusion of the sounding line, was driven to a boat yard in Vallejo to be hauled out. The sounding line, after careful inspection, was retained. A new transducer and housing was shipped to PHP and carefully installed in the same location as the old transducer. No changes to the static draft resulted. The new transducer was installed on Day 310/86.

Sounding Instrument Accuracy and Adjustments.

The Ross echo sounding system simultaneously produces an analog fathogram and a digitized depth value. Digitized soundings sampled by the logging system at predetermined time intervals 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 incorrect or lacking. The digitized depths are sometimes triggered by a source other than the bottom (algae, 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.

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 at the beginning of each survey day and, with few exceptions, at the end of each survey day (or whenever the analog paper was changed) by introducing simulated depths (e.g. 10', 20', 30', etc.) into the analog recorder via the digitizer phase calibrate mode. The analog trace was then compared to the simulated digital depth and the equipment was adjusted as necessary.

Static Transducer Draft.

The static transducer draft values for the hull mounted transducer on Launch 1101 was physically measured in two parts. The first part was done while the launch was out of the water. The distance between the transducer face and the bottom of a black line painted on the hull above the water line was accurately measured using a surveying level (Lietz B-1, S/N 214303) and rod. The second part was done with the launch in the water with a normal crew and fuel load on board. The distance between the bottom of the painted black line and the actual water line was measured with a steel tape.

The actual static transducer depth is the distance obtained in part 1 minus the distance measured in part 2. The actual static draft was measured at 1.63 feet.

Settlement and Squat Corrections.

The digital speed log for Launch 1101 was originally acquired in April, 1984 to test for ground effect, which is the change in speed when moving to and from shallow water (see Ground Effect Report, May, 1984). From this testing it was determined that one method to help reduce the need for ground effect correctors was to operate the launch by constant speed through the water instead of a fixed rpm. This decision was cleared through PMC and the speed log was permanently mounted in the hull of Launch 1101. All soundings collected with Launch 1101 were annotated as to speed through the water, not rpm's. Speed through the water was likewise used during the settlement and squat test.

Settlement and squat measurements for Launch 1101 were observed on June 9, 1986, in Mare Island Strait. Changes in transducer draft versus speed were measured by sighting from a stable level gun from a pier (Lietz B-1, S/N 214303) to a stadia rod held

perpendicularly on the launch cabin top (or deck) above the transducer. The change in transducer draft at a specific speed (measured in nautical miles per hour) 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 either towards or away from the level gun. Several rod readings taken during the run were averaged. Static rod elevation was determined by averaging rod readings taken before and after each run with the launch dead in the water. This procedure eliminated any error due to changing tide level (during our measurements the tide was at a high and changing very slowly). Changes in transducer draft due to settlement and squat were measured at regular intervals (which included all standard survey speeds) through the range of 5.0 nm/hr to 13.0 nm/hr with all surveying equipment installed and a normal fuel and crew load on board. These point values were plotted and connected to yield continuous speed versus draft correction curves. ✓

Settlement and squat corrections are not applied to the field sheet, but are incorporated on the TC/TI tape. ✓

All hydrographic sounding lines were run at speeds from 6.0 nm/hr to 9.0 nm/hr. ✓

Sound Velocity Correctors.

PHP's only method of determining velocity of sound correctors is to use daily barcheck data. Before the start of this survey PHP recognized the need for a more accurate method of determining velocity of sound correctors in the turbulent fresh water/salt water mixing zone of Carquinez Strait. Also, depths in this area reach to 120 feet or more, which is much greater than a bar can be placed. A memo from the Chief of Party was sent to RADM Sandquist (N/MOP), dated June 2, 1986, requesting an SVP-16 sound velocity profiling system to be used by PHP in conjunction with barchecks. This system is made by Applied Microsystems, Ltd. (AML), of Sydney, British Columbia. A follow-up memo from the Chief of Party to RADM Sandquist was sent on June 23, 1986. Apparently, there are concerns about the quality of data from the AML SVP-16. PHP received a copy of a memo, dated June 5, 1986, from RADM Sandquist to the C.O. of the NOAA Ship Davidson denying the use of the AML SVP-16 because of quality problems. RADM Sandquist also, through CDR Richards (N/MOP21), denied PHP the use of this instrument (this was communicated verbally; PHP does not have a memo on this). PHP received a copy of a report on the AML SVP-16, dated November 26, 1986, from N/CG24x3, outlining in more detail the problems with this instrument. Copies of these memos and reports are included in Appendix XII., Supplemental Information. No other sound velocity profiling instruments have been made available to PHP. Consequently, all velocity corrections were determined in the usual manner, from barchecks. ✓ *filed with the hydrographic data*

Bar checks were made twice daily only when wind and sea conditions permitted. An average of one check per day was ✓

normal. Most days the wind is too strong in the afternoon for the keel-less jet launch to obtain usable bar check data. An 11x1 foot aluminum bar suspended on 1/4 inch steel chains with wire-tied and painted markings at 5 foot intervals was used to obtain bar check data. Chain markings were checked for accuracy prior to beginning the survey and after its completion and found to be accurate. Bar checks were abstracted daily using a measured static draft value of 1.6 feet.

Sound velocity correctors were computed in the following manner: logical groupings of like daily barcheck correctors for each measured depth were identified. These groupings constitute the respective velocity tables. The correctors for each depth within a grouping were first summed and then meaned. A standard deviation was then calculated. The standard deviation resulted in a range of numbers which, when applied to the individual correctors for each measured depth, identified blunders, or suspicious data. These blunders were then rejected, and a new sum and mean were then found. The final mean of the correctors for each depth was plotted on an observed depth vs. depth correctors graph. From this graph a line was smoothed through all the points, and a table of correctors was determined. Each velocity table was derived in this manner, with the exception of Table III, 1987, which is derived from only two barchecks. This is not enough data to calculate a standard deviation. The mean of the two barchecks was used for Table III. This table covers only one day of soundings acquired by the launch fatho system (Day 119/87, the same day the barchecks were taken); the other data acquired during this time were on items that did not require a fathometer.

All barcheck data, calculation results, and graphs, are included in Appendix IV., Sounding Correction Abstract. filed with the hydrographic data.

The graphs for each velocity table show dashed lines for interpolated data. Extra ~~Inter~~polation was necessary when the hydrographic depth data exceeded the barcheck depth data. PHP is aware of the problems in interpolation of correctors, but, without an alternative method of acquiring sound velocity corrections, barchecks will have to suffice.

All barchecks were taken either in the western approach to Carquinez Strait or in the southern portion of Mare Island Strait.

The following is a list of the velocity tables and the days that each one covers:

Table	Inclusive Dates (Year Days)
1986	
I	232/86 - 288/86
II	289/86 - 307/86
III	308/86 - 365/86
1987	
I	001/87 - 056/87
II	057/87 - 097/87
III	098/87 - 120/87

Soundings on the smooth field sheet are corrected for sound velocity using all six sound velocity tables.

Tide Correctors

Tide correctors applied to soundings are discussed in the Field Tide Note, Appendix II. *filed with the hydrographic data.*

Additional Sounding Equipment

Leadline PHP-1, an accurately measured sounding pole, and fiberglass tapes were used for least depths and item measurements. Smooth field sheet soundings were corrected for leadline correctors. For leadline calibration information see Appendix IV., Sounding Correction Abstract. *filed with the hydrographic data.*

Smooth Sheet Correctors

The correctors applied to soundings on the smooth field sheet are:

Launch 1101 (EDP 0651)	Tide correctors Static draft correction (settlement and squat) Velocity correctors
Skiff (EDP 0654)	Tide correctors (fathometer not used to acquire soundings)
Land Vehicle (EDP 0650)	Tide correctors (applied to least depths on items acquired from shore)

It should be noted that if soundings were acquired with the leadline, only tide correctors and leadline correctors are applied to the soundings.

Some soundings were acquired by a measured sounding pole, or by a fiberglass surveying tape. Only tide correctors were applied to these soundings.

E. HYDROGRAPHIC SHEETS.

Due to plotter size limitations, Survey H-10223 was divided into two 1:10,000 scale field sheets (PHP-10-2-86 West and PHP-10-2-86 East). These sheets junction at approximately 122/15/25 W.

The sheets were constructed by PHP party members with program RK201 on a Modified Transverse Mercator projection.

Several expansion sheets were made to aid PHP in the analysis of the data. All essential soundings were transfered to the smooth field sheets. Parameter tapes for all sheets, as well as the paper expansion sheets, are included in the field records that accompany this report.

Field records were forwarded to the Pacific Marine Center, Nautical Chart Branch, N/MOP21, Seattle, Washington, for verification and smooth plotting.

F. CONTROL STATIONS.

Control stations and navigation aids used on Survey H-10223 which have been located and described by PHP personnel are:

New Position or Verification of old	Station	Location Method
	Navigation aids	
Verified by PHP	Carquinez Strait Rng Target 1, *1932*	Intersection
"	Carquinez Strait Rng Target 2, *1932*	"
"	Mare Island Radar Target	"
New Position	San Pablo Bay Chan Lt 13	"
"	San Pablo Bay Chan Lt 14	"
"	San Pablo Bay Chan Lt 15, *1986*	"
"	San Pablo Bay Chan Lt 17	Traverse
"	Mare Island Str Lt 1, *1982*	Intersection
"	Mare Island Str Lt 2, *1982*	"
"	Mare Island Str Lt 3, *1986*	"
"	Mare Island Str Lt 4, *1986*	"
	CONTROL STATIONS	
Verified by PHP	Vallejo St Vincents Sch Flag, *1932*	"
"	Hamilton Field Stand-pipe	"
"	End 1951	Triangulation
"	Tormey 1929	"
New Position	Tormey Az Mk, *1986*	Traverse
"	Mare Island Knoll C of E 1970, *1986*	"
"	Raceway Rm 2,* *1985*	"

New Position Or Verification of Old	Station	Location Method
Verified by PHP	Mare Island South-east 1852	Triangulation
New Position	Vallejo Fish Pier, 1986	Traverse
"	Mare Island Bridge, 1986	"
"	Glen, 1986	"
"	C and H, 1986	"
"	Tar Rm 3, 1986	"

* The geodetic work for Raceway Rm 2 was done by PHP in 1985. This station has been in continuous use as an electronic control station since that time.

Geodetic computations were based on the 1927 North American Datum. Hydrographic data was processed using unadjusted field geographic positions for the new stations established by the party. See the Horizontal Control Report, California, Mare Island Strait and Western Approach to Carquinez Strait, OPR-L123-PHP-86, for a complete discussion of horizontal control procedures, equipment, computations and observations. All stations are positioned to third order, class I accuracy, or better.

G. HYDROGRAPHIC POSITION CONTROL.

Electronic position control for Launch 1101 (0651) was accomplished entirely with a Motorola Mini-Ranger III ultra-high frequency transponder system in the range-range or range-azimuth configuration.

Position control for PHP's skiff (0654) was accomplished entirely with a theodolite and an EDM from shore (range-azimuth).

Shoreline investigations from a land vehicle (0650) incorporated a theodolite or a sextant for resection positions on items.

Electronic Control Equipment.

The following electronic positioning equipment was used on this survey:

Motorola Mini-Ranger Mobile Station
Launch 1101

Mini-Ranger Console	S/N 701	Day 232/86 to JD 120/87
Transceiver (RT unit)	S/N C1680	Day 232/86 to JD 116/87
	S/N C1419	Day 117/87 to JD 120/87

Motorola Mini-Ranger Reference Stations

Mini-Ranger	Transponder,	Code 5	S/N 4499
"	"	Code 7	S/N 4709
"	"	Code 9	S/N 1628
"	"	Code A	S/N F3233
"	"	Code B	S/N 911059
"	"	Code C	S/N E2712

Position Control Equipment Operation.

The initial baseline calibration (BLC) for data collected on this survey was performed on July 25, 1986 (DAY 206/86), over a measured slope distance of 2189.2 meters between marks, at a location known as the Haire Ranch, which is situated between the numerous sloughs north of San Pablo Bay. Each transponder's corrector, determined from this BLC, were applied to the rates of all soundings or items positioned by Mini-Ranger, to the date of the next BLC (November 5, 1986). All daily systems checks on the Mini-Rangers and console/RT unit during this time period showed variances no greater than 3 meters (see the Abstract of Electronic System Checks, included in Appendix V., Abstracts of Corrections to Electronic Position Control). PHP considers these system checks a confirmation of the beginning BLC. *filed with hydrographic data.*

A second BLC was performed at the Haire Ranch on November 5, 1986 (Day 310/86). Correctors for all transponders were within 3 meters of the beginning BLC. Each transponder's corrector, determined from this second BLC, were applied to the rates of all soundings or items positioned by Mini-Ranger, to the date of the third BLC (February 19, 1987). Daily systems checks during this time period showed variances no greater than 4 meters, with the exception of transponder code 7, which had a -5 meter variance from the BLC. This was on Day 357/86. This code was calibrated three times that day, each time resulting in a -5 meter variance from the BLC. All systems checks prior to that day showed 0 meter variances from the second BLC. PHP decided not to use code 7 until another BLC could be performed. Since a -5 meter variance

from a BLC is acceptable (although, that is the maximum variance), all hydrographic data positioned by code 7 was retained.

The third BLC took place at the Haire Ranch on February 19, 1987 (Day 050/87). Code 7 was found to only have a -1 meter difference from the second BLC. Code 7 was placed back in service as a result. All of the other transponders had 0 meter to 1 meter differences from the second BLC. Each transponder's corrector, determined from this third BLC, were applied to the rates of all soundings or items positioned by Mini-Ranger to the date of the fourth BLC (April 9, 1987).

On March 4, 1987 (Day 063/87), transponder code 5 would not transmit. It had last been used on Day 062/87, with a +3 meter systems check. Preceeding systems checks showed a +1 meter and a +4 meter variance from the third BLC. Since all of the systems checks performed during this survey were at geodetic stations or compared to a range-azimuth position (a theodolite and EDM were used in these calibrations) PHP felt that the data acquired with code 5 during this time is valid, and was retained.

Code 5 was sent to PMC for repair on Day 063/87.

The fourth BLC was performed at the Haire Ranch on April 9, 1987 (Day 099/87). Correctors for each transponder, determined from this BLC, showed variances no greater than 2 meters from the third BLC.

The fourth BLC was to have been the ending one for Survey H-10223. A fifth BLC was performed on the Haire Ranch on April 27, 1987 (Day 117/87), during which time the spare RT unit (s/n 1419) was calibrated and placed on the launch. However, the Chief of Party, while contouring the smooth field sheet, found a small shoal that needed developing.

This work was performed on Day 119/87. PHP decided that, due to the very recent BLC, a good critical systems check would suffice to close out the calibration data. This was performed by placing a theodolite and EDM on station END 1951 and nosing the bow of Launch 1101 into the rocks of a breakwater. A range-azimuth position of the launch was taken. The resulting variances were within 3 meters of the fifth BLC. PHP considers this acceptable. A sixth BLC was not performed.

Corrector/Minimum Signal Strength

	Code 5	Code 7	Code 9	Code A	Code B	Code C
Date of BLC						
Console S/N 701, R/T S/N C-1680 July 25, 1986	-1/7	-4/6	-1/6	+2/6	0/6	0/6
Nov. 5, 1986	-1/7	-1/6	+2/6	+1/6	0/6	0/6
Feb. 19, 1987	-1/7	-2/6	+1/7	0/6	0/6	0/6
April 9, 1987	*	-1/6	+2/8	+2/7	+1/6	0/7
R/T S/N 1419 April 27, 1987	*	-1/9	0/9	0/10	-1/9	+1/11

* Code 5 sent to PMC for repair.

Mini-Ranger systems checks were performed at least once each day unless noted on the daily printouts. On the days without a systems check one was performed within the next few days. In all cases systems checks on later days verified system correctors. All systems checks were "critical" systems checks performed using the "fixed point" (or "calibration pole") method, or with a Wild T-2 Theodolite and Ranger V EDM or Kern DM 102 EDM (range-azimuth calibration). Fixed aids to navigation (located to third order, class I standards) used for "calibration pole" systems check/calibration purposes with the launch were:

MARE ISLAND STR LT 1	SIGNAL # 201
SAN PABLO BAY CHAN LT 15	115
SAN PABLO BAY CHAN LT 17	117
CARQUINEZ STRAIT RNG TARGET 1	101

All other daily systems checks were made with a T-2 and EDM. No sextants were used for calibrations.

During system calibration checks the observed distance from the electronic station was corrected for antenna offset and was compared with the computed slope distance to yield the observed system corrector. The observed corrector was then compared with the BLC and required to agree within five meters. All hydrographic data is covered by systems checks that meet this requirement.

Signal strength was annotated on the raw data printout frequently during sounding acquisition. All soundings with bad rates were re-positioned using "time and course"(T&C) methods. No data was

submitted with less than minimum signal strengths.

Andist correctors are not needed for Survey H-10223. The sounding transducer on Launch 1101 is 0.1 meter horizontal distance from the Mini-Ranger antenna.

During range-range positioning of the launch care was taken to stay within the areas of acceptable geometric configuration of the Mini-Rangers. There were areas, however, where soundings were acquired near the "banana" of the range-range configuration. These areas are primarily in Mare Island Strait. Data was inspected for any displacement errors not associated with the usual T & C's, but none were found.

There were some areas in San Pablo Bay that were found to be "skip" zones for receiving Mini-Ranger rates. In most cases the rate from signal number 640, RACEWAY RM 2, was the one that jumped or skipped. It was found that by lowering the RT unit on the launch, these areas could be run with no change in control stations. All gaps that were rejected because of missed rates were filled in on a later date with the lowered RT unit.

Sextants used for visual work include the following;

Tamaya	S/N 3725

Index error was adjusted to zero before using.

The theodolites used for range-azimuth hydrography and calibrations include the following;

Wild T-2	S/N 276812
"	S/N 35797

The electronic distance measuring instruments used for range-azimuth detached positions and calibrations includes the following;

K & E Ranger V	S/N 07B-6026
Kern DM 102	S/N 293684

All soundings were required to be covered by Mini-Ranger systems checks that were within +/- 5 meters of the baseline correctors. There were no unusual methods of electronic control operations and no unusual atmospheric conditions affecting data quality. For further information on electronic calibrations see Appendix V, Abstracts of Corrections to Electronic Position Control. *filed with the hydrographic data*

H. **SHORELINE.**

Shoreline information for Survey H-10223 was taken from several sources. These are as follows:

Chart 18654, 33rd ed., Jan. 26, 1985, 1:40,000 scale enlarged to 1:10,000 - This was used for the shoreline along the west edge of the survey, along the southeast shore of San Pablo Bay. Depicted in brown ink on the smooth field sheet.

Shoreline Manuscript TP-00525, 1:20,000 scale enlarged to 1:10,000 - Used along the southeast shore of San Pablo Bay.

Shoreline Manuscript TP-01246, 1:10,000 scale - Mare Island Strait and Carquinez Strait.

Shoreline Manuscript TP-01247, and TP-00527 **1:10,000 scale** - Carquinez Strait, to the east limits of the survey.

The limits of each shoreline source are clearly labeled on the smooth field sheets.

Shoreline details and features have been transferred to the smooth sheet.

All shoreline details have been verified, or searched for and disproved. In the case of piers that are <u>not</u> detached from shore, verification was made by comparing both the appropriate charts and the shoreline manuscripts for the features to the hydrographic sounding lines that were run along side of them. The reason the piers were verified in this manner was to try and alleviate the massive amount of time necessary to check and process detached positions. Most of the piers had detached positions taken near them, on AWOIS items or other discrepencies, which helped verify the location of the piers during processing.

Some of the piers had detached positions taken on them, such as the "T" shaped pier, owned by the Union Oil Co., at Davis Point.

<u>All</u> features <u>detached</u> from the shore had detached positions taken on them.

On only one area of the survey was shoreline verification not feasible. This is along the west side of Mare Island Strait, from the Mare Island Causeway south to the dry-docking facilities, all of which is a "controlled industrial area" of the Mare Island Naval Shipyard. This area is where nuclear submarines are overhauled. Permission to enter this area must be received from the U.S. Navy. The Chief of Party officially requested this permission before the survey started. However, permission was never obtained from Washington D.C. This shore was inspected where possible from the launch and compared to TP-01246 and the chart. Three detached positions were possible, on dolphins. PSR numbers 51105, 51108, and 51146 are on this shore. PSR 51146 was verified. PSRs 51105 and 51108 were confirmed to have been removed. Confirmation was received from the public works engineers and Navy divers. Refer to Section K., <u>Comparison With Prior Surveys,</u> for more details.

All other areas of the survey were verified, either by boat or by land vehicle.

A miscompilation of the C & H Sugar Co. wharf, centered at 38/03/28N, 122/13/28W, was found on TP-01247. The correct configuration of this wharf is shown in red on the smooth ~~field~~ sheet, and was obtained by measuring distances from station C & H.

Other areas of the shoreline shown in red on the smooth and field sheets are drawn in red because these are changes to the ~~chart~~ shoreline. The shoreline manuscripts are accurate and drawn well.

All "Notes To The Hydrographer" are discussed in Section K. or Section L. of this report. Most of the items are PSR items.

The following electronic control stations are seaward of the shoreline:

Station	Signal #
END 1951	602
VALLEJO FISH PIER	657
MARE ISLAND BRIDGE	658

I. CROSSLINES.

Crosslines comprise 9.0% of soundings. In comparing the crossline soundings to the mainscheme there is 100% agreement within 2 feet. The 2 foot discrepencies in some areas may be due to the irregular bottom in these areas.

This comparison is considered good and meets the comparison criteria specified in section 4.6.1 of the Hydrographic Manual.

J. JUNCTIONS.

This survey junctions with **Survey H-10081 (1:10,000 scale, 1983)** along the west edge. There is a good match of bottom contours between the two surveys. The maximum difference in depths ~~are~~ is 2 ~~feet~~, at 38/03/09N, 122/18/09W, with H-10223 shoaler. This is in depths of 30 to 32 feet. It is possible that a small shoal is forming at this location. Sounding lines were run at 45 meter spacing (on this survey) at this location, but were not split down. With the application of real tides to this survey the 2 foot difference may decrease. The hydrographer recommends charting the least depth from this survey at this location. No further work is recommended. concur

This survey junctions with **Survey H-10182 (1:20,000 scale, 1985-1986)** along 38/05/00N, in San Pablo Bay. There is good agreement of depths between surveys. 0 to 1 foot differences were found along the junction. The hydrographer considers this to be a good

agreement.

This survey junctions with **Survey H-10213 (1:10,000 scale, 1986)** in the Napa River, along the State Highway 37 bridge. Only three soundings junctioned, in the channel through the bridge. This survey is 1 to 3 feet shoaler than H-10213. The hydrographer feels that there could be two reasons for these differences; shoaling is taking place (evidence of this is the fact that Mare Island Strait was dredged twice during the course of this survey); on this survey the launch missed the deepest part of the channel through the bridge. The hydrographer recommends charting the least depth from this survey. No further work is recommended. *concur*

There is no contemporary survey in Carquinez Strait that H-10223 junctions with. The most recent survey is H-7785, 1950, 1:10,000 scale. Refer to Section K., Comparison With Prior Surveys, for a discussion of this junction. *Survey H-10264 (1988) will join this sheet to the east in Carquinez Strait.*

K. COMPARISON WITH PRIOR SURVEYS.

SURVEY H-4221, 1:10,000 SCALE, 1922

The shoreline in Mare Island Strait and the Napa River, as shown on H-4221, has undergone major changes. These changes, consisting of filling in the shoreline and building new bridges and piers, has made a comparison to be impractical. Modern aerial photography has allowed the cartographer to accurately revise the chart in this area.

A comparison of soundings shows that depths are now much deeper than found on H-4221. This reflects the regular dredging that this area now receives, due to the increase in ship traffic.

SURVEY H-4280, 1:10,000 SCALE, 1922

Again, the shoreline since 1922, in both Mare Island Strait and Carquinez Strait, has had major changes, making a comparison impractical.

Soundings in Mare Island Strait generally agree well.

Soundings in the center portion of Carquinez Strait show general good agreement.

The present survey found that the 6, 12, and 18 foot depth curves have now moved to the north, by as much as 200 meters.

The breakwater on the end of Mare Island, now known as Dike No. 12, has been lengthened since 1922.

The west shore of Mare Island has been filled in since 1922.

SURVEY H-6524, 1:10,000 SCALE, 1940

Only one span of the Carquinez Bridge had been built at this

time. The second span was built in the mid-1950s.

The south shore of Carquinez Strait has been filled in in many places since 1940. Rocks that are shown on H-6524, at 38/03/27N, 122/14/04W, are in an area that has been filled in for a water treatment facility. A sewer outfall is now located on all but one rock. This rock was found and verified. Refer to Section L., Comparison With The Chart, for a discussion.

The area shown as Morrow Cove has been filled in, and is now the site of the California Maritime Academy. The large wreck is an old ferry boat, and was verified on this survey. The smaller wreck, on the north end of the larger wreck, is now part of the shoreline. The protruding end of this wreck could not be distinguished from the larger wreck. Refer to PSR number 51082, which follows.

The end of the wreck north east of the above wrecks was verified by divers. This is discussed in Section L.

Along the south shore of Carquinez Strait the crib shown on H-6524 is PSR number 50814. A discussion of this follows, in this section.

The pier at Davis Point was removed in the late 1950s. A new pier, the present "T" shaped pier, was built soon after.

In general, the current survey found depths to be shoaler than those shown on the prior survey. At 38/03/54N, 122/15/15, depths are now 20 feet less.

SURVEY H-7785, 1:10,000 SCALE, 1950

The rocks at 38/03/27N, 122/14/04W, were discussed in the above paragraphs.

Between 1940 and 1950 the major changes to the shoreline took place. There is good shoreline agreement between this survey and H-10223, with the exception of the area east of Davis Point, pier, which has now been filled in. 200 meters

On either side of the Carquinez Bridge there is a good agreement of the 60 foot depth curve. South of the Mare Island Strait entrance, in the center of this portion of Carquinez Strait, this survey is generally deeper, by 1 to 5 feet. However, towards the south shore, depth curves have now been found to have shifted to the north, by as much as 200 meters.

SURVEY H-7898, 1:10,000 SCALE, 1951

Changes have been made to the shoreline since 1951, at Lone Tree Point. A large rip-rap and earthen breakwater has been built to enclose a small marina.

The pier at Hercules is now in ruins.

The pier shown on H-7898, located at 38/01/36N, 122/16/45W was searched for by PHP divers. They found some remains of the pier. A discussion of this follows, in this section. (See Deficiency Item Report for AWOIS 50821)

The 6, 12, and 18 foot depth contours have moved north, by as much as 200 meters. Depths in the center of the channel were generally found to be deeper on H-10223, except in the disposal area at lat. 38°03'48"N, Long. 122°16'57"W.

SURVEY H-7900, 1:20,000 SCALE, 1951

There is a general good agreement between the depths depicted on H-10223 and Survey H-7900. Soundings show 0 to 1 foot differences.

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~PSR~~ # 50808✓

ITEM DESCRIPTION: OBSTRUCTION: DOLPHIN

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 1/10/87 DAY NUMBER: 010/87 VESNO: 0651
~~0654~~
~~0650~~

OIC: LTJG MILLER
~~XXXXXXXXXXXX~~

POSITION NUMBER(S): 4622 (NSP), 4624

TIME (UTC): 160345, 190500 LEAST DEPTH: 1~~4~~5 ft, (MLLW)

DEPTH CORRECTORS APPLIED: ~~PREDICTED~~ ACTUAL TIDES
~~TRA~~
~~VELOCITY~~
~~SOUNDING~~

CHARTED POSITION: 38/03/12.90 122/15/33.00

OBSERVED POSITION: 38/03/12.710 122/15/33.5~~1~~50 (pos. 4624)

INVERSE DISTANCE: 14.188 meters

POSITION DETERMINED BY: MINI-RANGER (range-range, with check)
~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX~~
~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX~~
~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX~~

METHOD OF ITEM INVESTIGATION: Dive investigation. Pos. 4622 is the position of the weight/float/50 meter searchline. Theinverse distance to the PSR positon is 6.391 meters. The divers found ruined dolphin, consisting of pile remains and some metal cable.The least depth was measured by a fiberglass tape.

