

# 10413

Diagram No. 5527

NOAA FORM 76-35A

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

## DESCRIPTIVE REPORT

Type of Survey ..... Hydrographic  
Field No. .... PHP-10-1-92  
Registry No. .... H-10413

### LOCALITY

State ..... California  
General Locality .. San Joaquin River  
Sublocality ..... Franks Tract & Vicinity

1992

CHIEF OF PARTY  
LT G.F. Glang

### LIBRARY & ARCHIVES

DATE ..... November 2, 1993

★ U.S. GOV. PRINTING OFFICE: 1987-758-080

# 10413

CP-7  
18661 B'

HYDROGRAPHIC TITLE SHEET

H-10413

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-10-1-92

State California

General locality San Joaquin River

Locality Franks Tract and Vicinity

Scale 1:10,000 Date of survey Jan 17 to Mar 24, 1992

Instructions dated June 17, 1991 Project No. OPR-L208-PHP

Vessel Jensen Launch 1101 (0651), SeaArk Launch 1102 (0652)

Chief of party LT G.F. Glang

Surveyed by LT G.F. Glang, LT J.S. Verlaque, ET E.O. Wernicke, ST R. Baker

Soundings taken by echo sounder, hand lead, pole Raytheon DE-719C Echosounder

Graphic record scaled by PHP Personnel

Graphic record checked by PHP Personnel

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

Evaluation by: J. Green

Soundings in ~~fathoms~~ meters ~~feet~~ at MLW MLLW & decimeters

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

SP-1-6-97 AWOIS and SURF - PWD 11/93  
K.W.W. 11/22/93

PROGRESS SKETCH  
OPR-L208-PHP

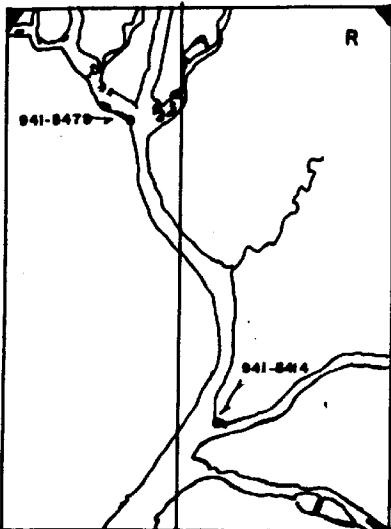
SACRAMENTO RIVER, CA. SHEETS N,O,P,Q,R

JANUARY - 1992

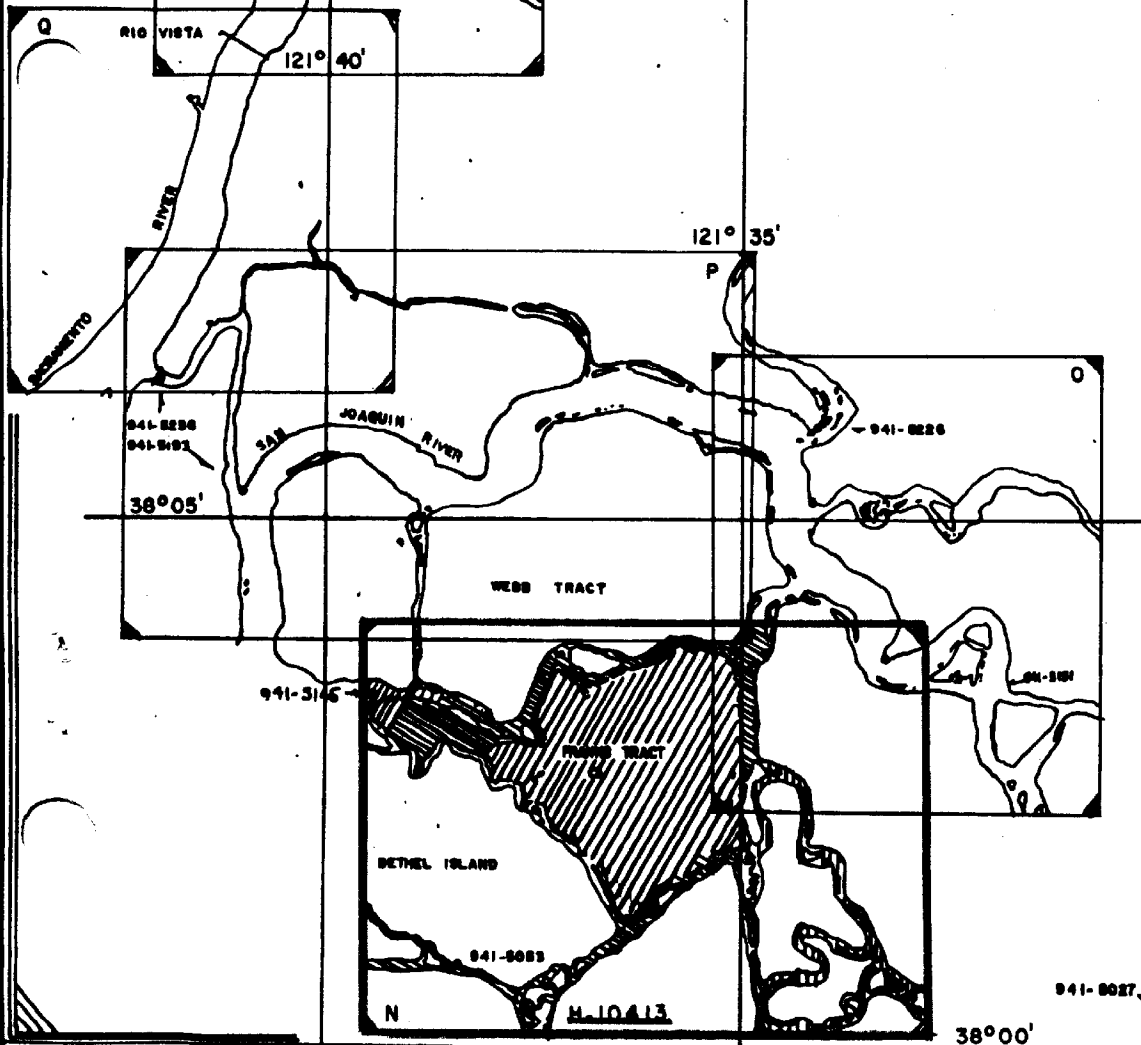
HYDROGRAPHIC SURVEY

PACIFIC HYDROGRAPHIC PARTY

LT GERD F. GLANG, CHIEF



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
SQ NM SOUNDINGS	4.0	1.8	1.2							
L NM SOUNDINGS	111.1	127.3	60.5							
L NM MISC DISTANCE	115.0	21.0	17.0							
BOTTOM SAMPLES	0	67	42							
ELECTRONIC CONTROL STATIONS	8	4	0							
SOUND VELOCITY CASTS	2	5	3							
TIDE STATIONS	0	0	1							
GEODETIC CONTROL STATIONS	37	0	0							
AWOIS ITEMS RESOLVED	3	3	13							



**Descriptive Report to Accompany Hydrographic Survey H-10413**

Field Number PHP-10-1-92  
Scale 1:10,000  
1992

Pacific Hydrographic Party  
Chief of Party: LT Gerd F. Glang

**A. PROJECT**

This survey was conducted in accordance with Hydrographic Project Instructions OPR-L208-PHP, Sacramento River, California, dated June 17, 1991. ✓

Hydrographic survey H-10413 was conducted to obtain data for maintenance of existing nautical charts, and for a new series of 1:12,500-scale charts. This project also responds to the San Francisco Pilots Association and the US Army Corps of Engineers (COE), Bay Model Engineering Office, by aiding the update of the Bay model. ✓

This survey's sheet letter is "N", as specified by the project instructions. As specified below (para. B), the sheet limit was decreased at the west from the original sheet layout, provided in the Project Instructions, as the junction survey's (H-10409) eastern limit was increased. To meet limits of the field processing system, sheet "N" was divided into N-North (HDAPS Sheet 15) and N-South (HDAPS Sheet 16) sheets. *Only for field processing* ✓

**B. AREA SURVEYED** *See Eval Rpt, Sect 1*

The area surveyed for H-10413 includes: Franks Tract, and False River, Old River, Connection Slough, Sand Mound Slough, Dutch Slough, Taylor Slough, and Piper Slough, within the sheet limits. The west and east limits of hydrography are longitudes 121°39'46"W and 121°32'45"W, respectively. The north and south limits are latitudes 38°04'03"N and 38°00'06"N, respectively. ✓

This survey is centered in the delta of the Sacramento and San Joaquin Rivers, in central California. The Delta is a region of rivers and sloughs which interconnect the Sacramento and San Joaquin Rivers. Tracts of agricultural land are separated by these sloughs and rivers, and are protected by dirt levees, sometimes reinforced with riprap. Several tracts flooded in recent history and were not reclaimed. Franks Tract is the largest such flooded tract in the Delta, and until this survey, was considered uncharted. Where levees exist, some changes to ✓

the shoreline were evident from erosion or addition of riprap. The hydrographer observed several levees being maintained with the addition of rock. Unprotected shoreline of islets and old levees consist of mud and tule grass, and easily change in configuration with seasonal flooding and erosion.

