

10317

Diagram No. 5534-2

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey ... Basic Hydrographic
Field No. PHP-10-6-89
Registry No. H-10317

LOCALITY

State California
General Locality ... Suisun Bay
Sublocality Snag Island to Van
..... Sickle Island
..... 19 89-90
CHIEF OF PARTY
LT D.J. Nodine

LIBRARY & ARCHIVES

DATE September 21, 1992

10317

WCL
PRODUCTS
18659
18658
18667
18652 'E'
'F'
18656
CP7
18010-NC

H-10317

HYDROGRAPHIC TITLE SHEET

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-10-6-89

State California

General locality Suisun Bay

Locality Snag Island to Van Sickle Island

Scale 1:10,000 Date of survey Oct 17, 1989 to Nov 2, 1990

Instructions dated May 1, 1989 Project No. OPR-L208-PHP

Vessel 1101(0651) and 1102(0652)

Chief of party LT Fedrico R. Diaz (Until Dec. 15, 1989), LT DeWayne Nodine

Surveyed by LT DeWayne Nodine, LT Fedrico R. Diaz, Michael E. Bigelow,
Lowell J. Lindly, Edumud O. Wernicke, Ralph C. Baker

Soundings taken by echo sounder, hand lead, pole DE 719B and De 719C both with Digitrace

Graphic record scaled by PHP Personnel

Graphic record checked by PHP Personnel

Evaluation by: R.N. Mihailov Automated plot by PHS Xynetics Plotter
~~Processed by~~

Verification by J. Stringham, S. Otsubo, M. Sanders

Soundings in ~~fathoms~~ feet at ~~MHW~~ MLLW

REMARKS: All times in Universal Time Coordinated (UTC). All geographic
positions listed in NAD 27, unless otherwise noted.

Revisions and marginal notes in black were generated during office
processing. All separates are filed with the hydrographic data,
as a result page numbering may be interrupted or non-sequential.

RW 9/30/93

AWOIS + SURF

Paul 6/93

Descriptive Report to Accompany Hydrographic Survey H-10317
PHP 10-6-89
Scale 1:10,000
1989-1990

PACIFIC HYDROGRAPHIC PARTY (PHP)
Chief of Party: LT DeWayne J. Nodine

A. PROJECT ✓

A basic hydrographic survey was conducted in the Suisun Bay, Honker Bay, California, area as specified by Project Instruction OPR-L208-PHP, dated May 1, 1989. The Hydrographic Manual, Fourth Edition, through Change No. 3, the Field Procedures Manual, January 1989 edition, and the Hydrographic Survey Guidelines are also applicable. The survey covers Sheet "H" on the Sheet Layout for the project dated November 24, 1987. This survey covers NOAA Nautical Charts 18656, Scale 1:40,000, 48th edition, May 27, 1989, Chart 19659, Scale 1:10,000, 9th edition, Sept. 13, 1986 and NOAA Nautical Chart 18652 SC, Scale 1:80,000, 26th edition, December 1988.

This survey is one in a series of surveys which will provide contemporary hydrographic data for existing nautical charts and the new 1:12,500 scale charts.

B. AREA SURVEYED ✓

The survey is located in Suisun Bay which connects the major portion of the San Francisco Bay area to the Sacramento-San Joaquin River system. The survey area is bounded by Middle Ground on the west and Van Sickle Island which runs along the east side of Spoonbill Creek to the east. The boundary limits of this sheet are at long. 121°58'30" to the west and long. 121°53'20" to the east. The southern portion of the survey area is a deep, steep walled shipping channel. The northern portion of this survey, Honker Bay, is flat and shallow with an exposed shoal which separates the northern and southern portions.

Data acquisition was conducted from October 1989 through November 1990 (DN 290-89 through DN 306-90).

The following tide gages cover this survey:

Mallard Island, Ca. 941-5112 (Installed by PHP)

Port Chicago, Ca. 941-5144 (Operated by Pacific Operations Group, N/OMA1214)

C. SOUNDING VESSELS ✓

All data was acquired by the Pacific Hydrographic Party automated survey launches, each equipped with the Personal

Computer-Data Acquisition System (PC-DAS). These vessels are Launch 1101 (0651) and Launch 1102 (0652). Launch 1101 has no ANDIST corrector, the antenna is directly over the transducer. Launch 1102 has an ANDIST corrector which is undetermined, but less than three feet. This corrector was not taken into consideration.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS ✓

Both sounding vessels were equipped with Raytheon DE 719-B or DE-719-C echosounders. The echosounders were operated on the High+Low Digitized Frequency, Paper Speed 3, using Manual Gain and Intensity controls to obtain the best analog trace. Soundings were recorded in feet, and both scales (0-50 ft and 50-150 ft) were used. The echosounders were continually monitored during data acquisition. All the sounding data was scanned to verify digitized depths and all peaks and deeps were inserted. All velocity tables and the days for which they apply can be found in this section under Analysis of Sound Velocity Correctors. The echosounder initial, cal 0, 100 ft cal, belt tension and the speed of sound on both vessels were constantly monitored and adjusted during hydrographic data collection. The digitized depth, analog depth and lead line depth were compared and noted at the beginning of every data collection day, with the exception of DN's 317 and 339 of 1989, and DN's 033, 039, 086, 087, 096, 102, and 162 of 1990. A narrow beam high frequency transducer was used on both survey vessels.

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 measured on 5/9/89 using a surveying level (Lietz B-1, S/N 214303) and rod. The second part was done on 5/23/89 with the launch in the water with fuel tanks at 1/2 full, HDAPS equipment installed and two crewmen 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 1.51 feet. launch 1101 (0651)

The static transducer draft for the hull mounted transducer on Launch 1102 was performed in much the same way except the distance between the transducer face and the top of a painted blue line on the hull above the water line was measured with a calibrated steel tape on 6/30/89. On the same day, with the boat in the water with fuel tanks at 1/2 full, all survey equipment installed and two crewmen on

board, the distance between the top of the painted blue line and the actual water line was measured again with a calibrated steel tape.

The actual static transducer depth is the difference between parts 1 and 2. The actual static draft was measured at 0.91 feet. launch 1102
(0652)

Sound Velocity Correctors ✓

Velocity correctors were determined once per week, except as noted below, by using an Advanced Microsystems Limited (AML) Velocity of Sound Profiler. The days on which each table applies is listed below. Profiler 03042 was used for Velocity Tables 1 through 8, inclusive, and profiler 03004 was used for Velocity Tables 9 through 22, inclusive. (PHP received a newly calibrated instrument from Pacific Marine Center between collection of Tables 8 and 9.) The data for each cast can be found in Appendix IV, Sounding Correction Abstracts, listed in reverse chronological order. *

The AML cast data was transferred to an IBM personal computer via a Radio Shack TRS-80 computer. Velocity of sound corrector tables were generated using the NOS program "Velocity" version 1.00 for Tables 1 to 8, inclusive, and version 1.11 for Tables 9 to 22, inclusive.

Analysis of Sound Velocity Data ✓

The first cast was taken on DN 290 at approximately latitude 38/03/30, longitude 121/58/00 (west end of survey H-10317). This cast extrapolated to a depth of 38.8 feet, however it is not deep enough to cover all hydrographic data collected during this time frame. It should be noted however, that the next cast, not taken until DN 321, was at approximately latitude 38/02, longitude 122/07, (8 to 9 nautical miles to the west of survey H-10317). Considering the lack of additional casts between these two days, and since the two casts were taken in the same general body of water, it is recommended that the cast taken on DN 321 (Table 2, extrapolated to 78.5 feet) be used to cover DN's 290 through 322. It is not known to the present Chief of Party why more casts were not taken between DN's 290 and 321.

CONCUR

Examination of the two respective casts (described above) for Table's 1 and 2 indicates a difference in the velocity of sound of less than 4 meters per second at all common cast depths. This suggests that conditions did not change by a significant amount during this time period. The above analysis was based on conversations the hydrographer had with Mr. Jim Stringham, Pacific Hydrographic Section. However, it should be noted that from Tables 2 through 5 (3 through 5 were taken at the west end of survey H-10317, and are to be applied as listed below) the velocity of sound

* Filed with survey records.

begins to change, between the respective casts, at a rate greater than 4 meters per second. Thus, it may not be appropriate to apply velocity of sound correctors from Table 3 to data collected weeks earlier. The casts for Tables 6 through 22 were taken in a deep area near the east end of the survey at approximately latitude 38/02/30, longitude 121/53/30, and should be applied as listed below.

TABLE	DAYS
1	*Not usable due to lack of adequate depth.
2	290 to 322 of 1989
3	323 to 328 - NOT USED - NO HYDRO DATA
4	329 to 335 - NOT USED - NO HYDRO DATA
5	336 to 365 (No hydro. data)
No hydro. data	001 to 024 of 1990
6	025 to 026
No hydro. data	027 to 031
7	032 to 035
8	036 to 040
No hydro. data	041 to 084
9	085 to 103
10	104 to 110
11	111 to 118
12	119 to 127
No hydro. data	128 to 133
13	134 to 138 - NOT USED - NO HYDRO DATA
14	139 to 145 - NOT USED - NO HYDRO DATA
15	146 to 151 - NOT USED - NO HYDRO DATA
16	152 to 162
No hydro. data	163 to 168
17	169 to 182 - NOT USED - NO HYDRO DATA
No hydro. data	183 to 227
18	228 to 243
19	244 to 250
20	251 to 257
No hydro. data	258 to 274
21	275 to 278
No hydro. data	279 to 303
22	304 only
No hydro. data	305 to 306

Settlement and Squat Corrections

A digital speed log for Launch 1101 was acquired in April, 1984 to correct for ground effect, which is the change in speed when moving to and from shallow water (see Ground Effect Report, May, 1984). One method, determined to help reduce the need for ground effect correctors, was to operate the launch with constant speed through the water instead of fixed rpm. This decision was cleared through PMC and the speed log was permanently mounted in the hull of Launch 1101. Speed through the water was used during the settlement and squat measurements.

Settlement and squat measurements were observed for Launch 1101 on 5/23/89. The settlement and squat correctors apply to all data acquired with Launch 1101 on this survey.

Equipment on the launch at the time of the test consisted of the PC-DAS system and echo sounder. The launch is equipped with a Caterpillar Diesel engine coupled to a Hamilton jet pump. Two people were on board the launch at the time of the test (a normal crew) and the fuel tanks were 1/2 full.

The test was conducted on the south end of First Street in the vicinity of Benicia Pt. near the city wharf and nearby islets off Benicia. The test was within the geographic limits of project OPR-L202-PHP-88. Let this test also apply for the survey limits of Project OPR-L208-PHP-89. The launch went from depths of 12 to 20 feet of water. The weather during the test was fair, with winds 5-15 knots, seas were 0.2 feet. Small offshore islets provided a lee from the wind during this test.

The level was set up on the bank of the shoreline at the south end of First Street in Benicia. A back sight was taken on a local object before and after to check stability of the level instrument during the test. A level rod was held on the starboard gunwale in line with the position of the hull mounted transducer. The launch made runs ranging from 3NM to 12NM by going towards the leveling instrument and stopping dead in the water (DIW) for measurements before and after each run. The mean of these two readings accounted for the tidal correction for each run. These point values were plotted and connected to yield continuous speed versus draft correction curves.

Settlement and squat correctors are entered in the HDAPS "Presurvey" Offset Tables in meters/second and get applied during the "Post "Survey" process. The correctors were determined as a function of speed through water, however HDAPS applies the correctors according to the computed "Speed Made Good", a true speed. The corrector data is in Appendix IV, Corrections to Echo Soundings.*

Correctors applied during office processing according to vessel RPM.

Settlement and squat measurements for Launch 1102 were observed in the same way and at the same location as for Launch 1101 on 7/10/89.

Launch 1102 operates with fixed RPM settings as opposed to constant speed through the water (Knots). RPM settings were used during settlement and squat measurements. The operating RPM settings and settlement and squat correctors were converted to meters/second and entered into the HDAPS "Presurvey" Offset Tables for Launch 1102. Several test survey lines, with the PC-DAS system on line, were performed at increasing RPM settings to determine " speed made good" in meters per second.

* Filed with survey records.

Tide Correctors

Predicted tides were used to reduce the heights of detached positions in the sounding volumes to MLLW by PHP in order to determine the proper cartographic code. The field plots at PHP were plotted with the tide correctors applied to the predicted tides at Fort Point, San Francisco. See Appendix II, Field Tide Note, for further information.*
 Actual tides zoned from MALLARD ISLAND, CA. (gage # 941-5112) were applied to soundings on this survey.

The echo sounders functioned properly, with occasional minor problems:

On DN 277 of 1990, Vessel 0651, the echosounder (Serial # 10280) and the digitized depth were 1 to 2 feet different and more for Pos 7995 and 8000. These depths were not plotted. These positions are not in the digital file, and have been rejected by the field.

The following is a list of echosounder serial numbers and the days and vessels they were used on. The reason for so many switches were usually due to echosounder problems or echosounder shortages.