CHARTING RECOMMENDATION: Remove the charted dolphin symbol. Chart the ~~ruined dolphin at the new location~~. 15-Foot sounding with qualifier "obstr." at the observed position.
CARTO CODE: 233

✓

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~PSR~~ #50809 ✓

ITEM DESCRIPTION: OBSTRUCTION; DOLPHIN

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 1/12/87 DAY NUMBER: 012/87 VESNO: 0651

OIC: LTJG MILLER

POSITION NUMBER(S): 4631 (NSF), 4632

TIME (UTC): 184427, 204351 LEAST DEPTH: ~~9~~ 10 ft (MLLW)

DEPTH CORRECTORS APPLIED: ~~PREDICTED~~ ACTUAL TIDES

CHARTED POSITION: 38/03/13.50 122/15/32.40

OBSERVED POSITION: 38/03/13.45 122/15/31.4~~8~~6 (pos. 4632) one of two subm. piles

INVERSE DISTANCE: 22.483 meters

POSITION DETERMINED BY: MINI-RANGER (range-range, with check)

METHOD OF ITEM INVESTIGATION: A dive investigation was made on this day. Position 4631 is the position of the weight/float/50 meter search line. The inverse distance to position 4631 is 1.913 meters. On position 4632 2 submerged pipes were found. Nothing else was found. LEAST DEPTH MEASURED BY TAPE.

CHARTING RECOMMENDATION: Remove the charted dolphin symbol, chart the 10-foot ~~the submerged pipes at the new location~~, with qualifier "obstr pipe" at the observed position.

CARTO CODE: 235

✓

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~PSR~~ #50810 ✓

ITEM DESCRIPTION: OBSTRUCTION: PIER

SOURCE: AWOIS LISTING

INVESTIGATION DATE: N/A DAY NUMBER: N/A VESNO: ~~XXXXX~~ ~~0651~~ ~~0654~~ ~~XXXX~~ ~~0650~~ ~~XXXX~~

OIC: LTJG MILLER
~~LXXJGXXXXXXX~~

POSITION NUMBER(S): N/A

TIME (UTC): N/A

DEPTH CORRECTORS APPLIED: ACTUAL ~~PREDICTED~~ TIDES N/A
TRA "
VELOCITY "
LEADLINE "

CHARTED POSITION: 38/03/09.40 122/15/33.20

OBSERVED POSITION: N/A

INVERSE DISTANCE: N/A

POSITION DETERMINED BY: MINI-RANGER (range-range, with check) N/A
MINI-RANGER (range-az, with check) "
T-2/EDM (range-az, with check) "
3-POINT FIX (T-2 or sextant, with check) N/A

METHOD OF ITEM INVESTIGATION: The Chief of Party met with Mr. Merle Osgood, Project Engineer, Union Oil Co., Oleum Refinery, Rodeo, Ca., 94572, ph: 415-799-4411. Mr. Osgood states that there never was a small pier at this location. The original pier, built in the early 1900s, was burned and removed in 1957. A new, "T" shaped pier was built in its place, and is depicted correctly on the charts. The little structure that is this PSR item never existed. Mr. Osgood worked at this facility before the old pier burned. He also had aerial photographs (low level) of the old pier. No little pier extension sticks out from the main pier. Mr. Osgood thinks that what was seen on the 1955 photo revision may have been a boom projecting over the side.

Based on this information, no dives or searches were made for this pier.

CHARTING RECOMMENDATION: Remove the pier symbol from the charts. concur

✓

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~PSR~~ # 50811✓
50812✓

ITEM DESCRIPTION: OBSTRUCTION: PIER

SOURCE: AWOIS LISTING (H-7785)

INVESTIGATION DATE: 3/11/87
3/14/87

DAY NUMBER: 070/87
073/87

VESNO: 0651
~~0654~~
~~0656~~

OIC: LTJG MILLER
LTJG PORTA

POSITION NUMBER(S): 8163-8198, 8214, 8215

TIME (UTC): 195421 to 213014, 200217, 222000

LEAST DEPTH: ~~12~~ 8 ft at MLLW
(Pos.8215) subm. pile

DEPTH CORRECTORS APPLIED: ~~PREDICTED~~ ACTUAL TIDES
~~TRA~~
~~VELOCITY~~
~~LEADLINE~~

CHARTED POSITION: 38/03/07.90 122/15/37.70 (PSR 50811)

OBSERVED POSITION: 38/03/17.49 122/15/39.79

INVERSE DISTANCE: See text.

POSITION DETERMINED BY: MINI-RANGER (range-range, with check)
~~MINI-RANGER (range-range, with check)~~
~~MINI-RANGER (range-range, with check)~~
~~MINI-RANGER (range-range, with check)~~

METHOD OF ITEM INVESTIGATION: A bottom drag was conducted on the west side of the Union Oil Co. Pier (Oleum Refinery) on Day 070/87. The whole area of PSR 50811 and 50812 was dragged in 2 directions, then the drag was shifted approximately 30 meters and dragged in 2 directions again (approx. 50% overlap). In the area of 50812 a hang was experienced, but only in one direction. A dive was made on Day 073/87 on the hang position. A 25 meter circle search found only a rough bottom at the location, nothing significant or hazardous (this dive is pos. 8214). A dive was made on a hang that was experienced north of the PSR areas. This hang was found when the boats were coming on line to sweep the PSR areas. The dive on this hang also took place on Day 073/87. This is pos. 8215. A submerged pile was found. The least depth is ~~12~~ 8 ft. at MLLW. (This pile is approx. 300 meters north of the charted position for PSR 50811).

CHARTING RECOMMENDATION: Remove all of the submerged ruins symbols of AWOIS ~~PSR~~ 50811 and 50812. Chart ~~only the submerged pile found on pos. 8215~~. 8-foot sounding with qualifier "obstr" at pos. 8215

CARTO CODE: 234

✓

DEFICIENCY ITEM REPORT

AWOIS
~~FBR~~ # 50813✓

CHART # 18654
18655

ITEM DESCRIPTION: OBSTRUCTION; RUIN

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 9/22/86 DAY NUMBER: 265 VESNO: 0651

OIC: LTJG MILLER

POSITION NUMBER(S): 1650

TIME (UTC): 181747 LEAST DEPTH: ~6 ft (MLLW)
fence post

DEPTH CORRECTORS APPLIED: ~~PREDICTED~~ ACTUAL TIDES

CHARTED POSITION: 38/03/06.30 122/15/23.20

OBSERVED POSITION: 38/03/06.01 122/15/22.86

INVERSE DISTANCE: 12,193 meters

POSITION DETERMINED BY: MINI-RANGER (range-range, with check)

METHOD OF ITEM INVESTIGATION: Pos. 1650 is on a barbed wire fence that extends into the water. The position is on the end fence post. The fence is oriented the same as the charted ruin. The charted ruin was from a 1955 photo revision. It is likely that the fence was mistaken for a ruined pier. No further search was made. This fence looked rusty enough to have been in existence in 1955. No further searches are recommended.

CHARTING RECOMMENDATION: Chart the fence at the new location. List this as a fence, not a ruin. concur

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~PSR~~ # 50814

ITEM DESCRIPTION: OBSTRUCTION: CRIB

SOURCE: AWOIS LISTING (H-7785)

INVESTIGATION DATE: 9/4/86, 1/8/87 **DAY NUMBER:** 247/86 008/87 **VESNO:** ~~0651~~ ~~0654~~ 0650

OIC: LTJG MILLER
~~XXXXXXXXXXXX~~

POSITION NUMBER(S): N/A

TIME (UTC): N/A

DEPTH CORRECTORS APPLIED: ACTUAL ~~PREDICTED~~ TIDES
~~XXX~~
~~XXXXXXXX~~
~~XXXXXXXX~~

CHARTED POSITION: 38/03/07.60 122/15/18.80

OBSERVED POSITION: SAME

INVERSE DISTANCE: N/A

POSITION DETERMINED BY:
MINI-RANGER (range-range, with check) N/A
MINI-RANGER (range-az, with check) "
T-2/EDM (range-az, with check) "
3-POINT FIX (T-2 or sextant, with check) N/A

METHOD OF ITEM INVESTIGATION: The area was seen bare on two occasions of negative tides. Nothing was found or seen from the beach. The sounding lines confirm that the location of the charted crib is in an area that bares at MLLW.

CHARTING RECOMMENDATION: Remove the crib from the charts. concur

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~PSR~~ # 50815

ITEM DESCRIPTION: OBSTRUCTION; PILE

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 1/26/87 DAY NUMBER: 026/87 VESNO: 0651

OIC: LTJG MILLER

POSITION NUMBER(S): SEE TEXT.

TIME (UTC): SEE TEXT

DEPTH CORRECTORS APPLIED: ~~PREDICTED~~ ACTUAL TIDES

CHARTED POSITION: 38/04/30.30 122/17/00.10

OBSERVED POSITION: SAME

INVERSE DISTANCE: N/A

POSITION DETERMINED BY:
MINI-RANGER (range-range, with check) N/A
MINI-RANGER (range-az, with check) "
T-2/EDM (range-az, with check) "
3-POINT FIX (T-2 or sextant, with check) N/A

METHOD OF ITEM INVESTIGATION: The launch was driven in as close as possible to the location of the pile. The whole area was seen bare, No piles or obstructions found. This whole area has been seen bare on numerous occasions.

CHARTING RECOMMENDATION: Remove from the charts. CONCUR

DEFICIENCY ITEM REPORT

AWOIS 50816 ✓
~~PSR~~ # 50848 ✓

CHART # 18654
18655

ITEM DESCRIPTION: OBSTRUCTIONS: RANGE TARGETS

SOURCE: AWOIS LISTING

INVESTIGATION DATE: SEE TEXT **DAY NUMBER:** SEE TEXT **VESNO:** [illegible]
[illegible]
0650

OIC: LTJG MILLER
[illegible]

POSITION NUMBER(S): SEE TEXT

TIME (UTC):

DEPTH CORRECTORS APPLIED: ~~PREDICTED~~ ACTUAL TIDES
TRA
VELOCITY
LEADLINE

CHARTED POSITION: 38/04/17.04 (37) 122/17/17.54 (35) (50816) CARQUINEZ STR RANGE TARGET 1
38/04/40.120 122/18/08.93 (26) (50848) " " " " 2

OBSERVED POSITION: Same

INVERSE DISTANCE: SEE TEXT

POSITION DETERMINED BY: [illegible]
T-2 [illegible]

METHOD OF ITEM INVESTIGATION: These are the CARQUINEZ STRAIT RANGE TARGETS 1 and 2. Both targets still exist, in good shape. They were verified on the horizontal control work on two projects. Refer to the Horizontal Control Report for this project (OPR-L123-PHP-86).

CHARTING RECOMMENDATION: Retain both targets as charted. concur

✓

DEFICIENCY ITEM REPORT

CHART # 18654
~~18655~~

AWOIS
~~PSR~~ # 50817 ✓

ITEM DESCRIPTION: OBSTRUCTION

SOURCE: AWOIS LISTING (H-7898)

INVESTIGATION DATE: 12/2/86 DAY NUMBER: 336/87 VESNO: 0651
~~0654~~
~~0650~~

OIC: LTJG MILLER
~~[illegible]~~

POSITION NUMBER(S): 3811

TIME (UTC): 174837 Least Depth: -6 Ft (MHW)
~~-10Ft (MLLW)~~
pile

DEPTH CORRECTORS APPLIED: ~~PREDICTED~~ ACTUAL TIDES
~~[illegible]~~

CHARTED POSITION: 38/02/18.40 122/16/24.40

OBSERVED POSITION: 38/02/18.730 122/16/24.~~400~~ 360

INVERSE DISTANCE: 10.175 meters

POSITION DETERMINED BY: MINI-RANGER (range-range, with check)
~~[illegible]~~

METHOD OF ITEM INVESTIGATION: A position was taken on the end of a row of piles. The position for the PSR description plots on the row of the piles, but not on the end.

CHARTING RECOMMENDATION: NSP on this survey. However, the cartographer should place the symbol for piles on the position for fix 3811, which is the last pile in the row. concur see above

✓

DEFICIENCY ITEM REPORT

CHART # 18654

AWOIS # 50818 ✓

ITEM DESCRIPTION: OBSTRUCTION: JETTY

SOURCE: AWOIS LISTING (H-7898)

INVESTIGATION DATE: 1/8/87 DAY NUMBER: 008/87 VESNO:

OIC: LTJG MILLER

POSITION NUMBER(S): NONE

TIME (UTC): 234100

DEPTH CORRECTORS APPLIED: ACTUAL TIDES

CHARTED POSITION: 38/02/22.30 122/16/00.00

OBSERVED POSITION: 38/02/22.30 122/16/00.00

INVERSE DISTANCE: N/A

POSITION DETERMINED BY: MINI-RANGER (range-range, with check)
MINI-RANGER (range-az, with check)
T-2/EDM (range-az, with check)
3-POINT FIX (T-2 or sextant, with check)

METHOD OF ITEM INVESTIGATION: The whole shoreline of the area of the charted jetty was walked by LTJG MILLER. A drawing was made of the area. The area is foul with shopping carts and other debris. No jetty or signs of a jetty was found. At the above time this whole area was bare, for a considerable distance off shore.

CHARTING RECOMMENDATION: Remove this jetty from the chart, but chart foul limits as shown on the smooth ~~field~~ sheet. concur

✓

DEFICIENCY ITEM REPORT

CHART # 18654 ~~XXXXX~~ AWOIS ~~PSR~~ # 50819 ✓

ITEM DESCRIPTION: OBSTRUCTION: SEWER (PA)

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 1/22/87 DAY NUMBER: 022/87 VESNO: 0651 ~~0654~~ ~~0659~~

OIC: ~~LTJG MILLER~~
LTJG PORTA

POSITION NUMBER(S): 4778 to 480~~5~~ 4

TIME (UTC): 194335 to 201659

DEPTH CORRECTORS APPLIED: ~~PREDICTED~~ ACTUAL TIDES
TRA
VELOCITY
~~LEADLINE~~

CHARTED POSITION: 38/02/17.50 122/16/37.50

OBSERVED POSITION: 38/02/18.~~67~~ 43 122/16/38.~~34~~ 59 (Pos. 4796+02) ✓

LEAST DEPTH: 7.0 ft (MLLW)

INVERSE DISTANCE: 21.326 meters on sounding that is closest.

POSITION DETERMINED BY: MINI-RANGER (range-range, ~~XXXXXXXXXX~~
~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX~~
~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX~~
~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX~~)

METHOD OF ITEM INVESTIGATION: Development lines were run over the charted sewerline. A linear feature was found on 4 of the 50 meter spaced lines. They were plotted and found to fall along the same orientation, and nearly on top of, the charted sewerline. The sewerline is owned by the Pacific Refining Co., in Rodeo, Ca. The Chief of Party visited their offices. No engineering drawings could be found. However, they stated that it is an active sewerline. Because of a lack of the proper safety equipment for diving in polluted waters, the descision was made not to dive on the end. When plotting the sewerline from the development lines, it was found that the sewer extends further out in the bay than charted.The smooth field sheet shows the proper length and orientation.

On Day 008/87 a dive was made on the charted end of the sewerline, as listed in the AWOIS. This is position 4615. Nothing was found at that location. The inverse distance between the fix and the position is 4.359 meters. However, a circle search was not completed. Also, a check rate was not obtained. Pos. 4615 was rejected from the data.

CHARTING RECOMMENDATION: Chart the sewerline as shown on the smooth field sheet. Remove the "PA" from the chart. The hydrographer does not recommend further work on this item. *Revise charted position to that shown on the smooth sheet with a least depth of 7 feet at the observed position.*

✓

DEFICIENCY ITEM REPORT

CHART # 18654

AWOIS #50820

ITEM DESCRIPTION: OBSTRUCTION: 9 STAKES

SOURCE: AWOIS LISTING (H-7898)

INVESTIGATION DATE: 1/8/87 **DAY NUMBER:** 008/87 **VESNO:** 0651

OIC: LTJG PORTA

POSITION NUMBER(S): 4613

TIME (UTC): 173743

DEPTH CORRECTORS APPLIED: ACTUAL TIDES N/A
TRA "
VELOCITY "
LEADLINE "

CHARTED POSITION: 38/01/48.70 122/16/43.30

OBSERVED POSITION: 38/01/48.730 122/16/43.070

INVERSE DISTANCE: 5.685 meters

POSITION DETERMINED BY: MINI-RANGER (range-range, with check)

METHOD OF ITEM INVESTIGATION: 50 meter radius diver circle search. Nothing was found.

CHARTING RECOMMENDATION: Remove these stakes from the chart. concur

DEFICIENCY ITEM REPORT

CHART # 18654

AWOIS # 50821

ITEM DESCRIPTION: OBSTRUCTION (PIER)

SOURCE: AWOIS LISTING (H-7898)

INVESTIGATION DATE: JAN. 9, 1987 DAY NUMBER: 009 VESNO: 0651

OIC: LTJG PORTA

POSITION NUMBER(S): 4620

TIME (UTC): 194500 LEAST DEPTH: -1.0 -0.8 ft (MLLW)

DEPTH CORRECTORS APPLIED: ACTUAL TIDES

CHARTED POSITION: 38/01/39.50N 122/16/54.00W

OBSERVED POSITION: 38/01/39.52N 122/16/53.85W

INVERSE DISTANCE: 3.902 meters

POSITION DETERMINED BY: MINI-RANGER (range-range, with check)

METHOD OF ITEM INVESTIGATION: Dive investigation, two divers, 50 meter radius search. The divers found concrete at this fix location. The divers also dove at 38/01/39.82N, 122/16/52.70W and found more concrete. Between these two fixes the divers found some debris. These two fixes verify the seaward end of the charted ruins. Another dive, on Day 008/87, was on the shore-end of the ruins. Nothing was found (50 meter search). Development lines were run over the charted ruins on Days 357/86 and 363/86, but nothing was found. These development lines were at 50 meter spacing. The dive fixes and diver descriptions verify the seaward end of ruins. The development lines may have missed the inshore ruins. The hydrographer recommends retaining the ruins as charted, all the way to shore.

CHARTING RECOMMENDATION: Chart ruins as shown on smooth sheet. ~~Retain as charted.~~

DEFICIENCY ITEM REPORT

CHART # 18654

AWOIS # 50822 ✓

ITEM DESCRIPTION: OBSTRUCTION (STAKES)

SOURCE: AWOIS LISTING *(H-7898)*

INVESTIGATION DATE: JAN. 9, 1987 DAY NUMBER: 009 VESNO: 0651

OIC: LTJG PORTA

POSITION NUMBER(S): 4618

TIME (UTC): 182100 LEAST DEPTH: -1.0 ft (MLLW) *pipe*

DEPTH CORRECTORS APPLIED: *ACTUAL* TIDES

CHARTED POSITION: 38/01/31.50N 122/16/55.00W

OBSERVED POSITION: 38/01/31.59N 122/16/54.90W

INVERSE DISTANCE: 3.694 meters

POSITION DETERMINED BY: MINI-RANGER (range-range, with check)

METHOD OF ITEM INVESTIGATION: Dive investigation, two divers, 50 meter radius search. Found a 3 inch diameter metal pipe. No other objects found.

CHARTING RECOMMENDATION: Chart as "Pipe" at the new location. *concur*

Carto-code: 280

✓

DEFICIENCY ITEM REPORT

AWOIS
~~PSR~~ # 50823 ✓

CHART # 18654
~~18655~~

ITEM DESCRIPTION: OBSTRUCTION (STAKES)

SOURCE: AWOIS LISTING

INVESTIGATION DATE: JAN. 9, 1987 DAY NUMBER: 009 VESNO: 0651
~~0654~~
~~0655~~

OIC: ~~LTJG MILLER~~
LTJG PORTA

POSITION NUMBER(S): 4617

TIME (UTC): 174000 LEAST DEPTH: -1.0 ft (MLLW)

DEPTH CORRECTORS APPLIED: ACTUAL ~~PREDICTED~~ TIDES
~~TRA~~
~~VELOCITY~~
~~LEADLINE~~

CHARTED POSITION: 38/01/29.70N 122/17/02.00W

OBSERVED POSITION: 38/01/29.94N 122/17/02.05W (one of two pipes)

INVERSE DISTANCE: 7.594 meters

POSITION DETERMINED BY: MINI-RANGER (range-range, with check)
~~MINI-RANGER (range-range with check)~~
~~T-2/SDM (range-range with check)~~
~~3 POINT FIX (2 or more bearings with check)~~

METHOD OF ITEM INVESTIGATION: Dive investigation, two divers, 50 meter radius search. Found two pipes, These are probably what were discribed as stakes. Nothing else found.

CHARTING RECOMMENDATION: Chart as "Pipes" at the new location, concur
CARTO CODE: 280

✓

DEFICIENCY ITEM REPORT

CHART # 18654 ~~18655~~ ~~XXXXX~~

AWOIS ~~PSR~~ #50824 ✓

ITEM DESCRIPTION: OBSTRUCTION (PIER)

SOURCE: AWOIS LISTING (H-7898)

INVESTIGATION DATE: SEPT, 22, 1986 DAY NUMBER: 265 VESNO: 0651 ~~XXXX~~ ~~XXXX~~

OIC: LTJG MILLER ~~LTJG FORTA~~ ~~XXXXXXXXXX~~

POSITION NUMBER(S): 1649

TIME (UTC): 174419 LEAST DEPTH: Missed ~~-9 ft~~ (MLLW)

DEPTH CORRECTORS APPLIED: ACTUAL ~~PREDICTED~~ TIDES ~~XXX~~ ~~VELOCITY~~ ~~XXXXXXXXX~~ ~~LEADLINE~~ ~~XXXXXXXXX~~

CHARTED POSITION: 38/01/23.30N 122/17/30.50W

OBSERVED POSITION: 38/01/23.02 N ~~SAME~~ 122/17/30.44 W ~~SAME~~

INVERSE DISTANCE: *****

POSITION DETERMINED BY: MINI-RANGER (range-range, with check) ~~MINI-RANGER (range-range with check)~~ ~~FIXED PM (range-range with check)~~ ~~POINT Fix (T-2 or sextant with check)~~

METHOD OF ITEM INVESTIGATION: A fix was taken on the end of the ruined pier. This fix verified the end of the charted pier. This pier is now totally in ruins, from the shore to the end. The pier has been burned. However, the general shape and outline of the pier remains intact. PHP found the brackets for the floatwell of the tide gage that NOS had inplace in 1977. PHP reused the brackets for the Hercules Wharf Gage (941-5074) for this survey.

CHARTING RECOMMENDATION: Retain this pier in the charted location. Use ruin symbols from the shore all the way to the end, as depicted on the smooth ~~field~~ sheet.

concur ✓

DEFICIENCY ITEM REPORT

CHART # 18654 ~~18655~~

AWOIS ~~PSR~~ # 50825✓

ITEM DESCRIPTION: OBSTRUCTION

SOURCE: AWOIS LISTING

INVESTIGATION DATE: JAN. 9, 1987 DAY NUMBER: 009 VESNO: ~~0651~~ ~~0654~~ 0650

OIC: LTJG MILLER ~~LTJG FORTA~~

POSITION NUMBER(S): NONE; SHORELINE VERIFICATION.

TIME (UTC): 002000 LEAST DEPTH: -3 ft (MLLW)

DEPTH CORRECTORS APPLIED: ~~PREDICTED~~ ACTUAL TIDES

CHARTED POSITION: 38/01/00.10N 122/17/38.00W

OBSERVED POSITION: SAME SAME

INVERSE DISTANCE: ***

POSITION DETERMINED BY: ~~MINI-RANGER (range-range, with check)~~
~~MINI-RANGER (range-az, with check)~~
~~T-2/EDM (range-az, with check)~~
3-POINT FIX (T-2 or sextant, with check)

METHOD OF ITEM INVESTIGATION: This item is a pipe, probably a sewage outfall. It was found from shore, by walking along the railroad tracks. A sextant fix was taken on the shore end of the item, as close as the person could get to the end. Observations were hampered by the item being located in the marsh at the shoreward end. A magnetic bearing was taken from the shore end along the length of the feature. The length of the pipe from the marshline to the bay-end was measured by a Range-finder, and found to be 75 meters long. The least depth was determined from the height out of the mud, and then compared to shoreline soundings on the smooth field sheet. Based on the magnetic bearing and the length, this item was found to be slightly different then the depiction on the chart. It is shown in red on the smooth field sheet. The whole area was seen bare on this day and at this time; no other objects resembling the item were seen. The pipe is 1 foot wide for the entire length.

CHARTING RECOMMENDATION: Retain this item on the chart, ~~but depict it as shown on the smooth field sheet~~ concur. shown in brown on smooth sheet

✓

DEFICIENCY ITEM REPORT

CHART # 18654

AWOIS # 50826

ITEM DESCRIPTION: OBSTRUCTION (DUCK BLIND)

SOURCE: AWOIS LISTING (H-7898)

INVESTIGATION DATE: JAN. 7, 1987 **DAY NUMBER:** 007 **VESNO:** 0651

OIC: LTJG PORTA

POSITION NUMBER(S): 4610

TIME (UTC): 174337 LEAST DEPTH: *****

DEPTH CORRECTORS APPLIED: ACTUAL TIDES

CHARTED POSITION: 38/00/59.74N 122/18/11.92W

OBSERVED POSITION: 38/00/59.69N 122/18/11.96W

INVERSE DISTANCE: 1,824 meters

POSITION DETERMINED BY: MINI-RANGER (range-range, with check)

METHOD OF ITEM INVESTIGATION: Dive investigation. Two divers, 25 meter radius search. Nothing was found.

CHARTING RECOMMENDATION: This item is not on the chart, only in the AWOIS listing. No further work is recommended. concur. Do not chart.

DEFICIENCY ITEM REPORT

CHART # 18654 ~~18655~~

AWOLS
~~PSR~~ # 50827 ✓

ITEM DESCRIPTION: SOUNDING

SOURCE: AWOIS LISTING (H-7898)

INVESTIGATION DATE: JAN. 5, 1987 DAY NUMBER: 005 VESNO: 0651 ~~0654~~ ~~0655~~

OIC: ~~LTJG MITCHELL~~
LTJG PORTA

POSITION NUMBER(S): 4515-4609

TIME (UTC): 204404 LEAST DEPTH: ~~6~~ 7 ft (MLLW)

DEPTH CORRECTORS APPLIED: ~~PREDICTED~~ ACTUAL TIDES
TRA
VELOCITY
~~LEADLINE~~

CHARTED POSITION: 38/02/29.40N 122/16/19.00W

OBSERVED POSITION: 38/02/~~30.00~~ 29.70N 122/16/~~18.90~~ 19.37W (pos. 4575 +03)

INVERSE DISTANCE: 18.659 meters

POSITION DETERMINED BY: MINI-RANGER (range-range, ~~with check~~)
~~MINI-RANGER (range-range, with check)~~
~~(range-range, with check)~~
~~(range-range, with check)~~

METHOD OF ITEM INVESTIGATION: 10 meter development lines were run in the area, additional to the 45 meter mainscheme lines. These development lines were run using arcs from different stations, so that lines would be nearly perpendicular. Predominant depths in the area are 7 feet, One sounding, at the above observed position (fix 4578 +2), was found to be 6 feet.

The hydrographer feels that this should not have been a PSR item, as the charted 5 foot sounding falls well within the 6 foot contour of the chart. The PSR listing does not reveal why this sounding is suspect. No further work is recommended.

CHARTING RECOMMENDATION: Delete the 5 foot sounding and chart a ~~6~~ 7 foot sounding at the new location. Adjust the 6 foot contour. concur

✓

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~PSR~~ # 50828 ✓

ITEM DESCRIPTION: OBSTRUCTION (PIER IN RUINS)

SOURCE: AWOIS LISTING (H-7898)

INVESTIGATION DATE: OCT. 22, 1986 DAY NUMBER: 295 VESNO: 0651
JAN. 8, 1987 008 ~~0654~~
APRIL 30, 1987 120 0650

OIC: LTJG MILLER
~~LTJG MORRA~~

POSITION NUMBER(S): 2590-2649
5287

TIME (UTC): 161814 (Day 295) LEAST DEPTH: 10 ft (MLLW)

DEPTH CORRECTORS APPLIED: ACTUAL ~~PREDICTED~~ TIDES
TRA
VELOCITY
~~LEADLINE~~

CHARTED POSITION: 38/02/32.80N 122/15/48.60W

OBSERVED POSITION: See description below.