Data acquisition was conducted from January 17 through March 24, 1992. ✓

#### C. SOUNDING VESSELS

NOAA Launch 1101 (EDP No. 0651), a 29-foot Jensen, and NOAA Launch 1102 (EDP No. 0652), a 22-foot SeaArk, were used to collect sounding data, bottom samples, velocity casts, and to conduct shoreline verification. Bottom drags were conducted from VN 0651 exclusively. No changes to the standard vessel sounding configurations were necessary. ✓

#### D. AUTOMATED DATA ACQUISITION AND PROCESSING

This survey was completed with the following HDAPS Programs:

<u>Program Name</u>	<u>Program Version</u>	<u>Installation Date</u>
DISC_UTIL	N/A	04/01/92
MB	N/A	04/01/92
HJ	N/A	04/01/92
AUTOST	1.10	06/26/91
SURVEY	6.11	04/14/92
POINT	2.05	04/24/92
PLOTALL	2.02	04/28/92
PRINTOUT	3.00	04/28/92
CARTO	2.02	05/06/92
BASELINE	1.12	04/01/92
QUICK	1.10	04/29/92
CONVERT	3.02	05/14/92
INVERSE	1.51	04/01/92
LOADNEW	1.50	04/01/92
GLOBAL	1.12	04/01/92
REJECT	1.05	04/01/92
MAKEFIX	1.02	04/29/92
BIGABST	2.00	04/14/92
REAPPLY	1.33	04/01/92
DIAGNOSTIC	3.00	04/01/92
FILESYS	2.16	04/01/92
BACKUP	2.00	04/01/92
LISTAWOIS	2.01	04/01/92
PREDICT	1.11	04/01/92
POSTSUR	5.21	04/01/92

<u>Program Name</u>	<u>Program Version</u>	<u>Installation Date</u>
READPROJS	1.08	04/01/92
SOFTCHECK	1.13	04/01/92
DP	2.00	04/07/92
EXCESS	3.04	04/01/92
ZOOMEDIT	1.10	04/01/92
INSTALL	3.00	04/01/92
CARTOTRANS	1.00	04/01/92
RECOMP	2.00	04/01/92
COPRINTOUT	1.00	04/01/92

The PC-DAS SURVEY Program, version 3.7, was used for on-line data acquisition until version 4.0 was received. Launch 0651 and 0652 were upgraded on February 14. The following non-HDAPS computer programs were used:

VELOCITY (IBM PC)	1.11	03/09/90	✓
NADCON (IBM PC)	1.01	09/89	
DDPROC (IBM PC)	4.03	01/25/92	

Significant software problems encountered include errors in BIGABST Program, version 1.13, and PC-DAS SURVEY Program, version 3.7. The new releases of the CARTO and DP programs were significantly changed and caused approximately three weeks additional processing time. ✓

BIGABST does not correctly compute mileage when a hydrographic line is used to buffer an islet or foul area (the line's beginning and ending overlap), nor does it properly count DP's when several have been rejected on a particular DN. ✓

PC-DAS SURVEY, version 3.7, miscounts the fix numbers. The fix number displayed on screen in the survey mode often does not update with each fix event, causing duplicate position numbers. This error occurs if the function window (F10 key) is open while a fix event is occurring, and can only be corrected by a careful review of the RMPO\* vs. the echogram. ✓

With either version of the PC-DAS Program, the SURVEY Program occasionally failed to send an event marker to the echosounder, and no visual record of a selected sounding appeared on the echogram. The RMPO was annotated to show where the selected sounding occurred. ✓

The new release of CARTO contains errors in the label position and rotation routine. This error required developing a test carto table before the error could be systematically evaluated and the labels correctly plotted on FFS 15 and 16. The new ✓

\* Raw Master Printout

release of DP (vers. 2.00) allows only for an extremely limited printout of detached positions. The most significant items omitted from the DP printouts are the geographic latitude and longitude. In addition, the new release of DP does not automatically search for all detached positions from the sheet data, thus eliminating a very useful checking function which the old version performed. To work around the new DP program's shortcomings, a printout was generated from both the old and the new release of the DP editor. These printouts are provided in the data files. Because the remarks field format was changed to accommodate the new release, any DP remarks added during DP editing do not appear on the old DP (vers. 1.10) printouts. Comments on these programs were forwarded to N/CG24.

The RMPO was annotated whenever software problems affected the data.

#### E. SONAR EQUIPMENT

Not applicable.

#### F. SOUNDING EQUIPMENT

The following Raytheon DE-719C Echosounders, modified with an Odom Hydrographic Systems, Inc. Digitrace, were used:

<u>Vessel</u> <u>EDP No.</u>	<u>Serial No.</u>	<u>DN Used</u>
0651	10278	034-080
0652	10280	017-084

Soundings were recorded in meters, with an assumed speed of sound through water of 1500 m/sec. Depths encountered in the survey area range from ~~0.0~~ to 14.9 meters.

The digitized soundings from the echosounder were compared in real time with the analog trace to ensure reasonable agreement. Adjustments to the zero calibration, speed of sound, and tide and draft were noted on the echogram if not obvious. Because of the poor reliability of the DE-719C echosounders, these adjustments were required almost continuously.

Survey records were scanned by PHP employees in accordance with the Hydrographic Manual and FPM Section 2.3.3, with the digital sounding taking precedence over the analog trace. In depths greater than approximately 10 meters, an error up to 0.3 meters is apparent when the digital sounding is compared to the analog trace. In certain instances, the analog-to-digital difference

was applied to a scanned insert. This error is not an uncommon characteristic of the Raytheon DE-719C/Odom Digitrace combination. *These characteristics were also considered during office processing. Sounding data appears consistent throughout the survey area.* Sounding poles were made by PHP using commercial surveyor's level-rod tape. These self-adhesive, pre-printed tapes are calibrated in centimeter intervals. They were laminated with clear epoxy to two-inch diameter wooden rods finished with white marine epoxy paint. The sounding poles are 3.3 meters long. No further calibrations are required. The sounding poles were used for measuring least depths on shallow AWOIS investigations.

Metric leadlines were made by PHP in accordance with HSG 69. Each leadline is 7/16-inch double-braided dacron line. Markings are at one-meter intervals from 0 to 19, and are shrink-tubing secured with epoxy glue. This deviation from HSG 69 makes for a more rugged leadline. Markings were calibrated during fabrication with a steel surveyor's tape while the line was under six pounds of constant tension. The throwing end is a standard six-pound lead shackled to a stainless steel thimble bent to the bitter end. Leadlines were used for depth comparisons with the echosounders. Calibration forms are included in Separate IV (Sounding Equipment Calibration and Corrections). X

**G. CORRECTIONS TO SOUNDINGS**

Velocity of Sound

Corrections for the speed of sound through the water column were computed from data obtained with an Applied Microsystems Laboratories (AML) Velocity of Sound Profiler (S/N 03004). The VELOCITY Program was used to determine the speed of sound correctors. A noticeable variation in sound velocity was observed for this survey due to its geographic location east of the salinity line and the heavy freshwater runoff from winter rains. The historical limit of the salinity line for the Sacramento and San Joaquin Rivers is located approximately between Chipps Island and Antioch. Therefore, sound velocities were influenced heavily by the type of tide (incoming vs. outgoing) and amount of daily runoff from the heavy rains.

The following casts were taken:

Cast	DN	Depth*	DN		HDAPS Tables		Cast Position	
			Range		0651	0652	Latitude	Longitude
1	017	10.9	017 -	020	1	2	38°01'40"N	121°34'44"W
2	024	12.0	021 -	026	3	4	38°02'22"N	121°35'04"W
3	034	13.3	027 -	034	5	6	38°03'51"N	121°35'44"W
4	038	16.1	035 -	040	7	8	38°02'00"N	121°34'45"W
5	044	17.9	041 -	047	9	10	38°02'00"N	121°34'45"W
6	051	16.4	048 -	054	11	12	38°02'00"N	121°34'45"W

\* Filed with the hydrographic records



Cast	DN	Depth*	DN	HDAPS Tables		Cast Position	
			Range	0651	0652	Latitude	Longitude
7	056	14.4	055 - 061	13	14	38°02'00"N	121°34'45"W
8	064	12.6	062 - 068	15	16	38°01'46"N	121°34'14"W
9	072	18.2	069 - 075	17	18	38°01'46"N	121°34'14"W
10	079	12.5	076 - 084	19	20	38°03'37"N	121°34'55"W

\*Extrapolated depth.

Velocity corrector tables were created for both vessels from each cast due to their different drafts. Copies of all velocity cast data and HDAPS Velocity Corrector Tables are included in Separate IV. ✕ A floppy disk copy of the VELOCITY Program data files is provided with the data. ✕

The AML instrument was calibrated by Northwest Regional Calibration Center on January 7, 1992. A copy of the calibration report is included in Separate IV. ✕

#### Leadline Comparisons

Leadline comparisons were taken daily to determine instrument error and to verify static draft. The instrument errors computed varied from -0.20 to +0.29 meters. This instrument correction was not applied to final field sheet soundings as it was not constant and may have been due to bottom type or individual operators. Leadline comparisons were annotated on the echograms and a leadline log is included in Separate IV. ✕

#### Static Draft

A static draft for VN 0651 was determined on October 22, 1991 in two steps. The first step determined the depth of the transducer face from a reference mark on the hull. The second step involved measuring the depth from this reference mark to the launch's waterline with the launch in water (fuel tanks half full and two crew aboard). A static draft of 0.46 meters was determined. This draft agrees with historical data.

A static draft for VN 0652 was determined on October 15, 1991 using a similar method as above. A static draft of 0.4 meters was determined. This static draft differs by 0.12 meters from the static draft measurement obtained in June, 1989. This change in static draft is likely due to an addition of 100 pounds of ballast and the gradual deterioration of the launch's flotation.

#### Dynamic Draft

Settlement and squat measurements for VN 0651 were conducted on October 22, 1991, on the San Joaquin River, north of Antioch, CA. Settlement and squat measurements for VN 0652 were conducted on October 18, 1991, on the Sacramento River, in the vicinity of Rio

✕ Filed with the hydrographic data

Vista, CA.

Draft and settlement and squat correctors are applied online to all survey data via the HDAPS Offset Tables. Offset Table 1 corresponds to VN 0651 and Offset Table 2 corresponds to VN 0652. Field records are included in Separate IV. \*

### Tide Correctors

The Final Field Sheets were plotted using predicted tides based on San Francisco, California. Four tidal corrector zones from the Tide Zone Chart are within this survey's limits. Only correctors from the most easterly zone (+6.00 hr HW, +6.45 hr LW, x 0.63 height ratio) were applied to all sounding data.

Approved water levels were requested from the Sea and Lake Levels Branch (N/OES2) in a letter dated April 06, 1992. A copy of this letter is included in Appendix V (Tides and Water Levels). \*  
*Approved Tide Note dated July 7, 1992, is attached.*

Irregular depth curves are evident in the large shallow areas of Franks Tract. In particular, the 100-meter mainscheme sounding lines in Franks Tract on N-South (HDAPS Sheet 16) are up to 0.4 meters shallower than the 50-meter splits. These differences are likely due to predicted tide correctors, and should be eliminated when smooth tides are applied. *Some irregularity is still present, however, significant improvement has occurred.*

H. CONTROL STATIONS *See Eval Rpt, Sect 2*

### Horizontal Datum

The horizontal control datum for this project is North American Datum (NAD) 1983. A copy of the HDAPS Control Station Table is included in Appendix III (List of Horizontal Control Stations). *attached*

Station 701 (KIRKER, 1946), Station 739 (SAND CREEK, 1946), Station 753 (CONN, 1992), Station 754 (FEAR, 1992) Station 755 (RIOS, 1992), Station 765 (MILE, 1992), and Station 766\* (JURY, 1992) do not plot within the limits of the FFS. \* *Station 766 plots within the sheet limits.*

### Survey Methods

Geodetic positions used for establishing horizontal control on this survey were obtained from either the NGS CONUS database or from the Pacific Photogrammetric Party's (N/CG2333) Global Positioning System (GPS) receivers. All stations meet Third Order, Class I, standards.