VESSEL 0652

DN 290/89 - 304/89 and 108/90	DE 719B # 6241
DN 307/89 - 93/90 and 109/90	DE 719C # 10280
DN 241/90 - 254/90 and 256/90 - 275/90	DE 719C # 10280
DN 255/90	DE 719B # 6241

VESSEL 0651

DN 296/89 - 122/90	DE 719C # 10280
DN 123/90 - 184/90	DE 719B # 6241
DN 240/90	DE 719C # 10280
DN 249/90	DE 719B # 6168
DN 253/90 - 277/90	DE 719C # 10280

Diver-obtained least depths were determined by Pneumatic depth gage, Model IIID Instruments Inc., (S/N 8604205N). The gage was operated in accordance with Hydrographic Survey Guideline No. 55 and was last calibrated on 6/25/86. In addition, field system checks were performed each day the pneumatic gage was used. Occasionally divers determined least depths with a weighted tape measure or a lead line. The tape measure was plastic and not calibrated. Two versions of lead lines were used. The standard tiller rope version was last calibrated on 3-15-88. The second version, which was most widely used, is a white and blue Dacron Sta-Set braid which was calibrated on 10-26-89.

* Filed with survey records

E. HYDROGRAPHIC SHEETS ✓

Final field sheets were prepared and plotted on a Bruning Model 924 Plotter by PHP personnel. The Main scheme smooth sheet and the Detached Position overlay was prepared and drawn by the Chief Cartographer, M. Bigelow.

The field documents and data were processed by PHP personnel.

It should be noted that Suisun Bay Light 28 (latitude 38/02/33.338, longitude 121/55/02.949) was used as an electronic control station (no. 620, Appendix VI), however, it is shown on the final field sheet as a fixed aid to navigation. This is the only electronic control station which falls within the limits of survey H-10317.

The survey will be sent to Pacific Hydrographic Section, N/CG245, Seattle, Washington, for office processing.

F. CONTROL STATIONS ✓

Horizontal control datum for this survey is NAD 27.

For station names refer to "List of Stations" ~~in~~ attached to this Appendix VI. report.

Hydro control stations were verified and/or established by the Pacific Photogrammetric Field Party, N/CG 2333. They are also responsible for the Horizontal Control Report for H-10317. Stations were verified by measuring distances to reference marks, or by observing horizontal directions and/or distances to other existing stations.

G. HYDROGRAPHIC POSITION CONTROL ✓

Sounding position control was accomplished with a Navitronic Comflex-1030NX computer with PC-DAS HDAPS software interfaced with a Motorola Mini-Ranger Falcon 484 system using two or more lines of position (LOP's). All detached positions (DP's) were obtained with a minimum of 3 LOP's. When using three or more LOP's, the accuracy requirements stated in Section 3.1.3.1 of the Field Procedures Manual were adhered to.

During data processing and final review, the following errors concerning C-0 Tables and Offset Tables were noted:

DN 046 of 1990, vessel 0651, a new data print out had to be made. On this new print out, it appears that the C-0 values were not entered properly on the vessel. This apparent error is due to a "bug" in the print routine of the "Convert" menu on HDAPS according to a conversation the Chief of Party had with LTJG Guy Knoll, HDAPS Project

Office, sometime during the month of October. The correct C-O values did exist on vessel 0651 at the time of data collection. CONCUR

CONCUR There is an ANDIST corrector for vessel 0652 which is less than three feet, but was not applied to sounding positions. At a survey scale of 1:10,000, this is not significant. See the Offset Tables in Appendix V, Abstract of Corrections to Electronic Position Control.*

On DN 005, C-O Table 3 was entered on HDAPS for vessel 0651. However, the BLC values for vessel 0652 were used in error. This error was not noticed until DN 46, at which time C-O Table 5 was created. (i.e., Data collected from DN 005 through DN 040 of 1990 used the wrong C-O values with a maximum error of 1.9 meters on code 9. All other codes used during this time had an error that was less. At a survey scale of 1:10,000, this error is only 0.19 millimeter, which is insignificant.) - CONCUR

On DN 299 of 1989, a C-O value of -11.8 was entered into C-O Table 1 (vessel 0651) for code 4. The proper value is -7.9 according to the BLC of May 10, 1989. This code was not used from DN 290 to DN 318 of 1990, on vessel 0651, therefore the data was not affected. This problem was corrected by a new BLC performed on November 15, 1989. These new BLC values replaced all values used previously. No data from vs 0651 after DN 296/89 through DN 4/90 was used to plot the SS, BLC (NOV 15, 1989) was used on data after DN 4/90-table 1.

On DN's 93 and 241 of 1990, Vessel 0652, Offset Table 1 was used when Table 2 should have been used. TRA and velocity tables were determined and used during office processing.

On DN 150 of 1990, Vessel 0651, hydrographic data acquisition was attempted, however, the wrong segment was used which resulted in lines being run in the wrong area. This day is listed in the sounding volume, however there is no print out or slot for DN 150 in the "accordian" file. No data for DN 150/19 was used to plot the smooth sheet.

The electronic positioning equipment used on this survey and the base line correctors (BLC) applied to Mini-Ranger data collected are contained in Tables 1 to 4 as listed below. The dates for which each applies is contained in each respective table.*

Four base-line calibrations cover this survey. Data from each of these calibrations is included in Appendix V. The latest BLC was performed at the City of Antioch, California, Marina (new location) over a distance of 1469.8 meters. A copy of the distance measurement is enclosed in Appendix V.* The vessels and respective Console/RT pairs were located at the marina, (point marked by a nail in the east end of the wooden floating pier, and designated as CAL PT) while the remote units were located to the east at Roger's Point (NOS disk stamped "ROGERS POINT 1990) on the north side of a large abandoned house. A map showing the location is

* Filed with survey records.

included in Appendix V.* This BLC was the first to use the new software (Baseline, version 1.02) prepared by the HDAPS Project Office. The BLC was performed in accordance with the Field Procedures Manual.

This base line was established using a K&E Ranger V-A EDM (serial number 07B6026). Prior to establishing this new base line, this instrument was calibrated July 18, 1990 at the NGS Silverado Base Line in Napa County, California. That report is on file at PHP.

The three previous BLC's were performed in Benicia, California, over a distance of 778.2 meters. A copy of the distance measurement is enclosed in Appendix V. The south end of the base line is monumented by a standard NOS disk stamped "CITY WHARF 1988" and is located near the south end of First Street at Point Benicia. The north end is monumented by a nail and washer near a small city park, and is designated as BENICIA CAL PT 2. A map showing the location is enclosed in Appendix V.* All BLC's were apparently performed in accordance with the applicable specifications in use at the time.

The earlier base line (distance of 778.2 meters) was established using a Kern EDM, model DM 102 (serial number 293684). The last calibration test of the DM 102 was in June 1987 over the NGS Silverado Base Line in Napa County, California. That report is on file at PHP.

TABLE 1
Launch 0651
17 OCT 89 to 14 NOV 89
(DN 290 to 318)

Console F0259, RT B1419

SERIAL #	E2709	911632	911C59	E2712	F3233
CODE	1	2	3	4	5
BLC DATE	5/10/89	5/10/89	5/10/89	5/10/89	5/10/89
BLC/MIN SS	-5.8/15	-12.4/14	-3.2/14	-7.9/14	-10.1/15

SERIAL #	G3510	91634	C1789
CODE	6	7	8
BLC DATE	6/19/89	6/19/89	6/19/89
BLC/MIN SS	-6.6/14	-14.7/14	-12.3/15

Note: No evidence was found of Code 9 being calibrated for the above combination, yet an entry was made in C-0 Table 1 (launch 0651) on DN 299 of 19890 for Code 9 having a corrector of -8.4 and a Minimum Signal Strength of 14. No data for DN 299/89 (vs 651) was used to plot the smooth sheet.

* Filed with hydrographic data.

Launch 0652
17 OCT 89 to 14 NOV 89
(DN 290 to 318)

Console F0243, RT C1680

SERIAL #	E2709	911632	911C59	E2712
CODE	1	2	3	4
BLC DATE	8/01/89	8/01/89	8/01/89	8/01/89
BLC/MIN SS	-2.5/14	-11.3/14	-4.4/14	-10.0/14

SERIAL #	G3510	91634	C1789
CODE	6	7	8
BLC DATE	8/01/89	8/01/89	8/01/89
BLC/SS	-5.2/14	-14.3/14	-11.5/14

Note: Code 5 (F3233) apparently was not calibrated for Vessel 0652 due to failure of the unit after calibration for Vessel 0651 above.

TABLE 2
Launch 0651
15 NOV 89 to 6 MAR 1990
(DN 319 to 65)

Console F0259, RT B1419

SERIAL #	E2709	911632	F3251	F3047	C1946
CODE	1	2	3	4	5
BLC DATE	11/15/89	11/15/89	11/15/89	11/15/89	11/15/89
BLC/MIN SS	-2.9/14	-11.7/14	-28.7/14	-11.9/16	-29.6/16

SERIAL #	G3510	911634	C1789	911697
CODE	6	7	8	9
BLC DATE	11/15/89	11/15/89	11/15/89	11/15/89
BLC/MIN SS	-4.2/14	-12.9/16	-10.5/16	-6.7/15

Launch 0652
15 NOV 89 to 6 MAR 90
(DN 319 to 65)

Console F0243, RT C1680

SERIAL #	E2709	911632	F3251	F3047	C1946
CODE	1	2	3	4	5
BLC DATE	11/15/89	11/15/89	11/15/89	11/15/89	11/15/89
BLC/MIN SS	-1.2/14	-11.2/14	-28.6/14	-11.3/14	-29.6/14

SERIAL #	G3510	911634	C1789	911697
CODE	6	7	8	9
BLC DATE	11/15/89	11/15/89	11/15/89	11/15/89
BLC/MIN SS	-5.3/14	-14.8/14	-12.1/14	-5.7/14

TABLE 3
Launch 0651
7 MAR 90 to 15 AUG 90
(DN 66 to 227)

Console F0259, RT B1419

Serial #	E2709	911632	F3251	F3047	C1946
Code	1	2	3	4	5
BLC DATE	3/7/90	3/7/90	3/7/90	3/7/90	3/7/90
BLC/MIN SS	-7.1/16	-12.8/15	-29.4/16	-12.3/18	-29.7/25

Serial #	G3510	911634	C1789	911697
Code	6	7	8	9
BLC Date	3/7/90	3/7/90	3/7/90	3/7/90
BLC/MIN SS	-4.1/18	-16.0/14	-10.7/14	-9.5/15

Launch 0652
7 MAR 90 to 15 AUG 90

Console E0141, RT C1927

Serial #	E2709	911632	F3251	F3047	C1946
Code	1	2	3	4	5
BLC DATE	3/7/90	3/7/90	3/7/90	3/7/90	3/7/90
BLC/MIN SS	-1.7/16	-7.4/14	-23.5/14	-6.9/14	-24.3/15

Serial #	G3510	911634	C1789	911697
Code	6	7	8	9
BLC DATE	3/7/90	3/7/90	3/7/90	3/7/90
BLC/MIN SS	+0.8/15	-10.7/14	-6.3/14	+5.3/16

Note: Prior to this BLC below, several remote units were replaced by other units from PMC, at the request of PHP.

TABLE 4
Launch 0651
17 AUG 90 to 2 NOV 90
(DN 229 to 306)

Console F0259, RT B1419

Serial #	E2705	C1688	E2693	B1411	C1946
Code	1	2	3	4	5
BLC DATE	8/16/90	8/16/90	8/16/90	8/16/90	8/16/90
BLC/MIN SS	-10.6/14	-25.4/14	-21.2/14	-24.0/14	-25.3/14 -

Serial #	81215	911723	B1214	911634
Code	6	7	8	9
BLC DATE	8/16/90	8/16/90	8/16/90	8/16/90
BLC/MIN SS	-40.2/14	-32.8/15	-25.8/15	-26.8/13

Launch 0652
17 AUG 90 to 2 NOV 90
(DN 229 to 306)

Console E0141, RT C1927

Serial #	E2705	C1688	E2693	B1411	C1946
Code	1	2	3	4	5
BLC DATE	8/16/90	8/16/90	8/16/90	8/16/90	8/16/90
BLC/MIN SS	-1.4/16	-17.9/16	-15.0/15	-12.3/16	-14.0/15 -

Serial #	81215	911723	B1214	911634
Code	6	7	8	9
BLC DATE	8/16/90	8/16/90	8/16/90	8/16/90
BLC/MIN SS	-32.1/16	-23.4/16	-15.9/16	-15.3/15

It is recommended that base-line correctors be applied according to the above listed tables with the respective dates given. *The above tables with exceptions noted were applied.*

Daily System Checks

Critical systems checks were performed biweekly at a fixed known feature, usually a fixed aid in the work area. All systems checks are annotated in the field sounding volumes. Per instructions of the Chief of Party, critical systems checks were ceased as of 4/9/90 in accordance with the Field Procedures Manual section 3.1.3.3, Multiple LOP's Method.

H. SHORELINE ✓ See Evaluation Report section 2

The shoreline was taken from shoreline manuscript TP-01249 and 01250 and has been transferred onto the Final Field Sheet. Both manuscripts are 1:10,000 scale. Shoreline details have been verified and are drawn on the final field sheet. All depth soundings are in feet and are reduced to MLLW using predicted tides generated on HDAPS. Smooth tides were applied to the smooth sheet.

Cartographic codes for all features within the navigable area are noted on the Final Field Sheet D.P. Overlay and are labeled in red in the field record, Sounding Volumes Form 77-44. Features with negative (-) signs bare above MLLW and features assigned positive (+) signs are submerged below MLLW.