INVERSE DISTANCE: *****

POSITION DETERMINED BY: MINI-RANGER (range-range, ~~with check~~)
~~MINI-RANGER (range-range with check)~~
~~T-2/SRM (range-range with check)~~
3-POINT FIX (T-2 or sextant, with check)

METHOD OF ITEM INVESTIGATION: On Day 295/86 development lines were run over an object noticed on the fatho analog trace. These were 10 meter lines. The least depth from these soundings, when corrected for draft and velocities, is 10 feet. Leadlines were attempted on the object, but were always deeper than the fatho soundings. The least depth is from position 2614 +3, time: 161814. On day 008/87 PHP personnel walked the shoreline in the area of PSR 50828. This was at time: 234100. Rocks were visible in a straight line out from the shore, at the position of PSR 50828. These rocks are bare at this time. Least depth, corrected for predicted tides, is: -2 feet (MLLW). These rocks extend out 40 meters, see the smooth ~~field~~ sheet for proper depiction. On Day 120/87 PHP personnel positioned the shore end of the rocks (position 5287). This location is at the Rodeo waste treatment plant. The engineers at the plant stated that our position is on the shore end of their sewage outfall, built in 1981-82. Copies of the engineering drawings were obtained. These drawings show that the sewer was built out 3900 feet from the location of fix 5287. The azimuth described on the drawings is almost identical as that drawn from fix 5287 to position 2614 +3 (and at the same distance). The hydrographer is confident that the development lines from Day 295/86 accurately depict the end of the sewer line, based on the engineering drawings. The drawings show that the seaward most end of the sewer is out of the mud (the last 150 meters). All the rest of the sewer is buried, This was confirmed by the hydrography.

CHART RECOMMENDATION: Chart the sewer line and the rocks as shown on the smooth ~~field~~ sheet.

CARTO CODE: 801

concur ✓

DEFICIENCY ITEM REPORT

CHART # 18654

AWOIS ~~PSR~~ #50829

ITEM DESCRIPTION: OBSTRUCTION

SOURCE: AWOIS LISTING

INVESTIGATION DATE: JAN. 8, 1987 DAY NUMBER: 008 VESNO: 0651 ~~0654~~ ~~0650~~

OIC: ~~LTJG MILLER~~ LTJG PORTA

POSITION NUMBER(S): ~~4612~~ 2355

TIME (UTC): 171925

Elev. 8 ft
~~LEAST DEPTH: -2.4 ft~~ (MLLW)

DEPTH CORRECTORS APPLIED: ~~PREDICTED~~ ACTUAL TIDES ~~TRA VELOCITY LEADLINE~~

CHARTED POSITION:	38/01/30.00N	122/16/46.30W
OBSERVED POSITION:	38/01/30.58N	122/16/48.39W
INVERSE DISTANCE:	54.021 meters	

POSITION DETERMINED BY: MINI-RANGER (range-range, with check) ~~MINI-RANGER (range-az, with check) 2/EDM (range-az, with check) 3-POINT FIX (range-az, with check)~~

METHOD OF ITEM INVESTIGATION: Dive investigation, two divers. This fix is on the seaward end of a rock ledge, 3 meters wide, that extends back to shore. The divers taped the least depth. They walked and swam the whole length of the ledge. No ruins found. The computations show that the fix is 54,021 meters seaward of the published position, on the same azimuth as that shown on the chart. The hydrographer is confident that only the ledge is in this location; no ruins. The divers also swam out from this fix and did a 50 meter search seaward of the fix, with nothing found. No further work is recommended here.

Delete charted ruins.

CHARTING RECOMMENDATION: Chart a ledge with an elev. of 8 feet at ~~this~~ location, as depicted on the smooth ~~field~~ sheet. Note: the smooth field sheet has the width of the ledge exagerated to better show it.

shown as ledge on smooth sheet with elev. of 8 ft.

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~PSR~~ # 50849 ✓ 50850 ✓ 50851 ✓

ITEM DESCRIPTION: OBSTRUCTIONS: PILE, DOLPHINS

SOURCE: AWOIS LISTING (H-7898)

INVESTIGATION DATE: 1/13/87 DAY NUMBER: 013/87 VESNO: 0651 ~~[illegible]~~ ~~[illegible]~~

OIC: LTJG MILLER
~~[illegible]~~

POSITION NUMBER(S): 4633, 4634, 4635

TIME (UTC): 155552, 164429, 165831

DEPTH CORRECTORS APPLIED: ~~PREDICTED~~ ACTUAL TIDES N/A
TRA "
VELOCITY "
LEADLINE "

CHARTED POSITION: 38/03/57.70 122/16/55.10 (50850) 38/04/09.20 122/16/38.50 (50849)
38/03/57.90 122/16/51.10 (50851)

OBSERVED POSITION: 38/03/57.50 122/16/54.96 (4633) NSP 38/03/57.25 122/16/50.95 (4634) NSP
38/04/09.52 122/16/38.54 (4635) NSP

INVERSE DISTANCE: 7.048 (4633) 20.372 (4634) 9.914 (4635)

POSITION DETERMINED BY: MINI-RANGER (range-range, with check)
~~[illegible]~~

METHOD OF ITEM INVESTIGATION: Diver investigation on all three items. 50 meter searches on all items. Nothing found at the three sites.

CHARTING RECOMMENDATION: Remove all three items from the chart. concur

✓

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~PSR~~ #50852

ITEM DESCRIPTION: OBSTRUCTION: DOLPHIN

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 1/14/87 **DAY NUMBER:** 014/87 **VESNO:** 0651

OIC: LTJG MILLER

POSITION NUMBER(S): 4658, 4659

TIME (UTC): 195903, 214420

DEPTH CORRECTORS APPLIED: ACTUAL TIDES

CHARTED POSITION: 38/03/17.30 122/15/33.90

OBSERVED POSITION: 38/03/17.18 122/15/32.65 (pos. 4659)

INVERSE DISTANCE: 30.457 meters LEAST DEPTH: 12 3/4 ft. (MLLW) OBSTR (PIPES)

POSITION DETERMINED BY: MINI-RANGER (range-range, with check)

METHOD OF ITEM INVESTIGATION: Diver investigation. Position 4658 is on the weight/float/50 meter search line. Inverse distance to this position is 9.586 meters. The divers found a submerged obstruction, consisting of pipes or rebar, at positon 4659.

CHARTING RECOMMENDATION: Remove the charted dolphin. Chart the submerged "obstruction" at the new position. concur

CARTO CODE: 287

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~PSR~~ # 51081 ✓

ITEM DESCRIPTION: OBSTRUCTION; DOLPHIN

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 3/14/87 DAY NUMBER: 073/87 VESNO: 0651 ~~0654~~ ~~0650~~

OIC: LTJG MILLER

POSITION NUMBER(S): 8211, 8212

TIME (UTC): 150120, 164000 LEAST DEPTH: 1 ft, (MLLW)

DEPTH CORRECTORS APPLIED: ACTUAL ~~PREDICTED~~ TIDES

CHARTED POSITION: 38/03/56,00 122/13/41,60

OBSERVED POSITION: 38/03/56,45 122/13/41,97 (pos, 8212)

INVERSE DISTANCE: 16,291 meters

POSITION DETERMINED BY: MINI-RANGER (range-range, with check)

METHOD OF ITEM INVESTIGATION: Diver investigation, Pos, 8211 is on the weight/float/ 50 meter searchline, The inverse distance to pos, 8211 is 5,739 meters, Note; The AWOIS list had 38/03/56,00 122/14/41,6 as the position of this dolphin, This is a confined area at the California Maritime Academy, It is assumed that the wrong longitude was typed in, Pos, 8212 is on remains of a pile and some concrete, about 1 meter in diameter, Nothing else found, Two other dolphins were positoned in the immediate area, These dolphins are in good shape, and are used to moor the C.M.A. training ship, These were positioned by 3013 and 4652. Chart these as shown on the smooth field sheet.

Delete visible dol charted at above position.

CHARTING RECOMMENDATION: Chart the submerged dolphin ruins ~~at the~~ as covered 1 ft. at new location, concur.

CARTO CODE: 233

✓

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~FSR~~ # 51082 ✓

ITEM DESCRIPTION: OBSTRUCTION: WRECK

SOURCE: AWOIS LISTING *(H-7785)*

INVESTIGATION DATE: 9/16/86, 10/24/86 **DAY NUMBER:** 259/86, 297/86 **VESNO:** 0651 ~~0654~~ ~~0650~~

OIC: LTJG MILLER
~~LTJG PORTA~~

POSITION NUMBER(S): 1585, 3002

TIME (UTC): 143835, 175815 **LEAST DEPTH:** ~~<1 ft (MLLW)~~

DEPTH CORRECTORS APPLIED: *Actual* ~~PREDICTED~~ TIDES
~~XXX~~
~~XXXXXXXXXX~~
~~XXXXXXXXX~~

CHARTED POSITION: 38/04/01.10 122/13/49.70

OBSERVED POSITION: 38/04/05.9~~8~~6 122/13/50.0~~6~~7 (pos. 1585) *inshore end of wreck.*
38/04/02.1~~0~~2 122/13/49.7~~1~~8 (pos. 3002) *offshore " " ".*

INVERSE DISTANCE: 150.716 meters to pos. 1585, 30.879 meters to pos. 3002.

POSITION DETERMINED BY: MINI-RANGER (range-range, with check)
MINI-RANGER (range-az, with check)
~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX~~
~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX~~

METHOD OF ITEM INVESTIGATION: Positon 1585 was taken on the shore end of this well-known wreck of a ferry boat. Position 3002 was taken on the seaward end. On both days the ribs of the vessel were visible. The Chief of Party met with personnel at the California Maritime Academy, which the wreck is situated at. This is a ferry boat. This is the only wreck at this location. The distance between the two fixes is 119.8 meters, and is close in length to the wreckdepicted on the prior surveys of the area. The wreck is about 12 to 15 meters wide for the length of it.

CHARTING RECOMMENDATION: Remove the wreck symbol from the chart. *concur* *Replot wreck &* ~~at~~ place it ~~on~~ *at* the center of the wreck as determined from the two fixes. The chart presently shows the wreck symbol too far east.

✓

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS # 51083

ITEM DESCRIPTION: OBSTRUCTION: PILE OR DOLPHIN

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 3/4/87 DAY NUMBER: 063/87 VESNO: 0651
0654

OIC: ~~LTJG MILLER~~
LTJG PORTA

POSITION NUMBER(S): 8137
8138 (pile), 8142, 8144 obstr.

TIME (UTC): 202000, 191300, 194000 LEAST DEPTHS: 2 ft (8138), 4 ft (8144) excessed at MLLW.

DEPTH CORRECTORS APPLIED: ACTUAL ~~PREDICTED~~ TIDES

CHARTED POSITION: 38/04/51.20 122/14//55.60

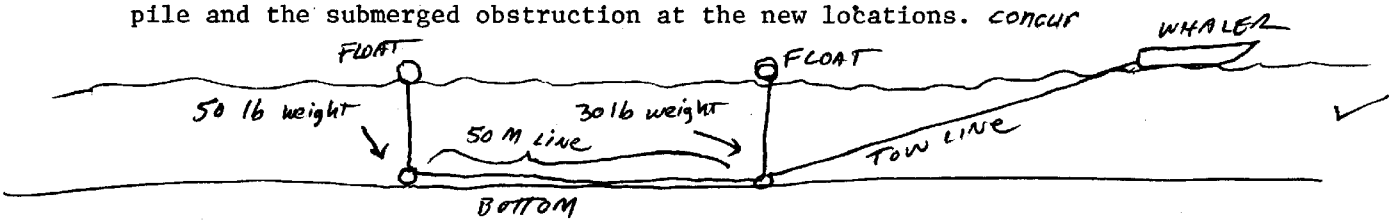
OBSERVED POSITION: 38/04/50.88 122/14/56.74 (8138) 38/04/50.40 122/14/56.20 (8142) NSP
38/04/50.50 122/14/56.65 (8144) 38/04/51.23 122/14/55.57 (8137) NSP

INVERSE DISTANCE: 1.180 meters to 8137 24.210 meters to 8144
29.479 meters to 8138

POSITION DETERMINED BY: ~~MINI-RANGER~~
MINI-RANGER (range-az, with check)
~~T-2 EPOCH~~

METHOD OF ITEM INVESTIGATION: The launch dropped a weight, float, and 50 meter searchline (pos. 8137). The Boston Whaler picked up the end of the search line (which was weighted), and swept the area in two directions, three sweeps in each direction. See picture. A dredge was working in Mare Island Strait at this time. The Capt. radiod the launch and said he would be dredging the site of our float. We pulled up the float and the dredge made several passes at the site. We then replaced the weight/float/searchline at the same site and continued. We found a submerged pile at pos. 8138. The least depth was measured by a calibrated sounding pole (no corrections to the pole). The same drag found a submerged concreteobstruction (positions 8142 and 8144). Both positions are on the same object, or on two seperate objects close together. Pos. 8144 had the least depth of the two. Least depths were taken with the sounding pole. The found objects were positoned by dropping a weight and float on the objects, and bringing the launch up to the float (pulling the float strait up and down when the positions were taken).

CHARTING RECOMMENDATION: Remove the charted pile. Chart the submerged pile and the submerged obstruction at the new locations. concur



DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~ESR~~ # 51084 ✓

ITEM DESCRIPTION: OBSTRUCION; SUBM RK

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 3/4/87 3/13/87 DAY NUMBER: 063/87 072/87 VESNO: 0651 0654 ~~0650~~

OIC: ~~XXXIBXXXXKXER~~
LTJG PORTA

POSITION NUMBER(S): 8145 8208

TIME (UTC): 205441, 185115

DEPTH CORRECTORS APPLIED: ~~PREDICTED~~ ACTUAL TIDES
~~TRA~~
~~VELOCITY~~
~~LEADLINE~~

CHARTED POSITION: 38/04/55.20 122/14/47.70 (1942 pos.)
38/04/54.20 122/14/48.50 (1977 pos.)

OBSERVED POSITION: 38/04/55.45 122/14/47.88 (8145)
38/04/54.17 122/14/48.72 (8208) NSP

INVERSE DISTANCE: 7.158m (8145 to 1942 pos.) 5.857 m (8208 to 1977 pos.)

POSITION DETERMINED BY: ~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX~~)
MINI-RANGER (range-az, with check)
~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX~~
~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX~~

METHOD OF ITEM INVESTIGATION: Pos. 8145 is a 50 meter search performed by the launch dropping a weight, float and searchline. The Boston Whaler towed the searchline around the center weight, 3 times in each direction.

Nothing was found. The area was seen to be dredged on the same day, after the gear was pulled up. Pos. 8145 is on the reported 1942 positon. On Day 072/87 Divers dove on the 1977 reported postion. This was a 25 meter circle search. The bottom is mud, and appeared to have been dredged recently (probably on Day 063/87). Nothing was found.

CHARTING RECOMMENDATION: Remove the obstruction symbol from the chart. No further work recommended. concur

✓

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~PSR~~ # 51085 ✓

ITEM DESCRIPTION: OBSTRUCTION; PILES

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 11/13/86
1/27/87

DAY NUMBER: 317/86
027/87

VESNO: ~~0651~~ ~~XXXX~~
0654
0650

OIC: LTJG MILLER
LTJG PORTA

POSITION NUMBER(S): 44

TIME (UTC): 173100

LEAST DEPTH: ~~≈15~~ -10 ft ~~(MLLW)~~ (MHW)

DEPTH CORRECTORS APPLIED: ~~PREDICTED~~ ACTUAL TIDES
~~TAA~~
~~VELOCITY~~
~~LEADLINE~~

CHARTED POSITION: 38/04/55.50 122/14/45.80

OBSERVED POSITION: 38/04/55.88 122/14/43.50 (pile)

INVERSE DISTANCE: 57.265m

POSITION DETERMINED BY: ~~MINI-RANGER (range-range with check)~~
~~MINI-RANGER (range-az with check)~~
T-2/EDM (range-az, with check)
~~3-POINT FIX (T-2 or sextants with check)~~

METHOD OF ITEM INVESTIGATION: On Day 317/86 a positon was taken on a lone pile along the shore. This plots on the shore end of the charted piles of the PSR. On Day 027/87, during a time of ~1.2 ft. tides, the area seaward of the pile positoned by fix 44 was seen bare, nothing there. The area was again searched on Day 028/87, during ~1 ft tides; nothing found but fix 44.

CHARTING RECOMMENDATION: Remove the charted row of piles, chart only the pile from fix 44. *concur*

✓

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~PSR~~ #51086 ✓

ITEM DESCRIPTION: OBSTRUCTION: PILE OR DOLPHIN

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 1/27/87 **DAY NUMBER:** 027/87 **VESNO:** ~~XXXX~~ ~~XXXX~~ 0650

OIC: LTJG MILLER
~~LTJG PORTA~~

POSITION NUMBER(S): N/A

TIME (UTC): 012000 SEE TEXT **LEAST DEPTH:** 0.5 FT OUT OF THE MUD.

DEPTH CORRECTORS APPLIED: ~~PREDICTED~~ ACTUAL TIDES
~~XXX~~
~~XXXXXXXXX~~
~~XXXXXXXXX~~

CHARTED POSITION: 38/04/56.80 122/14/46.50 ✓

OBSERVED POSITION: ~~SAME~~ None

INVERSE DISTANCE: N/A

POSITION DETERMINED BY:
MINI-RANGER (range-range, with check) N/A
MINI-RANGER (range-az, with check) N/A
T-2/EDM (range-az, with check) N/A
3-POINT FIX (T-2 or sextant, with check) N/A

METHOD OF ITEM INVESTIGATION: The area was seen bare during time of a -1.2 ft. tide. A clump of cable was seen at the location of the charted pile. Based on the triangular group of ruins, and fixes 42 and 44, this cable was determined to be on the charted spot. The area around this and fix 42 was seen bare, nothing else found.

CHARTING RECOMMENDATION: Retain the charted symbol at this location, but make the object a submerged obstruction (This is submerged or awash at MLLW). concur ✓

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~PSR~~ # 51087

ITEM DESCRIPTION: *obstruction, ruins*

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 11/12/86
1/27/87

DAY NUMBER: 316/86
027/87

VESNO: ~~XXXX~~ 0654
0650

OIC: LTJG MILLER
LTJG PORTA

POSITION NUMBER(S): 35

TIME (UTC): 221500

LEAST DEPTH: -5 ft. (MLLW)

DEPTH CORRECTORS APPLIED: ACTUAL ~~PREDICTED~~ TIDES
~~TRA~~
~~VELOCITY~~
~~LEADLINE~~

CHARTED POSITION: 38/05/03.20 122/14/49.80

OBSERVED POSITION: 38/05/03.17 122/14/49.39 (pile)

INVERSE DISTANCE: 10.011 M

POSITION DETERMINED BY: ~~MINI-RANGER (range-range, with check)~~
~~MINI-RANGER (range-az, with check)~~
T-2/EDM (range-az, with check)
~~3-POINT FIX (T-2 or sextant, with check)~~

METHOD OF ITEM INVESTIGATION: Fix taken on this object. On Day 027/87 the area was seen bare. The smooth ~~field~~ sheet shows the correct depiction of the piles associated with this. The area was visited during times of low tide to draw and accurately depict the ruins around the power tower. Refer to the smooth ~~field~~ sheet.

CHARTING RECOMMENDATION: Chart pile & limits of ruins as shown on smooth ~~field~~ sheet. concur

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~PSR~~ # 51088 ✓

ITEM DESCRIPTION: OBSTRUCTION: PIER

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 11/12/86 DAY NUMBER: 316/86 VESNO: ~~XX&XX~~ 0654 0650

OIC: LTJG MILLER
LTJG PORTA

POSITION NUMBER(S): 33

TIME (UTC): 215000, LEAST DEPTHS: ~~23~~ 18 FT., (MHW) ~~(MLLW)~~

DEPTH CORRECTORS APPLIED: ACTUAL ~~PREDICTED~~ TIDES
~~XXXX~~
~~TRA~~
VELOCITY
~~XXXXXXXXX~~
LEADLINE
~~XXXXXXXXX~~

CHARTED POSITION: 38/05/06.60 122/14/51.10

OBSERVED POSITION: 38/05/06.63 122/14/51.53 (pos. 33) (dol)

INVERSE DISTANCE: 10.552 meters (33) 25.309m (34)

POSITION DETERMINED BY: ~~MINI-FANGER (range-range, with check)~~
~~MINI-FANGER (range-az, with check)~~
T-2/EDM (range-az, with check)
~~3-POINT FIX (T-2 or sextant with check)~~

METHOD OF ITEM INVESTIGATION: Position 33 is on the end of the charted ruins. Retain the ruins as depicted on the smooth field sheet. Note: This falls within a foul area.

CHARTING RECOMMENDATION: Chart ruins as shown on smooth ~~field~~ sheet. concur

✓

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS # 51089

ITEM DESCRIPTION: OBSTRUCTION: CATWALK

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 11/13/87 DAY NUMBER: 317/86 VESNO: 0651
3/3/87 062/87 0654
OIC: 3/12/87 071/87 0659
LTJG PORTA

POSITION NUMBER(S): 47, 8097-8106, 8203-8205

TIME (UTC): SEE PRINTOUTS LEAST DEPTHS: 2 ft. (MLLW) (8205)

DEPTH CORRECTORS APPLIED: ACTUAL TIDES

CHARTED POSITION: 38/05/09.00 122/15/08.50

OBSERVED POSITION: 38/05/07.01 122/15/09.19 (47) -5 Ft (MHW)
38/05/05.81 122/15/08.85 (8205) pile covered 2 ft (MLLW)
38/05/07.09 122/15/08.84 (8204)

INVERSE DISTANCE: 98.723m (8205) 57.989m (47) 59.576m (8204) pile cov. 8 Ft. (MLLW)

POSITION DETERMINED BY: MINI-RANGER (range-range, with check)
MINI-RANGER (range-az, with check)
T-2/EDM (range-az, with check)

METHOD OF ITEM INVESTIGATION: Pos. 47 is on the lone visible pile in the area. This falls on the charted ruins. However, the inv dist. shows that the pile is inshore of the end of the listed pier position. On Day 062/87 the whole area seaward of pos. 47 was dragged. Two hangs were experienced. These were dove on on Day 071/87. Pos. 8204 and 8205 found submerged piles. Pos. 8204 plots almost in line with the catwalk. Nothing was found in between this fix and 8140 (Day 063/87, an object was found 2 meters seaward of pos. 47). Pos. 8205 is south of the catwalk. Nothing else in the area found.

CHARTING RECOMMENDATION: Chart the ruined pier symbol from shore only to fix 47. Chart the piles found on fixes 8204-8205. concur

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~FSR~~ # 51090

ITEM DESCRIPTION: OBSTRUCTION: SIGN

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 2/27/87 DAY NUMBER: 058/87 VESNO: 0651
0654
0658
0660

OIC: [redacted]
LTJG PORTA

POSITION NUMBER(S): 8030-8037

TIME (UTC): SEE PRINTOUT

DEPTH CORRECTORS APPLIED: ACTUAL ~~PREDICTED~~ TIDES N/A
TRA "
VELOCITY "
LEADLINE "

CHARTED POSITION: 38/05/10.20 122/15/10.40

OBSERVED POSITION: SAME

INVERSE DISTANCE: N/A

POSITION DETERMINED BY: MINI-RANGER (range-range, with check)
[redacted]

METHOD OF ITEM INVESTIGATION: A bottom drag was conducted over the location of the sign. Width of drag was 74 meters. Depths were 30 feet, indicating that this area undergoes dredging. Nothing was found. No hangs.

CHARTING RECOMMENDATION: Delete sign from chart. concur

✓

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~PSR~~ # 51091 ✓
51144 ✓

ITEM DESCRIPTION: OBSTRUCTION: PILE *or Dolphin*

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 11/12/86 DAY NUMBER: 316/86 VESNO: ~~0651~~
0654
~~0650~~

OIC: ~~[illegible]~~
LTJG PORTA

POSITION NUMBER(S): 27

TIME (UTC): 210500

DEPTH CORRECTORS APPLIED: *ACTUAL* ~~PREDICTED~~ TIDES
~~[illegible]~~
~~[illegible]~~
~~[illegible]~~

CHARTED POSITION: 38/05/13.00 122/14/54.40 (51091)

OBSERVED POSITION: *38/05/13.50 122/14/55.40 (~~5144~~) (51144)*
38/05/12.81 122/14/53.7~~7~~*8* *(pos. 27) pile -9 ft (MHW)*

INVERSE DISTANCE: 16.431 m

POSITION DETERMINED BY: ~~[illegible]~~
~~[illegible]~~
T-2/EDM (range-az, with check)
~~[illegible]~~

METHOD OF ITEM INVESTIGATION: See the drawing* made for this fix. Numerous piles and pipes are within the area. The ruins that are 51144 are verified by the drawing.

** Drawing not attached, see photograph.*

Item 51144 (Pier ruins) were located at lat 38-05-13.6N, long 122-14-53.0W, as scaled from the present smooth sheet.

CHARTING RECOMMENDATION: Chart the area shown on the smooth ~~field~~ sheet as a "foul area". *concur*

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~PSR~~ #
51092 ✓
51093 ✓

ITEM DESCRIPTION: OBSTRUCTIONS: SIGN, DANGER CURVE

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 11/12/86
1/27/87

DAY NUMBER: 316/86
027/87

VESNO: ~~XXXXX~~
0654
0650

OIC: LTJG MILLER
LTJG PORTA

POSITION NUMBER(S): 26

TIME (UTC): 205000

DEPTH CORRECTORS APPLIED: ACTUAL ~~PREDICTED~~ TIDES
~~TRA~~
~~VELOCITY~~
~~LEADLINE~~

CHARTED POSITION: 38/05/14.20 122/14/55.50 AWOIS 51092
38/05/14.30 122/14/56.30 AWOIS 51093

OBSERVED POSITION: 38/05/14.31 122/14/55.446 pos. 26 -11 ft (MHW) 51092

INVERSE DISTANCE: 3.693 m

POSITION DETERMINED BY: ~~MINI-RANGER (range-range, with check)~~
~~MINI-RANGER (range-az, with check)~~
T-2/EDM (range-az, with check)
~~3-POINT FIX (T-2 or sextant, with check)~~

METHOD OF ITEM INVESTIGATION: Position taken on sign. Sign is in good shape. The area was seen bare on Day 027/87, during time of -1.2 ft. tide. Area of sign is completely flat, mud flats. No rise or mound or shoal seen.

CHARTING RECOMMENDATION: Retain the sign as charted, remove the danger curve/shoal of PSR 51093. concur

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~PSR~~ # 51094 ✓

ITEM DESCRIPTION: OBSTRUCTION: V SHAPED PIER

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 11/12/86 **DAY NUMBER:** 316/86 **VESNO:** ~~0654~~ 0654

OIC: ~~LTJG MILLER~~ LTJG PORTA

POSITION NUMBER(S): 14-21

TIME (UTC): SEE PRINTOUTS LEAST DEPTH ON DOLS.: ~~-18~~ -15 ft (MHW) ~~(MLLW)~~

DEPTH CORRECTORS APPLIED: ~~PREDICTED~~ ACTUAL TIDES

CHARTED POSITION: 38/05/24.10 122/15/10.90

OBSERVED POSITION: VARIOUS: SEE PRINTOUTS FOR THE FIXES

INVERSE DISTANCE: N/A

POSITION DETERMINED BY: ~~MINI-RANGER (range-range, with check)~~
~~MINI-RANGER (range-az, with check)~~
T-2/EDM (range-az, with check)
~~T-2 or Sextant, with check~~

METHOD OF ITEM INVESTIGATION: On Day 316/86 visible dolphins were positioned. Numerous barges and tugs were tied on both sides of the dolphins. The barges would be on top of the v-shaped pier if it existed. The Chief of Party contacted the district engineer (now retired) of Peter Kiewitt and Sons Co., the current occupants of the site, and owner of the barges. This man's name is Richard E. Mallard, 2221 First Ave., Napa, Ca. 94558, ph. 1-707-252-1075. He was in charge of operations to remove the v-shaped pier and finger pier, in order for his company to bring in tugs and barges. Everything was removed below the mudline by a clamshell type dredge. They also removed a portion of the long row of dolphins that parallels the shore at this location, to allow tugs and barges to tie to their steel seawall that they built. PHP took fixes on the ends of the visible remaining row (see fix es 7-10). Everything was removed below the mudline. The company also hired to remove all ruins and obstructions at the Kaiser Steel facility, at the site of PSRs 51095 to 51104. Kaiser Steel straightened the shoreline and put in a steel seawall to tie-up their barges. This information was confirmed by bottom dragging the area in front of Kaiser steel.