The 1991 OPR-L208-PHP Horizontal Control Report was submitted by N/CG2333 in October, 1991. The 1992 OPR-L208-PHP Horizontal Control Report was submitted by N/CG2333 in May, 1992. A list of the preliminary adjusted positions used for stations positioned

\* Filed with the hydrographic data.

in 1992 (received January 15, 1992 from N/CG2333) is included in Appendix III (List of Horizontal Control Stations). \* These positions were used for hydrographic data acquisition. Adjusted positions for all GPS-positioned stations were provided by N/CG2333 (received April 3, 1992) and are provided in Appendix III as well. \* The applicable NGS CONUS data for non-GPS-positioned stations is also included in Appendix III. \*

## I. HYDROGRAPHIC POSITION CONTROL

### Position Control

Hydrographic position control was accomplished using the Motorola Mini-Ranger (MR) Falcon 484 positioning system which provided accuracy to meet the 1:10,000-scale survey requirements. Range/Range positioning methods were used for all hydrography during this survey.

Per FPM Section 3.1.3.3, when using three or four lines-of-position (LOPs), a critical system check is continuously obtained by observing the error circle radii (ECR) and the maximum residual values on the Navitronics PC-DAS screen in the survey launch. Positions which had erratic lines of position, indicated by high residuals or high ECRs on the RMPO (Raw Master Printout), were recomputed or smoothed during processing. If, after position recomputation, acceptable ECR and maximum residual values were indicated, the data were saved. The RMPO was annotated to reflect these edits.

Initial data collected in the Dutch Slough area was determined to be unacceptable by the hydrographer due to poor ECRs. Dutch Slough is narrow and features almost continuous structures and trees which blocked most stations. Soundings in this area acquired on DN 35 and DN 37 (VN 0652) were mostly rejected. This data was reacquired using VN 0651 (its mast has greater height) with acceptable results.

### Critical System Checks

In addition to the daily critical system checks described above, fixed-point calibrations were conducted to ensure no blunders occurred in the HDAPS and PC-DAS Project Tables, and to confirm C-O values. Field records of the fixed-point calibrations are included in Separate III (Horizontal Position Control And Corrections To Position Data). \*

### Mini-Ranger Falcon Calibrations

Baseline calibrations were performed on October 3, 1991 in accordance with FPM Section 3.1.2.1. The baseline correctors were incorporated into the PC-DAS C-O Tables and applied on-line.

\* Filed with the hydrographic records.

C-O Table 1 is for VN 0651 and C-O Table 2 is for VN 0652. All records of these calibrations are included in Separate III. \*

Positioning Equipment

The following RPU-R/T combinations were used:

<u>Vessel</u> <u>EDP No.</u>	<u>RPU-R/T</u> <u>Serial No.</u>
0651	F0243/H3705
0652	F0259/C1680

The following MR transponders were used:

<u>MR Transponder</u> <u>Serial No.</u>	<u>Code</u>
911711	1
G3510	2
911059	3
F3047	4
C1789	5
B1412	7
B1413	8
911632	9
B1411	A
911723	B

All equipment serial numbers are annotated on the daily RMPO.

J. SHORELINE See Eval Rpt, Sect 2

Sources

Shoreline detail shown on the final field sheets was transferred by hand from a stable-based 1:10,000-scale enlargement of TP-01060 (1:20,000-scale, NAD 27, ~~March 1988~~ <sup>April 1988</sup>) north of a line drawn from approximately 38°01'50"N, 121°37'00"W, to 38°02'30"N, 121°34'38"W, and east of a line drawn from 38°02'30"N, 121°34'38"W, to 38°00'08"N, 121°33'30"W. Where photographic compilation of TP-01060 ends, a stable-based 1:10,000-scale enlargement of NOS Chart 18661 (1:40,000-scale, NAD 83, 20th Ed., June 9, 1990) was used for shoreline detail.

NAD 27 datum ticks were applied to the NAD 83 field sheets and are shown in green on FFS 15 and 16. \* Datum transformation from NAD 83 to NAD 27 was in accordance with FPM Section 7.4. A printout of the NADCON Program datum transformation is included in Separate I (Hydrographic Sheets and Parameters). \*

9  
Filed with the hydrographic data

## Verification

Field notes from shoreline verification can be found on the echograms, in the sounding volumes, on the FFS, and the FFS Overlay. Two Detached Position Listings created by the HDAPS DP Programs (version 1.10 and 2.00) are included in the N-North and N-South data files. ✕

## Charted Shoreline Agreement

Charted shoreline was verified by its junction with the hydrographic data and by visual inspection. Shoreline from the chart enlargement was severely distorted and did not correspond to the hydrographic field notes. This distortion is likely due to the very old shoreline manuscripts used on Chart 18661 and the enlargement process. Shoreline along the sloughs is mostly levee, often reinforced with riprap, while the small islets are marsh (tule). Hydrographic buffer lines were run around many islets to verify their dimensions and positions. In most cases, these buffer lines were marked as NSP (Not for Smooth Plotting) prior to plotting soundings on the FFS. Many of the old levees, charted as berms or long islets, which surround Little Mandeville Island, and which separate Franks Tract from Old River and Sand Mound Slough, are now submerged. New islets, or islets with significantly changed configurations, are shown in red on the FFS. Increased cultural development along Taylor Slough, Dutch Slough, and Piper Slough has resulted in many new private piers, docks, and boathouses. To streamline data acquisition, only limits of these structures were positioned. Limits of continuous docks and berths are shown as dashed black lines on the FFS. See Section N (Comparison with the Chart) for recommendations. )

## TP-Sheet Shoreline Agreement

TP-sheet shoreline was verified by its junction with the hydrographic data or by visual inspection. The TP-sheet shoreline agreed well with the hydrographic data, although some distortion was apparent while aligning the TP-sheets with the NAD 27 datum ticks on the FFS. See Eval Rpt. Sect 2 d 9

## Shoreline Changes

Exceptions to TP-sheet agreement occur at the berms separating Little Franks Tract, and Franks Tract, from False River and Piper Slough. Several breaks now exist in the berms, while others have grown closed with tule. The accretion of tule, primarily in Franks Tract and Old River, has altered the configuration of several marsh islets. Hydrographic buffer lines were run around these islets to allow accurate depiction on the FFS and were marked as NSP. Limits of tule are shown as dashed lines on the FFS. Verification of the high waterline along the eastern shore of Little Franks Tract could not be accurately accomplished; a

dashed red on smooth sheet

foul limit verified by hydrographic buffer line was used to depict this shore. Islets with changed configurations are shown in red on the FFS. Also shown in red on the smooth sheet. -

No attempt was made to individually verify each pier or dock in Taylor Slough, Dutch Slough, and Piper Slough. The hydrographer chose instead to verify the alongshore limits of these structures as numerous private piers and docks have been added. The limits of these structures are shown as dashed lines on FFS 15 and 16. See Section N (Comparison with the Chart) for recommendations. Also shown as limits on the smooth sheet.

#### K. CROSSLINES

A total of 32.9 NM of crosslines and channel lines, representing 11.0% of the hydrography on H-10413, were used for crossline comparisons. The crossline soundings agree to within 0.4 meters of the mainscheme soundings. Differences in the crossline to mainscheme hydrography are attributed to predicted tides (discussed in Section G, Corrections to Soundings) and where crosslines ran along steep sloping areas (i.e. channel lines). The same vessels were not always used for both mainscheme hydrography and crosslines. Crosslines generally agree to within 0.2 meters in the flat areas.

#### L. JUNCTIONS

See Eval Rpt, Sect 5

Hydrography on this sheet junctions to the west with H-10409 (Big Break to False River, San Joaquin River, 1:10,000, November 1991). There are no contemporary surveys which junction to the north, south or east of this sheet. A stable-based copy of the H-10409 FFS was used to compare junction soundings. Soundings agree to within 0.6 meters and depth curves match well. Differences in junction soundings are likely due to predicted tides and the steep contours found in False River, Piper Slough, and Taylor Slough. \* Contemporary surveys H-10421 (1992) and H-10435 (1992) junction to the north.

During survey operations on H-10409, 3-LOP control was not always available for shoreline verification at the southeast limit of that survey in Dutch Slough. Adequate control consisting of three LOP's was available during this survey to verify the shoreline and junction with H-10409. As a result, a 300-meter overlap with H-10409 exists at the southwest corner of this survey.

Overlapping junction soundings were obtained per section 4.3.2 of the Hydrographic Manual.

M. COMPARISON WITH PRIOR SURVEYS *See Eval Rpt, sect 6*

This survey was compared to the following prior surveys:

<u>Survey No.</u>	<u>Scale</u>	<u>Year</u>
H-6000	1:10,000	1934
H-6003	1:10,000	1934
H-6005a	1:10,000	1934
<del>BP-103692</del>	<del>1:10,000</del>	<del>1977 (unconfirmed)</del>

H-6000

No AWOIS items originated with prior survey H-6000. ✓

Comparison with a stable-based copy of this prior survey was made in areas common to H-10413, excluding Franks Tract, Little Franks Tract and False River. Sounding agreement varied greatly throughout their common areas. ✓

Soundings on H-10413 at the south end of Piper Slough were generally 4 to 5 feet shoaler. ✓

Soundings on H-10413 at the south end of Taylor Slough were generally 4 to 12 feet shoaler, with evidence the slough has widened 10 to 20 meters. This widening is likely due to previous erosion of the levees (now stabilized by riprap). ✓

Soundings on H-10413 in Dutch Slough generally agreed within 2 feet. The marsh islets which exist on H-6000 are considerably altered in configuration and were depicted on FFS 16 from the hydrographic field notes. Changes to these islets are shown in red. *Shown in dashed red on the smooth sheet* ✓

Soundings on H-10413 in the slough centered at 38°00'18"N, 121°37'24"W are 6 to 8 feet shoaler. The slough is closed off at the north end by two wrecks and marsh. ✓

The majority of the depths in Sand Mound Slough are 4 feet deeper. This may be attributed to the large amount of water passing through Sand Mound Slough via Franks Tract. Franks Tract was not flooded in 1934, when this prior survey was conducted. ✓

The marsh islet which existed at 38°01'48"N, 121°33'<sup>5</sup>'45"W no longer exists. A shoal with a least depth of 0.5 meters now exists. ✓

All other depths are 2 to 6 feet shoaler in their common areas. Data from H-10413 should supersede this prior survey in their common areas. *Concur* ✓

H-6003

No AWOIS items originated with prior survey H-6003.

Comparison with a stable-based copy of this prior survey was made in the area southeast of Little Mandeville Island. The island centered at 38°00'28"N, 121°36'36"W is labeled as Rhode Island. The correct name is Little Mandeville Island. Soundings in the area centered at 38°00'28"N, longitude 121°32'58"W are up to 10 feet shoaler. The sloughs in this area are up to 50 meters wider. This widening is likely due to erosion.