I. CROSSLINES ✓

Crossline soundings were acquired to check main scheme sounding lines and were comprised of the required 8 to 10% coverage as described in section 1.4.2 of the Hydrographic Manual. Crosslines were run at 90 degree angles to the main scheme; also as required. All crosslines agree with the main scheme hydrography.

J. JUNCTIONS ✓

This survey junctions to the west with survey H-10315, scale 1:10,000, dated 1989. Suisun Bay, Roe Island to Dutton Island. All depths agree within 1 foot. - CONCUR

K. COMPARISON WITH PRIOR SURVEYS ✓ See Evaluation Report section 6

This survey was compared to prior survey H-6735, scale 1:10,000, dated October 1941 to January 1942. In general, soundings from H-10317 compared quite well with the prior survey except for the build up of a shoal area just west of Chipps Island at approximately latitude 38/02/33.20N and longitude 121/57/19.31W. There is also a significant area of scouring and deepening just south of this shoal. See comparison with the chart, section L for further discussion.

Note: AWOIS investigations are listed under Section "T".

L. COMPARISON WITH THE CHART ✓ See Evaluation report section 7

This survey was compared to NOAA Nautical Chart 18656, 48th Edition, scale 1:40,000, May 27, 1989, NOAA Nautical Chart 18659, 9th Edition, scale 1:10,000, September 13, 1986 and NOAA Nautical Chart 18652 SC, 26th edition, scale 1:~~80,000~~_{40,000}, December 1988.

All depths on these charts originate from prior survey H-6735 and miscellaneous sources. In general there is good agreement, within 2 feet between all charted and survey depths except for a difference of shoaling and deepening just west of Chipps Island along the northern edge of the main channel south of Honker Bay. The central area of the shoal just west of Chipps Island is at lat. 38/03/33.90N and long. 121/56/36.87W and runs east to west from the west tip of Chipps Island along the northern edge of the main channel for 1300 meters and 200 meters wide. The least depths of 0.0 - 1.0 ft at MLLW can be found at lat. 38/03/33.90N and long. 121/56/36.87W and lat. 38/03/33.98N and long. 121/56/35.66W. Immediately south of the shoal and along the same orientation is a deepened scoured area that is significantly deeper than the blow-up of chart 18656. This depth change pushes the 30 ft depth contour out to where the 12 ft contour used to be in the area.

With the application of smooth tides, these 0 foot shoals are depicted as two separate areas on the smooth sheet.

Recommendation: Revise the chart to depict the survey depths. — CONCUR

There are separate 4 ft and 5 ft shoal areas depicted on the south shore just west of the entrance to McAvoy/Harris Yacht Harbor at lat. 38/03/00.55N, long. 121/58/06.09W and lat. 38/03/02/30N, long. 121/57/40.28W respectively. These areas are now connected.

Recommendation: Connect the two shoal areas as represented by the survey depths. Revise the charted 6 foot depth curve to reflect these surveyed soundings.

There is a charted exposed shoal at lat. 38/03/13.73N and long 121/58/15.50W that now has 8 to 10 foot depths. This shoal seems to have shifted to the southeast into an already charted shoal area at lat. 38/03/00.55N and long. 121/58/06.09W increasing that shoal by 2 ft.

Recommendation: Remove charted shoal. Revise the chart to reflect the survey depths.

See Section U, ^{in this report,} Charted Non-Sounding Features, for investigation of those items.

A danger to navigation letter (see Appendix XI, Dangers to Navigation) was sent to the 11th Coast Guard District, Long Beach California, on 11/02/90 concerning an uncharted dangerous wreck that was found at latitude 038/03/35.80, (POS # 2109) longitude 121/56/36.32, NAD 83, and an uncharted dangerous # 52003 snag that was found at lat 038/03/28.25, longitude 121/56/29.56, NAD 83. (POS # 1912) ⁵⁴ (WRK AND SNAG UNCOVER 6 FT AT MLLW)
25.71

These Features appear on chart 18656 49th edition.

M. ADEQUACY OF SURVEY ✓

The survey is complete and adequate to supersede all prior surveys. No additional field work is necessary within the survey limits. - CONCUR ✓

N. AIDS TO NAVIGATION ✓

There are 4 fixed and 2 floating aids to navigation in the survey project area. All were positioned by hydrographic survey methods. The fixed aids were positioned by D.P. due to a lack of adequate checks by geodetic methods.

Harris Yacht Harbor Light "1" (private)

Lat. 038/02/54.0 and Long. 121/57/18.0.
58.11 21.43

Suisun Bay Light "24A"

Lat. 038/03/18.36 and Long. 121/57/11.5⁴

Note: NOAA Nautical Chart 18656, 48th edition, May 27, 1989 shows this as a floating aid by the same number, "24A".

Recommendation: Delete buoy symbol. Chart fixed aid at - CONCUR survey position. Light "24A" appears as a fixed aid on the 49th edition of chart 18656.

Suisun Bay Light "26"

Lat. 038/03/03.52 and Long. 121/56/56.09
LIGHT LIST # 6570

Suisun Bay Light "27"

Lat. 038/03/11.86 and Long. 121/56/02.74
LIGHT LIST # 6575

Suisun Bay Light "28"

Lat. 038/02/33.31 and long. 121/55/02.85
LIGHT LIST # 6580

Suisun Bay Lighted Buoy "23"

Lat. 038/03/30.36 and Long. 121/57/44.89
LIGHT LIST # 6542

Suisun Bay Lighted Buoy 24

Lat. 038/03/25.90 and long. 121/57/43.02
LIGHT LIST # 6555

No other information on navigation aids was obtainable from the sounding volumes. Please see some photos in the accordion file.

The only bridge in the survey area is south of Mallard Island, an extension of the Mallard Island tide gage pier and has no navigable bridge clearance.

One overhead power cable was noted in the sounding volume crossing the channel in McAvoy Harbor. This is drawn on the Smooth Sheet D.P. overlay as position approximate PA. A height was not obtained. This feature is shown on the smooth sheet as a cvhd. power cable extending from latitude 38/02/25, longitude 127/57/32 to latitude 38/02/27, longitude 127/57/38.

O. STATISTICS ✓

Positions Acquired (0651): 1,447
(0652): 1,620

Days of Production:	67.6
Square Nautical Miles of Hydrography:	7.5
Total Lineal Nautical Miles of Hydrography:	242.3
Bottom Samples:	39
Detached Positions:	357
Tide Stations:	2
Current Stations:	0
Velocity Casts	22
Magnetic Stations:	0

Total rejected positions Total= 534

The following positions were rejected:

1-6, 24-29, 40-41, 67, 79-81, 82-92, 97-98, 103-106, 132-136, 160-161, 162-174, 182, 183, 187, 190, 194, 195-196, 208-210, 225-229, 233-240, 254-257, 265-268, 273-274, 280-283, 288, 290-293, 294, 309-312, 314-315, 316-317, 319-323, 329, 333, 374-378, 392-398, 406-410, 428-432, 441-444, 488-489, 490-492, 534-537, 538, 628, 651-652, 653, 663-666, 668-669, 745-746, 753-754, 799-800, 811, 817-819, 825-828, 834-835, 903-904, 916-935, 937-941, 973-994, 998-999, 1003-1005, 1045, 1896, 1903, 1919-1929, 1948, 1949, 1951, 1954, 1960, 1961, 1962, 1964, 1965, 2013, 2017, 2021, 2022, 2074-2076, 2086-2087, 2093-2107, 2110-2111, 2149-2150, 2153, 2173-2175, 2177-2178, 2179, 2195-2197, 2198, 2201-2102, 2232-2239, 2244-2245, 2308-2309, 2354-2355, 2391, 2400-2401, 2405-2406, 2407, 2410, 2418, 2421, 2425, 2430, 2437, 2440, 2469, 2487, 2488, 2495-2497, 2556-2557, 2563, 2575-2578, 2591-2592, 2627, 2628, 2631-2632, 2633-2634, 2643-2644, 2647-2648, 2649-2650, 6001, 6071-6082, 6170, 6173-6174, 6176, 6207, 6215, 6293-6294, 6362-6363, 6371, 6386-6387, 6389, 6394-6395, 6420, 6453-6459, 6490-6493, 6510-6511, 6524-6527, 6532-6534, 6569-6570, 6586-6587, 6596, 6605-6606, 6625-6630, 6633-6634, 6638, 6642-6643, 6645-6646, 6649, 6653-6660, 6653-6655, 6656-6657, 6679-6687, 6710-6712, 6718-6719, 6742-6744, 6761-6762, 6811-6812, 6821, 6828-6828, 6837-6838, 6842-6843, 6846, 6852-6853, 6860, 6862, 6877-6878, 6896, 6929, 6938-6941, 6953, 6986-6987, 6994, 7034-7042, 7114, 7144-7146, 7154-7156, 7168, 7174, 7180-7182, 7226, 7228, 7232-7233, 7284, 7300, 7306-7307, 7319-7320, 7325-7327, 7334-7336, 7360, 7361, 7399-7411, 7419-7425, 7426-7432, 7438-7439, 7440, 7445-7446, 7447, 7454-7467, 7473-7474, 7475, 7482, 7517, 7524, 7527, 7995-8000.

Total Duplicated Positions = 46.

The following positions were duplicated:

24-28,79,82-92,104,132-133,663-667,668-669,821,1003-1004,2507,2241,2644,6070-6082,6482,6843,7319-7320.

Total omitted positions = 863

The following positions were omitted:

348-370,1065-1893,2094-2107.

NOTE: Due to the length of this survey, duplicate day numbers have occurred with data being collected on two occasions for the year of 1989 and 1990. The HDAPS processing system in the "Convert" section does not know how to convert and retain two groups of collected data with the same day number. If you try to convert a day number into the file system when the same day number already exists in the file system, it will replace the existing file with the new file you are converting. So, in order to process and plot these two duplicate day numbers we used a separate HDAPS processing system and stored the information on a separate magnetic tape. You will not find these two days on the main magnetic tape for H-10317.

The following is a list of these duplicated day numbers:

1. Day Number 304/90 Vessel 0652
 2. Day Number 306/90 Vessel 0651
- DATA FOR DAY 304/90 WAS entered into file during office processing.*
- NO data for DAY 306/89 was collected.*

You will find the raw data, printouts and abstracts for DN 304/90 and DN306/90 in the accordion file for H-10317

In the file system in the section "SELECT DATA SET" vessel numbers in the left hand column are entered as 51 for vessel 0651(1101) and 52 for vessel 0652(1102). In the case of the very top of this listing, day numbers 93,108, and 109 of 1990 are listed by the single digit 2. To call these days into the active file for editing or plotting purposes you must use this single digit 2 to activate them.

Also, due to the HDAPS processing system not being able to differentiate between years in the file system, in the section "SELECT DATA SET", you will find some confusion in the way the day numbers are listed. Day numbers from 1990 will be listed prior to day numbers from 1989, if the day number from 1990 is lower than the day number listed from 1989. This problem only occurred on the HDAPS system.

P. MISCELLANEOUS

There were ⁵⁰~~39~~ bottom samples taken during this survey. Bottom samples were taken in accordance with section 1.6.3 of the Hydrographic Manual. These samples confirm the

charted characteristics of NOAA Nautical charts 18656, 48th edition, May 27, 1989, NOAA Nautical Chart 18659, 9th edition, scale 1:10,000, September 13, 1986 and NOAA Nautical Chart 18652 SC, 26th edition, scale 1:80,000, December 1988. See Appendix VIII, Bottom Samples, for NOAA Form 75-44, Oceanographic Log Sheet "M" Bottom Sediment Data. *

No current measurements were taken, although the most significant extremes (4 to 6 knots) were noted between Mallard Island and Chipps Island, within the main channel area.

Q. RECOMMENDATIONS ✓

None

* Filed with survey records.

R. AUTOMATED DATA PROCESSING ✓

Data acquisition was accomplished using a Navitronic Comflex-1030NX computer with PC-DAS software, version 3.55. Version 3.55 was installed on vessel 0651 on 03/02/90 and on vessel 0652 on 05/15/90. Version 3.55 has corrected the problem with the "speed made good" function. This version was not installed on vessel 0652 until much later due to the fact that this vessel was not being used. Prior to these two respective dates, version 3.44 was used on each vessel. Prior to using version 3.55, vessel speed should be determined using RPM's as noted in the data. *Vessel RPM's were utilized for settlement and squat corrections for the smooth sheet.* Data processing was accomplished using a Hewlett-Packard 9000 model 340 Computer with the following software:

PROGRAM	VERSION	DATE
Survey	4.13	03/05/90
Postsur	4.13	"
Convert	2.32	"
Conplot	1.01	"
Compute	2.02	"
Constat	2.02	"
Printout	2.23	"
Abst	3.00	"
Inverse	1.00	"
Diagnostic	2.15	"
Filesys	1.50	"
Backup	1.02	"

HDAPS Users Manual, January 1990 Edition.
 AML Sound Velocity Profiler: Velocity, version 1.10.

S. REFERRAL TO REPORTS ✓

The Geographic names list is included with this report in Appendix III, and Base-Line Calibration Data is in Appendix V. *

The Coast Pilot Report will be completed for H-10317 and sent to the USCG Long Beach, California before March 1991.