CHARTING RECOMMENDATION: Remove the v-shaped pier and finger pier. Remove the north-south pier. Chart only the dolphins and the "L" shaped pier, as shown on the smooth ~~field~~ sheet. Chart only the dolphins positioned by fixes 7-10 and 14-21. Chart the other objects positoned within the area, as shown on the smooth ~~field~~ sheet. CONCUR ✓

NOTE: SOUNDING lines were not possible behind the dolphins at KIEWITT, BECAUSE OF THE BARGES. EVERYTHING Removed BY 1985.

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOLS
~~PSR~~ # 51095 to 51104 ✓

ITEM DESCRIPTION: OBSTRUCTIONS

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 3/3/87 DAY NUMBER: 062/87 VESNO: 0651
3/12/87 071/87 0654
~~0650~~

OIC: ~~LTJG MILLER~~
LTJG PORTA

POSITION NUMBER(S): 8107
8108 to 8136 (bottom drag) , 8199-8202

TIME (UTC): SEE PRINTOUTS

DEPTH CORRECTORS APPLIED: ACTUAL ~~PREDICTED~~ TIDES
~~VELOCITY~~
~~LEADLINE~~

CHARTED POSITION: See Awois Listing.

OBSERVED POSITION: 38/05/35.~~20~~ 16 122/15/16.8~~4~~ 9 (pos. 8201) (-1 Ft)

INVERSE DISTANCE: N/A

POSITION DETERMINED BY: MINI-RANGER (range-range, with check)
MINI-RANGER (range-az, with check)

METHOD OF ITEM INVESTIGATION: This area was bottom dragged on Day 062/87. Dives were made on the hangs. Pos. 8201 is on the end of ruined pier. This is the only object found. The Chief of Party found out from the district engineer of Peter Kiewitt and Sons Company, Mr. Richard Mallard, 2221 First Street, Napa, Ca., 94558, ph. 707-252-1075, that Kiewitt and Sons company dredged out the area so that Kaiser Steel could bring barges in. Kaiser Steel put in a steel seawall and straightened the shoreline. Refer to fixes 37 and 38, Day 317/86, which are on the seawall (bulkhead). The sounding lines also show that it is deeper here.

CHARTING RECOMMENDATION: Position 8201 verifies charted ruins. Continue to chart these ruins. Remove all of the other ruins and obstructions, as shown on the smooth field sheet. Ruins are accurately depicted on the smooth sheet. Pos. 8201 does not support field sheet depiction of ruins.

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~FSR~~ # 51105 ✓
51108 ✓

ITEM DESCRIPTION: OBSTRUCTIONS

SOURCE: AWOIS LISTING

INVESTIGATION DATE: SEE TEXT **DAY NUMBER:** SAME **VESNO:** ~~0651~~ ~~XXXXX~~ ~~0654~~ ~~XXXXXX~~ 0650

OIC: LTJG MILLER
~~XXXXXXXXXXX~~

POSITION NUMBER(S): N/A

TIME (UTC): N/A

DEPTH CORRECTORS APPLIED:

ACTUAL ~~PREDICTED~~ TIDES	N/A
TRA	N/A
VELOCITY	N/A
LEADLINE	N/A

CHARTED POSITION: 38/05/39.80 122/15/43.20 (51105)
38/05 47.40 122/15/50.30 (51108)

OBSERVED POSITION: N/A

INVERSE DISTANCE: N/A

POSITION DETERMINED BY:

MINI-RANGER (range-range, with check)	N/A
MINI-RANGER (range-az, with check)	N/A
T-2/EDM (range-az, with check)	N/A
3-POINT FIX (T-2 or sextant, with check)	N/A

METHOD OF ITEM INVESTIGATION: The Chief of Party met with the Public Works Engineers and Navy divers at Mare Island Naval Shipyard. They indicated that the two objects had been removed by dredging. The public works engineers said that the pier faces along the whole shipyard are dredged approximately once a month by their dredge. Contact: Mr. Bruce Pedrotti, Public Works Dept., Bldg. 47, Mare Island Naval Shipyard, Vallejo, Ca., 707-646-2381, and Mr. Don Dunn, Navy diver (through Mr. Pedrotti).

CHARTING RECOMMENDATION: Remove from the charts. *concur*

✓

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS # 51106 ✓
51107 ✓

ITEM DESCRIPTION: OBSTRUCTIONS; DOLPHINS OR PILES

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 1/15/87 **DAY NUMBER:** 015/87 **VESNO:** 0651

OIC: LTJG MILLER

POSITION NUMBER(S): 4664-4665

TIME (UTC): 194253 (4665) Least Depth: 0.0 ft ~~-1 ft~~. MLLW

DEPTH CORRECTORS APPLIED: ACTUAL TIDES

CHARTED POSITION: 38/05/42.20 122/15/25.10 (51106)

OBSERVED POSITION: 38/05/42.50 122/15/25.40 (51107)
38/05/42.98 122/15/24.5¼² (pos. 4665) (pile)

INVERSE DISTANCE: 25.655 m to 51107

POSITION DETERMINED BY: MINI-RANGER (range-range, with check)

METHOD OF ITEM INVESTIGATION: Diver investigation. Found only piles and ruins at fix 4665.

CHARTING RECOMMENDATION: Remove the charted piles. Chart the piles and ruins found on fix 4665, as shown on the smooth ~~field~~ sheet. concur

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~PSR~~ # 51109 ✓

ITEM DESCRIPTION: OBSTRUCTION:

SOURCE: AWOIS LISTING

INVESTIGATION DATE: N/A DAY NUMBER: N/A VESNO: ~~0651~~ ~~0654~~ 0650

OIC: LTJG MILLER
~~LXXXXXXXXXX~~

POSITION NUMBER(S): N/A

TIME (UTC): N/A

DEPTH CORRECTORS APPLIED: ~~PREDICTED~~ ACTUAL TIDES N/A
TRA N/A
VELOCITY N/A
LEADLINE N/A

CHARTED POSITION: 38/06/04.20 122/15/47.70

OBSERVED POSITION: SEE TEXT
38/06/04.74 122/15/47.26 dol -12 Ft (MHW)
38/06/03.57 122/15/46.28 dol -12 Ft (MHW)
38/06/01.60 122/15/44.62 dol -12 Ft (MHW)

INVERSE DISTANCE: N/A

POSITION DETERMINED BY:
MINI-RANGER (range-range, with check) N/A
MINI-RANGER (range-az, with check) "
T-2/EDM (range-az, with check) "
3-POINT FIX (T-2 or sextant, with check) "

METHOD OF ITEM INVESTIGATION: Mr. James Haussener, Marina Foreman, City of Vallejo Municipal Marina, 7 Harbor Way, Vallejo, Ca., 94590, ph. 707-648-4370, states that the obstruction was removed approximately 15 years ago. At present on the site is the floating docks for the discontinued Vallejo-Mare Island ferry, and the current site of the San Francisco-Vallejo ferry dock. These are floating docks that are tied to dolphins (pos. 53, 54, 4317). The S.F.-Vallejo ferry will move 100 meters south to the indent area of the seawall, sometime in 1987. Mr. Haussener stated that everything had been removed to the mudline 15 years ago. He was employed by Vallejo then. Dredging to the floating docks was observed during the course of this survey.

CHARTING RECOMMENDATION: Remove ~~PSR~~ Awois 51109 from the charts; chart the dolphins from the above fixes. COMCHT

✓

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS # 51110 ✓

ITEM DESCRIPTION: OBSTRUCTION:

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 2/27/87 **DAY NUMBER:** 058/87 **VESNO:** 0651

OIC: LTJG PORTA

POSITION NUMBER(S): 8050-8074

TIME (UTC): 194400 (8060) LEAST DEPTH: 1 ft, MLLW (pos. 8060)

DEPTH CORRECTORS APPLIED: ACTUAL TIDES

CHARTED POSITION: 38/06/15.20 122/15/58.20

OBSERVED POSITION: 38/06/15.79 122/15/58.44 pos. 8060 (pipe)

INVERSE DISTANCE: 19.108m

POSITION DETERMINED BY: MINI-RANGER (range-range,

METHOD OF ITEM INVESTIGATION: The area was bottom dragged. A dive was made on the only hang. A submerged pipe was found. (pos. 8060).

CHARTING RECOMMENDATION: Remove the ruins symbol, chart the pipe. CONCUR

CARTO CODE: 235

✓

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS # 51111 ✓

ITEM DESCRIPTION: Wreck

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 3/9/87 DAY NUMBER: 068/87 VESNO: 0651

OIC: LTJG MILLER

POSITION NUMBER(S): NSF 8148-8149

TIME (UTC): 214126 Pos. 8149 LEAST DEPTH: -1 ft MLLW

DEPTH CORRECTORS APPLIED: ~~PREDICTED~~ ACTUAL TIDES

CHARTED POSITION: 38/06/24.50 122/16/07.50

OBSERVED POSITION: ~~38~~/38/06/26.~~70~~ 69 122/16/08.26 (8149) WRK -1 Ft MHW

INVERSE DISTANCE: 70.317 m

POSITION DETERMINED BY: MINI-RANGER (range-az, with check)

METHOD OF ITEM INVESTIGATION: Diver investigation. This wreck was found while searching for charted piles. Only engine block and small pieces of wood left. Mr. James Haussener, Vallejo Municipal Marina foreman, remembers the wreck. This was a wood fishing boat anchored at the location PHP found. During a storm it sank. Mr. Haussener stated that no other wrecks exist. This wreck was visible for several months before settling.

CHARTING RECOMMENDATION: Chart wreck symbol at location of fix 8149. Concur

CARTO CODE: 098

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~PSR~~ # 51112✓ 51115✓ 51116✓ 51117✓ 51113✓ 51114✓

ITEM DESCRIPTION: OBSTRUCTION: PIER, NOW DOLPHINS
PIER

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 3/09/87, 3/10/87, 3/13/87

DAY NUMBER: 068/87, 069/87, 072/87

VESNO: 0651, ~~0654~~, ~~0650~~

OIC: LTJG MILLER
~~[illegible]~~

POSITION NUMBER(S): 8148-8159, 8206-8207

TIME (UTC): SEE PRINTOUTS

DEPTH CORRECTORS APPLIED: ACTUAL ~~PREDICTED~~ TIDES
~~TRA~~
~~VELOCITY~~
~~LEADLINE~~

51112	38/06/25.50	122/16/07.60
51115	38/06/29.30	122/16/11.10
51116	38/06/30.70	122/16/12.51
51117	38/06/31.90	122/16/13.40
51113	38/06/25.90	122/16/07.20
51114	38/06/26.06	122/16/06.80

CHARTED POSITION: SEE AWOIS LISTING

OBSERVED POSITION: SEE COMPUTATIONS

INVERSE DISTANCE: SEE COMPUTATIONS

POSITION DETERMINED BY: ~~MINI-RANGER (range-range, with check)~~
MINI-RANGER (range-az, with check)
~~T-2/EDM (range-az, with check)~~
~~3-POINT FIX (T-2 or sextant, with check)~~

METHOD OF ITEM INVESTIGATION: Diver investigations. See the above fixes on the printouts. PHP dove on the dolphins (piles) that were left above the mudline by U.S. Navy divers. The Navy worked on pulling out most of the piles during the course of this survey. Upon their completion, The Chief of Party met with the public works engineer, Mr. Bruce Pedrotti, and the lead Navy diver, Mr. Don Dunn, to find out if all the piles were removed. Mr. Dunn stated that most of the piles had been cut-off at the mudline. The ones that protruded above the mud were shown to the Chief on the chart. These are the ones PHP dove on. 50 meter sweeps (radius) were conducted at each dive. These also cleared the charted pier ruins of PSR 51113. The divers also went from the shore out to the end during low tide, by walking/swimming, for the length of PSR 51113. The only objects found during the course of the searches are shown on the smooth ~~field~~ sheet.

Mr. Bruce Pedrotti
PUBLIC WORKS ENGINEER
bldg. 47
Mare Island Naval Shipyard, Vallejo, Ca., 94590
ph.:707-646-2381

CHARTING RECOMMENDATION:

Chart only the objects shown on the dives, as shown on the smooth ~~field~~ sheet. concur

✓

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~PSR~~ **#** 51118, 51119
51120

ITEM DESCRIPTION: OBSTRUCTIONS: PILES

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 3/10/87 **DAY NUMBER:** 069/87 **VESNO:** 0651
~~0654~~
~~XXXXXX~~

OIC: LTJG MILLER
~~LTJG PORTA~~

POSITION NUMBER(S): 8161 *Missed sndg.*

TIME (UTC): 231423

DEPTH CORRECTORS APPLIED: ~~PREDICTED~~ ACTUAL TIDES
~~TRA~~
~~VELOCITY~~
~~LEADLINE~~

CHARTED POSITION: 38/06/37.20 122/16/27.90 (51120)
38/06/36.90 122/16/30.20 (511
38/06/37.10 122/16/29.70 (51119)

OBSERVED POSITION: 38/06/36.79 122/16/28.11

INVERSE DISTANCE: 14.499 m

POSITION DETERMINED BY: ~~MINI-RANGER (range-range, with check)~~
MINI-RANGER (range-az, with check)
~~1-2 EDM (range-az, with check)~~
~~3-POINT FIX (1-2 or range-az, with check)~~

METHOD OF ITEM INVESTIGATION: Diver search. 25 meter radius search. Only PSR 51120 was dove on. The other piles are close to the Mare Island Causeway. Currents were very fast at the locations of PSR 51118 and 51119. The divers could not dive safely, and the launch could not manouever safely when puttin the divers in or taking them out. Because the charted piles are next to the bridge, bottom dragging was not feasible. Slack water is only about 10 minutes. During slack water the launch ran with the fatho on. Nothing showed on the graphic trace. The launch made many passes, but nothing was found. However, since a dive was required, these two items are considered incomplete. PSR 51120, however, has been cleared,

CHARTING RECOMMENDATION: Retain the piles at AWOIS ~~PSR~~ 51118 and 51119, remove the pile from the chart at AWOIS 51120. *concur*

DEFICIENCY ITEM REPORT

CHART # 18654
18655

~~PSR~~ AWOIS # 51121 ✓

ITEM DESCRIPTION: OBSTRUCTION: PIER

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 11/24/86
1/28/87

DAY NUMBER: 328/86
028/87

VESNO: XXXXX
0654
XXXXX

OIC: LTJG MILLER
LTJG PORTA

POSITION NUMBER(S): 106-107

TIME (UTC): 2018

DEPTH CORRECTORS APPLIED: ACTUAL ~~PREDICTED~~ TIDES
XXXX
XXXXXXXXXX
XXXXXXXXX

CHARTED POSITION: 38/06/37.90 122/16/33.60

OBSERVED POSITION: 38/06/37.29 122/16/34.22 (pos. 107) (~6 ft)

INVERSE DISTANCE: 24.430 m

POSITION DETERMINED BY: M XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
T-2/EDM (range-az, with check)
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX)

METHOD OF ITEM INVESTIGATION: Positions taken on the visible ends of the remains of the concrete pier. Verify the chart. On Day 028/87 the area was seen bare. The rest of the foundations of the pier were visible, as charted. They were protruding slightly from the mud. The shape verifies the chart.

CHARTING RECOMMENDATION: Retain as shown on the chart

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS # 51122 ✓

ITEM DESCRIPTION: OBSTRUCTION: PILES

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 11/24/86 DAY NUMBER: 328/86 VESNO: 0654

OIC: LTJG PORTA

POSITION NUMBER(S): 109

TIME (UTC): 204700

DEPTH CORRECTORS APPLIED: ACTUAL TIDES

CHARTED POSITION: 38/06/38.80 122/16/28.60

OBSERVED POSITION: 38/06/38.54 122/16/28.88 dol -14 ft (MHW)

INVERSE DISTANCE: 10.526 m

POSITION DETERMINED BY:
MINI-RANGER (range-range, with check)
MINI-RANGER (range-az, with check)
T-2/EDM (range-az, with check)

METHOD OF ITEM INVESTIGATION: Position taken on center of 3 ~~piles~~ dols.

CHARTING RECOMMENDATION: Verifies chart, ~~Retain as charted~~. chart center dol. in obs. pos.
Retain 2 outer dols. as charted.

✓

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS # 51123 ✓
51124 ✓
51125 ✓
51126 ✓
} see reverse side

ITEM DESCRIPTION: OBSTRUCTION: DOLPHINs

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 2/26/87
3/9/87

DAY NUMBER: 057/87
068/87

VESNO: 0651

OIC: LTJG MILLER

POSITION NUMBER(S): 8000-8029 NSP 8146-8147

TIME (UTC): SEE PRINTOUTS

LEAST DEPTH: 6 ft. (pos. 8147) MLLW

DEPTH CORRECTORS APPLIED: ACTUAL TIDES

CHARTED POSITION: 38/06/44.30 122/16/07.60 (51123) Note: Wrong longitude!
Longitude should be 122/16/20.40 (scaled from the chart).

OBSERVED POSITION: 38/06/44.83 122/16/21.41 pos. 8147 obstr. cov. 6 ft (MLLW)

INVERSE DISTANCE: 29.537m

POSITION DETERMINED BY: MINI-RANGER (range-range, with check)
MINI-RANGER (range-az, with check)

METHOD OF ITEM INVESTIGATION: The whole row of the charted piles or dolphins were bottom dragged on Day 057/87. One hang was experienced. On Day 068/87 divers found a pile (pos. 8147). This is the only object found. However, positions 70, 73, 74 are on the only remaining piles of this row, on the north end of the row. These are shown accurately on the smooth ~~field~~ sheet.

Positions 70, 73, and 74 are from Day 325/87. The bottom drag was made along these piles, out into the channel. The only object found is from pos. 8147.

(See Deficiency Item Report for AWOIS item 51127 for pos. 73, 74 & 75)

CHARTING RECOMMENDATION: Delete this whole row of charted piles, except for those positioned by 70, 73, 74, and the submerged pile of pos. 8147. Concur

✓

AWO15	51123	38/06/44.30	122/16/~~07.60~~	20.4
	51124	38/06/4810	122/16/~~11.10~~	22.9
	51125	38/06/50.50	122/16/~~12.40~~	24.2
	51126	38/06/51.20	122/16/~~13.40~~	24.8

POS. 78	38/06/52.02	122/16/24.23	-8 Ft
73	38/06/53.90	122/16/25.53	-10 Ft (MHW), pile
74	38/06/55.51	122/16/26.76	-9 Ft (MHW), pile

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~PSR~~ # 51127 ✓

ITEM DESCRIPTION: OBSTRUCTION: PIER RUINS

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 11/21/86 DAY NUMBER: 325/86 VESNO: ~~0651~~ 0654 ~~0650~~

OIC: ~~XXXXXXXXXXXXXX~~
LTJG PORTA

POSITION NUMBER(S): 73, 74, 75 (deficiency item See report for AWOIS items 51123 to 51126, reverse side for pos. listing)

TIME (UTC): See Printouts

DEPTH CORRECTORS APPLIED: ACTUAL ~~CORRECTED~~ TIDES
~~XXXX~~ TRA
~~XXXXXXXX~~ VELOCITY
~~XXXXXXXX~~ LEADLINE

CHARTED POSITION: 38/06/54.50 122/16/25.70

OBSERVED POSITION: 38/06/55.52 122/16/26.76 pos. 75 pile, -4 Ft.

INVERSE DISTANCE: 40.454m

POSITION DETERMINED BY: ~~MINI-RANGER (range-range, with check)~~
~~MINI-RANGER (range-az, with check)~~
T-2/EDM (range-az, with check)
~~3-POINT FIX (T-2 or sextant, with check)~~

METHOD OF ITEM INVESTIGATION: Positions 73, 74, and 75 are on the north end of the only remaining visible piles of a charted row of piles. The ruins of PSR 51127 are visible at MLLW inshore of these piles. The area is foul with the ruins and possible remains of a wood boat. Recommend showing this area as a foul area inside of the piles depicted from positions 73 to 75.

CHARTING RECOMMENDATION: Show area as foul, as shown on the smooth ~~field~~ sheet. concur

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~PSR~~ # 51128 ✓

ITEM DESCRIPTION: OBSTRUCTION: PILE OR DOLPHIN

SOURCE: AWOIS LISTING

INVESTIGATION DATE: SEE TEXT DAY NUMBER: SEE TEXT VESNO: ~~XXXX~~ ~~XXXX~~ ~~0654~~ ~~XXXX~~ 0650

OIC: LTJG MILLER
~~XXXXXXXXXX~~

POSITION NUMBER(S): N/A

TIME (UTC): N/A

DEPTH CORRECTORS APPLIED: ACTUAL ~~PREDICTED~~ TIDES
~~N/A~~
~~XXXXXXXXX~~
~~XXXXXXXXX~~

CHARTED POSITION: 38/06/55.70 122/16/48.31

OBSERVED POSITION: ~~same~~ 38/06/56.45 122/16/47.27 (pos. 103 dol, -10ft (MHW)

INVERSE DISTANCE: N/A

POSITION DETERMINED BY:
MINI-RANGER (range-range, with check) N/A
MINI-RANGER (range-az, with check) "
T-2/EDM (range-az, with check) "
3-POINT FIX (T-2 or sextant, with check) N/A

METHOD OF ITEM INVESTIGATION: THis area was seen bare, The shoreline has a sewer pipe extending out from the grass line, correctly charted. Next to the pipe is another outfall, with piles protecting it. See the accompanying picture. This is shoreward of pos. 103, on a charted dolphin.

CHARTING RECOMMENDATION: ~~Retain as charted.~~
Revise pos. as above.
Retain pier outfall) & pile symbol inshore as presently charted.

✓

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS 51129, 51130, 51131
~~PSR~~ #51132, 51133, 51134
51135, 51139

(See reverse side for pos. listing)

ITEM DESCRIPTION: OBSTRUCTIONS: PILES AND RUINS

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 11/24/86 DAY NUMBER: 328/86 VESNO: ~~0651~~ 0654

OIC: ~~LTJG MILLER~~
LTJG PORTA

POSITION NUMBER(S): 76-84, not 83

TIME (UTC): SEE PRINTOUTS

DEPTH CORRECTORS APPLIED: ~~PREDICTED~~ TIDES
~~TEA~~
~~VELOCITY~~
~~LEADLINE~~

CHARTED POSITION: SEE AWOIS LISTINGS

OBSERVED POSITION: SEE POSITON COMPS.

INVERSE DISTANCE: N/A

POSITION DETERMINED BY: ~~MINI-RANGER~~
~~MINI-RANGER~~
T-2/EDM (range-az, with check)
~~RANGE-RANGE~~

METHOD OF ITEM INVESTIGATION: Positions taken on the various PSR objects. Based on the descriptions and photos, the smooth ~~field~~ sheet was drawn.
Inv. dist from 51130 to pos. 76: 4.425 m.
Inv. dist. from 51133 to pos. 78: 9.206m
Inv. dist. from 51139 to pos.81: 6.390 m.
Inv. dist. from 51139 to pos. 82: 11.124m

CHARTING RECOMMENDATION: Revise chart ~~Retain objects~~ as shown on the smooth ~~field~~ sheet. Delete row of 4 piles (charted), chart present survey data.

AW015 ✓ 51129 38/07/01.70 122/16/30.10

5113~~0~~5 38/07/07.70 122/16/34.50

5113~~X~~0 38/07/01.80 122/16/28.40 Pos 76

5113~~2~~1 38/07/02.10 122/16/30.60

5113~~3~~2 38/07/02.70 122/16/31.10 Pos 78

5113~~4~~3 38/07/03.20 122/16/31.50 Pos 77

5113~~5~~4 38/07/06.60 122/16/34.00

51139 38/07/08.80 122/16/34.60 Pos 81

Pos. 76 38/07/02.17 122/16/28.65 Pile, -13 Ft (MHW) 51130

77 38/07/03.30 122/16/30.83 -12 Ft 51133

78 38/07/02.91 122/16/31.41 -5 Ft 51132

79 38/07/04.96 122/16/33.07 -5 Ft

80 38/07/08.98 122/16/34.47 -6 Ft

81 38/07/09.14 122/16/34.56 -4 Ft 51139

82 38/07/06.04 122/16/33.72 -11 Ft

84 38/07/13.63 122/16/43.24 -9 Ft

Note: Pile not all shown individually on smooth sheet. but are incorporated as part of ruins symbols. Chart position 78.

DEFICIENCY ITEM REPORT

CHART # 18654
18655

~~PSR~~ AWOIS # 51136✓ 51137✓ 51138✓

(see reverse side for GP listing)

ITEM DESCRIPTION: OBSTRUCTIONS: PIERS, PILE

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 12/8/86 **DAY NUMBER:** 342 **VESNO:** 0651
~~XXXXX~~
~~XXXXXX~~

OIC: ~~LTJG MILLER~~
LTJG PORTA

POSITION NUMBER(S): 4207, 4208
(51138) (51136)

TIME (UTC): 220540, 221107

LEAST DEPTHS: -9 ft (4207)
-~~3~~2 ft (4208) MLLW

DEPTH CORRECTORS APPLIED: ~~PREDICTED~~ ACTUAL TIDES
~~XXXXX~~
~~XXXX~~
~~VELOCITY~~
~~LEADLINE~~

CHARTED POSITION: 38/07/07.90 122/16/51.10 (51138)

OBSERVED POSITION: 38/07/07.~~97~~88 122/16/51.3~~1~~4 (pos. 4207) PILES (ROW) AND FENCE
38/07/07.05 122/16/52.86 (pos. 4208) SEWER OUTFALL

INVERSE DISTANCE: 5.552 m

POSITION DETERMINED BY: ~~MINI-RANGER (range-range, with check)~~
MINI-RANGER (range-az, with check)
~~XXXXXXXXXXXXXXXXXXXXXXXXXX~~
~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX~~

METHOD OF ITEM INVESTIGATION: Positions taken on ~~submerged~~ pipeline (pos. 4208) and row of piles that act as a fence for the Mare Island Naval shipyard. This fence is not ruins of pier. Piles are in good shape. See picture. The sewer outfall or pipeline ~~bares~~ UNCOVERS at MLLW.
No substantial pile or dolphin was found (51137). In the picture of the area, however, can be seen a small remanent of a pile or post, near the cables in the mud. This is the only object that could be the pile. Recommend retaining the pile symbol for 51137 at the charted location.

CHARTING RECOMMENDATION: Recommend that 51138 (pos 4207) be changed to a row of piles. Continue to chart the row (the pile have a metal fence attached to them). Chart 51136 as a sewer pipeline, which ~~bares~~ UNCOVERS at MLLW. Continue to chart the pile for 51137 (~~covers~~ UNCOVERS at ~~MHHW~~ MLLW). This pile was approx. 1 ft. out of the mud at the time of the picture. Picture was taken at time of -0.5 tides. concur

✓

AWOIS 51136 38/07/07.10 122/16/52.20

51137 38/07/07.60 122/16/53.70

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS # 51142

ITEM DESCRIPTION: OBSTRUCTION: DANGER CURVE

SOURCE: AWOIS LISTING

INVESTIGATION DATE: DAY NUMBER: VESNO: 0651

OIC: LTJG MILLER
LTJG PORTA

POSITION NUMBER(S): 5047-5052, 5191 to 5195

TIME (UTC): see printouts

DEPTH CORRECTORS APPLIED: ACTUAL ~~PREDICTED~~ TIDES
TRA
VELOCITY

CHARTED POSITION: 38/07/13.30 122/16/37.00

OBSERVED POSITION: See 1:2500 expansion of this area.

INVERSE DISTANCE: N/A

POSITION DETERMINED BY: ~~MINI-RANGER (range-range, with check)~~
MINI-RANGER (range-az, with check)
~~1-2/EDM (range-az, with check)~~
~~3-POINT FIX (1-2 or sextant, with check)~~

METHOD OF ITEM INVESTIGATION: Sounding lines were run over the area, at 22 meter spacing (split the 45 meter mainscheme). No indication of a shoal. Depths are 11 to 16 feet at the location. Bottom is mud, with gentle slope to shore.

CHARTING RECOMMENDATION: Remove danger curve at this location. Chart the soundings as found on this survey. concur.