All other survey depths compare to within 2 feet. Data from H-10413 should supersede this prior survey in their common areas. *Concur*

H-6005a

No AWOIS items originated with prior survey H-6005a.

Comparison with a stable-based copy of this prior survey was made in the southern part of Fishermans Cut. Soundings on H-10413 are generally 2 to 3 feet deeper in the center of the cut from of 38°03'53"N north to H-10413's sheet limit. This is most likely due to the flow of water between the San Joaquin and False Rivers, where strong tidal currents were observed.

Data from H-10413 should supersede this prior survey in their common areas. *Concur*

BP-103692 Not a prior survey. See Fuel Rpt, crk 7a & 7b  
2552/78

AWOIS Item No. 51525 originates from ~~prior survey BP-103692~~ and is described as three visible wrecks (wooden barges), uncovering 4 to 6 feet (observed), grounded against the eastern shore of Old River in position 38°01'40.71"N, 121°33'46.82"W. On DN 069, a visual search and a 50-meter split development run over this area (Pos. No. 2822-2829, VN 0652) did not locate any evidence of a wreck. The AWOIS description for this item is the exact findings observed for AWOIS 51523 (Pos. 2550 and 2551, VN0652). Findings from this search were discussed with Mr. Robert Derkazarian, N/CG241, who also concurred with the method of search. The hydrographer recommends removing the <sup>3</sup> barges symbol from the chart at the above reported position and charting wreck limits as described under AWOIS 51523 in Section N (Comparison with the Chart). *Concur*

AWOIS Item No. 51572 originates from ~~prior survey BP-103692~~ and is described as piles, uncovering 3-4 feet (observed), located in position 38°02'42.71"N, 121°35'05.82"W. A visual search on DN 025 located a single pile at 38°02'42.74"N, 121°35'05.56"W (Pos. No. 798, VN 0652). The pile <sup>is a</sup> ~~barge~~ 1.5 meters at MLLW. A 25-meter echosounder search and pole sounding at low tide revealed



no other findings. The hydrographer recommends charting a pile at the surveyed position. Concur. Item presently not charted

AWOIS Item No. 51573 originates from ~~prior survey~~ BP-103692 and is described as piles, uncovering 5 feet (observed), located in position 38°02'48.71"N, 121°35'04.32"W. A visual search on DN 025 located two piles with a N-S orientation in position 38°02'49.35"N, 121°35'04.43"W (Pos. No. 797, VN 0652). The detached position was taken at the center between the south pile bearing 2.2 meters at ~~MLLW~~ and the north pile bearing 1.2 meters at ~~MLLW~~. The hydrographer recommends charting piles at the surveyed position. Concur. Item presently not charted

AWOIS Item No. 51582 originates from ~~prior survey~~ BP-103692 and is described as piles, uncovering 1 foot (observed), located in position 38°03'21.71"N, 121°35'00.82"W. A visual search and two 25-meter radius bottom drags centered at 38°03'21.70"N, 121°35'00.83"W (Pos. No. 7135, VN 0651) did not locate any evidence of piles. The hydrographer recommends removing the pile symbol from the chart. Item presently not charted. Item considered disproven, do not chart.

AWOIS Item No. 51583 originates from ~~prior survey~~ BP-103692 and is described as a pile located in position 38°03'34.91"N, 121°35'03.02"W. A visual search and two 25-meter radius bottom drags centered at 38°03'34.86"N, 121°35'03.01"W (Pos. No. 7134, VN 0651) did not locate any evidence of a pile. The hydrographer recommends removing the pile symbol from the chart. Item presently not charted. Considered disproven at this position. Do not chart.

AWOIS Item No. 51584 originates from ~~prior survey~~ BP-103692 and is described as piles, uncovering 2 feet (observed), located in position 38°03'35.71"N, 121°36'18.33"W. A visual search at low tide on DN 059 located a row of four piles with an overall length of 10 meters. The piles have an E-W orientation and bare 1.0 uncover 0.9 meters at MLLW in position 38°03'38.46"N, 121°36'17.90"W (Pos. No. 2284, VN 0652). The hydrographer recommends charting a row of piles at the surveyed position. Chart piles as found on this survey. Item presently not charted.

AWOIS Item No. 51585 originates from ~~prior survey~~ BP-103692 and is described as a row of piles, uncovering 2 feet (observed), located in position 38°03'45.71"N, 121°35'33.83"W. On DN 025, a visual and echosounder search located a double row of piles spaced one meter apart between 38°03'45.38"N, 121°35'35.65"W (west end, Pos. No. 791), and 38°03'45.53"N, 121°35'33.35"W (east end, Pos. No. 792). At MLLW, the piles at the west and east end uncover bare 1.7 meters and 1.2 meters, respectively. The hydrographer recommends charting a row of piles between the surveyed positions. Chart the rows of piles as shown on the smooth sheet. Item presently not charted.

Although not specifically listed in the Project Instructions, a paper copy of this ~~prior survey's~~ field sheet was available for comparison. The prior survey's common area with H-10413 is Franks Tract. A date for this prior survey was not provided,

however the hydrographer presumes BP-10369<sup>2</sup> originated from the NOAA Ship Davidson's chart adequacy survey (CAS) during the late 1970's. Significant distortion in the paper copy was apparent during comparison. However, since no smooth tides or velocity correctors were used to create the field sheet for BP-10369<sup>2</sup>, the differences noted are only generalized.

Depth curves on H-10413 generally agreed with those from BP-10369<sup>2</sup>. ✓

Many of the snags located on BP-10369<sup>2</sup> were not located during the present survey and are presumed to have moved with high tides. Similarly, new snags located on this survey were not shown on BP-10369<sup>2</sup>. The majority of the piles and obstructions located on BP-10369<sup>2</sup> were confirmed on H-10413. The one exception are the four pile markers located in the southern half of Franks Tract and which may have marked the channel leading to Sand Mound Slough. On DN 078, VN 0651 conducted 25-meter and 50-meter radius bottom drags at positions scaled from BP-10369<sup>2</sup> (Pos. Nos. 7137, 7138, 7139, and 7140) with no evidence of any existing piles or obstructions. Data from these investigations are provided in Separate VI (Item Investigation Data). \* See Eval Rpt, sect 7a

Data from H-10413 should supersede <sup>BP-10369<sup>2</sup></sup> this prior survey in their common area. Concur

#### N. COMPARISON WITH THE CHART

This survey affects the following chart in areas common with this survey:

<u>Chart No.</u>	<u>Scale</u>	<u>Edition</u>	<u>Date</u>
18661 SC	1:40,000	20th	June 9, 1990

See Eval Rpt, sect 7

A stable-based 1:10,000-scale enlargement of Chart No. 18661 SC was used for comparison. ✓

There were 24 AWOIS items within the limits of the H-10413 plotter sheets (HDAPS Plotter Sheets 15 and 16). Of these, three were resolved on survey H-10409 (Big Break to False River, San Joaquin River, November, 1991), and two are reassigned to Sheet "O" (PHP-10-2-92). Of the 19 remaining AWOIS items, 7 AWOIS items originated from prior survey BP-103691 and are discussed in Section M (Comparison to Prior Surveys). The remaining 12 AWOIS items originate from miscellaneous sources and are discussed here. Sheet "O" is H-10421

AWOIS Item No. 51492 originates from Chart Letter 921/84 (USPS) and is described as a visible wreck (small dredge) at the entrance to Rhode Island in position 38°00'05.71"N, 121°34'24.82"W. On DN 065, a visual search located a visible

\* Filed with the hydrographic data <sup>15</sup>

wreck with an overall length of 25 meters, laying in an E-W direction at the west entrance to Rhode Island, not the north entrance as previously reported. The wreck bares 5.0 meters at the highest point at MLLW and is 12 meters at 270° PMC from the south side of the wreck (Pos. No. 2610, VN 0652) in position 38°00'06.16"N, 121°34'42.22"W. The hydrographer recommends charting a wreck at the surveyed position. Concur. wreck presently not charted at either position.

AWOIS Item No. 51493 originates from Chart Letter 176/47 and is reported as a shoal, covering 4 feet at MLLW, in position 38°00'38.71"N, 121°34'38.82"W. On DN 071, a visual search by VN 0652 and 10-meter echosounder development revealed no apparent shoaling, although tulle growth has extended offshore from the northern side of the berm. The depths in this area are uniform and consistent with the corresponding shoreline. See AWOIS 51493 Development Plot A (1:2500-scale) for reference.\* The hydrographer recommends data from this survey be used to supersede the charted soundings in this area. Concur

Nothing special to chart  
0510  
200

AWOIS Item No. 51494 originates from BP66620(1964);USPS and is reported as a submerged wreck in position 38°00'46.71"N, 121°38'47.83"W. On DN 038, a visual search, sounding pole, 10-meter echosounder development, and two 50-meter bottom drags revealed no evidence of any wreckage. The 10-meter echosounder development located a shoal with least depth of 0.5 meters in position 38°00'47.20"N, 121°38'47.28"W (Pos. No. 6146+1, VN 0652). See AWOIS 51494 Development Plot C (1:2500-scale) for reference.\* The hydrographer recommends charting the surveyed depths at the above position and removing the wreck from the chart. Concur

Nothing to chart  
0510  
200

AWOIS Item No. 51523 originates from Chart Letter 1771/73 (USPS;item 45) and is described as a visible wreck (barge) beached on a bank in position 38°01'28.71"N, 121°33'43.82"W. On DN 066, a visual search located three visible barges laying end to end and parallel to the shore between 38°01'26.64"N, 121°33'43.06"W (North end, Pos. No. 2550, VN 0652), 38°01'29.81"N, 121°33'44.89"W (South end, Pos. No. 2551, VN 0652). At MLLW, the north end bares 2.0 meters and the south end bares 2-7 meters. The hydrographer recommends charting wreck limits between the surveyed positions. Concur. Wreck presently not charted.  
an unknown source

1.9

AWOIS Item No. 51524 originates from ~~TP-01060~~ (1983) and is reported as six visible wrecks in a row - probably barges on the west bank of slough in position 38°01'36.71"N, 121°33'52.82"W. On DN 071, a visual search and 50-meter bottom drag (Pos. No. 7128, VN 0651) revealed no evidence of wrecks or obstructions in the area. Per N/CG241 (Robert Derkazarian) telecon on 11 March 1992, the reported AWOIS position was revised to the above position with the search requirement reduced to 50 meters. The hydrographer recommends removing the wrecks from the chart. Concur. A fifty meter wire drag was accomplished.