T. AWOIS INVESTIGATIONS ✓

AWOIS items were investigated using standard hydrographic procedures, i.e., either visible observation, bottom drag or diver circle search. To aid in locating the items to be investigated, "targets" were converted to plane coordinates with the HDAPS processing system in the office, then entered into the PC-DAS on the launch and steered to using the Navitronics PGU path guidance system. *- AWOIS items latitude and longitude were converted to X and Y coordinates on the HDAPS processing system. These targeted coordinates were used on the launch for location using the guidance system.*

* Filed with survey records.

AWOIS 51350

Feature: Visible Wrecks
 Latitude: 38/02/32.00N
 Longitude: 121/57/31.00W

Investigation: A survey technician had a conversation with the owner of Harris Marina, Bob Herrenkohl, he stated that the wrecks in question were removed by himself in 1982. Harris Marina phone (415) 458-1606. No position was recorded.

Recommendations: Remove the charted visible wrecks. -concur
 remove "Wrecks rep 1981" notation

AWOIS 51351

Feature: Pile (shown as subm piles on chart 18656, 49th ed)
 Latitude: 38/02/54.00N
 Longitude: 121/56/29.00W

Investigation: A 100 meter radius bottom drag was performed on DN 268, Vessel 0651, center bouy at position 7525, lat. 38/02/54.09N and long. 121/56/28.98W. No hangs were found.

Recommendations: Remove charted pile. -concur

AWOIS 51352

Feature: Pile (shown as subm piles on chart 18656, 49th ed.)
 Latitude: 38/02/55.50N
 Longitude: 121/56/31.00W

Investigation: A 100 meter radius bottom drag was performed on DN 268, Vessel 0651, center bouy located at position 7523, lat. 38/02/55.54N and long. 121/56/30.97W. No hangs were found.

Recommendations: Remove charted ^{subm} pile. -concur

AWOIS 51354

Feature: Visible Wreck (shown as subm wreck on chart 18656, 49 ed)
 Latitude: 38/03/09.00N
 Longitude: 121/55/46.00W

Investigation: A visible search of the area was conducted at low water and the wreckage was found immediately. The wreck was positioned on DN 103, Vessel 0651, position 6877, the middle of the wreck at lat. 38/03/09.88N and long. 121/55/44.86W. The wreckage is 10.4 ft ~~long~~ ^{wide} and 34 ft ~~wide~~ ^{long} and ~~bare~~ ^{uncovers} 1.7 ft at MLLW.

Recommendations: Revise the charted visible wreck at the survey position. -concur - Delete charted subm wreck symbol and chart visible wreck, as shown on smooth sheet at survey position. (2)

AWOIS 51353

Feature: Visible Wreck (Shown as subm wreck symbol on chart
 Latitude: 38/03/05.00N 18656/49th ed)
 Longitude: 121/55/20.00W

Investigation: A ^{visual} ~~visible~~ search of the area was conducted at low water and the wreckage was found immediately, DN 103, Vessel 0652, position 6876, at lat. 38/03/04.7N and long 121/55/19.02W. It appears to be a barge 23 ft. long and 13 ft. wide, least depth not determined at this time. ^{elevation found in survey records}

Recommendations: Revise the charted visible wreck at the survey position. ^{-concur, delete charted subm wreck symbol and chart visible wreck (3) at location as shown on smooth sheet.}
 AWOIS 51355

Feature: Shl rep 1977
 Latitude: 38/03/12.00N
 Longitude: 121/56/30.00W

Investigation: A shoal sounding development was conducted at 25 meter spacing on DN 127, Vessel 0651, position 7161-7217. There were no noticeable 10 ft depth differences found in the middle of the main channel north of Stake Point, but significant changes do occur on the north edge and up onto the bank of the north edge of the main channel. These changes are reflected in section L, Chart Comparison. The least depths found in the central area of the main channel are reflected in red on the Final Field Sheet, which was 39.0 ft at MLLW at lat. 38/03/07.85N and long. 121/56/28.02W and a 35 ft at MLLW at lat. 38/03/06.95N and long. 121/56/20.67W.

Recommendations: Delete charted note "shl rep 1977". ^{-concur} No 10 ft. shoaling differences were found in the main channel area. Chart depths in the area from this survey. ^{-concur,}
 36 foot sounding found in the area at latitude 38/03/07,
 AWOIS 51356 longitude 121/56/21.

Feature: Row of Piles (Shown as subm pilings on chart 18656/49th ed.
 Latitude: 38/03/13.00N
 Longitude: 121/56/00.00W

Investigation: A ^{visual} ~~visible~~ search was conducted at low water and a portion of the visible section was located on DN 345, Vessel 0652, position 2000-2003, which covered only 176 yards of the 800 yards item. A bottom drag was conducted on DN 263, Vessel 0651 and the remaining submerged portion was searched for by a 50 meter wide bottom sweep along the shore between Vessel 0651 offshore and a person walking with line on the shore. The sweep was conducted between position 7519 at lat. 38/03/20.82N and long. 121/55/54.53W and position

7520 at lat. 38/03/13.08N and long. 121/55/56.93W which ran between the two already located visible portions. No more piles were located in this area submerged or otherwise.

Recommendations: Revise the charted piles to the survey position except for the middle section listed above. - *concur, delete charted subm pilings, chart row of piles as shown on smooth sheet.*
AWOIS 51357

Feature: Shl to 1.5 ft rep 1982
Latitude: 38/03/29.00N
Longitude: 121/56/49.00W

Investigation: A shoal sounding development was conducted - *See AWOIS 51358 for* at 25 meter spacing on DN 39 Vessel 0652, positions 2017-2140 and DN 162 Vessel 0652, positions 2241-2305, the least depth of which is depicted in red on the Final Field Sheet. *Mud shoal* A general 2 to 5 ft shoaler depth was noted in the area. The least depth for this area was 0.0 ft at MLLW.

Recommendations: Delete charted note, revised soundings in the area according to this survey. - *concur, chart current survey sounding of 0 feet (with smooth tides applied).*
AWOIS 51358

Feature: Mud Shoal (Not shown on chart 18656/49th ed)
Latitude: 38/03/33.00N
Longitude: 121/56/34.00W

Investigation: A shoal sounding development was conducted at 25 meter spacing on DN 38, Vessel 0651, position 6571-6582, the least depths of which are depicted in red on the Final Field Sheet. These depths are ≈ 1.0 ft. at MLLW. The bottom characteristics were not determined at this time. See section L in this report on Chart Comparison for further discussion.

Recommendations: Revise the charted shoal, reflecting the current extent of the shoal area using the soundings on this survey. - *concur*

AWOIS 51359

Feature: Metal Pile
Latitude: 38/03/39.00N
Longitude: 121/57/59.00W

Investigation: A 150 meter radius bottom drag was conducted on DN 263, Vessel 0651, center bouy located at lat. 38/03/39.07N and long. 121/57/59.03W. The pile in question was found at position 7522 at lat. 38/03/39.07N and long. 121/57/56.49W. The remains of a standard metal cage

protrudes 3 ft off the bottom, with a least depth of ^{21.0}~~22.6~~ ft at MLLW. No reference to the orientation of the pile was determined by divers.

Recommendation: Delete the charted pile. Revise the chart to reflect a submerged obstruction at the survey position.
Chart 21 Obstrn as shown
AWOIS 51360

Feature: Obstr. Stakes
Latitude: 38/04/30.50N
Longitude: 121/56/36.40W

Investigation: A 75 meter drag was conducted on DN 44, Vessel 0651, position 6631, center of bouy at lat. 38/04/30.69N and long. 121/56/36.18W. After total coverage of the area, nothing was found.

Recommendation: Remove charted stakes. -concur

AWOIS 51361

Feature: Visible Wreck (shown as subm wreck PA on chart 18656 4th ed)
Latitude: 38/04/32.00N
Longitude: 121/56/58.00W

Investigation: A 100 meter bottom drag was conducted on DN 99, Vessel 0651, center of bouy position 6817 at lat. 38/04/32.03N and long. 121/56/57.98W. A 100 meter bottom drag was performed again on DN 100, Vessel 0651, center of bouy position 6822 at lat. 38/04/32.05N and long. 121/56/57.93W. A snag was found at position 6823 at lat. 38/04/31.20N and long. 121/57/00.62W, but the diver investigation determined it was only a tree stump. The stump covers +6.2₃ ft at MLLW.

Recommendation: Remove charted ^{subm} visible wreck. ^{concur} Revise chart to submerged stump at the survey position. Chart 6 foot Obstr (snag) at survey position as shown on smooth sheet.
AWOIS 51362

Feature: Visible Wreck (Shown as subm wreck on chart 18656, 4th ed)
Latitude: 38/04/32.00N
Longitude: 121/56/54.00W

Investigation: A 100 meter bottom drag was conducted on DN's 46, 87 and 88, Vessel 0651. A hang was positioned on DN 87, Vessel 0651, position 6809 at lat. 38/04/33.72N and long. 121/56/51.44W. On DN 88, a diver investigation ^{stump} determined that the hang was not a wreck, but a tree ~~trunk~~ 25 ft long and insignificant, protruding only 1.0 ft off the bottom. See sounding volume for Vessel 0651.

Recommendation: Remove charted visible wreck. -concur, chart subm snag as shown on the smooth sheet.

AWOIS 51363

Feature: Visible Wreck (shown as subm wreck PA on chart 12656/47th ed)
 Latitude: 38/04/35.00N
 Longitude: 121/57/41.00W

Investigation: A 50 meter bottom drag was conducted on DN 96, Vessel 0651, center of buoy, position 6814 at lat. 38/04/34.83N and long. 121/57/41.06W. No hangs were found.

Recommendation: Remove charted ^{subm} ~~visible~~ wreck. ^{PA} - concur

AWOIS 51364

Feature: Wreckage
 Latitude: 38/04/37.00N
 Longitude: 121/57/11.70W

Investigation: A visual search was conducted in the area at low water and the wreck in question was discovered quickly. The limits of the wreckage ^(bases) was determined on DN 339, Vessel 0652, the northwest limit was determined by position 1963 at lat. 38/04/37.54N and long. 121/57/14.11W with a ~~least depth~~ ^(not plotted) of ~~6.9 ft at MLLW~~. Position 1959 at lat. 38/04/36.67N and long. 121/57/12.23W projects the seaward most extent of the wreckage with a ~~least depth of 7.0 ft at MLLW~~. On DN 179, Vessel 0651, the southeast limit of the wreckage was determined by position 7260 at lat. 38/04/36.31N and long. 121/57/09.00W, ^{that base is at MLLW} with a ~~least depth of 3.7 ft at MLLW~~. No diver investigation was required.

Recommendation: Chart ^{wreckage} "Foul Limits", foul with wrecks. Use survey position 1963 for the northwest limit and survey position 7260 for the southeast limit. NE limit extended to include AWOIS item 51367, delete charted wreck, chart according to this survey.
 AWOIS 51365

Feature: Visible Wreck
 Latitude: 38/04/38.10N
 Longitude: 121/57/16.40W

Investigation: A visual search was conducted of the area at low tide and the wreckage in question was immediately discovered on DN 339, Vessel 0652. The ~~western~~ ^{western} extent of the wreckage was determined by position 1957 at lat. 38/04/37.97N and long. 121/57/16.71W. The ~~western~~ ^{is} ~~western~~ limit at position 1958 at lat. 38/04/38.16N and long. 121/57/16.94W, both positions ~~having~~ ^{uncovering} 3.6 ft at MLLW. (4)

Recommendation: Chart ^{wreckage} "Foul Area", foul with wrecks. Use survey position 1957 for the ~~west~~ ^{west} limit and survey position 1958 for the ~~east~~ ^{east} limit. - concur, chart visible wreck, and wreckage limit as depicted on smooth sheet.

AWOIS 51366

Feature: Snag
 Latitude: 38/04/41.66N
 Longitude: 121/56/27.25W

Investigation: A 50 meter radius bottom drag was conducted, center ~~body~~ on DN 93, Vessel 0652, position 2147 at lat. 38/04/41.71N and long. 121/56/27.69W. On DN 96, Vessel 0651, diver investigation revealed a submerged snag at ² position 6815 at lat. 38/04/42.27N and long. 121/56/27.42W, it was 3 ft long and projecting 1.5 ft off the bottom with a least depth of .5 ft at MLLW. ⁽⁰⁾ Position 6816 at lat. 38/04/42.71N and long. 121/56/27.10W, depicts a snag 3 ft long projecting .5 ft off the bottom, ~~with a least depth of 1.3 ft at MLLW.~~
~~covered 1.5 ft~~

Recommendation: Revise charted snag ^{to} at the survey positions and chart as snag ⁽⁰⁾ and snag cov 1 ft at MLLW, respectively.