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS # 51143

ITEM DESCRIPTION: UNKNOWN: POSSIBLE WRECK

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 1/21/87 DAY NUMBER: 021/87 VESNO: 0651

OIC: LTJG MILLER
LTJG PORTA

POSITION NUMBER(S): 4698, 4699

TIME (UTC): 181617, 182249 LEAST DEPTH: -6 to -12 ft. (MLLW)

DEPTH CORRECTORS APPLIED: ACTUAL TIDES

CHARTED POSITION: 38/03/54.20 122/13/11.50

OBSERVED POSITION: 38/03/53.80 122/13/12.35 Pos. 4698 pile, -5 Ft (LW)
38/03/54.39 122/13/10.53 Pos. 4699 pile, -7 Ft (MHW)

INVERSE DISTANCE: 24.113 meters to 4698, 24.360 meters to 4699

POSITION DETERMINED BY: MINI-RANGER (range-range, with check)

METHOD OF ITEM INVESTIGATION: The positions were taken by placing the launch on each end of the ruins. This is not the remains of a wreck, but of a pier or platform. The published position is the center of the ruins.

CHARTING RECOMMENDATION: Leave as charted, Change wreck in AWOIS List to pier ruins. concur

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS # 51145 ✓

ITEM DESCRIPTION: OBSTRUCTION: PIER

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 11/13/86 DAY NUMBER: 317/86 VESNO: 0654

OIC: LTJG PORTA

POSITION NUMBER(S): 36

TIME (UTC): 160300 LEAST DEPTH: -5 ft MLLW

DEPTH CORRECTORS APPLIED: TIDES

CHARTED POSITION: 38/05/34.20 122/15/16.40

OBSERVED POSITION: 38/05/34.35 122/15/15.89

INVERSE DISTANCE: 13.489 m

POSITION DETERMINED BY: T-2/EDM (range-az, with check)

METHOD OF ITEM INVESTIGATION: Pos. taken on corner of ruins, which are awash. Configuration of ruins matches chart.

CHARTING RECOMMENDATION: Retain as charted. CONCUR

✓

DEFICIENCY ITEM REPORT

CHART # 18654
18655

AWOIS ~~ESR~~ # 51146 ✓

ITEM DESCRIPTION: OBSTRUCTION: DOLPHIN OR PILE

SOURCE: AWOIS LISTING

INVESTIGATION DATE: 11/13/86 **DAY NUMBER:** 317/86 **VESNO:** ~~0651~~ 0654 ~~0650~~

OIC: ~~LTJG MILLER~~
LTJG PORTA

POSITION NUMBER(S): 51

TIME (UTC): 185000 **LEAST DEPTH:** -9 Ft (MHW)

DEPTH CORRECTORS APPLIED: ACTUAL ~~PREDICTED~~ TIDES
~~TRA~~
~~VELOCITY~~
~~LEADLINE~~

CHARTED POSITION: 38/05/59.60 122/16/00.40

OBSERVED POSITION: 38/05/59.4~~4~~3 122/16/00.39 Dolphin

INVERSE DISTANCE: 4.939m

POSITION DETERMINED BY: ~~MINI-RANGER (range-range, with check)~~
~~MINI-RANGER (range-az, with check)~~
T-2/EDM (range-az, with check)
~~3-POINT FIX (T-2, range-az, with check)~~

METHOD OF ITEM INVESTIGATION: Fix 51 IS ON A 9 PILE DOLPHIN.

CHARTING RECOMMENDATION: Retain on the charts. concur.

✓

L. COMPARISON WITH THE CHART

Chart 18654, 33rd edition, Jan. 26, 1985, 1:40,000 scale, was photographically enlarged to 1:10,000 scale by N/CG241, Rockville Md., and compared with Survey H-10223. Chart 18655, 52nd edition, July 14, 1984, 1:10,000 scale, was compared directly.

DANGERS TO NAVIGATION

A Dangers To Navigation letter was written to the Commander, Eleventh Coast Guard District, concerning shoaling and obstructions that were found during the course of this survey. A copy of this letter is included in ~~Appendix~~ this report XI, Dangers To Navigation. A copy of this letter was also sent to the Chart Information Section, N/CG222, and PMC (N/MOP 21). This letter is dated May 29, 1987.

Specific charted soundings were compared to the survey. The soundings that were found on the survey to be shoaler than the chart are listed in the Dangers To Navigation letter, with a recommendation to replace the charted soundings with the shoaler soundings. These listed soundings are a good representation of the shoaling that had taken place in the charted area. Not every sounding was listed.

Rather than repeat the list of newly positioned items that are considered dangerous, the reader is referred to the copy of the Dangers To Navigation letter, which has tabulated these and the above-mentioned soundings.

COMPARISON OF SOUNDINGS

Sounding lines on the survey were run at 45 and 90 meter spacing. In some areas the 45 meter spacing was split-down to develop shoal features. Development lines were generally run at 10 meter spacing. In some areas of Mare Island Strait development lines were run at 1 meter spacing (between the Mare Island Causeway and the State Highway 37 bridge). All development lines are listed as N.S.P. (no smooth plot) and were plotted on expansion sheets only. Significant least depths were transferred by hand to the smooth field sheet.

Refer to the Dangers To Navigation letter for a representative comparison between the chart and this survey of significant shoal soundings (by latitude and longitude) found on this survey. The following is a more general comparison of the findings of this survey.

In comparing this survey to the charts, depths in the centers of Carquinez Strait, Mare Island Strait, and the channels were generally found to have deepened. The increase in depths may be attributed to several factors: the Corps of Engineers and the U.S. Navy dredge the main channels periodically; and a scouring effect from the strong currents present in Carquinez Strait.

While the centers of the straits and channels may have deepened, this survey found that the 6, 12, and 18 foot contours along the southern shore, from the west limits of the survey to just east of the "T" shaped pier (owned by the Union Oil Company), have moved out towards the center of Carquinez Strait. As an example, a long, finger-like extension of the 6 foot contour is extending out into the bay at 38/02/18N, 122/17/49W. Areas on the inshore side of the Pacific Refining Company's pier (38/03/12N, 122/16/15W), and west of Union Oil Company's pier, also reflect these changes. ✓

A shoal sounding noticed on the mainscheme hydrography was developed. This sounding showed a rise of about 5 or 6 feet at 38/03/44N, 122/15/50W. The predominant depths are 66 and 69 feet. Developments, at 10 meter line spacing, with arcs run from two different stations, were run over the shoal sounding. A least depth of 60' feet was found here. An examination of the fathograms lead the hydrographer to believe that this is a bottom feature and not a man-made object. Because of the currents, no dives or bottom samples could be obtained on the shoal sounding. This 60' foot least depth fell in an area of charted 57 foot depths (Chart 18654). Because of this it was not listed in the Dangers To Navigation letter. The hydrographer recommends charting the least depth from the development lines at this location, as shown on the smooth ~~field~~ sheet. ✓ concur

Another shoal sounding, a 40 foot depth in an area of predominently 47 to 49 foot depths, was developed in the same manner as above. The least depth of 40 feet was found at 38/03/58N, 122/14/44W. A dive investigation was attempted, but the strong currents and lack of visibility did not allow for a successful operation. The hydrographer again feels that this is a bottom feature, not a man-made object. This 40 foot depth falls on the chart between a 38 and a 43 foot depth (Chart 18654). Because of this it was not reported in the Dangers To Navigation letter. The hydrographer recommends that the least depth of 40 feet be shown on the charts at this location. ✓ concur

An 18 foot shoal sounding was also developed approximately 300 meters south of the end of Dike Number 12, off of the south end of Mare Island. Depths on the chart in this area (38/03/40N, 122/17/39W) are 19 to 21 feet. The hydrographer recommends that the charted 19 foot sounding be replaced with the 18 foot sounding at the location shown on the smooth ~~field~~ sheet. ✓ concur

The charted disposal areas in Carquinez Strait, west of the Carquinez Bridge, were not observed to be in use during this survey. In the elliptical disposal area the charted soundings agree well with the survey. In the rectangular area this survey found a 73' foot depth at the charted 80 foot depth (38/03/53N, 122/13/58W; this is included in the Dangers To Navigation letter). At the charted 64 foot depth, however, this survey found depths of 75' feet. ✓

During this survey most of Mare Island Strait was dredged twice,

with the dredge spoils dumped at Disposal Site Number 9, south of Mare Island. The chart shows a 9 foot depth in this area; this survey found a least depth of 10' feet. Since this is an active site, with periodic dumping of spoils, it is recommended that the 9 foot sounding remain on the chart. ✓ concur

At 38/04/02N, 122/14/08W, an 18 foot depth was obtained on this survey. The chart shows 19 foot depths in this area. The hydrographer recommends that the 18 foot sounding be charted instead of the 19. *chart according to survey.* ✓

Soundings in Carquinez Strait near the west side of the bridge agree well between the chart and this survey. On the east side of the bridge depths were found to have deepened at 38/03/36N, 122/13/24W, and in the area along the south shore at the C & H Sugar Co. wharf (shown in red on the smooth field sheet). Depths on the east side of the bridge, near the north shore of the strait, agree well between the chart and the survey. ✓

The deepest part of Carquinez Strait was found to be just west of the bridge, at 38/03/38N, 122/13/34W. A depth of 124 feet was measured here. ✓

The main shipping channel through the Carquinez Bridge, based on observations in the field, is through the south passage. ✓

It should be noted that there is a small holiday in the surveyed soundings at 38/03/27N, 122/13/25W, between the west side of the C & H Sugar Co. wharf and the foul area shown on the smooth field sheet, directly under the south end of the Carquinez Bridge. At the most, one line along the face of the wharf could have been run here. Because of the foul area and the narrow entrance between the wharf and the bridge fender, this line was not made. On Day 010/87 this area was observed to be bare approximately three-fourths of the way to the bridge fender. Refer to the sketch made of the area, located in the Cahier pocket for that day. Because of the foul area, the narrow passage by the bridge fender, and the other positioned items within this area, the hydrographer feels that no vessels will tie-up to this section of the wharf, or transit beneath the south end of the bridge. No further work is recommended here. ✓ concur

No sounding lines were run behind the west side of the Wickland Oil Co. pier, located at 38/03/31N, 122/14/28W. There is only a narrow passage between the shore and the end of the pier into this area. This shoreline had very strong currents, and it was deemed too hazardous to place the launch behind that side of the pier. There was room, however, to maneuver the launch behind the east side of the pier, and soundings were acquired here. ✓

In Mare Island Strait the main channel is dredged and maintained by the Corps of Engineers and the U.S. Navy. The Project Instructions for this survey state that sounding lines are to junction with the maintained channel. In the south portion of Mare Island Strait sounding lines were run from shore to shore. ✓

North of 38/05/00N soundings were only made from the east shore to the junction with the channel. North of the Mare Island Causeway lines were again run from shore to shore.

The surveyed soundings in the southern portion of the strait were compared to the tabulated list on Chart 18655, which are depths taken from Corps of Engineer surveys to 1983. Project dimensions for the length of the strait are 30 feet. This survey found depths from the outside quarters of 14 to 37 feet, while the center of the channel was from 34 to 38 feet. ✓

In Mare Island Strait depths in the inshore areas have generally remained stable. The zero foot curves agree well between this survey and the charts. ✓

An exception is at the Kaiser Steel facility, at 38/05/40N, 122/15/21W, where this survey found depths much deeper than charted. This is due to periodic dredging by Kaiser Steel for their tugs and barges, which tie-up to a new (1981) steel sea wall. Refer to Section K., ~~PCR~~ AWOIS numbers 51095 to 51104, for a more detailed description of this area. ✓

At the Vallejo Municipal Boat Ramp (38/05/45N, 122/15/28W) depths are shoal within the enclosed bulkhead, except for a small channel in front of the ramp. Depths are 0 to -1 feet within the north portion of the enclosed area. Several obstructions were observed within the north portion of the ramp area. It is recommended that this section of the enclosed area be labeled as a foul area. This shoaling, and the foul area, is listed in the Dangers To Navigation letter. ✓ concur

The configuration of the bulkhead that encloses the ramp area is erroneously shown on the charts. This is also not a fence as labeled on Chart 18655, but a solid wooden bulkhead. The smooth field sheet shows the correct configuration of the bulkhead (in red). The fence designation should be removed from the chart. ✓ concur

A new ferry terminal will be built on the Vallejo side of Mare Island Strait, for the San Francisco to Vallejo ferry service that began in 1986. This will be located in the inset into the seawall, at 38/06/00N, 122/15/42W. This area was seen to have been dredged after field operations had ceased. Engineering drawings of the projected depths have been obtained, and are submitted with this report. ✓

The current ferry terminal is located 100 meters north of the proposed site. The ferrys dock at the floating piers that are charted here. This is the site of the discontinued ferry service across the strait, to Mare Island. This service ceased in 1986. The word "Ferry" should be retained on the charts on the Vallejo side of the strait, but should be removed from the Mare Island side. ✓ concur

The inset area into the shoreline, at 38/06/13N, 122/15/53W, is foul with obstructions. It is shown on the smooth ~~field~~ sheet as ✓

a foul area. It is recommended that the charts show this as a foul area, also. concur

The area between the two charted marinas, on the east shore of the strait, is projected to become an extension of the Vallejo Municipal Marina, which is the northern-most of the two charted marinas. An additional 300 boat slips will be put into this area. The whole area is to be dredged, with all of the charted obstructions (and the new obstructions found on this survey) removed. Copies of the plans are submitted with this report. Work is to begin in 1987. ✓

Depths in the Napa River, between the Mare Island Causeway and the State Highway 37 Bridge at the north end of the survey, were found to have remained stable or deepened slightly. An exception is on the west side of the U.S. Navy pier, along the Mare Island side of the river. 2 foot depths were found alongside the lower half of the pier. This shoaling is reported in the Dangers To Navigation letter. ✓

The 12 foot charted sounding at 38/06/58N, 122/16/38W, was searched for by splitting the 45 meter mainscheme lines down. The dolphins and vessels tied to the pier prevented extensive developments. This survey found depths in the area to be 15 to 17 feet. This is an area of periodic dredging (by the Navy). It is likely that the charted 12 foot depths have been dredged deeper. The hydrographer recommends that the survey findings of 15 foot depths replace the charted 12. ✓ concur

The 13 foot charted sounding at 38/07/12N, 122/16/43W, was also searched for, at 5 and 10 meter line spacing. The least depth found in this area is 15 feet. This area is an area of ridges formed by deposits of silt or mud that drop out in the eddies behind the State Highway 37 Bridge. This was observed in the field when the development lines were run. The peaks of the ridges, as observed on the fathogram, coincided with the observed eddies on the surface of the water. The hydrographer is confident that the area was developed thoroughly, and recommends replacing the charted 13 foot depth with a 15. ✓ concur

The charted shoal next to the south edge of the Vallejo fishing pier (at 38/07/14N, 122/16/35W) was searched for by running development lines over the area. Depths were found to be 3 feet at this location. This is PSR 51142; refer to Section K. for a more detailed discussion. The hydrographer recommends removing the shoal symbol and charting the appropriate depths from the survey at this location. ✓ concur

It should be noted here that the U.S. Navy pier had several large vessels tied to it during the course of this survey. Sounding lines were run as close as possible to the ships. Leadlines were taken along the pier faces. Any perceived holidays along the pier are due to these ships. No further work is recommended, as this survey has shown a good sampling of the depths in and around the pier areas (these ships are old target ships, and have been tied- ✓ concur

up for quite some time).

COMPARISON OF NON-SOUNDING FEATURES

A total of 56 dives were made during this survey, to search for and position non-sounding features. Almost all of these items are PSR items, and discussed in detail in Section K.

Dive conditions in Carquinez and Mare Island Strait are extremely poor. There are very strong currents, generated from the river systems and the narrowing of the tidal zones (bay to restricted river systems). There is also zero visibility. These conditions, coupled with the fact the dives were made on cables, ruins, and obstructions, all of which could snag a diver, made for hazardous conditions.

PHP has only one assigned diver. A diver was brought down from PMC to assist. Because of the limited time this diver was available, the Chief of Party made on-the-spot decisions on which dives were the most important. The Chief also was advised by the divers when conditions became too dangerous to continue operations. This happened around the Mare Island Strait Lights 1 and 2, the Union Oil Co. pier (the "T" shaped pier), and the tugboat dock at the marina west of the Carquinez Bridge.

Several dives were attempted on shoal soundings, in Carquinez Strait, south of Mare Island. These dives could not be completed because of the currents.

Most of the discrepencies between the chart and the shoreline manuscript are PSR items. Charted objects that are PSR items are thoroughly discussed in Section K., Comparison With Prior Surveys. Rather than making a list here of every bottom drag and diver search made to resolve items, the reader is directed to Section K. The following is a discussion of those items that are not PSR items.

At the west edge of the survey, along the south shore of San Pablo Bay, at 38/00/37N, 122/18/15W, the chart depicts a sharp point with a ledge immediately east of it. This point was found to be much more gentle, or less pronounced, than the charted depiction. Rocks, in addition to a ledge, were found at this point. The ledge was found to be detached from shore by approximately 10 meters. The ledge is smaller than shown on the chart. This ledge is also depicted on Survey H-10081, which adjoins this survey. No additional rocks are shown on that survey. The hydrographer recommends that the chart be updated to show the shoreline, rocks, and ledge as depicted on the smooth ~~field~~ sheet.

Concur

At 38/01/14N, 122/17/21W, additional piles other than those charted were found. Also, at this location, an uncharted sewerline was found. These items were positioned from the beach, using a Wild T-2, magnetic compass bearings, and by pacing distances. These methods were due to the extreme shallowness of

the area, prohibiting the launch from positioning the objects when the objects were visible at low tide.

The pier at 38/01/23N, 122/17/30W, is shown on the chart as having only the end in ruins; the whole length of the pier is now in ruins. The pier retains its general shape, however, and does not submerge at MHW. The Hercules Wharf tide gage was located on some of the remaining piles of this pier. It is recommended that the chart be changed to show the whole pier in ruins. ✓ concur

The two dolphins to the west of this pier were verified by positions 1647 and 1648. ✓

A ledge was found on Day 008/87 (pos. 4612). The position is on the seaward end of it. The ledge is connected to shore. The hydrographer recommends charting this ledge. 38/01/30.57, 122/16/43.38 ✓

The piles charted at 38/02/18N, 122/16/24W, are ~~PSR~~ AWOIS 50817. The chart shows the cartographic symbols for piles completely covering the entrance between the two piers. Positions 3811 and 3812 were taken on the piles and pier at this location. Position 3811 is the northern-most of the row of piles that extend from the southern pier. The entrance into this area is around and to the north of position 3811. Long-term residents and workers in the area state that the pile positioned by 3811 is the last in the row. It seems possible that during the cartographic process the pile symbols were slightly shifted to the north. The hydrographer recommends that the symbols be placed as shown on the smooth field sheet. Pos. 3811 pile 38/02/18.73 122/16/24.36 ✓ concur

The north pier (pos. 3812) is now in ruins. It has retained its general shape, and does not submerge at MHW. The hydrographer recommends that the chart be changed to show this. ✓

The piles within the marina at Rodeo (38/02/24N, 122/16/12W) were positioned both by Mini-Ranger and by drawing the locations on the boat sheet while in the field (refer to pos. 3816 to 3819). It is recommended that the chart be changed to show these piles, as depicted on the smooth ~~field~~ sheet. ✓ concur

The chart shows piers to the east of the Rodeo Marina (38/02/21N, 122/16/11W). Piles were found at this location. These piles are in place to hold floating piers, which were removed or shortened at the time of the survey. The spit of land next to these charted piers, and shown in red on the smooth field sheet, is depicted accurately on TP-00525, not as charted. The chart also shows two small piers here. This area was seen bare at low tide; no piers extend out from this spit. The hydrographer recommends that this area be shown on the chart as depicted on the smooth ~~field~~ sheet. ✓ concur

The foul area, as shown on the smooth ~~field~~ sheet (centered at 38/02/24N, 122/15/57W), with limits from pos. 3825 to the shore end of the sewerline, contains numerous shopping carts, tires, snags, and other debris. It is recommended that this foul area be charted. The small charted jetty within this area is PSR 50818. ✓ concur

This area was seen bare, no jetty or ruins were found.

The sewerline that extends into the bay (centered at 38/02/48N, 122/16/00W) was positioned in the following manner: on Day 295/86 development lines, spaced 10 meters apart, with arcs run from two different control stations, found the end of the sewerline. Leadline depths were attempted, and while the lead could be felt to be hitting a hard object, depths were always greater than those found by the fathometer (fatho depths corrected for draft, settlement and squat, predicted tides, and velocity), leading the O.I.C. to believe that the lead was slipping off the pipe. The corrected least depth was found to be (by fathometer) 8.9 feet.

On Day 008/87, rocks were described as being located on the shoreward end of the sewerline (refer to the drawing made on that day). However, the chart shows a point at that location. Because of this discrepancy, on Day 120/87, a resection position was taken at the shoreward end of the sewerline, at the location where the waste treatment plant engineers indicated that the sewerline joined the shore. A line drawn from this position (5287) to the position of the least depth sounding, closely matches the length and azimuth of the sewerline as shown on the engineering drawings (included with this report). The sounding lines agree with the engineering drawings that only the approximately last 140 meters of the seaward most end of the sewerline is exposed above the mud. Because of a lack of proper safety equipment, no dives were made on the end of the pipe. The hydrographer recommends charting the sewerline as shown on the smooth ~~field~~ sheet. The shoreline at the location of the sewerline is accurately shown on TP-01246, and it is recommended that the chart be changed accordingly. concur

The "T" shaped pier centered at 38/03/24N, 122/15/39W, is owned by the Union Oil Co. The ends of the pier were verified by positions 3898 to 3905. The pier has fixed red lights on each corner face. The chart depicts the lights, bell and horn accurately. Refer to Section N., Aids To Navigation, for a discussion of these lights.

The charted ruins and dolphins on both sides of this pier are ~~PSR~~ AWOIS items. Refer to Section K.

The pier-like structure immediately east of the "T" shaped pier that extends from shore is a cooling intake structure for the refinery. This intake was verified by comparing it's position to the sounding lines. It is more accurately depicted on TP-01246. It is recommended that the chart be changed to show this structure as depicted on TP-01246. concur

The offshore pier, centered at 38/03/15N, 122/16/18W, is owned by the Pacific Refining Co. The pier was verified by positions 3800 and 3803. Two charted dolphins on the inshore side of the pier were verified by positions 3801 and 3802.

The charted lights on this pier are shown as fixed white lights

on each end. Inspection by the lau
identical lights at each platform sect
or bends, of the pier). All of the lights
recommended that the charted light symbols
should be added that the pier is lighted alon
Refer to Section N. for additional information.

The charted horn was observed by the launch crew, and is accurat
as charted.

The charted dashed lines on the east and west sides of this offshore pier are confusing to the hydrographer and to mariners in the area. It is believed that these lines represent dredge limits. The hydrographer feels that individual depths and contours are more important to the mariner, and recommends that these confusing symbols be removed. ✓

The breakwater on the south end of Mare Island, charted as Dike 12, was checked when station END 1951, located on the end of the breakwater, was verified. ✓

The Naval Anchorage No. 21, south of Mare Island, is an active anchorage. For clarity of the soundings, the limits of this anchorage were not shown on the smooth field sheet. Retain these limits as charted. ✓

The charted targets in San Pablo Bay, north of Dike 12, are geodetic stations, and were verified during the course of this work (refer to the horizontal control report, Mare Island Strait and Western Approach to Carquinez Strait, previously submitted to PMC. These are stations CARQUINEZ STRAIT RNG TARGET 1 and 2. ✓

On the west side of Mare Island the Navy maintains an active firing range. It is recommended that the limits continue to be shown, as charted. The note pertaining to the danger area is still valid. ✓

The charted crib, at 38/03/08N, 122/15/18W, is ~~PSR~~ AWOIS 50814. Refer to Section K. This area was seen bare on several occasions, and no remains of a crib or other structure could be found.

At 38/03/28N, 122/14/05W, the shoreline was found to have been extended by adding rip-rap. This change is shown in red on the smooth ~~field~~ sheet. The charted rocks in this location were searched for. The west-most rock was found and verified (pos. 8215, Day 075/87). The east-most rock's position was found to be at the same location as a sewer outfall, which extends 2 meters out from the added rip-rap (pos. 8213, Day 073/87). The rock was searched for seaward of the outfall by running back and forth with the fathometer working, but nothing was found. The hydrographer feels confident that the east-most rock is now part of the extended rip-rap, and lies under the outfall. The smooth ~~field~~ sheet depicts this 2 meter outfall as an obstruction, and recommends that it be charted as such. ✓ concur

East of this location, along the south shore of Carquinez Strait, is a charted "T" shaped ruins. The ruins were verified in the following manner: on Day 233/86 a detached position was taken on a post (pos.1111). This position did not get a check. However, when plotted, the position of the post fell near the end of the charted ruins. This detached position was considered a verification of the ruins, and saved. On Day 297/86 a detached position was taken on a pile shoreward of position 1111. This position had a good check. Position* 3021 fell on the shoreward end of the charted ruins, in line with position 1111. On Day 011/87 (the drawing for this day is in the Cahier pocket for Day 010/87), during a time of negative tides, other stakes or piles were visible between the two positions, in the general shape of the charted ruins. Based on these observations, no dives were made, and it is recommended that the ruins remain as charted. ✓ concur

* Photo included.

Immediately east of these ruins are two charted dolphins. These were verified by positions 1110 and 3020. However, the chart shows three dolphins here. A dive investigation took place at this location. Submerged piles and a rock were found. These are shown on the smooth field sheet. The hydrographer recommends that the chart be changed to show the two exisiting dolphins and the obstructions. ✓ concur

At the marina west of the Carquinez Bridge, positions were not taken on each pier end, but were verified by comparing the charted positions to the sounding lines. However, at the charted piles and bulkhead, located at 38/03/28N, 122/13/42W, detached positions were taken on the row of piles (pos. 3023, Day 297/86). There was a question as to whether all of the piles were found. A dive investigation was made (pos. 4627, Day 012/87) and cleared the end of the row. Only those piles shown on the smooth ~~field~~ sheet exist. ✓

A position was also taken on the bulkhead near the same location (pos. 3092). This bulkhead, and the floating piers attached to the row of piles described above, is a docking facility for several large tugboats. After plotting position 3092 it was found that the position of the bulkhead was not the same as the charted ruins. Because of the strong currents and heavy seas that prevail here, and the large tugs tied over the charted ruins, diving was deemed too hazardous. The tug boat owners could not be found, to help clear this matter up. Consequently, on the smooth field sheet, the positioned bulkhead is shown in black as a solid line, and the charted ruins are shown in brown ink. The hydrographer believes that, due to the tug boats tied there, the ruins no longer exist. However, until further information can be obtained from a knowledgeable source, these ruins should remain charted, in addition to the new bulkhead. ✓ concur

The two charted piers immediately west of the south end of the Carquinez Bridge were verified by comparing their locations to the sounding lines and the relationship to the bridge. From the launch these piers appeared to be intact. From shore, however, they were found to have been burned, and are in unuseable shape. ✓

These piers have retained their charted shape, and do not submerge at MHW. It is recommended that they be shown as ruins on the chart. concur

On Day 010/87 the area under the south end of the Carquinez Bridge was observed at a negative tide, and a drawing made. Obstructions other than those charted or positioned on this survey were observed. The hydrographer recommends charting this area as a foul area, as shown on the smooth ~~field~~ sheet. ✓ concur

The shape of the wharf of the C & H Sugar Co., immediately east of the south end of the Carquinez Bridge, was found to be different than depicted both on the chart and on the shoreline manuscript. The correct shape is shown in red, and was determined by measuring distances to corners, starting from station C & H. The three dolphins shown in red act as fenders, and are approximately 3 meters from the wharf face. A boat cannot get between them and the wharf. They were not positioned by hydrographic means, but were measured horizontally from station C & H. ✓

The charted ruins on the north shore of Carquinez Strait, on the west side of the Carquinez Bridge, are shown in brown ink on the smooth field sheet. This section of the ruins was observed on Day 010/87 from the shore. No fix was taken on this section of the ruins. The section of the ruins in black was positioned from the launch (pos. 4626). The area of the charted ruins west of position 4626, to the charted pier, were seen bare; no ruins were found. It is recommended that the charted ruins remain shown, with the exception of the area seen bare. ✓ concur

The end of the charted pier at the California Maritime Academy (38/03/59N, 122/13/47W) was verified by comparing the charted position to the sounding lines. ✓

The charted wreck symbol west of the end of this pier was found to be in error. The wreckage, depicted in red on the smooth field sheet, was positioned by fix numbers 1585 and 3002. This is a well-known wreck of an old ferry boat. The hydrographer recommends placing the wreck symbol over the actual position of the wreck, instead of to the east side of the wreckage. ✓ concur

The charted ruins that fall at the location of position 1585 were not observed. Because these ruins fall on the shore end of the observed wreck, no search was made. It is recommended that the charted ruin symbol be removed. ✓ concur

The charted ruins, at 38/04/08N, 122/13/56W, were verified by position 4621. ✓

The charted ruined piers, along the same shore and northeast of position 4621, were cleared by diver searches. It is recommended that these ruins be removed from the chart. ✓ concur

The area of the charted pier ruins, at 38/04/20N, 122/14/13W, was

seen bare on several occasions. No ruins were found. It is recommended that the ruin symbol be removed from the chart. ✓ concur

The charted platform, at 38/04/12N, 122/14/23W, was re-positioned by fix numbers 1587 and 1588. This platform is now in ruins, and is shown in red on the smooth field sheet. The label "platform" should be removed from the chart, and the ruins charted in the new location. ✓ concur

The end of the charted dike (Dike No. 9) that Mare Island Strait Light 2 is built next to is no longer visible. Development lines were run between the light and the exisitng visible dike, and also west of the light. The fathometer showed that there are submerged ruins out to the end of the charted dike (25 meters past the light). Dives were attempted here, but the currents were too strong. A position was taken on the end of the visible portion of the dike (pos. 4636). The hydrographer recommends charting the dike, from position 4636 to the end, as ~~ruins~~. ✓ concur shown in the smooth sheet.