Nothing to chart

\* Data verified and plotted on the smooth sheet

**AWOIS Item No. 51526** originates from Chart Letter 927/84 (USPS) and is reported as a ski platform in position 38°01'40.71"N, 121°34'51.82"W. On DN 066, a visual search located a visible platform (in ruins) approximately 4 meters square baring ~~0.3~~ <sup>uncovered 1.1</sup> meters at MLLW in position 38°01'42.34"N, 121°34'53.18"W. This position is three meters southeast of the SE offshore end of two barges extending from shore (AWOIS 51527). Two additional ski platforms exist within 50 meters of the reported AWOIS item in position 38°01'40.86"N, 121°34'54.29"W (Pos. No. 2657, VN 0652) and in position 38°01'40.16"N, 121°34'51.31"W (Pos No. 2658, VN 0652). The hydrographer recommends charting an obstruction and platforms at the above positions. *Do not concur. The additional platforms are floating and not shown on the CFS. Delete charted platforms.* Chart

**AWOIS Item No. 51527** originates from Chart Letter 927/84 (USPS) and is described as two sunken barges in position 38°01'42.71"N, 121°34'50.82"W. On DN 066, a visual search located two barges laying side by side, parallel to and extending 25 meters from shore with a NE-SW orientation. The barges bare ~~2.3~~ <sup>2.6</sup> meters at MLLW at the NE offshore end in position 38°01'42.87"N, 121°34'51.98"W (Pos. No. 2655, VN 0652) and ~~0.3~~ <sup>1.6</sup> meters at the SW offshore end in position. 38°01'42.34"N, 121°34'53.18"W. <sup>MLLW</sup> (Pos No. 2656, VN 0652). Other barges (working) are moored to the south and east of these wrecks. Refer to the echogram field notes and FFS 16 for illustration. \*The hydrographer recommends charting wrecks from between the surveyed positions to the shoreline. *Concur. Delete charted wreck. Chart wreckage limits as shown on the survey.* Chart

**AWOIS Item No. 51528** originates from Chart Letter 906/74 (USPS) and is described as a directional sign on a pile (PA) in position 38°01'52.71"N, 121°34'58.82"W. On DN 066, a visual search located two piles supporting a directional sign "Sand Mound Slough, Bethel Island" in position 38°01'52.27"N, 121°34'59.31"W (Pos. No. 2677, VN 0652). The piles were 2 meters apart and baring ~~3.2~~ <sup>3.2</sup> meters at MLLW <sup>MLLW</sup> at the edge of the tule line in a small cove. The hydrographer recommends charting a sign at the surveyed position and deleting the "sign PA" at the reported position. *Concur.*

**AWOIS Item No. 51571** originates from Chart Letter 1762/73 (USPS) and is described as piles between two marshes in position 38°02'08.71"N, 121°37'23.83"W. On DN 067, a visual search located a row of four piles having an overall length of 20 meters with a NE-SW orientation. The piles are 4 meters north of the south islet and 20 meters south of the north islet in position 38°02'10.83"N, 121°37'24.07"W (Pos. No. 2724, VN 0652). ~~At MLLW,~~ <sup>(MLLW)</sup> The western-most two piles bare 3.7 meters, <sup>(MLLW)</sup> the eastern most pile bares 5.7 meters, <sup>(MLLW)</sup> and the remaining pile bares 0.7 meters. <sup>(MLLW)</sup> The DP was taken at the offshore center of the four piles. The hydrographer recommends charting ~~a row of piles~~ at the surveyed position. *Concur. Piles not presently charted.*

\* Filed with the hydrographic data <sup>17</sup>

AWOIS Item No. 51574 originates from Chart Letter 1497/84 (USPS) and is described as a sunken wreck (PA), with tulle and brush growing in a hulk in position 38°02'14.71"N, 121°34'08.82"W. On DN 066, a visual search located a visible wreck with an overall length of 30 meters, laying parallel to and extending 9 meters from shore. The wreck bares <sup>2.3</sup> meters at MLLW (Pos. No. 2563, VN 0652) in position 38°02'15.06"N, 121°34'08.53"W. The hydrographer recommends charting a wreck at the surveyed position. Concur. Wreck presently not charted. - no con Due to note B

AWOIS Item No. 51580 originates from Chart Letter 658/84 (USPS) and is described as a wooden wreck (PA) on a tulle berm, uncovering 4 feet (observed) in position 38°03'24.71"N, 121°38'44.83"W. On DN 033, a sounding pole, visual, and echosounder search located a visible wreck on the northern side of a tulle islet baring <sup>1.7</sup> meters (Pos. No. 1203, VN 0652) in position 38°03'22.68"N, 121°38'43.28"W. The overall length of the wreck is 11 meters with only portions of the hull and ribs remaining. The hydrographer recommends charting a wreck at the surveyed position. Concur. Wreck presently not charted.

AWOIS Item No. 51581 originates from Chart Letter 1257/81 (USPS) and is described as a visible wreck, 35 feet long, uncovering 5 feet (observed) in position 38°03'27.71"N, 121°38'53.83"W. On DN 033, a visual search located a wreck baring <sup>2.0</sup> meters at the west end (Pos. No. 1193, VN 0652) and on DN 064, the east end (Pos. No. 2529) baring <sup>0.5</sup> meters. The hydrographer recommends charting a wreck centered between the surveyed positions. Concur. Wreck presently not charted.

#### Dangers to Navigation

Three dangers to navigation were reported to the US Coast Guard Eleventh District in correspondence dated May 21, 1992. A copy of this report is in ~~Appendix I~~ (Danger to Navigation Reports). No dangers to navigation were reported for Franks Tract as the general warning note which appears on Chart 18661 SC was considered adequate by the hydrographer. ✓

A 3" diameter pipe uncovering <sup>1.0</sup> 3 feet (0.9 meters) at MLLW was located in position 38°01'25.01"N, 121°33'50.59"W (Pos. No. 6716, DN 058, VN 0651). The pipe is approximately 10 meters from the high waterline. ✓

A wreck uncovering <sup>3</sup> 5 feet (<sup>0.9</sup> 1.5 meters) at MLLW was located in position 38°01'44.10"N, 121°35'23.25"W (Pos No 2692, DN 066, VN 0652). This position is approximately 5 meters from the tulle line at the inshore end of the wreck and the high point appears as a smoke stack with a tree growing upward from its center. The wreck extends, submerged, approximately 25 meters in a northeast direction. Refer to Development Plot B (1:2500-scale). \* AWOIS # 52014 ✓

A shoal covering 1 foot (0.5 meters) at MLLW was located and

\* Data verified and plotted on the smooth sheet

centered in position 38°01'48.21"N, 121°33'55.91"W (Pos. No. 2796+5, DN 069, VN 0652). The shoal is approximately 75 meters long with an ENE-WSW orientation. ✓

### Sounding Comparisons

Sounding comparison was made between a stable-based 1:10,000-scale enlargement of Chart No. 18661 SC and the H-10413 final field sheets. Agreement is generally good; charted soundings, when shifted 100-150 meters east or southeast, compared within 1 meter. Charted soundings on False River originated from US Corps of Engineer surveys. All other charted soundings originate from prior survey H-6000. See Eval Rpt, sect 7a. ✓

### Non-Sounding Features Comparison

Comparison was made between all non-sounding features and the hydrographic records. In accordance with Project Instruction paragraph 6.12.2, most features near the HWL were judged not to be dangers to navigation and, unless noted otherwise below, were searched for by visual methods only. Several non-sounding features were previously discussed as AWOIS items. The following charted features were not found: ✓

A charted submerged wreck in position 38°00'46.71"N, 121°38'47.83"W (AWOIS 51494) was disproved after two 50-meter radius bottom drags (Pos. No. 6139, VN 0651, DN 038), a 10-meter echosounder development (Pos. No. 6142-6153, VN 0651, DN 038) and a visual search found no evidence of a wreck. However, a small shoal was located from the 10-meter echosounder development. Refer to AWOIS 51494 under Section N, Comparison with the Chart, for further details. Recommend deleting this wreck from the chart. Concur

Charted snags at the east end of Dutch Slough in approximate position 38°00'34"N, 121°37'48"W were disproved after a 25-meter bottom drag (Pos. No. 7130, VN 0651, DN 071) found no evidence of a snag in position 38°00'32.62"N, 121°37'46.08"W. Recommend deleting these snags from the chart. This position was marked not for smooth plotting (NSP). Concur

A charted obstruction in Sand Mound Slough in approximate position 38°00'50"N, 121°36'48"W was disproved after a 50-meter bottom drag (Pos. No. 7133, VN 0651, DN 071) found no evidence of an obstruction in position 38°00'48.55"N, 121°36'46.11"W. Recommend deleting this obstruction from the chart. This position was marked not for smooth plotting (NSP). Concur

A charted siphon in Piper Slough along the west side of Franks Tract in approximate position 38°02'15"N, 121°37'40"W was disproved after a visual search (Ref. No. 1, VN 0651, DN 071) found the shoreline in that area to be a continuous row of docks. OK

and berths extending offshore approximately 20 meters. Recommend deleting the siphon from the chart. *Concur.*

A charted sign (PA) on the western shoreline of Holland Cut in approximate position 38°00'24"N, 121°34'54"W was disproved after a visual search (Pos. No. 2673, VN 0652, DN 066). A siphon, pile, and metal pipe were located in position 38°00'22.45"N, 121°34'49.77"W at Pos. No. 2673 which may have at one time been the charted sign. Recommend deleting the sign from the chart. *Concur*  
*Chart pipe and pile are found on this survey.*

The charted barges (PA) along the eastern shore of Old River in approximate position 38°01'44"N, 121°32'48"W were verified after conducting a visual search (Pos. No. 2550 and 2551, VN 0652, DN 065). These barges are approximately 500 meters south of the charted position. Refer to AWOIS 51523 under Section N, Comparison with the Chart, for further details. Recommend deleting the charted barge's "PA" symbol from the chart. *See drawings of AWOIS 51523 (page 14) and 51524 (page 15) for disposition of this feature.*

A charted sign (PA) in approximate position 38°01'53"N, 121°34'55"W was verified after conducting a visual search (Pos. No. 2677, VN 0652, DN 066) in position 38°01'52.27"N, 121°34'59.31"W. Refer to AWOIS 51528 under Section N, Comparison with the Chart, for further details. Recommend charting a sign in the surveyed position. *Refer to AWOIS 51528 (p 17) for disposition of this feature.*

Charted barges along the western shoreline of Old River in position 38°01'36.73"N, 121°33'52.90"W were disproved after conducting a 50-meter bottom drag (Pos. No. 7128, VN 0651, DN 071) found no evidence of any wreckage. Refer to AWOIS 51524, Section N, Comparison with the Chart, for further details. Recommend deleting the barges from the chart. *Refer to AWOIS 51524 (p 16) for disposition of this feature.*