AWOIS 51367

Feature: Wooden Barge and Metal Wreckage
 Latitude: 38/04/42.00N
 Longitude: 121/57/19.40W

Investigation: A visual inspection of the area in question was conducted at low water, which revealed the wreckage immediately. The ^{northern} westerly limit was determined on DN 339, Vessel 0652, position 1953 at lat. 38/04/42.82N and long. 121/57/19.24W and bares ~~8.9 ft at MLLW.~~ ^{4.0 ft at MLLW}. The ~~eastern~~ ^{southern} limit is position 1956 at lat. 38/04/40.17N and long. 121/57/19.32W and bares ~~7.9 ft at MLLW.~~ ^{3.0 ft at MLLW}. The seaward most extent of the wreckage was defined by position ~~1952 and 1955.~~

Recommendation: Chart "^{wreckage} Foul limits", ~~foul with wrecks~~ at the above survey positions. - CONCUR

AWOIS 51368

Feature: Visible Wreck
 Latitude: 38/04/48.60N
 Longitude: 121/55/58.70W

Investigation: A visual search was made of the area in question and a small wooden wreck was immediately found. The wreck was positioned on DN 339, Vessel 0652, position 1966 at lat. 38/04/48.72N and long. 121/55/58.77W and ~~4.4 ft at MLLW.~~
 UNCOVERS 3.2 ft at MLLW

Recommendation: Revise charted visible wreck ^{to} at the survey position. - CONCUR

AWOIS 51369

Feature: Wooden Barge
Latitude: 38/04/52.00N
Longitude: 121/55/41.20W

A visual
Investigation: ~~A visible~~ search was conducted for the area in question at low water on DN 339, Vessel 0652. The barge was located at position 1967 at lat. 38/04/51.87N and long. 121/55/41.17W and ~~uncovers~~ 3.2 ft at MLLW. (3) No dimensions were taken.

Recommendation: ^{wreck to} Revise the charted ~~barge at~~ the survey position. - CONCUR

AWOIS 51370

Feature: Small Wooden Wreck (Beached) (Not shown on chart 18656/49 Ed)
Latitude: 38/04/53.50N
Longitude: 121/55/43.00W

Investigation: A ^{visual} ~~visible~~ search was conducted on DN 339, Vessel 0652 during a low water period. The wreck was found at position 1968, lat. 38/04/53.52N and long. 121/55/42.38W and ~~bare~~ 5.2 ft at MLLW. (5) No dimensions were taken.

Recommendation: ^{to} Revise the charted wreck ~~at~~ the survey position above. CONCUR

AWOIS 51371

Feature: Visible Wreck
Latitude: 38/03/01.80N ✓
Longitude: 121/54/50.50W

Investigation: A 50 meter diver circle search was performed (not plotted) on DN 23, Vessel 0651, center bouy at position 6262, lat. 38/03/01.63N and long. 121/54/50.60W. Divers determined the ^{position 6262} wreckage was badly decomposed and insignificant. On DN 24 ^{was rejected} the rest of the diver circle search was conducted at ^{in the field} position 6263 at lat. 38/03/01.74N and long. 121/54/50.80W. - # 52004
Wreckage was found in 30 ft of water. Wreckage was not positioned by divers at that time due to diver discontinuance.

Recommendation: ^{wreckage reported} Revise the Charted ~~submerged~~ wreck ^{to submerged} ~~survey position above.~~ - CONCUR ^{at survey position}

AWOIS 51372

Feature: Visible Wreck ✓
 Latitude: 38/03/03.50N
 Longitude: 121/54/51.50W

Investigation: A ^{visual} ~~visible~~ search of the area in question was conducted at low water on DN 340, Vessel 0652 and a wreck was immediately found at position 1980, lat. 38/03/03.50N and long. 121/54/51.77W and ~~bare~~ ^{bare} ~~7.2 ft~~ at MHW No dimensions were taken. 3 Ft

Recommendation: Revise the charted visible wreck ^{to} at the survey position. - CONCUR

AWOIS 51394 ✓

Feature: Visible Wreck (Shown as subm wreck PA on chart 18656/49th)
 Latitude: 38/04/59.30N
 Longitude: 121/54/50.00W

Investigation: A 50 meter radius bottom drag was conducted on DN 106 using the 16 ft boston whaler, center bouy at position 6891, lat. 38/04/59.31N and long. 121/54/49.97W. No hangs were found.

Recommendation: Remove charted ^{submerged} ~~visible~~ wreck. - CONCUR

AWOIS 51475

Feature: Visible Wreck
 Latitude: 38/04/21.00N
 Longitude: 121/54/34.00W

Investigation: A ^{visual} ~~visible~~ search was conducted of the area at low water on DN 345/89 and the wreckage was immediately found. The extent of the wreckage was determined with the north extent at position 1991, lat. 38/04/20.94N and long. 121/54/34.32W and the southern extent at position 1992, lat. 38/04/20.46N and 121/54/34.12W. At position 1991 the wreck ^{uncovered} ~~bare~~ 6 ft at MLLW. The offshore extent of the wreck was determined on DN 117, Vessel 0651, position 6973 at lat. 38/04/21.09N and long. 121/54/34.30W and ^{uncovered} ~~bare~~ 1.6 ft at MLLW. (2)

Recommendation: Revise the charted visible wreck at the survey position. - CONCUR, chart visible wreck at Survey location

Note: This is a special note concerning the following investigation of AWOIS items: 51476, 51477, 51478, 51479, 51480, 51481 and 51482. All these fall shoreward and within a now determined "Foul limits" area. The northern limit, position 1988, DN 345, Vessel 0652 at lat. 38/04/37.67N and long. 121/54/31.37W and the southern limit depicted by

position 6964, DN 116, Vessel 0651 at lat. 38/04/28.07N and long. 121/54/31.40W; everything located east of this foul limit is within the area to be charted as "Foul limits, area foul with wrecks", due to the decomposition and the widely displaced area now covered with the remains of those wrecks. All AWOIS items mentioned in this note were investigated and located either visually or by bottom drags performed at each AWOIS' specified latitude and longitude. Bottom drag center bouy and radius of coverage are depicted on the Final Field Sheet Smooth D.P. Overlay.

-concur, chart wreckage limit line as depicted on smooth sheet.

AWOIS 51476

Feature: Obstruction
Latitude: 38/04/28.30N
Longitude: 121/54/31.80W

Investigation: A visual search was conducted of the area at low water and on DN 115, Vessel 0651, position 6955 at lat. 38/04/28.63N and long. 121/54/31.14W, the obstruction was found. The obstruction only broke the surface by 1/2 ft at the time, so the extent of the obstruction could not be determined. The least depth of the obstruction was ^{uncovered} 0.8 ft at MLLW. *With the application of smooth tides, this feature uncovers 2ft at MLLW.* On DN 116, a 50 meter radius diver circle search was performed, the center bouy at position 6963, lat. 38/04/28.25N and long. 121/54/31.70W, obstruction identified as wreck.

Recommendation: Remove charted obstruction. *concur* Revise the chart to reflect a submerged wreck at the survey position. *-Do not concur. Chart a visible wreck at survey position as shown on the smooth sheet.*

Feature: Visible Wreck
Latitude: 38/04/31.50N
Longitude: 121/54/29.50W

Investigation: A 50 meter radius bottom drag was conducted on DN 117, Vessel 0651, center bouy at position 6976, lat. 38/04/31.43N and long. 121/54/29.45W. A hang was located at position 6977, lat. 38/04/31.42N and long. 121/54/27.27W. Divers determined that it was a portion of a submerged wreck, but no dimensions were taken. The wreck covers ~~0.3~~ ^{2.0 feet} ft at MLLW. *at MLLW*

Recommendation: Revise the charted wreck ^{to submerged at} at the survey position. *-concur*

AWOIS 51478

Feature: Visible wreck
 Latitude: 38/04/32.20N
 Longitude: 121/54/29.20W

Investigation: A visual search of the area in question was conducted at low water and the wreck in question was found immediately on DN 25, Vessel 0651, position 6265 at lat. 38/04/32.24N and long. 121/54/29.89W. This was the southwest corner which ^{UNCOVERS} bares 5.0 ft at MLLW. On DN 117, the northwest corner was positioned at position 6982, lat 38/04/32.34N and long 121/54/29.23W, ^{UNCOVERS} baring 4.2 ft at MLLW. _{5.0}

Recommendation: Revise the charted visible wreck at the survey position. ^{concur} chart visible wreck at survey position.

AWOIS 51479

Feature: Visible Wreck
 Latitude: 38/04/33.50N
 Longitude: 121/54/29.00W

Investigation: A 50 meter radius bottom drag was performed on DN 93, Vessel 0652, center of buoy at position 2141, lat. 38/04/33.51N and long. 121/54/29.12W. Several hangs were found this day, but no diver was available for further investigation on this day. On DN 107, Vessel 0651, another bottom drag was performed at position 6895, lat. 38/04/33.56N and long. 121/54/29.08W. The wreckage was again located and divers determined the item to be 18 inches off the bottom. Position 6897 at lat. 38/04/32.61N and long. 121/54/29.56W and covers +3.4 ft at MLLW and position 6898 at lat. 38/04/32.85N and long 121/54/29.51W and covers 3.2 ft at MLLW. No other dimensions were determined by divers at the time. ^{concur} Submerged wreck not shown on smooth sheet, ^{concur} ~~excessed~~ by visible wreck.

Recommendation: Delete charted visible wreck. ^{concur} Revise the charted ~~submerged~~ wreck at survey position. ^{concur} - This submerged wreck falls in an area with numerous visible wrecks. A visible wreck AWOIS 51480 located at latitude 38/04/32.25, longitude 121/54/29.9 should be charted.

Feature: Visible Wreck
 Latitude: 38/04/34.50N
 Longitude: 121/54/29.00W

Investigation: A portion of the wreck was located on DN 93, Vessel 0652, position 2145 at lat. 38/04/34.53N and long. 121/54/29.14W while in the process of dragging for AWOIS 51479, so a least depth was not determined at that time. On DN 107, Vessel 0651, three positions were taken on the wreck. Position 6901 at lat. 38/04/34.19N and long 121/54/29.86W is the west center portion. Position 6902 at lat. 38/04/34.54N and long. 121/54/29.75W is the northwest

corner, and Pos 6903 at lat. 038/04/34.39 and long. 121/54/29.27 is the northeast corner, but no least depths were determined this day. On DN 117, Vessel 0651, position 6978 at lat. 38/04/34.49N and long. 121/54/29.00W, a 50 meter radius bottom drag was performed on the remaining portion for clearance. No hangs were found.

Recommendation: Delete charted visible wreck. ^{concur} Revise the charted submerged wreck at the survey position. - Do not ^{concur}, chart visible wreck as shown on survey, wreck reduces to AWOIS 51481 ^{uncover}s 1 foot at MLLW.

Feature: Wreck ~~limits~~
Latitude: 38/04/35.70N
Longitude: 121/54/30.00W

Investigation: No formal investigation was conducted on this item, fortunately portions of this item were positioned while investigating other AWOIS items. Position 6979 at lat. 38/04/35.13N and long. 121/54/31.04W appears to be the west edge and 30 meters from the target area. Position 6983 at lat. 38/04/35.14N and long. 121/54/29.02W appears to be the east edge and also within 30 meters of the target. Position 6983 ~~bare~~ ^{uncover}s ~~1.3~~ ^{3.0} ft at MLLW. No other action was taken on this item.

Recommendation: Revise the charted feature ^{to} at the survey position. ^{concur} - Chart wreck as shown on smooth sheet

AWOIS 51482

Feature: Visible Wreck
Latitude: 38/04/37.50N
Longitude: 121/54/31.50W

Investigation: A visible search of the area was conducted at low water and the wreck was immediately ^{found} located on DN 345, Vessel 0652. The wreck was positioned on DN 117, Vessel 0651. The west end is position 6981 at lat. 38/04/38.00N (excessed) and long. 121/54/30.50W and ^{uncover}s ~~bare~~ ^{5.0} ft at MLLW and the east end is position 6980, lat. 38/04/37.38N and long. 121/54/31.20W and ~~covers~~ ^{uncover}s ~~1.6~~ ^{2.2} ft at MLLW. The symbol wreck is 30 meters long and 10 meters wide. This wreck was excessed by a more prominent wreck.

Recommendation: Revise the Charted wreck at the survey position. Do not ^{concur}, chart area as shown on survey.

AWOIS 51433

Subm ✓
 Feature: Wreck
 Latitude: 38/02/31.20N
 Longitude: 121/53/39.00W

Investigation: A 50 meter radius bottom drag was performed on DN 106, Vessel 0651, center buoy at position 6889, lat. 38/02/30.03N and long. 121/53/39.57W. The wreck was located at position 6890 at lat. 38/02/30.15N and long. 121/53/39.42W and the least depth is submerged +1.3 ft at MLLW. The extent of the wreckage was not determined by divers at the time.

Recommendation: Delete ^{charted} visible wreck. Revise the chart to reflect a submerged wreck at survey position. - CONCUR P/A

U. CHARTED NON-SOUNDING FEATURES

Item: Cable Area

The chart indicates a cable area in the vicinity of latitude 38/02/30, longitude 121/55/20. PHP did not find any signs on the north or south shore in this area to indicate the presence of a cable still crossing between Mallard and Chipps Islands.

Recommendation: Retain the cable area as charted. - CONCUR

Item: Foul Limits

There is an inlet on the east side of Honker Bay at lat. 38/04/32.88N and long. 121/54/32.14W that was an item of concern for several AWOIS items. Due to the vast extent of the remains of those Awois items which now completely covers the mouth of the inlet, this inlet is now declared a "Foul Limits" area. The northern limit is represented by position 1988, DN 345 and the southern limit at position 6964, DN 116, everything inside and east of this boundary is "~~Foul with wrecks~~ wreckage". Pos # 1988 lat. 38/04/37.64 | Pos # 6964 lat. 38/04/28.07
 wreckage long. 121/54/31.37 | wreckage long. 121/54/31.81

Recommendation: Revise the chart to show "Foul Limits" at the surveyed position. - CONCUR, refer to AWOIS item 51476 thru 51482

Item: Foul Area, Foul with Grass.