The charted ruins east of Light 2, along the south side of Dike No. 9, are shown accurately on Chart 18655. The shoreline manuscript shows a gap in the ruins. However, this was once a platform that held a lighthouse, and ruins were observed within the gap. It is recommended that the charted ruins remain as shown on Chart 18655 (pos. 3105 verified the ruins). ✓ concur

At the location of Mare Island Strait Light 1 the ruins of Dike No. 14 were verified by running development lines over it. A dive from the visible end of Dike No. 14 was made, and the divers followed the ruins approximately 20 meters before the currents became too strong. It is recommended that the ruins of the end of the dike continue to be charted as shown, in the smooth sheet. ✓ concur

A long rock ledge was found in Mare Island Strait, at 38/04/40N, 122/14/27W (pos. 4770). The ledge extends from this position southeast to shore. This ledge could be rocks that were dumped here, but due to plant growth, it could not be determined if it was a ledge or a rock pile. The hydrographer recommends charting this as a ledge. ✓ concur

The charted rocks, at 38/04/47N, 122/14/41W, were verified by position 4083. ✓

The charted piles, at 38/04/43N, 122/14/51W, were searched for by divers (positions 4660 to 4662). Two obstructions, consisting of a sewer pipe and wood and cable, were found. It is recommended that the pile symbols be removed and the obstructions charted at the new locations. ✓ concur

The pier on Mare Island, located at 38/04/52N, 122/15/00W, no longer exists. This area was seen bare on several occasions. The Public Works Dept. engineers at the Mare Island Naval Shipyard stated to the Chief of Party that this pier was removed in 1984, with the supporting piles removed to the mudline. It is recommended that the pier be removed from the chart. ✓ concur

The shoreline of the east side of Mare Island Strait has been filled in at 38/05/24N, 122/15/05W. This was done by the current occupant of the site, the Kiewit Pacific Company. The shoreline manuscript and smooth ~~fiel~~d sheet depict the shoreline accurately.

The Kiewit Pacific Company also removed the charted piles in front of their facility, and dredged the area to allow barges and tugs to tie-up to the seawall they installed along the filled-in shore. This was confirmed by the engineer in charge of the project. Refer to Section K., PSR 51094, for more detail. Barges were tied-up within this area. Sounding lines were taken as close as possible.

The Kiewit Pacific Company also dredged and removed all of the obstructions within the Kaiser Steel facility, at 38/05/41N, 122/15/22W. The shoreline was straightened, a steel seawall installed, and tugs and barges now tie to the seawall. This is also discussed in Section K. This area was also bottom dragged, with no obstructions found.

Individual piers within the Vallejo Yacht Club and the Vallejo Municipal Marina (east shore of Mare Island Strait; the yacht club is the southern-most of the two marinas) were not positioned by individual fixes, but were verified by comparing them to the sounding lines. They are accurate as charted.

20-12 PILE DOLPHINS FROM BPS2513/55 (USN SURVEY)

The long row of charted piles, beginning at 38/06/36N, 122/16/23W, and extending southeast, are no longer visible. Most of these piles have been pulled out. U.S. Navy divers from Mare Island were observed by PHP to be removing the piles during the course of the survey. At the end of the Navy's operations, the Chief of Party met with the lead diver and the engineer in charge. They indicated which piles had been removed completely, and which piles still had remains sticking up out of the mud. Those submerged piles that are shown on the smooth field sheet are the ones that were found by PHP divers after the Navy ceased operations. The piles that the Navy had indicated were removed completely were not dove on by PHP (although, diver circle searches covered the area of almost all of these). If further information is needed, contact the following people:

AWOIS 51112 51115 51116 51117

Mr. Bruce Pedrotti
Public Works Dept., code 421
Bldg. 47
Mare Island Naval Shipyard
Vallejo, Ca.
phone: 707-646-2381

and:

Mr. Don Dunn, the lead Navy diver, who can be contacted through Mr. Pedrotti.

Chart only those submerged piles shown on the smooth ~~field~~ sheet, and remove the other piles from the chart. concur

The ruins inshore of these piles (and between the two marinas) were swept by the divers during their searches for the piles. In addition, the divers walked the length of the ruins (there is only 1 to 2 feet of water here). A submerged pipe (pos. 8157) was the only object found. It is recommended that the row of ruins be removed from the chart, and that the pipe is charted. 38/06/23.15 122/16/04.92 concur

Between the Mare Island Causeway and the north bulkhead of the Vallejo Municipal Marina, the chart shows two piles or dolphins. Only the northern-most dolphin exists (pos. 66). PHP divers attached a searchline to this dolphin and swept the area for the other charted dolphin (or pile). They swept to the bulkhead, but nothing was found. It is recommended that the only dolphin to be charted is that positioned by fix 66. (38/06/41.13, 122/16/19.24) concur

The ends of the U.S. Navy pier, located between the Mare Island Causeway and the State Highway 37 bridge, were verified by comparing their locations to the sounding lines. They are accurate as charted.

No changes to the scale, coverage, or format of the charts that cover the survey area are recommended. However, the hydrographer recommends adding a metric distance scale to the legend, as all linear measurements are made in meters. Often, in discussing the location of objects with local people, the field personnel use the metric system, which sometimes confuses the chart users. An addition of a meteric scale would at least help the public when translating from feet/yards to meters. concur

M. ADEQUACY OF THE SURVEY

This survey is considered complete and adequate to supersede prior surveys.

DEFICIENCIES

The following items are considered by the hydrographer to be still in question:

1. The charted ruins at 38/03/28N, 122/13/40W. These are shown in brown ink on the smooth field sheet, next to the bulkhead positioned by fix 3092. This is the area where currents and seas, and the location of several large tugs, make diving hazardous. PHP may be able to get confirmation of the removal of these ruins from the owners of the tugs.

   Recommendation: The ruins remain as charted. concur

2. The charted piles on the south side of the Mare Island Causeway, which are ~~PSR~~ remove of AWOIS numbers 51118

and 51119. The location of these charted piles are next to the bridge. Due to the configuration of the bridge supports it seems unlikely small boat owners will attempt to run between the bridge supports. The Chief of Party considered these to be low priorty items. Dives were to be made if resouces allowed. Strong currents around the bridge supports prevented divers from searching for these when time did allow. Attempts were made to find out from the U.S. Navy and the City of Vallejo if they had been removed, with no confirmation from either source. The general manager of the firm that built the bridge in the 1970's (Kiewit Pacific, Vallejo) verbally stated to the Chief that all old piles along the new pier had been removed to the mudline, but could not state positively that the piles in question had been removed. On several occasions, during ebb tides, the launch ran back and forth over the positions of these charted piles, but no remains were seen on the fathometer graphic record. The original dates for these piles (from the AWOIS listing) is 1941. It seems unlikely these piles exist. However, because dives were not made, it is recommended that they remain charted. ✓ concur

3. Two charted piles, located on the north side of the Mare Island Causeway, parallel to the shore with the above mentioned piles in PSR 51118 and PSR 51119. These are in line along the bridge with the charted dolphins positioned by fix 109 (PSR 51122). For the same reasons as number 2 above these piles were not dove on. No definite confirmation was given that these were removed to the mudline. They were not found during fatho searches. However, because no dives were made, retain these as shown on the chart. ✓ concur

N. AIDS TO NAVIGATION.

All Coast Guard maintained fixed aids to navigation within the limits of Survey H-10223 were positioned to Third Order, Class I accuracy. Refer to the horizontal control report that accompanies this survey.

There are some lights listed in the Coast Guard Light List, volume VI, 1987, that fall within the survey limits and are privately maintained. These lights were positioned by hydrographic means. The lights were inspected by the Chief of Party and found to be infrequently maintained or of minor importance. The large amount of effort to geodetically position these lights and process the data was not deemed warranted. All of the lights were positioned by range-range or range azimuth methods. All but one of the positions had acceptable checks. These less than third order lights are listed below. * Oleum Wharf East Light

Comparisons were made of the fixed aids to navigation positions on Survey H-10223, the U.S. Coast Guard Light List, volume VI, 1987, and the 1986 DIPFILE Listing Those comparisons are:

			Inv. Dist. (m)
SAN PABLO BAY CHANNEL LIGHT 12 (outside the survey limits)			
Geodetic Position	38/02/59.28101	122/19/43.03488	
1986 DIPFILE	38/02/59.26200	122/19/43.07300	1.099
Light List	No position listed.		
SAN PABLO BAY CHANNEL LIGHT 13			
Geodetic Position	38/03/22.19393	122/18/26.47919	
1986 DIPFILE	38/03/22.19200	122/18/26.47700	0.080
Light List	No position listed.		
SAN PABLO BAY CHANNEL LIGHT 14			
Geodetic Position	38/03/14.20555	122/18/25.06344	
1986 DIPFILE	38/03/14.23400	122/18/25.05500	0.901
Light List	No position listed.		
SAN PABLO BAY CHANNEL LIGHT 15			
Geodetic Position	38/03/33.00892	122/17/23.62649	
1986 DIPFILE	38/03/33.00700	122/17/23.62700	0.060
Light List	No position listed.		
SAN PABLO BAY CHANNEL LIGHT 17			
Geodetic Position	38/04/08.93221	122/15/06.46742	
1986 DIPFILE	38/04/08.79000	122/15/06.52000	4.568
Light List	38/04.2	122/15.1	
MARE ISLAND STRAIT LIGHT 1			
Geodetic Position	38/04/15.82357	122/14/47.47018	
1986 DIPFILE	38/04/15.69700	122/14/47.25900	6.460
Light List	38/04.3	122/14.8	
MARE ISLAND STRAIT LIGHT 2			
Geodetic Position	38/04/11.04291	122/14/37.37814	
1986 DIPFILE (1984 position)	38/04/11.09300	122/14/37.13200	6.195
Light List	38/04.2	122/14.6	
MARE ISLAND STRAIT LIGHT 3			
Geodetic Position	38/04/32.39348	122/14/45.60948	
1986 DIPFILE	38/04/32.50000	122/14/45.66000	3.507
Light List	38/04.5	122/14.8	
MARE ISLAND STRAIT LIGHT 4			
Geodetic Position	38/04/31.12587	122/14/33.15863	
1986 DIPFILE	38/04/31.10000	122/14/33.19000	1.105
Light List	38/04.6	122/14.6	

The characteristics of these fixed aids were observed to be as shown in the 1987 Light List. All of the above lights adequately mark the channels.

It is recommended that the new third order, class I positions from this survey be used to update all fixed aids to navigation.

The following privately maintained lights were positioned by hydrographic methods.

			Inv. Dist. (M)
SEQUOIA OIL WHARF WEST LIGHT			
Pos. 3803	38/03/13.390	122/16/24.810	
1986 DIPFILE	38/03/13.290	122/16/24.714	3.871
Light List	38/03.2	122/16.4	
SEQUOIA OIL WHARF EAST LIGHT			
Pos. 3800	38/03/17.770	122/16/10.320	
1986 DIPFILE	38/03/17.950	122/16/10.730	11.433
Light List	No position listed.		
OLEUM WHARF WEST LIGHT$			
Pos. 3904	38/03/21.500	122/15/45.620	
1986 DIPFILE	38/03/21.310	122/15/45.520	6.345
Light List	38/03.4	122/15/8	
OLEUM WHARF WEST LIGHT$			
Pos. 3905	38/03/21.380	122/15/45.210	
1986 DIPFILE	38/03/21.800	122/15/45.170	12.986
Light List	No position listed.		
OLEUM WHARF WEST LIGHT$			
Pos. 3902	38/03/22.730	122/15/45.750	
1986 DIPFILE	38/03/22.700	122/15/45.900	3.772
Light List	No position listed.		
OLEUM WHARF WEST LIGHT$			
Pos. 3903	38/03/22.510	122/15/46.000	
1986 DIPFILE	No position listed.		
Light List	No position listed.		
OLEUM WHARF EAST LIGHT$			
Pos. 3898	38/03/24.520	122/15/30.450	
1986 DIPFILE	38/03/24.300	122/15/30.480	6.822
Light List	No position listed.		
OLEUM WHARF EAST LIGHT$			
Pos. 3899	38/03/24.870	122/15/30.600	
1986 DIPFILE	38/03/24.780	122/15/30.690	3.538
Light List	No position listed.		

OLEUM WHARF EAST LIGHT$

Pos. 3901	38/03/25.630	122/15/30.950	
1986 DIPFILE	38/03/25.700	122/15/30.900	2.479
Light List	No position listed.		

OLEUM WHARF EAST LIGHT$

Pos. 3900	38/03/25.430	122/15/30.730	
1986 DIPFILE	No position listed.		
Light List	No position listed.		

VALLEJO YACHT CLUB NORTH LIGHT

Pos. 55	38/06/17.590	122/15/59.020	
1986 DIPFILE	38/06/18.150	122/15/58.960	17.328
Light List	38/06.3	122/16.0	

VALLEJO YACHT CLUB LIGHT (DIPFILE lists this as the south light)

Pos. 56	38/06/17.920	122/15/59.230	
1986 DIPFILE	38/06/17.370	122/15/58.560	23.538
Light List	No position listed.		

VALLEJO MARINA NORTH ENTRANCE LIGHT 1

Pos. 65	38/06/37.170	122/16/16.710	
1986 DIPFILE	38/06/37.370	122/16/16.020	17.905
Light List	No position listed.		

VALLEJO MARINA NORTH ENTRANCE LIGHT 2

Pos. 64	38/06/36.140	122/16/15.850	
1986 DIPFILE	38/06/36.650	122/16/15.290	20.018
Light List	No position listed.		

VALLEJO MARINA SOUTH ENTRANCE LIGHT 1

Pos. 62	38/06/31.900	122/16/11.680	
1986 DIPFILE	38/06/32.400	122/16/11.810	15.738
Light List	No position listed.		

VALLEJO MARINA SOUTH ENTRANCE LIGHT 2

Pos. 61	38/06/31.160	122/16/11.650	
1986 DIPFILE	38/06/31.550	122/16/11.050	18.928
Light List	No position listed.		

(OLEUM WHARF EAST LIGHT)

With the exception of position 3898, all of the above hydrographic positions had acceptable checks (<10 meters). A check was not obtained on position 3898. This position verifies the DIPFILE, however. ✓

The lights for the Vallejo Yacht Club and the Vallejo Marina are located at the entrances, on the ends of wooden bulkheads which enclose the marina and yacht club. The charted position for the entrance to the yacht club is different than that shown on the shoreline manuscript or found on this survey (this survey verifies the shoreline manuscript). This accounts for the differences in positions between the DIPFILE and the survey. The hydrographer recommends using the new positions for the yacht club lights. ✓ concur

The hydrographer recommends using the new positions found on this survey for all of the above privately maintained lights, except for position 3898, which verifies the DIPFILE. ✓

All of the lights were observed in the field. The characteristics of the lights are as listed in the Light List. ✓

There are no floating aids to navigation within the limits of this survey. ✓

All existing bridges and overhead cables on H-10223 are shown adequately on the charts. ✓

All submarine cable or pipeline areas are shown adequately on the charts. ✓

D. STATISTICS.

LAUNCH 1101 (0651)

Total number of positions	3455 ~~5368~~
Nautical miles of sounding lines	379.3
Square miles of hydrography	5.9

SKIFF (0654)

Total number of positions	0 111
Nautical miles of hydrography	0
Square miles of hydrography	0

LAND VEHICLE (0650)

Total number of positions	74 ~~268~~
Nautical miles of hydrography	0
Square miles of hydrography	0

****

Number of bottom samples	50
Number of tide stations	2
Number of current stations	0
Number of velocity casts	0
Number of magnetic stations	0
Number of days of production	111

P. MISCELLANEOUS.

In accordance with the project instructions, fifty bottom samples were sent to the Curator, Division of Paleobiology, Smithsonian Institute.

Q. RECOMMENDATIONS.

This survey is considered adequate and complete, with the exception of those items mentioned in Section M. Refer to that section for details.

R. AUTOMATED DATA PROCESSING.

DEC PDP 8/e Computer.

Number	Name	Version Date
RK201	Grid, Signal, and Lattice Plot	4/18/75
RK211	Range-Range Non-Real Time Plot	2/13/84
RK212	Visual Station Table Load	4/01/74
RK215	Visual Non-Real Time Plot	2/11/81
RK216	Range-Azimuth Non-Real Time Plot	2/24/84
RK300	Utility Computations	10/21/80
RK330	Reformat and Data Check	5/04/76
PM360	Electronic Corrector Abstract	2/02/76
RA362	Combined RK 330 and AM 602	8/20/84
AM500	Predicted Tide Generator	11/10/72
RK561	H/R Geodetic Calibration	12/01/82
AM602	Elinore-Line Oriented Editor	12/08/82

Hewlett Packard 9815A Calculator.

Number	Name	Version Date
811101	Geodetic Package	Feb. 1983

S. REFERRAL TO REPORTS.

Other project reports covering this survey area are:

	Date
1) Horizontal Control Report, CA., Mare Island Strait And Approach to Carquinez Strait, OPR-L123-PHP-86	4/87
3) Coast Pilot Report, OPR-L123-PHP-86	2/87

4) Tide Station Reports and levelling records on all project area tide stations submitted, as required, to N/OMA121.

Respectfully submitted by,

John A. Miller

LTJG John A. Miller, NOAA
Chief, Pacific Hydrographic Party

Signal Tape Listing

Survey H - 10223

*101	0	38	04	17037	122	17	17535	139 0000 000000	CARQUINEZ STRAIT RNG TARGET 1
*102	0	38	04	40120	122	18	08926	139 0000 000000	CARQUINEZ STRAIT RNG TARGET 2
~~*103~~	~~0~~	~~38~~	~~06~~	~~03704~~	~~122~~	~~19~~	~~39000~~	~~139 0000 000000~~	~~MARE ISLAND RADAR TARGET~~
~~*113~~	~~0~~	~~38~~	~~03~~	~~02194~~	~~122~~	~~18~~	~~06479~~	~~139 0000 000000~~	~~SAN PABLO BAY CHAN LT 13~~
~~*114~~	~~0~~	~~38~~	~~03~~	~~14206~~	~~122~~	~~18~~	~~05063~~	~~139 0000 000000~~	~~SAN PABLO BAY CHAN LT 14~~
*115	0	38	03	33009	122	17	23626	139 0000 000000	SAN PABLO BAY CHAN LT 15
117	0	38	04	08932	122	15	06467	139 0000 000000	SAN PABLO BAY CHAN LT 17
201	0	38	04	15824	122	14	47470	139 0000 000000	MARE ISLAND STR LT 1
202	0	38	04	11043	122	14	37378	139 0000 000000	MARE ISLAND STR LT 2
203	0	38	04	32393	122	14	45609	139 0000 000000	MARE ISLAND STR LT 3
204	0	38	04	31126	122	14	33159	139 0000 000000	MARE ISLAND STR LT 4
408	0	38	06	19249	122	15	30650	139 0000 000000	VALLEJO ST VINCENTS SCH FLAG
600	0	38	03	18837	122	31	08940	250 0069 000000	HAMILTON FIELD STANDPIPE
602	0	38	03	48384	122	17	41398	250 0003 000000	END 1951
606	0	38	03	12510	122	14	32212	250 0116 000000	TORMEY 1929
607	0	38	03	19193	122	14	22752	250 0092 000000	TORMEY AZ MK
614	0	38	04	33170	122	15	11719	250 0085 000000	MARE ISLAND KNOLL C OF E 1970
640	0	38	09	17967	122	27	36026	250 0209 000000	RACEWAY RM 2
655	0	38	04	36342	122	15	14142	250 0089 000000	MARE ISLAND SOUTHEAST 1852
657	0	38	07	13879	122	16	41690	250 0006 000000	VALLEJO FISH PIER
658	0	38	06	36685	122	16	31377	250 0007 000000	MARE ISLAND BRIDGE
660	0	38	03	57729	122	12	33664	250 0020 000000	GLEN
665	0	38	03	27513	122	12	57567	250 0004 000000	C AND H
675	0	38	05	02280	122	14	37990	250 0052 000000	TAR RM 3

* Aids to navigation. Not used for control

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

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

(See reverse for responsible personnel)

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

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
Pacific Hydro Party	Ca.	San Pablo Bay	6-4-87

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

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
OPR-L123-PHP-86		H-10223	NAD 27

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
Light	San Pablo Bay Channel Light 12	38 02	59.281	122 19	43,035		F-3-6-L	
Light	San Pablo Bay Channel Light 13	38 03	22.194	122 18	26,479		F-3-6-L	
Light	San Pablo Bay Channel Light 14	38 03	14.205	122 18	25,063		F-3-6-L	
Light	San Pablo Bay Channel Light 15	38 03	33,008	122 17	23,626		F-3-6-L	
Light	San Pablo Bay Channel Light 17 (San Pablo Bay Light 17)	38 04	08,932	122 15	06,467		F-2-6-L	
Light	Mare Island Strait Light 1	38 04	15,823	122 14	47,470		F-3-6-L	
Light	Mare Island Strait Light 2	38 04	11,043	122 14	37,378		F-3-6-L	
Light	Mare Island Strait Light 3	38 04	32,393	122 14	45,609		F-3-6-L	
Light	Mare Island Strait Light 4	38 04	31,126	122 14	33,158		F-3-6-L	
Light	Vallejo Yacht Club North Light	38 06	17,590	122 15	59,020		F-2-6-L	

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	John A. Miller, Lt(jg), NOAA	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED	John A. Miller, Lt(jg), NOAA	FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'

(Consult Photogrammetric Instructions No. 64,

OFFICE

I. OFFICE IDENTIFIED AND LOCATED OBJECTS

Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.

EXAMPLE: 75E(C)6042
8-12-75

FIELD

I. NEW POSITION DETERMINED OR VERIFIED

Enter the applicable data by symbols as follows:

F - Field	P - Photogrammetric
L - Located	Vis - Visually
V - Verified	
1 - Triangulation	5 - Field identified
2 - Traverse	6 - Theodolite
3 - Intersection	7 - Planetable
4 - Resection	8 - Sextant

A. Field positions* require entry of method of location and date of field work.

EXAMPLE: F-2-6-L
8-12-75

*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

FIELD (Cont'd)

B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.

EXAMPLE: P-8-V
8-12-75
74L(C)2982

II. TRIANGULATION STATION RECOVERED

When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.

EXAMPLE: Triang. Rec.
8-12-75

III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH

Enter 'V-Vis.' and date.

EXAMPLE: V-Vis.
8-12-75

**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

☆ U.S.GPO:1975-0-665-080/1155

NOAA FORM 76-40 (8-74)

Replaces C&GS Form 567.

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

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

(See reverse for responsible personnel)

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

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
Pacific Hydro Party	Ca,	San Pablo Bay	6-4-87

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

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
OPR-L123-PHP-86		H-10233	NAD 27

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
Light	Oleum Wharf East Lights	38 03	25,~~630~~ 580	122 15	30,950		Pos. by Launch R/R with Check	
Light	Oleum Wharf East Lights	38 03	25,430 6	122 15	30,730 1		"	
Light	Oleum Wharf East Lights	38 03	24,870 9	122 15	30,~~600~~ 580		"	
Light	Sequoia Oil Wharf West Light	38 03	13,390 7	122 16	24,~~810~~ 790		"	
Light	Sequoia Oil Wharf EAST Light	38 03	17,770 8	122 16	10,320 1		"	
Light	Oleum Wharf West Lights	38 03	21,~~500~~ 490	122 15	45,620 1		"	
Light	Oleum Wharf West Lights	38 03	21,~~380~~ 400	122 15	45,250 4		"	
Light	Oleum Wharf West Lights	38 03	22,730 4	122 15	45,750 5 980		"	
Light	Oleum Wharf West Lights	38 03	22,510	122 15	46,~~000~~		"	
Light	Oleum Wharf East Light (No check on pos.)	38 03	24.490	122 15	30.450			

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	John A, Miller, Lt(jg), NOAA	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED	John A, Miller, Lt(jg), NOAA	FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'

(Consult Photogrammetric Instructions No. 64,

OFFICE

I. OFFICE IDENTIFIED AND LOCATED OBJECTS

Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.

EXAMPLE: 75E(C)6042
8-12-75

FIELD

I. NEW POSITION DETERMINED OR VERIFIED

Enter the applicable data by symbols as follows:

F - Field	P - Photogrammetric
L - Located	Vis - Visually
V - Verified	
1 - Triangulation	5 - Field identified
2 - Traverse	6 - Theodolite
3 - Intersection	7 - Planetable
4 - Resection	8 - Sextant

A. Field positions* require entry of method of location and date of field work.

EXAMPLE: F-2-6-L
8-12-75

*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

FIELD (Cont'd)

B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.

EXAMPLE: P-8-V
8-12-75
74L(C)2982

II. TRIANGULATION STATION RECOVERED

When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.

EXAMPLE: Triang. Rec.
8-12-75

III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH

Enter 'V-Vis.' and date.

EXAMPLE: V-Vis.
8-12-75

**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

☆ U.S.GPO:1975-0-665-080/1155

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

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

(See reverse for responsible personnel)

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

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
Pacific Hydro Party	Ca.	San Pablo Bay	6-4-97

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

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
OPR-L123-PHP-86		H-10223	NAD 27

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	POSITION LATITUDE // D.M. Meters	POSITION LONGITUDE ° ′	POSITION LONGITUDE // D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	METHOD AND DATE OF LOCATION FIELD	CHARTS AFFECTED
Light	Vallejo Yacht Club Light	38 06	17.920	122 15	59.230		F-2-6-L	
Light	Vallejo Marina North Entrance Light 1	38 06	37.170	122 16	16.710		F-2-6-L	
Light	Vallejo Marina North Entrance Light 2	38 06	36.140	122 16	15.850		F-2-6-L	
Light	Vallejo Marina South Entrance Light 1	38 06	31.890	122 16	11.680		F-2-6-L	
Light	Vallejo Marina South Entrance Light 2	38 06	31.160	122 16	11.650		F-2-6-L	

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	John A. Miller, Lt(jg), NOAA	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED	John A. Miller, Lt(jg), NOAA	FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'

(Consult Photogrammetric Instructions No. 64,

OFFICE

I. OFFICE IDENTIFIED AND LOCATED OBJECTS

Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.

EXAMPLE: 75E(C)6042
8-12-75

FIELD

I. NEW POSITION DETERMINED OR VERIFIED

Enter the applicable data by symbols as follows:

F - Field	P - Photogrammetric
L - Located	Vis - Visually
V - Verified	
1 - Triangulation	5 - Field identified
2 - Traverse	6 - Theodolite
3 - Intersection	7 - Planetable
4 - Resection	8 - Sextant

A. Field positions* require entry of method of location and date of field work.

EXAMPLE: F-2-6-L
8-12-75

*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

FIELD (Cont'd)

B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.

EXAMPLE: P-8-V
8-12-75
74L(C)2982

II. TRIANGULATION STATION RECOVERED

When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.

EXAMPLE: Triang. Rec.
8-12-75

III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH

Enter 'V-Vis.' and date.