Three arrow heads charted at the junction of False River and Old River in approximate position 38°03'50"N, 121°35'06"W are not associated with any labels. Recommend deleting these arrow heads from the chart. *Concur. The arrowheads do not appear on the 1998 edition.*

Irish Landing, charted at the southeast corner of Franks Tract in approximate position 38°01'50"N, 121°35'20"W is submerged and no evidence of its existence remains. Recommend deleting the name from the chart (see Form 9-1343 in ~~Appendix IV~~, Geographic Names). *Concur*  
*attached*

Franks Tract, the submerged tract of land centered in approximate position 38°02'30"N, 121°36'30"W was flooded in the late 1930's. Mainscheme and development hydrography conducted during this survey in the tract may not have located all snags and obstructions. Since 200% side scan sonar coverage was not obtained, the hydrographer recommends retaining the warning note, "Numerous uncharted snags and piles exist in this Tract", on the chart. *Concur. See Eval. Rpt, sect 7.*

The tract of land in approximate position  $38^{\circ}03'06''N$ ,  $121^{\circ}39'30''W$ , labeled "Little Franks Tract" on FFS 15, was flooded in 1986 (see Form 9-1343 in <sup>Appendix</sup> Appendix IV). Recommend adding a similar warning note on the chart, as shown for Franks Tract, to this tract. The hydrographer observed numerous snags alongshore, both submerged and awash, which could not be positioned due to their number and semi-permanent nature. Foul limits are shown around the largest concentrations of snags. Concur

Rhode Island, located at the southeast corner of this survey, charted in approximate position  $38^{\circ}00'06''N$ ,  $121^{\circ}34'30''W$  is now flooded. The majority of the berm is intact with the exception of two openings at the north and west sides. No hydrography was conducted in the flooded portion of Rhode Island which appears on FFS 16. The hydrographer considered this area to be outside the sheet limits since the majority of the island (and its flooded interior) is south of the sheet 16 survey limits. Refer to FFS 16 for further details.\* ✓

Much of the charted berms surrounding Little Mandeville Island, separating Franks Tract from Old River and Sand Mound Slough, are now submerged. Refer to the final field sheet for details.\* Other changes include increased cultural development along Piper Slough, Dutch Slough, and Taylor Slough, adding many private piers and docks. Refer to Section J of this report for additional discussion. *Refer to the smooth sheet for depiction of these areas* ✓

#### Recommendations

The hydrographer recommends new shoreline manuscripts be compiled from new photogrammetry for areas common to this survey where no recent photogrammetric compilation exists. Significant changes have occurred since the charted shoreline was compiled, as discussed above. Concur.

#### **O. ADEQUACY OF SURVEY**

This survey is a complete basic hydrographic survey and is adequate to supersede all prior surveys within their common areas. Concur

#### **P. AIDS TO NAVIGATION**

No official aids to navigation exist within the limits of this survey. ✓

#### Pipeline Crossings

No pipeline crossings exist within the limits of this survey. ✓

\* Filed with the hydrographic data <sup>21</sup>



## Cable Crossings

An uncharted submerged cable crossing is marked by a sign on Bacon Island and crosses Connection Slough (Pos. No. 2595, VN 0652, DN 065). The sign is two meters offshore of the high waterline, atop two fence posts bearing 1.8<sup>0</sup> meters at ~~MLLW~~ MHW. However, no cable is visible in the vicinity of the sign. *Chart correct*

Neither a sign or cable is visible along the opposite shore, on Little Mandeville Island. Recommend charting the limits of a submerged cable area approximately 50 meters wide, extending across Connection Slough, centered on the cable crossing sign on Bacon Island. *Chart sign as found on this survey. Charting of cable area left to discretion of chart compiler.*

An uncharted submerged cable crossing is marked by a Pacific Bell sign on Webb Tract and presumably crosses False River (Pos. No. 1205, VN 0652, DN 064). The cable is not visible in the vicinity of the sign. The sign faces across to Little Franks Tract. *Chart correct*

However, neither a sign nor cable is visible on the berm separating Little Franks Tract from False River. Recommend charting the limits of a submerged cable area, approximately 50 meters wide, extending across False River, centered on the cable crossing sign on Webb Tract. *Chart sign as found on this survey. Charting of cable area left to discretion of chart compiler.*

An uncharted submerged cable crossing is marked by a sign on the berm separating Little Franks Tract from Piper Slough (Pos. No. 2512, VN 0652, DN 064). A cable is not visible in the vicinity of the sign. The sign faces across to Bethel Island. However, neither a sign nor cable is visible on Bethel Island. Recommend charting the limits of a submerged cable area, approximately 50 meters wide, extending across Piper Slough, centered on the cable crossing sign on the berm. *Chart sign as found on this survey. Charting of cable area left to discretion of the chart compiler.* *Chart correct*

## Ferry Crossings

The charted cable ferry in approximate position 38°01'50"N, 121°34'48"W was disproved after a visual search and detached positions were taken immediately north and south of the charted position (Pos. No. 2650 and 2651, VN 0652, DN 066). Recommend deleting cable ferry from the chart. *Concur*

A private ferry, operating between Quimby Island and Holland Tract, from position 38°01'45.53"N, 121°34'44.94"W (Pos. No. 2647, VN 0652, DN 066) to position 38°01'43.31"N, 121°35'03.54"W (Pos. No. 2662, VN 0652, DN 066) was verified. Recommend charting a ferry crossing between these surveyed positions. *Concur*

Charted ferry terminals were confirmed on Bradford Island, at the junction of Fisherman's Cut and False River, in position 38°03'24.48"N, 121°38'55.44"W (offshore center of Pos. No. 1196 and 1197, VN 0652, DN 042) and Webb Tract, in position 38°03'24.58"N, 121°38'48.70"W (offshore center of Pos. No. 1199 and 1200, VN 0652, DN 064). Operation of this ferry was

- 22
- \* Pos 2595 is at latitude 38°00'12.59"N, longitude 121°33'45.98"W
  - + Pos 1205 is at latitude 38°03'21.25"N, longitude 121°38'31.51"W
  - © Pos 2512 is at latitude 38°02'49.93"N, longitude 121°38'24.68"W

discussed in the Descriptive Report for Survey H-10409, Section P, page 29. Recommend charting a ferry crossing from the Jersey Island ferry terminal to these two ferry terminals, at their surveyed positions. *Concur*

#### Q. STATISTICS

<u>Description</u>	<u>Quantities</u>
Total Positions:	<del>4857</del> 4173
VN 0651 (1101)	1243
VN 0652 (1102)	3614
Total Detached Positions:	422
VN 0651 (1101)	63
VN 0652 (1102)	236
Total Nautical Miles of Hydrography	299
Sq. Nautical Miles of Hydrography	7.0
Bottom Samples	99
Velocity Casts	10
Days of Production	38

#### R. MISCELLANEOUS

Bottom samples were taken in accordance with Hydrographic Manual Section 1.6.3. Samples were not submitted to the Smithsonian Institution. Bottom sample positions and descriptions are plotted on the overlays for FFS 15 and 16.\* Oceanographic Log Sheet-M, NOAA Forms 75-44, are provided in Separate II (Bottom Samples)\* ✓

The hydrographer observed tides which were approximately 0.5 meters lower than predicted in the large, shallow areas of Franks Tract, particularly during strong westerly winds. These winds may affect the safe water encountered by recreational boaters if they rely on the published predicted tides for safe transit across Franks Tract. ✓

Comments provided by US Coast Guard Station Rio Vista during this survey include warnings about the strong westerly winds and the low shoreline around the Franks Tract area. Strong winds are responsible for groundings and for dragging vessels off their anchorages. The low shoreline of several islands and tule islets provide poor radar returns, especially the northwest shoreline of Mandeville Island, for vessels entering or transiting Old River ✓

\* Filed with the hydrographic data <sup>23</sup>

from the north on south-bound headings.

No further anomalous tidal conditions were observed. ✓

Per Project Instructions, no current observations were conducted in the survey area. ✓

No magnetic anomalies were observed. ✓

**S. RECOMMENDATIONS**

None. ✓

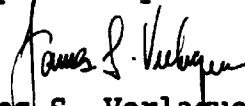
**T. REFERRAL TO REPORTS**

<u>TITLE</u>	<u>DATE</u>	<u>TO</u>
1992 Horizontal Control Report, OPR-L208-PHP (by N/CG2333)	May, 1992	N/CG245

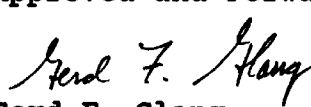
 ✓

No separate Electronic Control Report or Corrections to Echo Soundings Report is scheduled for submittal.