Honker Bay now seems to have several patchy areas of long grass (the common variety that is known to occur in the San Francisco Bay area). These grass areas, although not too extensive, ^{do} pose a threat to propeller crafts at periods of low water, even the survey party boats had problems during survey operations in these areas. The following is a

list of the central portions of these grass areas and their extent:

Lat. 38/03/35.92N and long. 121/55/16.22W, E-W 350 meters, N-S 1000 meters.

Lat. 38/04/38.08N and long. 121/54/44.82W, E-W 450 meters, N-S 1300 meters.

These grassy areas occur to a lesser extent at various places along the northern shoreline of Honker Bay. All grassy areas are noted on the Final Field Sheet represented as a dashed red line. *SHOWN ON SMOOTH SHEET AS BLACK LIMIT LINES.*

Recommendation: Revise the chart to show these areas "Foul Area, Foul with Grass". - *concur, chart grass limit lines as shown on survey.*

Several AWOIS items and other charted items were DISPROVED using standard investigative procedures. Please see individual AWOIS items in this text for assessment, all other proved and disproved charted items follow.

Item: Group of seven submerged piles - Chart 18659

Lat. 38/03/01.00N, Long. 121/^{53 51}~~55~~/03.40W ✓

Investigation: A 50 meter radius bottom drag was conducted on DN 184, Vessel 0651, center buoy at position lat. 38/03/~~00.64~~^{51.50}N and long. 121/~~54~~⁵³/~~57.72~~^{51.25}W. The west extent of the piles were located at position 7264, lat. 38/03/01.00N and long 121/53/51.25W, which covers +2.6 ft at MLLW. The east extent of the piles are at position 7266, lat. 38/03/00.89N and long. 121/53/49.⁸⁰~~79~~W and covers +2.5 ft at MLLW.

Recommendation: Revise ~~this portion of~~ ^{charted} submerged piles ^{to} at the survey position. - *concur, chart row of piles as shown on smooth sheet.*

Item: Charted submerged pile - Chart 18659

Lat. 38/03/00.9N, long. 121/53/54.4W

Investigation: A 25 meter radius bottom drag was performed, center buoy at position 7261, DN 183, Vessel 0651 at lat. 38/03/00.96N and long. 121/53/54.58W. A hang was discovered at position 7262, lat. 38/03/00.78N and long. 121/53/53.61W, but was deemed by diver investigation to be insignificant. This position was not plotted on the D.P. overlay.

Recommendation: Remove this submerged pile. - *concur*

Item: Charted visible ruins - Chart 18656/18659

Investigation: A 50 meters radius bottom drag was conducted on DN 249, Vessel 0651, position 7363, center buoy at lat.

38/02/58.97N and long. 121/55/0⁷3.36W to determine the offshore extent of the now mostly submerged portion of these ruins. Another 50 meters radius bottom drag was conducted on DN 261, Vessel 0651, position 7513, center bouy at lat. 38/02/58.9⁰⁰N and long. 121/54/58.6¹⁸W. A hang was determined this day as the offshore end at position 7515 at lat. 38/02/58.55N and long. 121/55/00.2⁸W, but no least depth was determined.

Recommendation: Retain the charted configuration of these ruins, but change to submerged. - CONCUR

Item: Submerged Ruins - Chart 18656/186³⁹

Lat. 38/02/33.35N, long 121/55/09.21W

Investigation: A hydrographic sounding development was conducted on DN 256, Vessel 0652, at 8 meter line spacing, to determine the fact that the ruins were still there. Due to the steep banks of the main channel and continually strong currents, a standard bottom drag was presumed impossible. Upon examination of this days echogram, there were numerous peaks and deeps observed within the configuration of the charted submerged ruins, which confirms this charted item. No least depths were determined by divers. Smooth sheet shows ruins however, charted ruins more extensive.

Recommendation: Retain charted feature. - CONCUR

Item: Charted line(Pier) - Chart 18659^{Chart 18659} and prior survey H-6735.

Lat. 38/03/00.8N, Long. 121/55/02.1W

Investigation: A 25 meter radius bottom drag was conducted on DN 262, Vessel 0651, position 7516, center bouy at lat. 38/03/00.75N and long. 121/55/02.9⁸⁰W. Two piles (as described by divers) were hung at position 7517 but, this item was located visibly at low water on DN 4, Vessel 0652, position 2015 at lat. 38/03/01.18N and long. 121/55/01.5^{1W} and visibly recognized as a 3 meter long stump and ~~bare~~^{uncover} ~~2.4~~ ft at MLLW.

Recommendation: Remove charted ^{line} pier. Revise chart to stump at the survey position. - CONCUR

Item: Small charted T-Dock - Chart 18656

Investigation: A 50 meter radius bottom drag was performed on DN 268, Vessel 0651, position 7526, center bouy at lat. 38/02/51.94N and long. 121/56/26.47W. A hang was found at position 7527 but, the drag line was determine by divers to just be hung in the mud.

Recommendation: Remove charted T-Dock. - ~~CONCUR~~

Item: Uncharted Submerged Wall

Investigation: This submerged wall was visually observed on DN 4/ 1989. This wall extended seaward, of position 2014 at lat. 38/03/00.49N and long. 121/54/59.82W. The offshore extent of this feature was not determined at this time, see 4 connecting photos which show visibly that it probably is quite extensive. (Photo A-D as marked). A diver investigation determined the offshore extent of this feature on DN 262/1990, position 7518 at lat. 38/03/00.35N and long 121/55/00.62W, but unfortunately this plots shoreward of position 2014. So, on DN 269, Vessel 0651, the offshore extent of this feature was again positioned by divers at position 7532, at lat. 38/03/00.18N and long 121/55/00.29W and covers +8.3 ft at MLLW. It is possible that what was photographed on DN 4 has been displaced, because position 7532 is clearly not representative of what was discovered in the photos. This feature could possibly be the deck (divers found a dock cleat) of the charted pier ruins that are just east of this area and has been changed from visible ruins to submerged ruins, see DN 249 and DN 261, both Vessel 0651.

Recommendation: Considering two dives were made months after the concerned photos were taken, it is possible that the photographed obstruction could have been moved by a combination of high tides and strong currents; either moved off into the deeps of the adjacent channel or further down the shoreline to an unknown location. Revise the chart to reflect a submerged obstruction at the survey position. Let Pos 2014 represent the inshore end and Pos 7532 represent the offshore end of this submerged obstruction. See disposition of charted ruins discussed on p. 32-33. Retain charted ruins as submerged, supplemented by features found on this survey.

Pos 2014
38/03/00.49
121/54/59.83

Pos 7532
lat. 38/03/00.18
121/55/00.4

lat. 38/03
long. 121/5

Item: The east channel entrance to Harris Marina.

Investigation: The channel entrance to Harris Marina is just west of privately maintained Lt "1" at lat. 38/02/54.00N and long. 121/57/18.00W. The channel begins on the south shore of Honker Bay, the entrance of which is at lat. 38/02/55.79N and long 121/57/21.80 and runs south for 800 meters into the main marina. The width of the channel, bank to bank appears to be at least 50 meters wide at a medium tide. Visual observation at low tide reveals that in reality the navigable channel is really very narrow about 4 meters in width and runs on the extreme east side of the

east bank. The channel MLLW depths alternate between 2 and 6 ft with a couple of 1.0 ft spots and a 0.0 ft at lat. 38/02/33.20N and long. 121/57/19.31W and the mouth of the entrance is almost unnavigable.

With smooth tides applied - this area is between 2 feet and 3 feet at MLLW

There are several cement tier blocks scattered on the edge of the channel entrance just west of the commercial entrance sign for Harris Marina and Lt "1". The cement blocks were positioned on DN 4, Vessel 0652, position 2016 at lat. 38/02/58.29N and long. 121/57/21.17W. The blocks are strewn in a 3 meter by 3 meter pattern. The blocks appear to be remains of old bases used to hold up previous Harris Marina commercial signs. Not shown on smooth sheet because of proximity to Harris Yacht Harbor Light 1.

proximity

Harris and McAvoy Marinas both have their own separate channels running into their respective harbors. The TP-Sheets and the nautical chart show a passage that connects the two channels via a side channel. This side channel is now blocked by a small floating drydock with four corner legs driven into the channel bottom. See DN 18, Vessel 0651, position 6241 at lat. 38/02/32.51N and long. 121/57/32.92W for exact position of the item.

Recommendation: Revise the chart to reflect the shoaling channel (Shoal rep 1990) and depict the drydock that blocks the two marinas with survey pos 6241. -Do not concur, chart area as shown on smooth sheet.

CONTROL STATIONS

No	Type	Latitude	Longitude	H	Cart	Freq	Vel	Code	MM/DD/YY
602	F	030+01+49.720	122+06+25.125	50	250	0.0	0.0	6	06/22/89
603	F	030+02+03.856	122+00+55.876	171	250	0.0	0.0	6	03/23/89
604	F	030+03+53.453	122+05+44.194	4	250	0.0	0.0	05	15/89
605	F	030+04+47.623	122+04+51.903	4	250	0.0	0.0	05	15/89
606	F	030+13+02.154	122+06+52.321	107	250	0.0	0.0	3	05/20/89
609	F	030+12+53.376	122+01+07.724	55	250	0.0	0.0	1	05/15/89
607	F	030+06+29.681	122+03+16.420	3	250	0.0	0.0	05	15/89
610	F	030+07+08.925	122+03+39.820	3	250	0.0	0.0	05	15/89
611	F	030+04+22.023	122+06+12.471	65	250	0.0	0.0	4	05/23/89
612	F	030+10+03.533	121+55+10.801	110	250	0.0	0.0	4	06/07/89
614	No. 614 F	038+12+09.604	121+57+16.301	125	250	0.0	0.0	3	03/23/90
615	615 F	038+07+27.552	122+07+48.454	335	250	0.0	0.0	2	08/29/89
617	617 F	038+04+24.971	121+49+10.834	27	250	0.0	0.0	2	03/23/90
618	618 F	038+08+19.442	121+54+08.194	53	250	0.0	0.0	8	03/23/90
619	619 F	038+00+32.633	121+58+32.259	267	250	0.0	0.0	6	03/23/90
620	620 F	038+02+33.338	121+55+02.949	6	250	0.0	0.0	4	05/09/90
621	F	037+58+27.330	121+55+44.959	371	250	0.0	0.0	1	05/15/90
622	F	039+05+01.746	121+51+12.832	26	250	0.0	0.0	6	06/27/90
623	F	039+01+50.767	121+50+11.529	7	250	0.0	0.0	4	08/27/90
624	624 F	038+03+51.447	121+50+03.693	5	250	0.0	0.0	8	09/14/90
625	625 F	038+03+40.232	121+52+14.881	4	250	0.0	0.0	5	10/15/90

No.	Name	Year Established
614	POTRERO (AVA 1941)	1941
615	LOPEZ 1932	1932
617	BLACKJACK 1931	1931
618	MEINS 2 1922	1922
619	BAKER 1954	1954
620	SUISUN BAY LT 28	1989
624	SAC RIVER DW CHANNEL LTC	1990
625	SUISUN BAY LT 33	1990

Replaces C&GS Form 567.

TO BE CHARTED
 TO BE REVISED
 TO BE DELETED

REPORTING UNIT
(Field Party, Ship or Office)
PACIFIC HYDRO PARTY

STATE

CA.

LOCALITY

SUISUN BAY-HONKER BAY

DATE

12/7/90

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY

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

OPR PROJECT NO. OPR-L208-PHP

JOB NUMBER

H-10317

DATUM NAD 27

POSITION

LONGITUDE

CHARTING NAME

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

LATITUDE

D.M. Meters

° / ' "

D.P. Meters

OFFICE

FIELD

CHARTS AFFECTED

LIGHT HARRIS YACHT HARBOR LIGHT "1" (PRIVATE)

038 02 54.00 121 57 18.0

LIGHT SUISUN BAY LIGHT "24A"

038 03 18.36 121 57 11.53

LIGHT SUISUN BAY LIGHT "26"

038 03 03.52 121 56 56.09

LIGHT SUISUN BAY LIGHT "27"

038 03 11.86 121 56 02.74

LIGHT SUISUN BAY LIGHT "28"

038 02 33.31 121 55 02.85

prev recd

L-50/91

RESPONSIBLE PERSONNEL
NAME

ORIGINATOR

- PHOTO FIELD PARTY
- HYDROGRAPHIC PARTY
- GEODETIC PARTY
- OTHER (Specify)

LT DeWayne J. Nodine (Chief of Party)

FIELD ACTIVITY REPRESENTATIVE

POSITIONS DETERMINED AND/OR VERIFIED

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
- L - Located
- V - Verified
- 1 - Triangulation
- 2 - Traverse
- 3 - Intersection
- 4 - Resection
- 5 - Field identified
- 6 - Theodolite
- 7 - Planetable
- 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

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



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

OFFICE OF CHARTING AND GEODETIC SERVICES
Seattle, Washington 98115-0070

Pacific Hydrographic Party
USATF, 801 Beach Drive
Rio Vista, California 94571

2 November 1990

Commander (oan)
Eleventh Coast Guard District
400 Oceangate Boulevard
Union Bank Building
Long Beach, California 90822-5399

**ADVANCE
INFORMATION**

Dear Sir:

During field review of hydrographic survey H-10317, located in Honker Bay/Suisun Bay, California, two dangers to navigation affecting the following charts were observed: 18652SC, and 18656.