EXAMPLE: V-Vis.
8-12-75

**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

☆ U.S.GPO:1975-0-665-080/1155

ADDENDUM TO SURVEY H-10223

LANDMARKS

All of the charted landmarks that fall within the boundaries of survey H-10223 were inspected from seaward by myself. The landmarks were checked against the chart and shoreline maps of the area. All of the landmarks were easily identifiable. Because of this no attempt was made to verify the positions through geodetic or other methods of check observations. It is recommended that all of the landmarks charted within the boundaries of survey H-10223 be retained for charting.

John A. Miller 9/16/88

Lieutenant John A. Miller, NOAA
Chief of Party for survey H-10223

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

PACIFIC HYDROGRAPHIC PARTY
P.O. Box 1001
Sonoma, Ca. 95476-1001

29 May 1987

Commander (oan)
Eleventh Coast Guard District
400 Oceangate Blvd.
Union Bank Building
Long Beach, CA. 90822

Sir:

The following conditions were observed by the Pacific Hydrographic Party, NOS, NOAA, during activities on Survey H-10223, San Pablo Bay, Ca., Mare Island Strait and Western Approach To Carquinez Strait, Aug., 1986 to April, 1987. This information, which is field data and is subject to verification, will be used to update future editions of nautical charts 18652, 18654, and 18655. It is, however, considered important enough to warrant immediate publication.

SHOALING:

Survey H-10223 consists of the east area of San Pablo Bay, the western approach to Carquinez Strait, and Mare Island Strait and portions of the Napa River. Significant shoaling was found along the southeast shore of San Pablo Bay, from the west limits of this survey, at 38/01/40N, 122/18/13W, to the east side of Davis Point, at 38/03/30N, 122/15/00W. Along this shore the 6, 12, and 18 foot depth contours were found to have shifted northward towards the Pinole Shoal Channel, by as much as 200 meters.

The following is a representative list of depths taken from Charts 18652, 18654, and 18655 that have been compared to this survey. The surveyed depths have been corrected to the chart datum, which is mean lower low water (MLLW), by applying predicted tides. The surveyed depths are field data and subject to change.

CHARTS 18652, 18654 Latitude	Longitude	Charted Depth	Surveyed Depth
38/02/04N	122/18/06W	8	7
38/02/20N	122/18/09W	13	8
38/02/17N	122/17/56W	11	7
38/02/27N	122/17/47W	13	8
38/02/37N	122/17/51W	17	14
38/02/17N	122/17/38W	9	7
38/02/39N	122/17/34W	16	12
38/02/28N	122/17/26W	11	7
38/02/23N	122/17/13W	8	6
38/02/35N	122/17/07W	11	8
38/02/51N	122/17/05W	17	13
38/03/47N	122/17/21W	17	12
38/02/42N	122/16/50W	11	8
38/02/47N	122/16/30W	9	7
Charts 18652. 18654, 18655			
38/02/59N	122/16/27W	17	11
38/03/01N	122/16/48W	20	17
38/03/05N	122/16/32W	22	19
38/03/07N	122/16/21W	24	14
38/03/04N	122/16/08W	14	12
38/03/12N	122/16/06W	22	14
38/03/15N	122/15/58W	24	12
38/03/12N	122/15/52W	21	13
38/03/16N	122/15/42W	22	17
38/03/19N	122/15/50W	18	12
38/03/10N	122/15 31W	10	6
38/03/51N	122/15/18W	52	46
38/03/22N	122/15/14W	17	13
38/03/25N	122/15/06W	23	19
38/03/29N	122/15/16W	33	28
38/03/29N	122/14/52W	35	31
38/03/39N	122/14/51W	50	45
38/03/40N	122/14/32W	50	47
38/04/08N	122/15/07W	33	20
38/03/53N	122/13/58W	80	73
38/03/58N	122/14/00W	56	43
38/04/02N	122/14/05W	19	18
Additional shoal soundings in this area are:			
CHARTS 18652, 18654			
38/02/18N	122/17/48W	9 to 11	6
38/02/14N	122/17/39W	7 to 9	5
38/02/01N	122/17/57W	7 to 8	6
38/02/28N	122/17/16W	8 to 11	6
38/02/47N	122/17/12W	14 to 17	12
38/03/41N	122/17/39W	19 to 21	18
38/02/41N	122/16/36W	7 to 9	6
38/02/44N	122/16/16W	7's	6
CHARTS 18652,18654, 18655			
38/03/12N	122/16/24W	27 to 29	18
38/03/58N	122/14/44W	46	40

Shoaling is taking place on both sides of Pier 35, on the south tip of Mare Island. Depths of 5 to 6 feet were found along the south face. At the charted 11 foot depth on the north side of the pier this survey found predominant depths of 2 feet.

The U.S. Navy pier in the Napa River, located between the Mare Island Causeway and the State Highway 37 Bridge, is experiencing shoaling along the west side. This survey found 2 to 14 foot depths along the pier at 38/06/58N, 122/16/41W. The chart shows 11 to 22 foot depths along this side.

OBSTRUCTIONS

The following uncharted obstructions and hazards were found in the survey area:

CHARTS 18652, 18654

Description	Latitude	Longitude	Least Depth (MLLW)
Stump	38/00/42.46N	122/18/15.03W	~~-5~~ 4.0 ft.
Obst.	38/04/04.00N	122/17/44.41W	-2.0 ft.
Pile	38/02/26.98N	122/16/06.73W	~~-11~~ 7.0 ft.
Pile	38/02/24.02N	122/16/06.22W	~~-11~~ 7.0 ft.

CHARTS 18652, 18654, 18655

Subm. pile	38/03/17.49N	122/15/39.79W	~~12~~ 8.0 ft.
Pile	38/03/26.10N	122/13/39.75W	awash
Subm. pile	38/04/50.88N	122/14/56.74W	~~3.5 ft.~~ COV 2 ft.
Subm. obst.	38/04/50.50N	122/14/56.05W	5.5 ft.

A sewerline was found west of Hercules. The end of the sewer is located at: 38/01/13.20N 122/17/25.20W
Bearing to shore (degrees): 076T
Least depth (MLLW): -1.0 ft., along the length.

An end of a sewer, charted as "PA" (position approximate), west of Lone Tree Point, was located at: 38/02/18.75N 122/16/39.60W
Bearing to shore (degrees): 141T
Least depth (MLLW): 7.0 ft., on the end.
Remove the sewer (PA) and chart this sewer in the new location.

A new sewerline was found, between Lone Tree Point and Davis Point. The end of the sewer is located at: 38/03/05.40N 122/16/17.70W
Bearing to shore (degrees): 150T
Least depth (MLLW): 9.0 ft., at the end.

A foul area was found along the shore of Rodeo. The limits are as follows:

38/02/22.80N, 122/16/06.00W
to
38/02/33.90N 122/15/49.50W

The area shoreward of a line drawn between these two points is extremely hazardous and should be avoided.

50 meters of the end of Dike No. 9, at the entrance to Mare Island Strait, are now in ruins. These ruins are submerged at MLLW. 25 meters of these ruins extend beyond Mare Island Strait Light 2, towards the center of the entrance to the Strait.

A rock ledge was found in Mare Island Strait, along the east shore. The end is located at: 38/04/39.72N 122/14/26.58W
Bearing to shore (degrees): 090T
Least depth (MLLW): -4.0 ft.

This ledge extends from the above position to the shore.

Within the Vallejo Municipal Boat Ramp bulkhead (labeled as a "Fence" on Chart 18655), located at 38/05/45N, 122/15/28W, depths were found to be from -1 to 0 feet at MLLW, with the exception of a small channel leading from the ramp through the entrance of the bulkhead, to Mare Island Strait. Depths in this narrow channel were found to be 9 feet. Within the northern portion of the enclosed ramp area numerous obstructions were found. This area is considered "foul", and should not be entered by vessels.

The long row of charted piles in Mare Island Strait, beginning at 38/06/36N, 122/16/23W, and extending southeast along The Vallejo Municipal Marina, are no longer visible. Many of the piles still exist, but are submerged at MLLW. Mariners entering or exiting the Vallejo Municipal Marina should exercise caution in this area.

For further information concerning the above mentioned depth changes or obstructions contact the Chief of Party, Pacific Hydrographic Party-NOAA, 1801 E. Fairview Ave., Seattle, Wa., 98102. The Chief of Party may be reached locally in the San Pablo Bay area at the following phone number: 707-642-0299.

Respectfully,

John A. Miller

John A. Miller, LT(JG), NOAA
Chief of Party

cc: Chart Information Section, N/CG222
Nautical Charts Branch, N/MOP21

MARE ISLAND STRAIT CHANNEL

FROM SURVEYS BY THE CORPS OF ENGINEERS

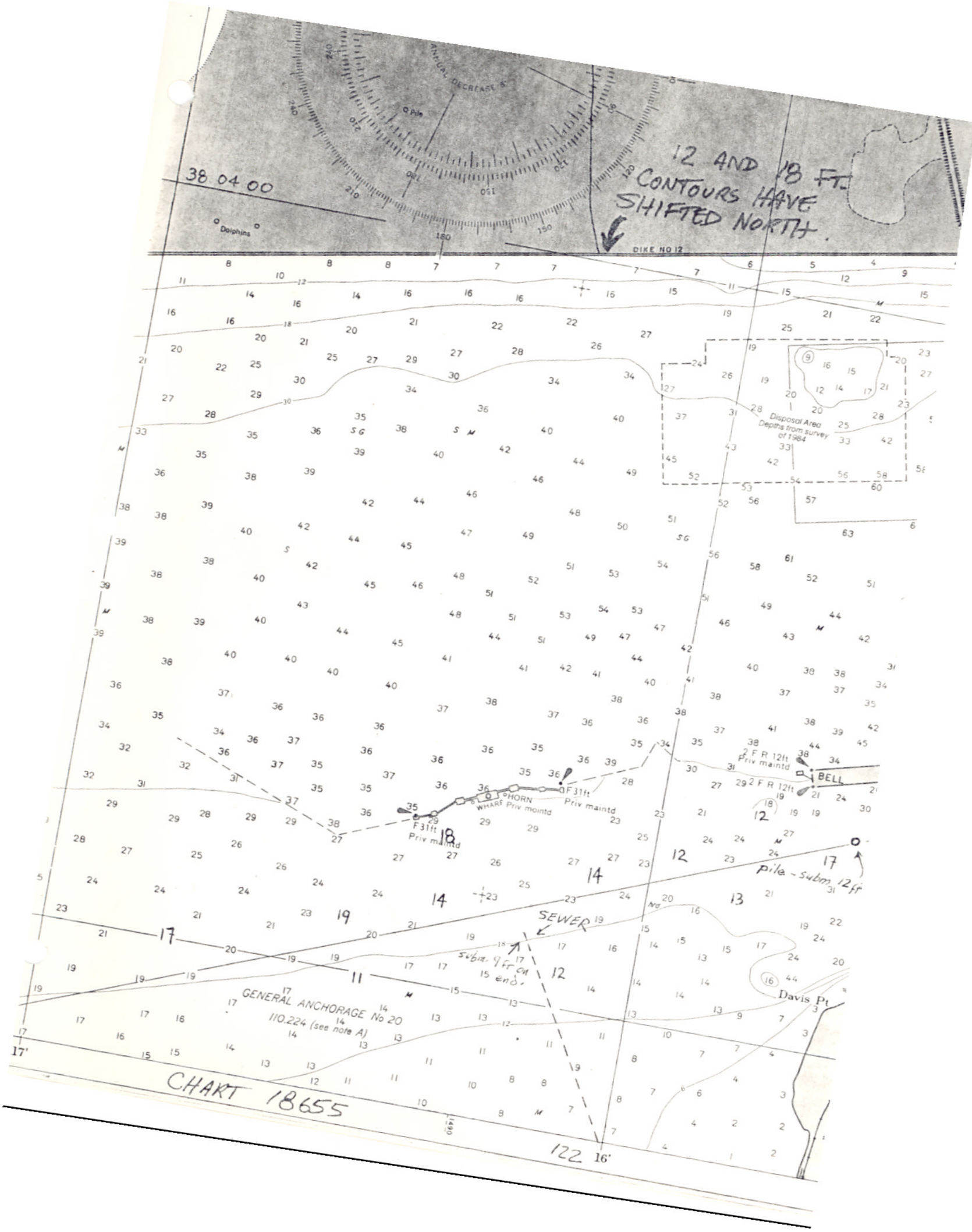
CONTROLLING DEPTHS FROM SEAWARD IN FEET AT MEAN LOWER LOW WA

NAME OF CHANNEL	LEFT OUTSIDE QUARTER	LEFT INSIDE QUARTER	RIGHT INSIDE QUARTER	RIGHT OUTSIDE QUARTER
A	A17.3	20.8	25.7	G21.3
B	E18.6	26.3	29.2	G16.0
C	E15.6	33.8	32.6	F14.8
D	G19.2	33.7	25.8	H12.7
E	I 20.4	33.3	26.5	J 9.1
F	K14.4	32.3	23.4	L 7.0
G	18.0	17.4	17.5	16.9

A. A DEPTH OF 17.6 FEET WAS AVAILABLE IN THE INSIDE HALF OF TH
B. A DEPTH OF 25.5 FEET WAS AVAILABLE IN THE INSIDE HALF OF TH
C. A DEPTH OF 31.6 FEET WAS AVAILABLE IN THE INSIDE HALF OF TH
D. A DEPTH OF 23.1 FEET WAS AVAILABLE IN THE INSIDE HALF OF TH
E. A DEPTH OF 24.3 FEET WAS AVAILABLE IN THE INSIDE HALF OF TH
F. A DEPTH OF 24.0 FEET WAS AVAILABLE IN THE INSIDE HALF OF TH
G. A DEPTH OF 29.1 FEET WAS AVAILABLE IN THE INSIDE HALF OF TH
H. A DEPTH OF 19.8 FEET WAS AVAILABLE IN THE INSIDE HALF OF TH
I. A DEPTH OF 30.7 FEET WAS AVAILABLE IN THE INSIDE HALF OF TH
J. A DEPTH OF 16.7 FEET WAS AVAILABLE IN THE INSIDE HALF OF TH
K. A DEPTH OF 31.1 FEET WAS AVAILABLE IN THE INSIDE HALF OF TH
L. A DEPTH OF 13.6 FEET WAS AVAILABLE IN THE INSIDE HALF OF TH

NOTE DEPTHS SHOALER THAN THOSE SHOWN ABOVE MAY EXIST ON OR NEA

NOTE-CONSULT THE CORPS OF ENGINEERS FOR CHANGES SUBSEQUENT TO THE


12 AND 18 FT. CONTOURS HAVE SHIFTED NORTH.
38 04 00
Dolphins
Pile
DIKE NO 12
Disposal Area
Depths from survey of 1984
F 31ft
Priv maintd
SHORN
WHARF Priv maintd
2 F R 12ft
Priv maintd
BELL
Pile - Subm 12ft
SEWER
Subm 9 ft on end
GENERAL ANCHORAGE No 20
110.224 (see note A)
Davis Pt
CHART 18655

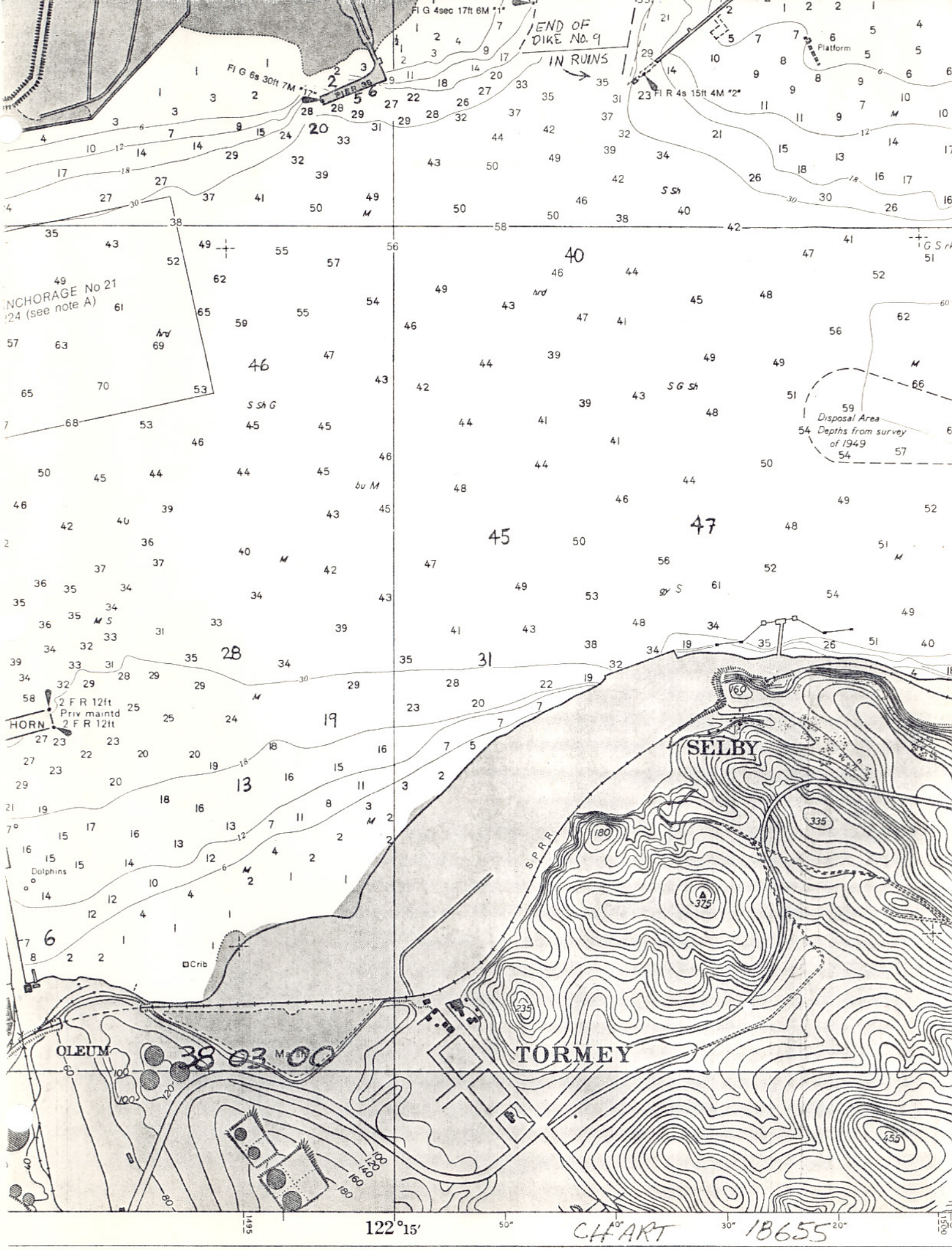

Fl G 4sec 17ft 6M "1"
END OF DIKE No 9 IN RUINS
Fl G 6s 30ft 7M "17"
PIER 35
23 Fl R 4s 15ft 4M "2"
Platform
ANCHORAGE No 21
224 (see note A)
Disposal Area
Depths from survey of 1949
2 F R 12ft
Priv maintd
2 F R 12ft
HORN
Dolphins
Crib
SELBY
TORMEY
OLEUM
SPRR
38 03 00
122°15'
CHART 18655

CHART 18655

14' 50" 122 13'

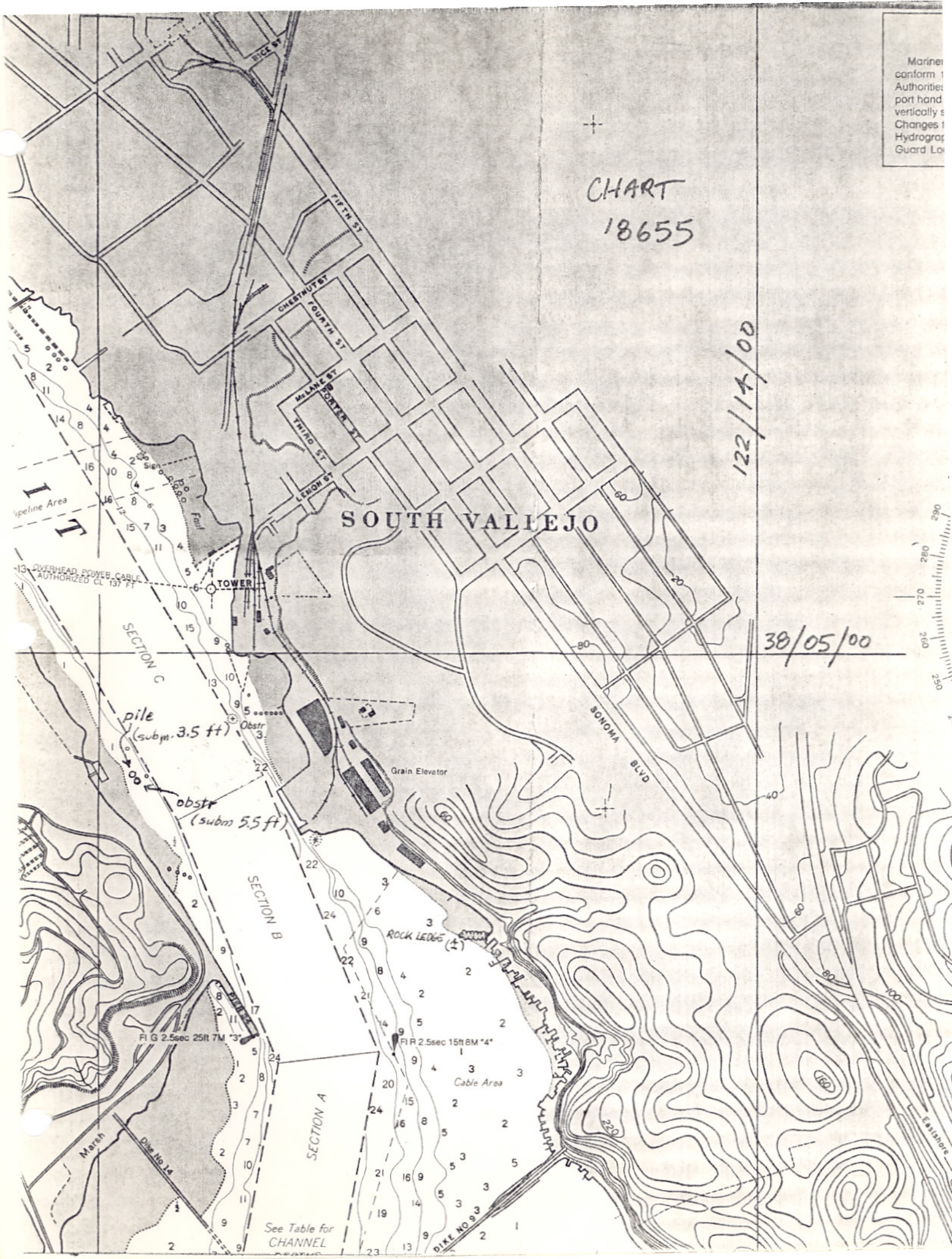
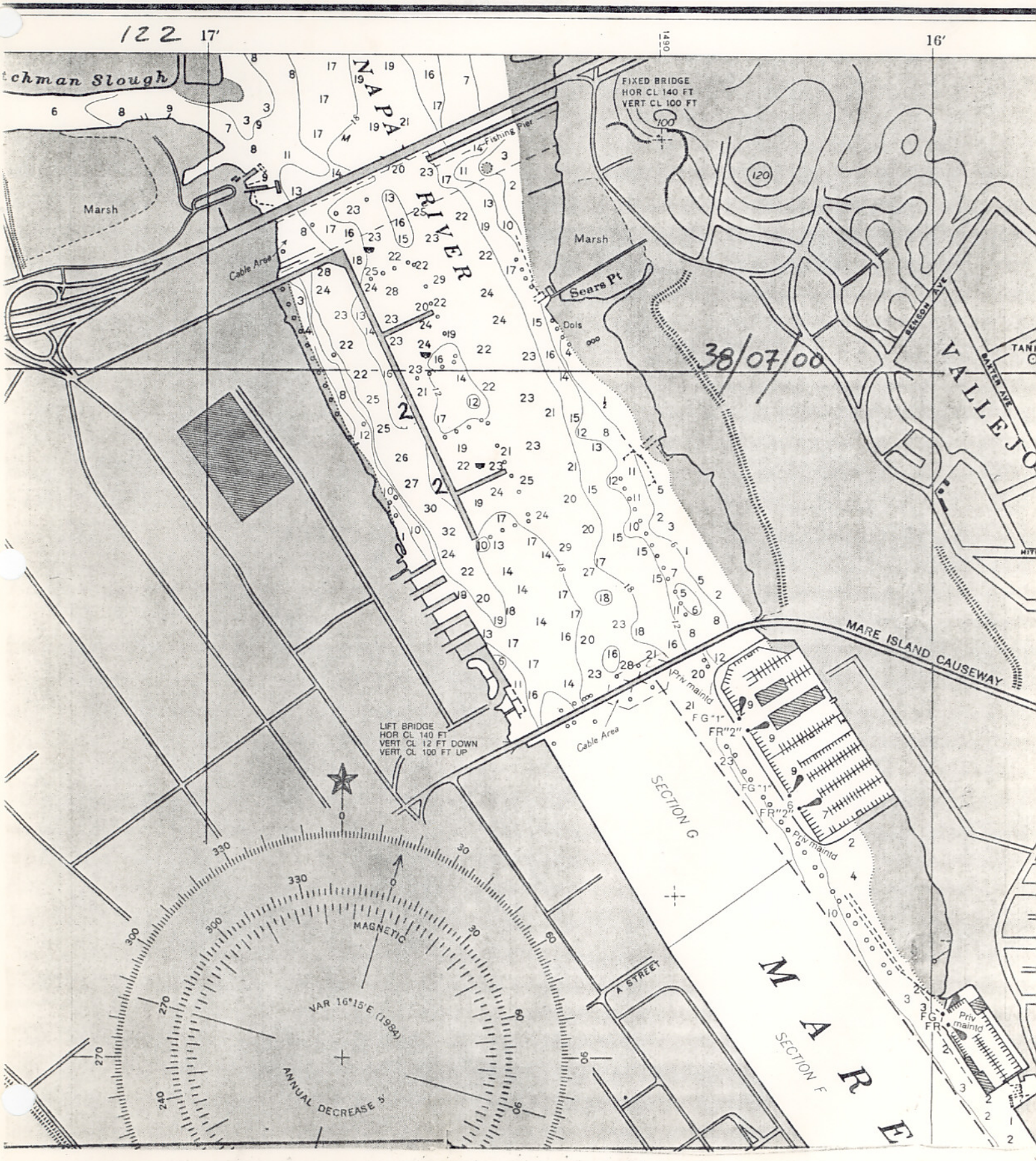


CHART
18655
122/114/00
38/05/00
SOUTH VALLEJO
RICE ST
FIFTH ST
CHESTNUT ST
FOURTH ST
McLANE ST
PORTER ST
THIRD ST
LEHIGH ST
SONOMA BLVD
Sign
Fuel
TOWER
OVERHEAD POWER CABLE
AUTHORIZED CL 137 FT
SECTION C
SECTION B
SECTION A
pile
(subm. 3.5 ft)
Obstr
obstr
(subm 5.5 ft)
Grain Elevator
ROCK LEDGE (±)
PILING
Fl G 2.5sec 25ft 7M "3"
Fl R 2.5sec 15ft 8M "4"
Cable Area
Marsh
Dike No 14
DIKE NO 3
See Table for
CHANNEL
Eastshore

CHART 18655

INGS IN FEET

This nautical chart has been designed to promote safe navigation. The National Ocean Service encourages users to submit corrections, additions, or comments for improving this chart to the Director, Charting and Geodetic Services, Attention: N/CG22, National Ocean Service, NOAA, Rockville, Maryland 20852.




ISLAND
SECTION E
SECTION D
MAIN
STACK
STACK
Ferry
Ferry
PENNSYLVANIA
FOUL
Range
Fence
0 ft depths
Hosp
PIER 21
PIER 22
PIER 23
TOWER
TANK
TANK
TANK
Drainage Ditch
Drainage Ditch
Drainage Ditch
Marsh
38/05/00

APPROVAL SHEET

As Chief of the Pacific Hydrographic Party I approve of all of the survey records and the smooth field sheet. I examined the records and field sheets on a daily basis. Much of the work was personally supervised by me.

The survey is complete and adequate.

John A. Miller

LT(jg) John A. Miller, NOAA

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

DATE: September 2, 1987

Marine Center: Pacific

OPR: L123

Hydrographic Sheet: H-10223

Locality: San Pablo Bay, California

Time Period: August 19, 1986 - April 30, 1987

Tide Station Used: 941-5074 Hercules, CA

941-5218 Mare Island, CA

Plane of Reference (Mean Lower Low Water): 941-5074 = 2.90 ft.
941-5218 = 2.85 ft.