Respectfully Submitted,

  
James S. Verlaque  
Lieutenant, NOAA  
Assistant Chief of Party

Approved and Forwarded,

  
Gerd F. Glang  
Lieutenant, NOAA  
Chief of Party

Station No ?		Lat	Lon	H	Cart	Freq	Vel	Code	MM/DD/YY	Station Name
No	Type									
✓701	F	037:58:27.108	121:55:48.811	394	250	0.0	0	4	01/15/92	KIRKER 1946
<del>713</del>	<del>F</del>	<del>038:07:07.203</del>	<del>121:42:30.435</del>	<del>30</del>	<del>250</del>	<del>0.0</del>	<del>0</del>		<del>01/15/92</del>	<del>NO B USE 1991</del>
<del>726</del>	<del>F</del>	<del>038:03:14.161</del>	<del>121:41:07.670</del>	<del>2</del>	<del>250</del>	<del>0.0</del>	<del>0</del>		<del>01/15/92</del>	<del>FALGE 1991</del>
✓739	F	037:58:24.734	121:44:46.762	74	250	0.0	0	A	01/15/92	SAND CREEK 1946
<del>740</del>	<del>F</del>	<del>038:05:02.570</del>	<del>121:41:09.592</del>	<del>4</del>	<del>250</del>	<del>0.0</del>	<del>0</del>		<del>01/15/92</del>	<del>SHERMAN 1991</del>
✓753	F	038:00:18.510	121:31:54.632	10	254	0.0	0	3	01/15/92	CONN 1992
✓754	F	038:03:06.889	121:29:55.463	18	250	0.0	0	2	01/15/92	FEAR 1992
✓755	F	038:09:31.458	121:41:00.926	64	250	0.0	0	8	01/15/92	RIOS 1992
✓756	F	038:03:38.722	121:33:19.827	10	250	0.0	0	1	01/15/92	SJ RIVER LT 57 1992
<del>757</del>	<del>F</del>	<del>038:07:32.199</del>	<del>121:34:45.540</del>	<del>19</del>	<del>254</del>	<del>0.0</del>	<del>0</del>		<del>01/15/92</del>	<del>MOLE 1992</del>
<del>750</del>	<del>F</del>	<del>037:57:19.092</del>	<del>121:31:35.057</del>	<del>20</del>	<del>254</del>	<del>0.0</del>	<del>0</del>		<del>01/15/92</del>	<del>MUD 1992</del>
✓759	F	038:01:16.172	121:35:56.919	4	250	0.0	0	7	02/20/92	MOND 1992
✓760	F	038:00:40.742	121:36:54.372	5	250	0.0	0	5	01/15/92	E484 1951
✓761	F	038:00:30.457	121:37:08.591	5	250	0.0	0		01/15/92	SANDY 1992
✓762	F	038:00:19.258	121:37:16.460	8	254	0.0	0		01/15/92	SKIS 1992
<del>763</del>	<del>F</del>	<del>038:10:07.987</del>	<del>121:35:41.340</del>	<del>36</del>	<del>250</del>	<del>0.0</del>	<del>0</del>		<del>01/15/92</del>	<del>GRAN 1992</del>
✓764	F	038:00:44.847	121:38:17.035	11	250	0.0	0	9	01/15/92	SJYC 1992
✓765	F	038:06:22.734	121:42:02.398	46	254	0.0	0	8	01/15/92	MILE 1992
✓766	F	038:00:45.831	121:39:39.500	8	250	0.0	0		01/15/92	JURY 1992
		000:00:00.000	000:00:00.000	0	0	0.0	0		01/15/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0		01/15/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0		01/15/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0		01/15/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0		01/15/92	
		000:00:00.000	000:00:00.000	0	0	0.0	0		00/00/00	
		000:00:00.000	000:00:00.000	0	0	0.0	0		00/00/00	
		000:00:00.000	000:00:00.000	0	0	0.0	0		00/00/00	
		000:00:00.000	000:00:00.000	0	0	0.0	0		00/00/00	
		000:00:00.000	000:00:00.000	0	0	0.0	0		00/00/00	
		000:00:00.000	000:00:00.000	0	0	0.0	0		00/00/00	
		000:00:00.000	000:00:00.000	0	0	0.0	0		00/00/00	
		000:00:00.000	000:00:00.000	0	0	0.0	0		00/00/00	

Control Station Table saved to disk



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

Seattle, Washington 98115-0070  
Pacific Hydrographic Party  
USATF 801 Beach Drive  
Rio Vista, CA 94571-2003  
(707) 374-5642

**ADVANCE  
INFORMATION**

May 21, 1992

Director  
DMAHTC  
Attn:MCNA  
6500 Brooks Lane  
Washington, D.C. 20315-0030

Dear Sir:

While conducting hydrographic survey operations along the San Joaquin River, California, the NOAA Pacific Hydrographic Party discovered three dangers to navigation within the survey limits of H-10413. They were reported to the Eleventh Coast Guard District. A copy of correspondence describing the dangers is enclosed.

Sincerely,

*Gerd F. Glang*

Gerd F. Glang  
Lieutenant, NOAA  
Chief, Pacific Hydrographic Party

Attachments





UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SERVICE  
Coast and Geodetic Survey  
Seattle, Washington 98115-0070

Pacific Hydrographic Party  
USATF 801 Beach Drive  
Rio Vista, CA 94571-2003  
(707) 374-5642

**ADVANCE  
INFORMATION**

May 21, 1992

Commander  
Eleventh Coast Guard District (oan)  
Union Bank Building  
400 OceanGate  
Long Beach, CA 90822-5399

Dear Sir:

While conducting hydrographic survey operations along the San Joaquin River, California, the NOAA Pacific Hydrographic Party discovered three dangers to navigation within the survey limits of H-10413. I recommend these dangers for inclusion in the Local Notice to Mariners. These dangers have been reported to DMAHTC. Attachments describing these dangers are enclosed. A copy of the chartlet showing the areas in which the dangers exist is also attached.

Sincerely,

Gerd F. Glang  
Lieutenant, NOAA  
Chief, Pacific Hydrographic Party

Attachments

cc:DMAHTC  
N/CG221  
N/CG245



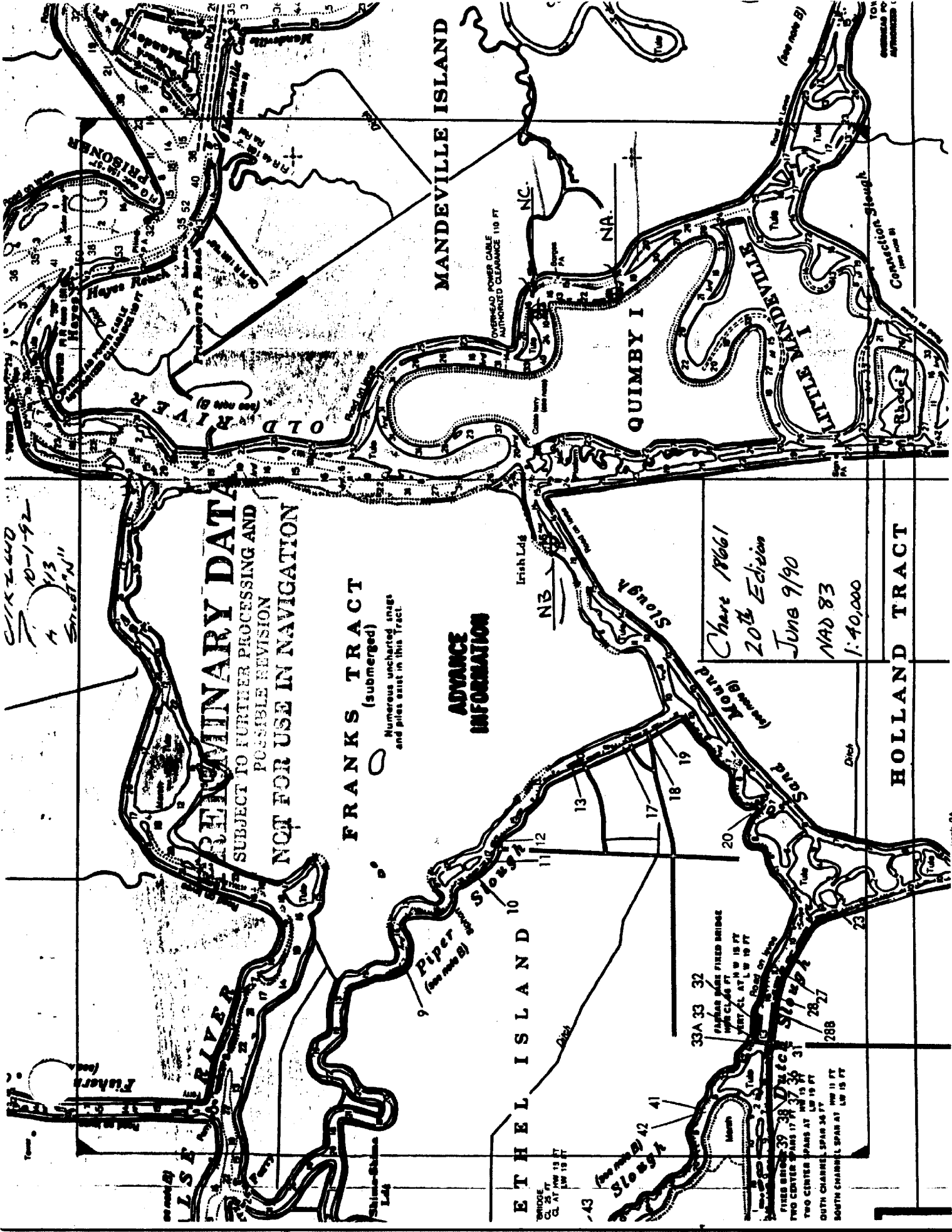
US Department of Commerce  
Pacific Hydrographic Party

Dangers to Navigation  
Project OPR-L208  
Survey H-10413  
San Joaquin River, Franks Tract  
PHP-10-1-92  
Sheet N

**ADVANCE  
INFORMATION**

<u>ITEM</u>	<u>DANGER</u>	<u>CHART NUMBER</u>	<u>EDITION DATUM</u>	<u>REPORTED DEPTH</u>	<u>SURVEYED POSITION</u>
			<u>LATITUDE</u>		<u>LONGITUDE</u>
NA.	PIPE	18661	20/Jun 90 NAD 83	uncov 3 ft at MLLW	38°01'25.01"N 121°33'50.59"W
NB.	WRECK	18661	20/Jun 90 NAD 83	uncov 5 ft at MLLW	38°01'44.10"N 121°35'23.25"W
NC.	SHOAL	18661	20/Jun 90 NAD 83	cov 1 ft at MLLW	38°01'48.21"N 121°33'55.91"W

*not a danger, but a 0.5 meter*



*CHK 240  
10-1-92  
H  
SOUND "N"*

**PRELIMINARY DATA**  
SUBJECT TO FURTHER PROCESSING AND  
POSSIBLE REVISION  
**NOT FOR USE IN NAVIGATION**

**FRANKS TRACT**  
(submerged)  
Numerous uncharted shoals  
and pilas exist in this Tract.

**ADVANCE  
INFORMATION**

*Chart 18661  
20th Edition  
June 9/90  
NAD 83  
1:40,000*

**HOLLAND TRACT**

**BRIDGE**  
CL AT HW 12 FT  
LW 18 FT

**33A 33 32**  
FIXED SPAN BRIDGE  
HW CL AT HW 15 FT  
LW CL AT LW 19 FT

**38**  
FIXED BRIDGE  
TWO CENTER SPANS AT HW 15 FT  
LW 19 FT

**28B 27**  
GUTH CHANNEL SPAN 36 FT  
SOUTH CHANNEL SPAN AT LW 15 FT

**288**

**ETHEL ISLAND**

**Piper Slough**  
(see note B)

**Slough**  
41  
42

**Irish Lid**

**Slough**  
13  
17  
18  
19

**Round Slough**  
(see note B)

**Sand**

**Ditch**

**CONNECTION SLOUGH**  
(see note B)

**TON**  
CONNECTION TO  
ADJACENT

**MANDEVILLE ISLAND**

**QUIMBY I**

**LITTLE MANDEVILLE**

**PRISONER**

**OLD RIVER**

**Fishery**

**U.S.A.**

**L.A.**

21



CARTOGRAPHIC FEATURES OF CHARTING INTEREST

COASTAL MAPPING PROJECT: CM-8400; Sacramento and San Joaquin Rivers, Sacramento to Stockton, California