It is recommended that the enclosed Report of Danger to Navigation be included in the Local Notice to Mariners.

Questions concerning this report should be directed to the Pacific Hydrographic Party at (707)374-5642.

Respectfully,

Lieutenant DeWayne J. Nodine, NOAA
Chief, Pacific Hydrographic Party



REPORT OF DANGER TO NAVIGATION

Survey Registry Number: H-10317
Survey Title: State: California
General Locality: Suisun Bay
Sublocality: Honker Bay
Project Number: OPR-L208-PHP-89
Field Party: Pacific Hydrographic Party

**ADVANCE
INFORMATION**

The following item was discovered during hydrographic survey operations:

Object Discovered: Dangerous Wreck

Bares 6.9 feet corrected to MLLW using predicted tides.

<u>CHART</u>	<u>EDITION</u> (No.-Date)	<u>DEPTH</u> (feet)	<u>HORIZ</u> <u>DATUM</u>	<u>LATITUDE</u> (N)	<u>LONGITUDE</u> (W)
18656	48-05/27/89	-6.9	NAD83	38/03/35.809	121/56/36.328
18652SC	26-12/03/88	-6.9	NAD83	38/03/35.809	121/56/36.328

Questions concerning this report should be directed to the Pacific Hydrographic Party at (707)374-5642.

REPORT OF DANGER TO NAVIGATION

Survey Registry Number: H-10317
Survey Title: State: California
General Locality: Suisun Bay
Sublocality: Honker Bay
Project Number: OPR-L208-PHP-89
Field Party: Pacific Hydrographic Party

**ADVANCE
INFORMATION**

The following item was discovered during hydrographic survey operations:

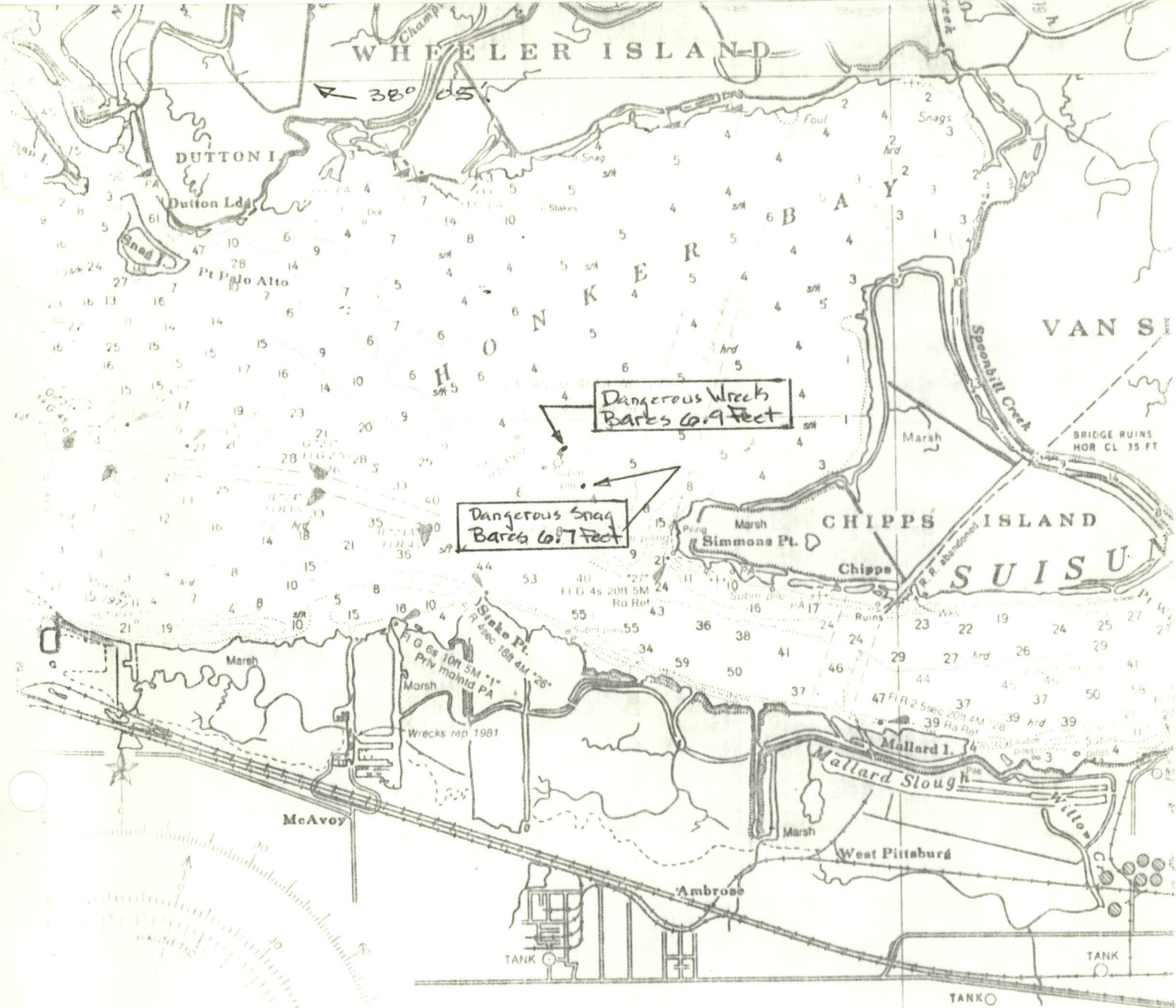
Object Discovered: Dangerous Snag

Bares 6.7 feet corrected to MLLW using predicted tides.

<u>CHART</u>	<u>EDITION</u> (No.-Date)	<u>DEPTH</u> (feet)	<u>HORIZ</u> <u>DATUM</u>	<u>LATITUDE</u> (N)	<u>LONGITUDE</u> (W)
18656	48-05/27/89	-6.7	NAD83	38/03/28.252	121/56/29.561
18652SC	26-12/03/88	-6.7	NAD83	38/03/28.252	121/56/29.561

Questions concerning this report should be directed to the Pacific Hydrographic Party at (707)374-5642.

WHEELER ISLAND



Dangerous Wreck
Bars 6.9 Feet

Dangerous Snag
Bars 6.7 Feet

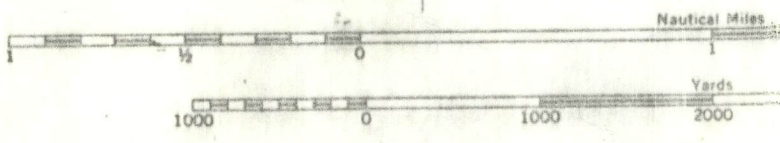
CAUTION

Only marine radiobeacons have been calibrated for surface use. Limitations on the use of certain other radio signals as aids to marine navigation can be found in the U.S. Coast Guard Light Lists and Defense Mapping Agency Publication 117.

Radio direction-finder bearings to commercial broadcasting stations are subject to error and should be used with caution.

Station positions are shown thus:
 ○ (Accurate location) o (Approximate location)

ADVANCE INFORMATION



SOUNDINGS IN FEET

Copied From Chart 18656 48th Edition Dated 5/27/89

Horiz. Datum: NAD 83

FATHOMS
FEET
METERS

APPROVAL SHEET

for

Survey H-10317

The descriptive report, final field sheets and accompanying records have been reviewed for accuracy, completeness, compliance with project instructions, and adherence to required standards and procedures. The data are forwarded for final review and processing.

Submitted by:

Michael E. Bigelow

Michael E. Bigelow
Chief Cartographic Technician, PHP

Approved by:

DeWayne J. Nodine

LT DeWayne J. Nodine, NOAA
Chief, PHP

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

ORIGINAL

DATE: April 2, 1991

MARINE CENTER: Pacific

OPR: L-208

HYDROGRAPHIC SHEET: H-10317

LOCALITY: Suisun Bay/Honker Bay, CA.

TIME PERIOD: October 17, 1989 - November 2, 1990

TIDE STATION USED: 941 5112 Mallard Island, CA.
Lat. 38 1.6'N Lon. 121 55.1'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): = 3.06 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: = 3.9 ft.

REMARKS: RECOMMENDED ZONING

West of 121 56.0'W (Simmons Point) apply a x1.03 range ratio to all heights, and a -0 hr. 15 min. time correction, and east of 121 56.0'W (including Honker Bay) zone direct using Mallard Island.


CHIEF, TIDAL DATUM QUALITY
ASSURANCE SECTION

NOAA FORM 76-155 (11-72)	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	SURVEY NUMBER H-10317
GEOGRAPHIC NAMES		

Name on Survey	A ON CHART NO. 18656	B ON PREVIOUS SURVEY NO. 18659	C On Chart 18652	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND McNALLY ATLAS	H	Manuscript # TP-01251
----------------	----------------------	--------------------------------	------------------	--------------------------	-----------------	---------------------	----------------------	---	-----------------------

AMBROSE	X									1
CALIFORNIA (title)	X	X	X				X	X		2
CHAMPION SLOUGH	X		X				X			3
CHIPPS	X	X	X				X			4
CHIPPS ISLAND	X	X	X				X	X		5
DUTTON ISLAND	X		X				X			6
DUTTON LANDING	X		X				X			7
HONKER BAY	X		X				X			8
MALLARD							X			9
MALLARD ISLAND	X	X	X				X			10
MALLARD SLOUGH	X	X	X				X			11
MCAVOY	X		X				X			12
PALO ALTO, POINT	X		X				X			13
PITTSBURG	X	X	X							14
SHORE ACRES			X				X			15
SIMMONS POINT	X		X				X			16
SNAG ISLAND	X	X	X				X			17
SPOONBILL		X					X			18
SPOONBILL CREEK	X	X	X				X	X		19
SUISUN BAY	X	X	X				X	X		20
STAKE POINT	X	X	X				X			21
VAN SICKLE ISLAND	X	X	X				X	X		22
WALL, POINT	X	X	X	Approved:				X		23
WHEELER ISLAND	X		X				X			24
WISE, POINT	X	X	X	<i>Charles E. Herring</i>				X		25

Chief Geographer - N/CG2x5

SEP 19 1991

HYDROGRAPHIC SURVEY STATISTICS

H-10317

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET		1	SMOOTH OVERLAYS: POS., ARC, EXCESS		8
DESCRIPTIVE REPORT		1	FIELD SHEETS AND OTHER OVERLAYS		3
DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/SOURCE DOCUMENTS
* ACCORDION FILES	3				
ENVELOPES					
VOLUMES					
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			2875
POSITIONS REVISED			
SOUNDINGS REVISED			
CONTROL STATIONS REVISED			
	TIME-HOURS		
	VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	111.0		111.0
VERIFICATION OF SOUNDINGS	385.5		385.5
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	203.0		203.0
COMPARISON WITH PRIOR SURVEYS AND CHARTS		7.0	7.0
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		98.0	98.0
GEOGRAPHIC NAMES			
OTHER:			
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	699.5	105.0
			804.5

Pre-processing Examination by M. Brown	Beginning Date 1/2/91	Ending Date 1/28/91
Verification of Field Data by J. Stringham, M. Sanders	Time (Hours) 699.50	Ending Date 1/10/92
Verification Check by J. Stringham, S. Otsubo	Time (Hours) 63.0	Ending Date 2/14/92
Evaluation and Analysis by R. Mihailov	Time (Hours) 87	Ending Date 6/15/92
Inspection by D. Hill	Time (Hours) 10	Ending Date 9/8/92

EVALUATION REPORT H-10317

1. INTRODUCTION

Survey H-10317 is a basic hydrographic survey accomplished by the Pacific Hydrographic Party under the following Project Instructions.

OPR-L208-PHP, dated May 1, 1989

This survey was conducted in California and covers Honker Bay and the western portion of Suisun Bay. The area is located within the shipping channel connecting San Francisco Bay to the Sacramento-San Joaquin River system. The survey area extends from latitude 38/05/10N south to latitude 38/02/10N and from longitude 121/53/20W westward to longitude 121/58/35W. The bottom consists of mud, sand and broken shells. Depths range from 0 feet along the shore to 82 feet at the eastern survey limits.

Predicted tides for San Francisco, California, gage 941-4290, were used for the reduction of soundings during field processing. Approved hourly heights zoned from Mallard Island, California, gage 941-5112, were used during office processing.

The field sheet parameters have been revised to center the hydrography on the smooth sheet and to change the projection to polyconic. NAD 27 is used as the horizontal datum for plotting and position computation. The TRA, sound velocity and electronic control correctors are adequate. An accompanying computer printout contains the parameters and the correctors.

A digital file has been generated for this survey as required by the specifications contained in Hydrographic Survey Guideline No. 52, Standard Digital Data Exchange Format, April 15, 1986. 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 depiction of survey data.