Height of Mean High Water Above Plane of Reference: 941-5074 = 5.1 ft.
941-5218 = 5.2 ft.

Remarks: Recommended Zoning:

1. West of longitude $122^{0}16.0'$ zone direct on 941-5074
2. East of longitude $122^{0}16.0'$ zone direct on 941-5218
3. In the Napa River, north of latitude $38^{0}06.0'$ zone on 941-5218 and apply a + 0 hr 20 minute time correction and a X1.04 range ratio to all heights.
4. For periods of hydrography when tide station 941-5074 was inoperative zone direct on 941-5218.

James R. Hubbard
Chief, Tidal Datum Quality
Assurance Section

September 17, 1987

To: N/MOP211 - Dennis Hill

From: N/OMA123 - Joseph V. Mullin

Subject: Tide Stations used for OPR L123, H-10223

Tide station 941-5074 Hercules Wharf, CA was removed by the Pacific Hydrographic Party on February 4, 1987. Additional hydrography was run on H-10223 between February 5, 1987 and April 6, 1987. Tide reducers for his additional work were provided from tide station 941-5218 Mare Island, CA. Comparisons of tide data between these two stations shows close agreement in the determination of tide reducers. There should be no problem using data from 941-5218 Mare Island, CA to reduce hydrographic data taken between February 5, 1987 and April 6, 1987.

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10223

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	
CALIFORNIA (title)										1
CARQUINEZ HEIGHTS										2
CARQUINEZ STRAIT										3
DAVIS POINT										4
HERCULES										5
LONE TREE POINT										6
MARE ISLAND										7
MARE ISLAND STRAIT										8
MORROW COVE										9
NAPA RIVER										10
OLEUM										11
PINOLE CREEK										12
RODEO										13
SAN PABLO BAY										14
SEARS POINT										15
SELBY										16
SEMPLE POINT										17
TORMEY										18
VALLEJO										19
VALONA					Approved:					20
										21
					Charles E. Harrington					22
					Chief Geographer - N/CG2x5					23
					AUG 12 1987					24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 77-27(H) (9-83)

U.S. DEPARTMENT OF COMMERCE

REGISTRY NUMBER H-10223

HYDROGRAPHIC SURVEY STATISTICS

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	SMOOTH OVERLAYS: POS., ARC, EXCESS	3 paper & 5 mylar
DESCRIPTIVE REPORT	1	FIELD SHEETS AND OTHER OVERLAYS	2 mylar

DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS	
ACCORDION FILES	4					
ENVELOPES						
VOLUMES	1					
CAHIERS						
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			4689
POSITIONS REVISED			16
SOUNDINGS REVISED			82
CONTROL STATIONS REVISED			
	TIME-HOURS		
	VERIFICATION	*EVALUATION*	*TOTALS*
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	150		150
VERIFICATION OF SOUNDINGS	365		365
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	275		275
COMPARISON WITH PRIOR SURVEYS AND CHARTS		76	76
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		181	181
GEOGRAPHIC NAMES			
OTHER*			
*USE OTHER SIDE OF FORM FOR REMARKS — TOTALS	790	257	1047

Pre-processing Examination by D. Hill	*Beginning Date* 3/15/88	*Ending Date* 7/31/88
Verification of Field Data by L. Deodato , S. Otsubo	*Time (Hours)* 790	*Ending Date* 10/31/88
Verification Check by S. Otsubo, B. Olmstead	*Time (Hours)* 134	*Ending Date* 4/18/88
Evaluation and Analysis by A. Luceno	*Time (Hours)* 257	*Ending Date* 11/4/88
Inspection by D. Hill	*Time (Hours)* 30	*Ending Date* 11/15/88

☆ U.S. GOVT. PRINTING OFFICE 1983: 764-006/6061

PACIFIC MARINE CENTER
Evaluation Report
H-10223

1. INTRODUCTION

Survey H-10223 is a basic hydrographic survey accomplished by the Pacific Hydrographic Party under the following Project Instructions.

OPR-L123-PHP-86, dated March 14, 1985
CHANGE NO. 1, dated March 19, 1985
CHANGE NO. 2, dated March 6, 1986
CHANGE NO. 3, dated October 9, 1986

This survey is in California and covers the eastern portion of San Pablo Bay, the entrance to Carquinez Strait, and from the entrance to Mare Island Strait to the bridge north of Sears Point. The surveyed area extends from latitudes 38°00'36"N to 38°07'16"N and from longitudes 122°13'00"W to 122°18'12"W. The bottom consists of mud in San Pablo Bay and Mare Island Strait and sand in the rest of the area. Depths range from 0 to 124 feet, with the deepest depths located in the vicinity of the twin fixed highway bridge at Semple Point at the entrance to Carquinez Strait.

Predicted tides for San Francisco Bay, California were used for the reduction of soundings during field processing. Approved hourly heights, zoned from Hercules, gage 941-5074, and Mare Island, gage 941-5218, were used during office processing. Gage 941-5218 was used to reduce data taken between February 5, 1987 and April 6, 1987, in lieu of gage 941-5074 which was removed on February 4, 1987 (memo attached).

The field sheet parameters have been revised to center the hydrography on the smooth sheet and to change the projection to polyconic. TRA, sound velocity and electronic control correctors are adequate and required no revision. An accompanying computer printout contains the parameters and the correctors.

A digital file, generated for this survey, includes 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 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.

2. CONTROL AND SHORELINE

Sections F and G of the hydrographer's report and the Horizontal and Electronic Control Reports for OPR-L123-PHP-87 contain adequate discussions of horizontal control and hydrographic positioning.

Fourteen stations out of thirty seven stations listed in the control file were used for positioning of the survey vessels. The rest of the listed stations are fixed aids to navigation.

Positions of aids to navigation and horizontal control stations used during hydrography are from 1986 observations and published values based on NAD 27.

These values were used during office processing for the computation of positions. The smooth sheet and accompanying overlays are annotated with NAD 83 adjustment ticks based on values determined by N/CG121. Geographic positions based on NAD 83 may be plotted on the smooth sheet utilizing the NAD 27 projection by applying the following corrections:

latitude: +0.290 seconds (8.9 meters)
longitude: -3.888 seconds (-94.7 meters)

The year of establishment of control stations shown on the smooth sheet originates with published and field records. Field positions are subject to change pending certification of the data by NGS.

There are 219 geometrically weak fixes (angles of intersection less than 30 degrees or more than 150 degrees) with acceptable signal strengths noted in this survey. However, these fixes were not used to position AWOIS items or dangers to navigation. There are no significant plotting differences between the soundings located by these fixes and those in adjacent areas. These fixes are considered acceptable.

The PMC OPORDER requires baseline calibrations at intervals not exceeding two months. Baseline calibrations for this survey were performed at an interval of three and a half months. Since the differences between the daily systems check and the baseline calibration correctors did not exceed the rejection limits, the data was considered acceptable for processing.

The following shoreline maps apply to this survey.

	Photo Date	Class
TP-00525	March 1977 and May 1981	III
TP-00527	March 1977	III
TP-01246	Nov 1983 and March 1984	III
TP-01247	Nov 1983 and March 1984	III

Most shoreline depicted on the smooth sheet originates with these maps. Verification of the shoreline based on these maps is discussed adequately in section H of the the hydrographer's report. Changes to shoreline and high water features are shown in red on the smooth sheet centered at the following positions.

Latitude (N)	Longitude (W)
38°03'28"	122°14'02"
38°03'27"	122°13'24"
38°03'28"	122°13'18"
38°05'40"	122°15'18"
38°07'05"	122°16'32"
38°01'19"	122°17'22"

Several AWOIS items originate with map TP-01246 and some with map TP-00525. The dispositions of these AWOIS items are adequately discussed in the Deficiency Item Reports contained in the hydrographer's report.

3. HYDROGRAPHY

Hydrography is adequate to:

a. delineate the bottom configuration, determine least depths, and draw the standard depth curves;

b. reveal there are no significant discrepancies or anomalies requiring further investigation, and;

c. show the survey was properly controlled and soundings and features are correctly plotted, with the exception of the following items transferred to the smooth sheet from the field sheet without supporting position information.

Feature	Latitude (N)	Longitude (W)
dols (3)	38°03'28"	122°13'18"
dols (2)	38°06'21"	122°15'59"
piles	38°06'56"	122°16'48"

The row of piles between latitude 38°01'18"N, longitude 122°16'59"W and latitude 38°01'29"N, longitude 122°16'47"W.

The snag at latitude 38°01'06"N, longitude 122°17'47"W was plotted on the smooth sheet based on a comment in the raw records.

The soundings listed below have been displaced on the smooth sheet to improve the legibility of the high water line. Displacement does not exceed 1 mm.

Sounding (Ft)	Latitude (N)	Longitude (W)
2	38°02'17.18"	122°16'25.40"
0.5	38°02'18.11"	122°16'21.59"
13	38°03'58.50"	122°13'47.40"
16	38°07'07.38"	122°16'34.82"
2	38°05'18.30"	122°15'01.20"
20	38°05'33.81"	122°15'23.33"
-0.5	38°05'14.46"	122°14'54.20"
-0.5	38°05'43.12"	122°15'23.18"
17	38°05'47.83"	122°15'36.70"
14	38°06'33.88"	122°16'14.68"
17	38°06'34.95"	122°16'15.77"
22	38°06'48.24"	122°16'38.20"
12	38°06'48.68"	122°16'37.39"
-1	38°04'13.67"	122°15'01.61"
-1	38°04'15.85"	122°15'02.70"
-1	38°04'17.33"	122°15'02.96"
-1	38°04'18.93"	122°15'02.76"

4. CONDITION OF SURVEY

The hydrographic records and reports received for processing are adequate and conform to the requirements of the Hydrographic Manual, Fourth Edition, revised through CHANGE NO. 3; the Hydrographic Survey Guidelines; and the PMC OPORDER, except as follows.

a. The maximum depth in this survey is 124 feet. At this depth, bar check casts to a depth of 93 feet are necessary for determining velocity corrections to stay within the 25% allowable for extrapolation. For lack of equipment available to the field party, vertical casts to a depth of 60 feet were used in this survey. This limits the extrapolated corrections to a maximum depth of 80 feet. Corrections to soundings in a small area at the entrance to Carquinez Strait between longitudes 122°13'12"W and 122°13'48"W are affected by this limitation. The data in this area has been accepted, as the extrapolated corrections beyond 80 feet did not involve critical depths.

b. Shoreline verification, field checking of landmarks, and hydrography were not accomplished in the western portion of Mare Island Strait between latitude 38°05'15"N and the Mare Island Bridge at latitude 38°06'39"N. This portion of the strait is a restricted area associated with a naval shipyard. The area is surveyed periodically by the U.S. Army Corps of Engineers.

c. The hydrographer included in his report numerous excellent photographs of shoreline features. These photos assisted the office processor in determining accurate cartographic symbolization for these features. The value of the photos can be increased, however, by including the date, time and approximate stage of tide for each photo. This additional information will be useful in determining the accuracy of the photographed scene relative to the final charted depiction at MLLW.

d. Holidays exist in a 0.2 by 0.3-nautical mile strip centered at latitude 38°01'06"N, longitude 122°17'36"W and a 0.05 by 0.2-nautical mile strip centered at latitude 38°05'12"N, longitude 122°14'57"W. These holidays are adjacent to the shore and outside the channel maintained by the US Army Corps of Engineers. No surface navigation is expected in these areas, except for shallow draft vessels. Additional work is not recommended.

e. The TC/TI tapes were not formatted to exclude application of sounding corrections to leadline depths and pole soundings.

5. JUNCTIONS

Survey H-10223 junctions with the following surveys.

Survey	Year	Scale	Area
H-10081	1983	1:10,000	west
H-10182	1985-86	1:20,000	northwest
H-10213	1986	1:10,000	north
H-10264	1988	1:10,000	east

The junctions with surveys H-10081, H-10182 and H-10213 have not been formally completed since those surveys were previously processed and forwarded for charting. The junction comparisons were made using copies. Soundings shown on the north side of the bridge located north of Sears Point on survey H-10213 are in agreement with soundings obtained during the present survey on the south side of the bridge. Soundings between surveys H-10081 and H-10182 and the present survey are in good agreement. Four soundings have been transferred from survey H-10081 to better portray the bottom.

The present survey will junction with survey H-10264 in Carquinez Strait to the east. Comparison with charted depths reveals no discrepancy with the present survey.

6. COMPARISON WITH PRIOR SURVEYS

H-4221	(1922)	1:10,000
H-4280	(1922)	1:10,000
H-6524	(1940)	1:10,000
H-7785	(1950)	1:10,000
H-7898	(1951)	1:10,000
H-7900	(1951)	1:20,000

Comparison with the prior surveys is discussed in section K of the hydrographer's report with additional discussion below.

The dispositions of AWOIS items are adequately discussed in the Deficiency Item Reports contained in the hydrographer's report.

Two lighted buoys shown on smooth sheet H-7898 at latitude 38°03'27"N, longitude 122°17'01"W and at latitude 38°03'36"N, longitude 122°17'03"W were missing during the present survey. These buoys are not presently charted.

A wreck shown in red on the smooth sheet at latitude 38°04'08"N, longitude 122°13'56"W was carried forward from smooth sheet H-7785. # 51082

The ruins shown in red on the smooth sheet at latitude 38°03'56"N, longitude 122°13'38"W were carried forward from smooth sheet H-7785.

A row of dolphins is shown on survey H-7898 between latitude 38°03'46"N, longitude 122°16'39"W and latitude 38°03'47"N, longitude 122°16'29"W. The row of dolphins was removed by the Public Works Department, Mare Island Shipyard, Vallejo in 1960. This information is included in the Local Notice to Mariners No. 22, March, 1960 and in the weekly Notice to Mariners No. 19, 1960.

Survey H-10223 is adequate to supersede the prior surveys within the common area.

7. COMPARISON WITH CHART

Chart 18654, 33rd Edition, dated January 26, 1985; scale 1:40,000
Chart 18655, 52nd Edition, dated July 14, 1984; scale 1:10,000

a. Hydrography

Most depths in the approaches to Mare Island Strait and Carquinez Strait originate from survey H-7785. Depths in the eastern portion of San Pablo Bay originate from survey H-7898. Numerous miscellaneous sources were used for charting, particularly in Mare Island Strait. A few charted man-made features along the shore originate from survey H-6524. All of these charted features are discussed in section L of the hydrographer's report.

Three mooring buoys charted at latitude 38°06'53.7"N, longitude 122°16'37.9"W; latitude 38°07'01.0"N, longitude 122°16'42.0"W; and latitude 38°07'07.9"N, longitude 122°16'47.0"W were missing during this survey.

AWOIS item 50825, a pipeline, was verified as charted at latitude 38°01'00.1"N, longitude 122°17'38.0"W. The hydrographer's positioning method using an offset sextant fix together with a magnetic compass bearing are considered inadequate to supersede the previously reported location which is based on photogrammetric observation. The pipeline is depicted on the smooth sheet in brown at the charted position.

Survey H-10223 is adequate to supersede charted hydrography within the common area, except for the following features which should remain as charted.

(1) Pile at latitude 38°06'36.9"N, longitude 122°16'30.2"W (AWOIS 51118)
(2) Pile at latitude 38°06'37.1"N, longitude 122°16'29.7"W (AWOIS 51119)
(3) Pier in ruins at latitude 38°06'37.9"N, longitude 122°16'33.6"W (AWOIS 51121). Partially verified
(4) Pile at latitude 38°07'07.6"N, longitude 122°16'53.7"W (AWOIS 51137)
(5) Ruins at latitude 38°03'28.0"N, longitude 122°13'40.5"W
(6) A 9-foot sounding at latitude 38°03'56"N, longitude 122°15'54"W from BP 122324(1984); COE.

b. AWOIS

The dispositions of AWOIS items on charts 18654 and 18655 originating from miscellaneous sources are adequately discussed in the Deficiency Item Reports attached to the hydrographer's report.

c. Controlling Depths

Depths were obtained only in sections A, B and C of the Mare Island Strait Channel. These depths were found to be deeper than the tabulated controlling depths on chart 18654 from surveys by the Corps of Engineers to October 1984.

d. Aids to Navigation

All fixed aids were located and serve their intended purpose.

All charted landmarks shown on the shoreline maps whose existence was verified from seaward and considered of value to navigation were transferred to the smooth sheet from the shoreline maps. (See attached Descriptive Report addendum, Landmarks). Charted landmarks not depicted on the smooth sheet should be retained as charted.

e. Geographic Names

Names appearing on the smooth sheet and in the survey title have been approved by the Chief Geographer.

f. Dangers to Navigation

The hydrographer reported to the USCG shoaling and uncharted obstructions in the surveyed area. A copy of the report is attached. No additional dangers to navigation were discovered during office processing.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10223 adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

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

Arsenio A. Luceno
Arsenio A. Luceno
Cartographer

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

Dennis Hill
Dennis Hill
Chief, Hydrographic Section

APPROVALS

I have reviewed the smooth sheet, accompanying data, and reports associated with hydrographic survey H-10223. This survey meets or exceeds Charting and Geodetic Services' standards for products in support of nautical charting.

Thomas W. Richards
Chief, Nautical Chart Branch (Date)

CLEARANCE: SIGNATURE AND DATE:

N/MOP2:LWMordock

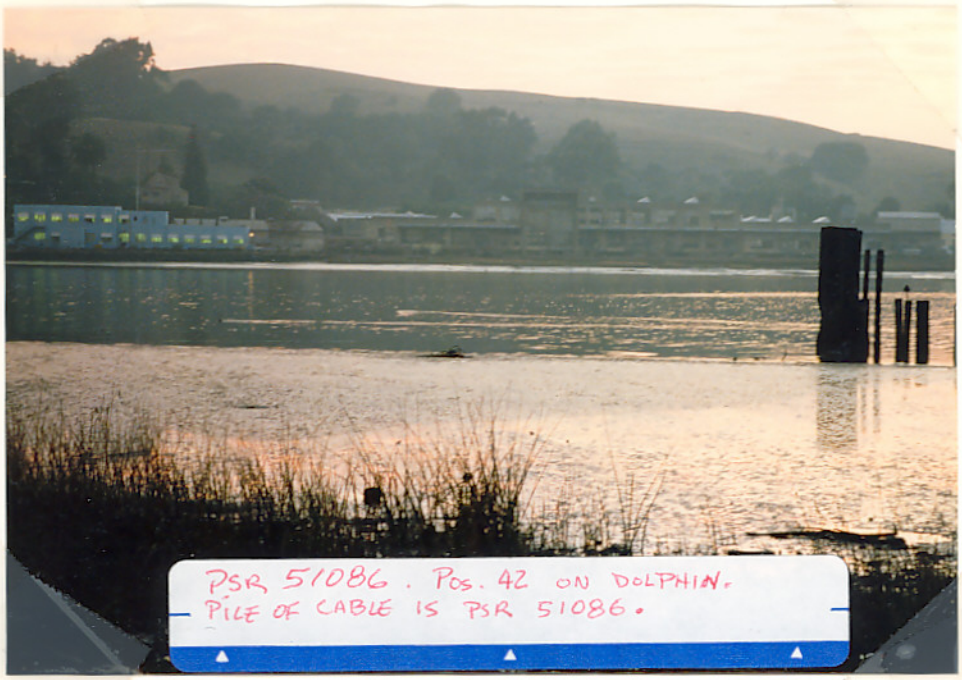
After review of the smooth sheet and accompanying reports, I hereby certify this survey is accurate, complete, and meets appropriate standards.

Sigmund R. Petersen 11/23/88
Director, Pacific Marine Center (Date)

POS.5287

38/02/32.06
122/15/48.25

50828



Pos. 42
38/04/57.48
122/14/46.75

AWOIS 51086
38/04/56.86
122/14/46.50

AWOIS 51087
38/05/03.17
122/14/49.39

AWOIS 51093
38/05/14.30
122/14/56.30

~~AWOIS 51144~~
~~38/05/13.50~~
~~122/14/55.40~~

FOUL AREA AT CITY OF RODEO. 38/02/20 122/15/00

↖ LOOKING NORTHWEST

LOOKING NORTH ↑

LINE OF ROCKS ARE ON SHORE END OF SEWERLINE.
POS. 5287 ON VISIBLE POINT ↗
LOOKING NORTHEAST

POS. 5287
38/02/32.06
122/15/48.25

AWOIS #50828

AWOIS 51127
38/06/54.50
122/16/25.70

AWOIS 51128
POS. 103
38/06/56.45
122/16/47.27

POS. 83
38/07/11.63
122/16/33.47

POS. 100 ON NORTH END OF ROW OF DOLS.

←POS. 100

POS. 100

38/07/05.33
122/16/53.91

POS. 86

38/07/11.19
122/16/46.96

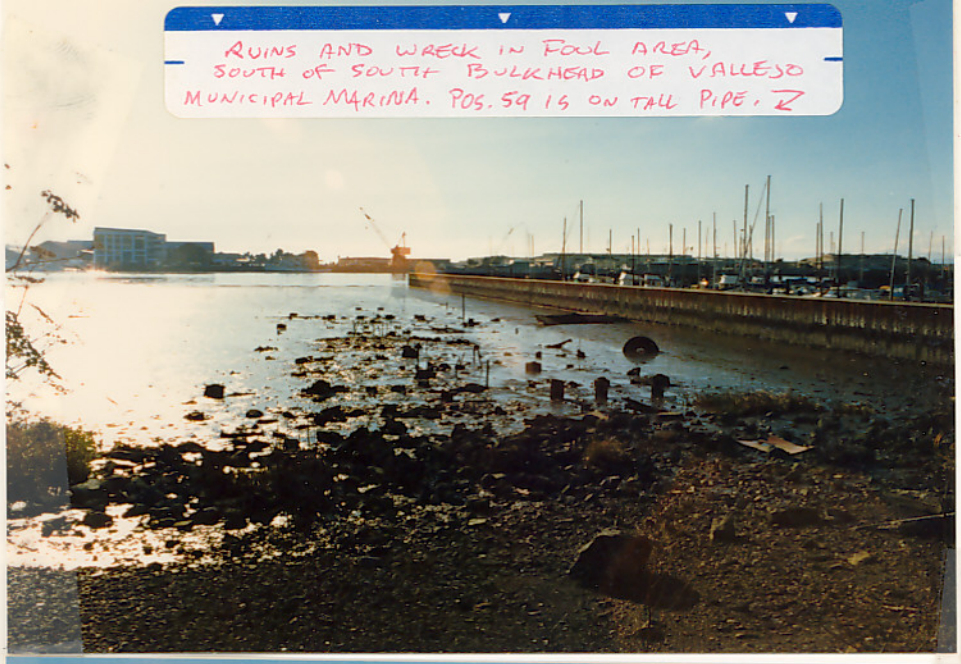

PSRS 51129 TO 51135, AND 51139
Pos. 82, 84 ON NORTH END OF Piles

AWOIS 51142
38/07/13.30
122/16/37.00

AWOS 51145
Pos. 36

38/05/34.35
122/15/15.89

RUINS AND WRECK IN FOUL AREA, SOUTH OF SOUTH BULKHEAD OF VALLEJO MUNICIPAL MARINA. POS. 59 IS ON TALL PIPE. ↙



Pos. 59
38/06/30.87
122/16/04.16

INSIDE THE BULKHEAD OF THE VALLEJO MUNICIPAL BOAT RAMP. LOOKING SOUTH TO THE RAMP.

OBSTRUCTIONS IN THE NORTH END OF BOAT RAMP ENCLOSED AREA. CHART THIS SECTION AS FOUL AREA. ↙

Pos. 4630
↓ ON CAST Piles

~~Pos. 4614 — SCALED PILE~~
↓

~~Pos. 4614~~
~~38/01/28.86~~
~~122/16/47.05~~

Pos. 4630
38/03/27.42
122/13/54.91

Pos. 3024
38/03/25.11
122/13/39.53

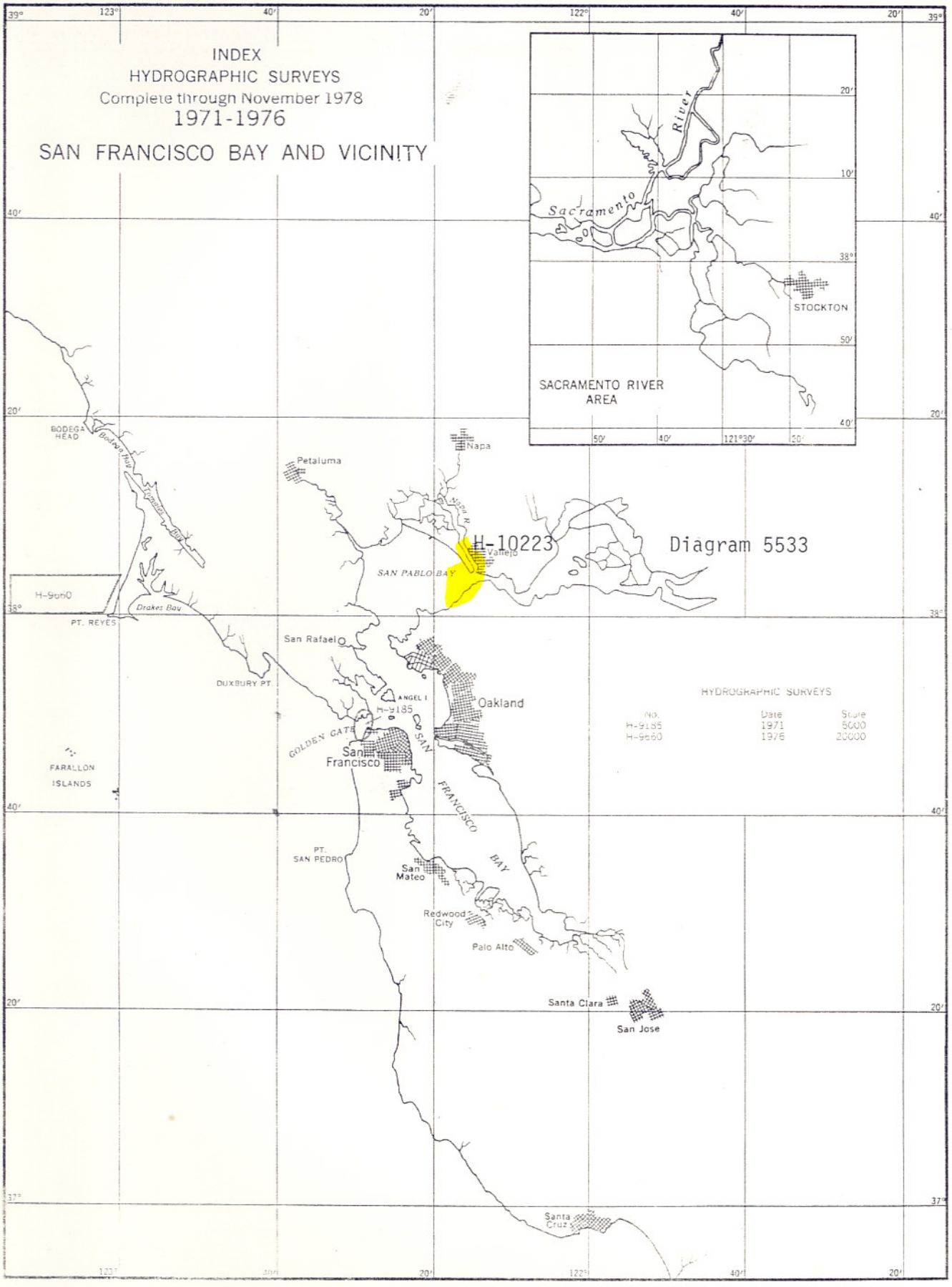
Pos. 3021, 1111
↘ OTHER OBJECTS SEEN. THAT

Pos. 3024 ↘
ON RUINS
VERIFY CHARTED RUINS

Pos. 3021
38/03/26.19
122/13/56.84

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

Hydrographic Index No. 96M



NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10223

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
18652	3-2-90	Pearce Hunt	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 30
18655	4-17-90	Tracy Sanford	~~Full~~ PART ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 36
18654	4-18-90	Tracy Sanford	~~Full~~ PART ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 49 APPLIED THRU 18655 DRWG # 36
18656	9-20-90	Betty Szatkowski	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 54 Applied thru 18655 DRWG
18655	3-17-99	Mark Hetrick	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 38
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.