2. CONTROL AND SHORELINE

Sections H and I in the hydrographer's report contain adequate discussions of horizontal control and hydrographic positioning.

Positions of horizontal control stations used during hydrography are 1989 and 1990 field and published values based on NAD 27. These values were used during office processing. The smooth sheet and accompanying overlays are annotated with NAD 83 adjustment ticks based on values determined with the NGS program, NADCON. Geographic positions based on NAD 83 may be plotted on the smooth sheet utilizing the NAD 27 projection by applying the following average corrections.

Latitude: 0.290 seconds (8.9 meters)
Longitude: -3.856 seconds (-94.0 meters)

The year of establishment of control stations shown on the smooth sheet originates with the horizontal control data for this project and published NGS data.

The quality of several positions exceeds limits in terms of error circle radius and residual or have angles of intersection less than 30 degrees or more than 150 degrees. A review of the data, however, indicates that none of these fixes are used to position dangers of navigation. The soundings found by these fixes are consistent with surroundings. These fixes are considered acceptable.

The following shoreline maps apply to this survey.

<u>Map Number</u>	<u>Photo date</u>	<u>Class</u>	<u>Scale</u>
TP-01250	November 1983-March 1984	III	10,000
TP-01251	November 1983-March 1984	III	10,000

A shoreline change at latitude 38/04/26N, longitude 121/58/17W, is depicted in dashed red on the smooth sheet from the field sheet, without supporting positional data.

The following shoreline changes are depicted in red on the smooth sheet and are supported with positional data.

<u>Feature</u>	<u>Latitude(N)</u>	<u>Longitude(W)</u>
floating pier	38/02/20	121/57/20
floating pier	38/02/26	121/57/24
floating pier	38/02/27	121/57/25
floating pier	38/02/30	121/57/30
floating pier	38/02/33	121/57/37
floating pier	38/02/34	121/57/39
floating pier	38/03/34	121/54/21
floating pier	38/04/07	121/54/39
floating pier	38/04/09	121/54/39
floating pier	38/04/50	121/57/13
floating pier	38/05/04	121/57/02
pier	38/03/35	121/54/23
pier	38/03/35	121/54/22
pier	38/04/03	121/54/37
pier	38/04/48	121/56/20
floodgate	38/04/49	121/57/28
floating drydock	38/02/32.5	121/57/33

These changes are adequate to supersede the common photogrammetrically delineated shoreline.

3. HYDROGRAPHY

Except as noted below, 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 are correctly plotted.

Channels must be developed with a series of crosslines and channel lines. This requirement was not completed for a channel in the vicinity of latitude 32/02/30N, longitude 121/57/24W.

4. CONDITION OF SURVEY

The hydrographic records and reports received for processing are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change No. 3, the Hydrographic Survey Guidelines, and the Field Procedures Manual, January 1989 Edition.

5. JUNCTIONS

Survey H-10317 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10315	1989-90	10,000	West
H-10342	1990-91	10,000	East

The junction with survey H-10315 has not been formally completed since the survey was previously processed and forwarded for charting. The junction was made using a copy. There is good agreement between soundings. The note on the smooth sheet is shown as "ADJOINS".

The junction with survey H-10342 is complete and the soundings are in good agreement.

6. COMPARISON WITH PRIOR SURVEYS

H-6735 (1941-42) 1:10,000
H 7797 (1950) 1:10,000

H 7797 (1950)

Survey H-6735 covers the entire area of the present survey. The majority of the soundings agree within 2 feet. The 30-foot depth curve has moved inshore approximately 180 meters at latitude 38/03/18N, longitude 121/57/45W and again at latitude 38/02/53N, longitude 121/54/45W. The 60-foot depth curve at latitude 38/02/40N, longitude, 121/54/05W, has moved in a westerly direction approximately 400 meters. Refer to section K of the hydrographer's report for additional discussion on the comparison between these two surveys.

There are no AWOIS items originating from the prior survey H-6735 that apply to the present survey.

Survey H-10317 is adequate to supersede survey H-6735 within the common area.

7. COMPARISON WITH CHART

<u>Chart</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>
18652SC	26th	December 3, 1988	1:40,000
18652SC	27th	August 18, 1990	1:40,000
18656	48th	May 27, 1989	1:40,000
18656	49th	February 2, 1991	1:40,000
18659	9th	September 13, 1986	1:10,000
18659	10th	July 7, 1990	1:10,000

a. Hydrography

Charted hydrography originates with the prior survey discussed in section 6 of this report and miscellaneous sources.

The later editions of each of these charts have been updated by a partial application from the preliminary sounding plot. These preliminary soundings were reduced using approved tides.

The following features were not found or disproved during this survey. They should be retained at their presently charted position and depicted as noted below.

<u>Feature</u>	<u>Latitude(N)</u>	<u>Longitude(W)</u>
Cable Area	38/02/30	121/55/20
Submerged ruins	38/02/33.3	121/55/09.2
Submerged ruins	38/02/58.5	121/55/00.3

Survey H-10317 is adequate to supersede charted hydrography within the common area, except as listed above.

b. AWOIS

There are thirty-three AWOIS items originating from miscellaneous sources within the area of this survey. Refer to section T of the descriptive report for discussion and disposition of these items.

All AWOIS items originate with miscellaneous sources.

c. Controlling Depths

There are no channels with controlling depths within the area of survey H-10317.

d. Aids to Navigation

There are four fixed lights, and two lighted buoys plotted within the area of this survey. Suisun Bay Channel Lighted Buoy 24A was removed and replaced by Suisun Bay Channel Light 24A. Refer to the Form 76-40 which is attached to this report for the field position. This change is reflected on chart 18656, 49th edition, February 2, 1991.

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

Two dangers to navigation were reported by the hydrographer to the USCG, DMAHTC and N/CG222. A copy of the report is attached. No dangers to navigation were discovered during office processing.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10317 adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

This is an good hydrographic survey. No additional field work is recommended.

R. N. Mihailov

Robert N. Mihailov
Cartographer

APPROVAL SHEET
H-10317

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, cartographic symbolization, comparison with prior surveys and verification or disproof of charted data. The digital data have been completed and all revisions and processing have been entered in the magnetic tape record for this survey. Final control, position, and sounding printouts have been made and are included with the survey records. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Dennis J. Hill

Date: 9-10-92

Dennis J. Hill
Chief, Hydrographic Processing Unit
Pacific Hydrographic Section

I have reviewed the smooth sheet, accompanying data, and reports. Field work for this survey continued for more than one year because it was conducted concurrently with surveys H-10315 and H-10342. The long duration of field work caused this survey to have unusual complexity such as large numbers of baseline calibrations and velocity casts, and to have minor problems such as HDAPS not being able to properly file data for the same dates of different years. These extra problems and complexity proved to be manageable, and the data verifiable. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.

Douglas G. Hennick

Date: 9/10/92

Commander Douglas G. Hennick, NOAA
Chief, Pacific Hydrographic Section

Final Approval

Approved:

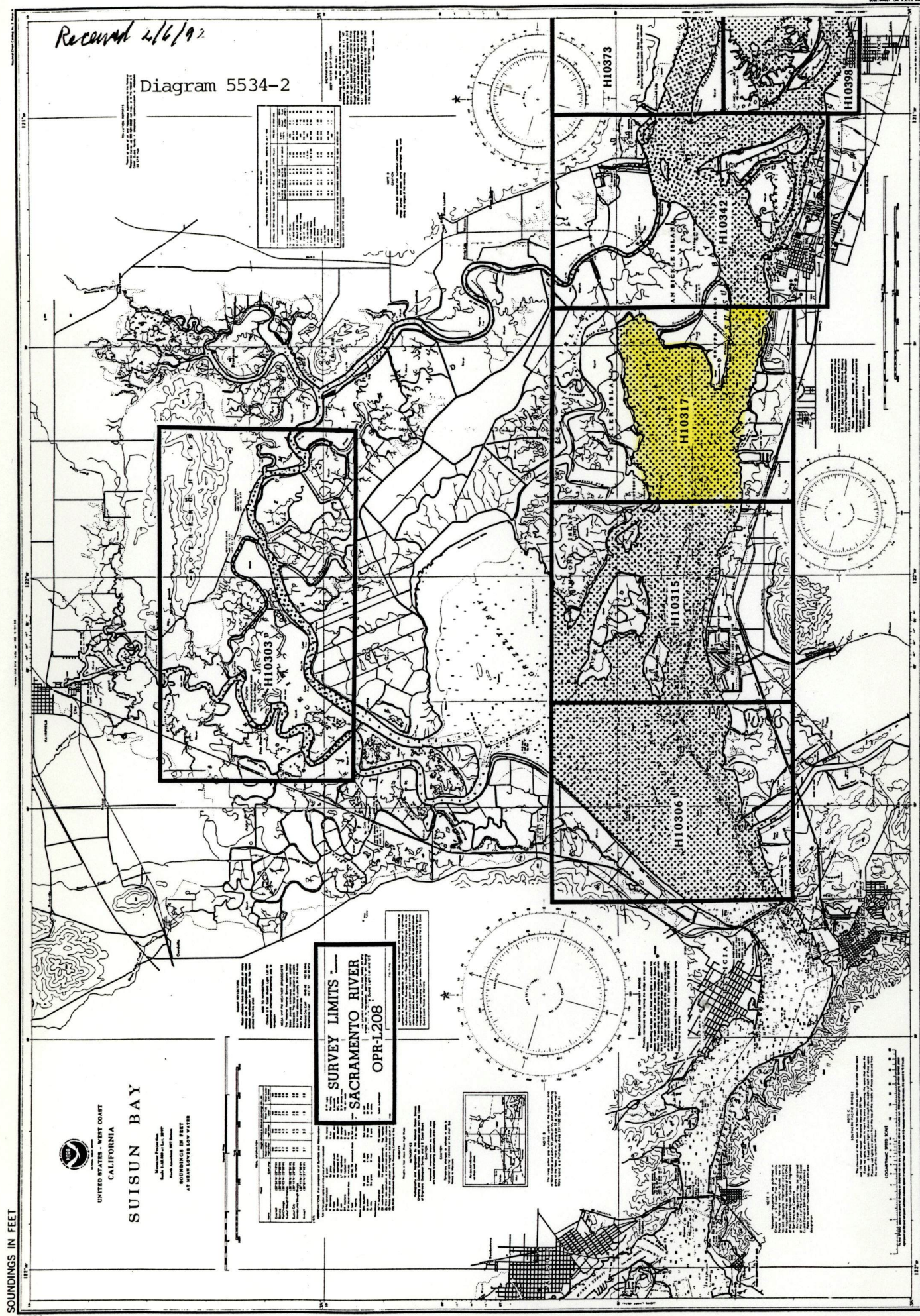
J. Austin Yeager

Date: 9/28/93

J. Austin Yeager
Rear Admiral, NOAA
Director, Coast and Geodetic Survey

Received 2/6/92

Diagram 5534-2



NAME	CLASS	CHARACTER	HEIGHT	DIAMETER	REMARKS
...

SURVEY LIMITS
 SACRAMENTO RIVER
 OPR-1208

NAME	CLASS	CHARACTER	HEIGHT	DIAMETER	REMARKS
...

UNITED STATES - WEST COAST
 CALIFORNIA
SUISUN BAY

MARINE CHART BRANCH
RECORD OF APPLICATION TO CHARTSFILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10317

INSTRUCTIONS

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

1. Enter 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
18007	5/21/91	ALMACEN	Full Part Before After Marine Center Approval Signed Via Examined . No Drawing No. CORRECTIONS APPLIED . Sndgs. reduced w/ predicted tides.
501	5/21/91	ALMACEN	Full Part Before After Marine Center Approval Signed Via Examined . No Drawing No. CORRECTIONS APPLIED .
18658	4-25-91	Stanley Okubo	Full Part Before After Marine Center Approval Signed Via Partial application along Drawing No. the Eastern Border @ 122° 58' 15" W Contour only.
18659	7-25-91	ALMACEN	Full Part Before After Marine Center Approval Signed Via Partially applied Drawing No. from preliminary sounding plot . Sndgs. reduced w/ approved tides.
18656	8-1-91	ALMACEN	Full Part Before After Marine Center Approval Signed Via Partial application Drawing No. from preliminary sounding plot .
18652	8-5-91	ALMACEN	Full Part Before After Marine Center Approval Signed Via Partial application Drawing No. from preliminary sounding plot . Soundings reduced w/ approved tides.
18007	1/28/92	ALMACEN	Full Part Before After Marine Center Approval Signed Via No corrections Drawing No. applied . Sndgs. reduced w/ approved tides.
18020	2/11/92	ALMACEN	Full Part Before After Marine Center Approval Signed Via Drawing No. Examined . No corrections applied.
18667	3-24-94	R. A. Lillis	Full Part Before After Marine Center Approval Signed Via Drawing No. New Chart ^{2/2/94}
18659	6-15-95	Eli Dodoumou	Full Part Before After Marine Center Approval Signed Via Drawing No. #14 ^{Corrected 9/95}
18658	5-10-96	R. Whitfield	Full After Marine Center Approval Signed Via Drawing No.
18656	8/9/96	R. Whitfield	Full After Marine Center Approval Signed Via Drawing # 56
18652	E.F. 8/5/96	R. Whitfield	Full After Marine Center Approval Signed Via Drawing # 32