NOS Nautical Charts Affected: 18661, 18662, 18664

GEODETTIC DATUM: North American Datum of 1927

FEATURE DESCRIPTION	NCD CC	GEOGRAPHIC POSITION ("-'-")		NCD QC	DATE OF LOCATION
		LATITUDE	LONGITUDE		
Map TP-01055 (continued):					
TANK (Isleton Mun Water Tk)	086	38-09-43.399	121-36-25.639	3	001/1931
TOWER (Three Mile Slu)	086	38-06-25.230	121-41-54.410	3	001/1931
TOWER (Three Mile Slu)	086	38-06-16.485	121-41-56.588	3	001/1931
TWIN TANKS (at RIO VISTA)	086	38-09-47.469	121-41-01.261	3	001/1931
TOWER (SW Trans at Isleton)	086	38-09-58.530	121-37-41.251	3	001/1931
TOWER (NE Trans at Isleton)	086	38-10-10.100	121-37-36.118	3	001/1931
STEEL POLE (W at Howard Ldg)	086	38-13-49.331	121-36-11.316	3	001/1932
STEEL POLE (E at Howard Ldg)	086	38-13-49.255	121-35-59.791	3	001/1932
WATER TANK (at Ryde)	086	38-14-15.270	121-33-31.736	3	001/1931
Map TP-01056:					
TANK (Terminus Water Tk)	086	38-06-48.086	121-29-47.061	3	001/1931
TOWER (N Staten I)	086	38-13-33.70	121-29-30.88	6	103/1983
TV TOWER (Walnut Grove)	086	38-14-49.80	121-30-02.17	6	103/1983
Map TP-01060:					
TOWER (N Jersey I)	086	38-03-05.81	121-41-15.26	6	104/1983
TOWER (SE Sherman I)	086	38-03-22.57	121-41-34.95	6	104/1983
TOWER (NW Mandeville I)	086	38-04-09.67	121-34-24.74	6	104/1983
TOWER (SE Webb Tract)	086	38-04-23.61	121-34-29.42	6	104/1983
Map TP-01061:					
TOWER (Bishop Cut)	086	38-03-32.14	121-25-05.66	6	103/1983
TOWER (Bishop Cut)	086	38-03-31.91	121-24-59.19	6	103/1983
TOWER (N Bacon I)	086	38-00-14.85	121-31-51.65	6	103/1983
TOWER (SW Wright Tract)	086	37-59-15.66	121-23-29.58	6	103/1983
TOWER (NE Roberts I)	086	37-59-07.46	121-23-32.28	6	103/1983
TOWER (Empire Cut)	086	37-58-21.96	121-30-19.78	6	104/1983
TOWER (Empire Cut)	086	37-58-14.19	121-30-19.15	6	104/1983
TOWER (N Whiskey Slu)	086	37-58-13.25	121-28-32.03	6	104/1983
TOWER (N Whiskey Slu)	086	37-58-10.10	121-28-24.75	6	104/1983
Map TP-01062:					
TANK (N of Port - E Tank)	086	37-57-24.699	121-19-02.768	3	001/1954
TANK (N of Port - W Tank)	086	37-57-19.294	121-17-59.423	3	001/1954
TANK (Stockton Port E Tank)	086	37-57-01.452	121-19-00.383	3	001/1932
TANK (Stockton Port W Tank)	086	37-56-59.479	121-19-20.511	3	001/1932
TANK (ESE of Port-Fiber Prod)	086	37-56-41.383	121-18-09.038	3	001/1932
TANK (E of Moss Tract)	086	37-55-23.234	121-16-34.199	3	001/1959

ON  
H-10413

BOTH  
VERIFIED  
VISUALLY.  
GOOD LANDMARKS.  
Beyond  
sheet limits

Listing approved by: Robert W. Rodley Date: 8/28/88  
Final Reviewer

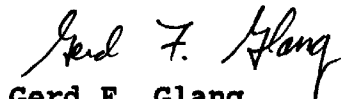
**APPROVAL SHEET**

for

**SURVEY H-10413**

I have reviewed the Descriptive Report, Final Field Sheets, and accompanying records for accuracy, completeness, compliance with project instructions, and adherence to required standards and procedures. I have supervised all field work on a daily basis to ensure a quality survey is forwarded for verification. I have personally examined the Final Field Sheets and all records of this survey during field processing. The data are forwarded for final review and processing to N/CG245, Pacific Hydrographic Section.

Approved and Forwarded,



Gerd F. Glang  
Lieutenant, NOAA  
Chief, Pacific Hydrographic Party

DATE 5-26-92

ORIGINAL



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SERVICE  
Office of Ocean and Earth Sciences  
Rockville, Maryland 20852

**TIDE NOTE FOR HYDROGRAPHIC SURVEY**

**DATE:** July 7, 1992

**MARINE CENTER:** Pacific

**OPR:** L-208

**HYDROGRAPHIC SHEET:** H-10413

**LOCALITY:** San Joaquin River, Franks Tract, CA.

**TIME PERIOD:** January 17 - March 24 , 1992

**TIDE STATION USED:** 941-5027 Bacon Island, CA.  
Lat.  $38^{\circ} 0.3'N$  Lon.  $121^{\circ} 32.0'W$

**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 941-5027 = 8.07 ft.  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 941-5027 = 3.1 ft.

**TIDE STATION USED:** 941-5053 Dutch Slough, CA.  
Lat.  $38^{\circ} 0.8'N$  Lon.  $121^{\circ} 38.4'W$

**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 941-5053 = 1.99 ft.  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 941-5053 = 3.0 ft.

**TIDE STATION USED:** 941-5145 Jersey Island, CA.  
Lat.  $38^{\circ} 3.3'N$  Lon.  $121^{\circ} 39.4'W$

**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 941-5145 = 3.29 ft.  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 941-5145 = 2.9 ft.



H-10413 continued

**REMARKS: RECOMMENDED ZONING**

1. In False River, Piper Slough, Little Franks Tract, and Fisherman's Cut, zone direct using 941-5145.
2. Inside Franks Tract, including portions of Piper Slough and Old River that are adjacent to Franks Tract, apply a +0 hr 15 min time correction and heights direct using 941-5145.
3. In Dutch Slough, Sand Mound Slough, and Taylor Slough south of 38° 1.2'N, zone direct using 941-5053. (Where data is not available on 941-5053, use 941- 5145, with heights direct, and apply a +0 hr 6 min time correction.)
4. In Old River and Connection Slough, zone direct using 941-5027.

**NOTE:** Hourly heights are tabulated on Pacific Standard Time.

  
-----  
CHIEF, DATUMS SECTION 

GEOGRAPHIC NAMES

H-10413

Name on Survey	<div style="display: flex; justify-content: space-between;"> <span>A ON CHART NO 18661 SC</span> <span>B USGS TOPO</span> <span>C TP-01060</span> <span>D FROM LOCAL INFORMATION</span> <span>E ON LOCAL MAPS</span> <span>F P.O. GUIDE OR MAP</span> <span>G RAND McNALLY ATLAS</span> <span>H U.S. LIGHT LIST</span> </div>										
	A	B	C	D	E	F	G	H	I	J	K
BACON ISLAND	X	X									1
BETHEL ISLAND	X	X	X								2
BRADFORD ISLAND	X	X	X								3
CALIFORNIA (title)	X	X	X								4
CONNECTION SLOUGH	X	X	X								5
DUTCH SLOUGH	X	X	X								6
FALSE RIVER	X	X	X								7
FISHERMANS CUT	X	X	X								8
FRANKS TRACT	X	X	X								9
HOLLAND CUT		X									10
HOLLAND TRACT	X	X									11
JERSEY ISLAND	X	X	X								12
LITTLE FRANKS TRACT				X	(PENDING BGN DECISION)						13
LITTLE MANDEVILLE ISLAND	X		X								14
MANDEVILLE ISLAND	X	X	X								15
OLD RIVER	X	X	X								16
PIPER SLOUGH	X	X	X								17
QUIMBY ISLAND	X	X	X								18
RHODE ISLAND	X	X									19
ROOSEVELT CUT		X									20
SAND MOUND SLOUGH	X	X									21
SAN JOAQUIN RIVER (title)	X	X	X								22
SHEEP SLOUGH		X									23
TAYLOR SLOUGH	X	X	X								24
VEALE TRACT	X	X									25

GEOGRAPHIC NAMES

Name on Survey

A ON CHART No. 18661 SC  
B USGS TOPO  
C TP-01060  
D FROM LOCAL INFORMATION  
E ON LOCAL MAPS  
F P.O. GUIDE OR MAP  
G GRAND McNALLY ATLAS  
H U.S. LIGHT LIST  
K

Name on Survey	A	B	C	D	E	F	G	H	K	
WEBB TRACT	X	X	X							1
										2
										3
										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
				Approved:						14
				<i>Charles E. Harrington</i>						15
				Chief Geographer - N/Ch 245						16
				SEP - 1 1992						17
										18
										19
										20
										21
										22
										23
										24
										25

UNITED STATES BOARD ON GEOGRAPHIC NAMES DOMESTIC GEOGRAPHIC NAMES REPORT	Controversial name	Recommended name: <b>IRISH LANDING</b>
	Name change	State <b>California</b>
	Changed application	County <b>Contra Costa</b>
	<input checked="" type="checkbox"/> Other <b>Delete</b>	

Lat. 38 . 01 . 50 " N, Long. 121 . 35 . 15 " W. Mouth End Center (Circle one)  
 Lat. \_\_\_\_\_ " N, Long. \_\_\_\_\_ " W. Heading End (Circle one)

Description of feature: where appropriate, give shape, length, width, direction of flow or trend, direction and distance of extremities from points with established names, and section, township, range, meridian where useful, also elevation if known.

Recommend the name **IRISH LANDING** be deleted from NOS Chart 18661 SC. The name appears in a body of water called Franks Tract, approximately 15 NM WNW from the Stockton Deep Water Channel Turning Basin, San Joaquin River, in Stockton, CA.

Published Maps Using Recommended Name (Map name, date, agency, & scale)	Variant Name or Application	Map or Source Using Variant (Map name, date, agency, & scale)
<del>NOS Chart No. 18661 SC</del>		

Available information as to origin, spelling, and meaning of the recommended name and/or statement concerning nature of difference in usage or application

**IRISH LANDING** was the historical name for a boat landing along Sand Mound Slough used to reach the southeast portion of Franks Tract. Franks Tract is now flooded and its surrounding levees are slowly eroding. The levee at **IRISH LANDING** is now gone and no evidence of its existence remains. Local sources state the name is no longer used as a reference by recreational boaters.

AUTHORITY FOR RECOMMENDED NAME	MAILING ADDRESS	OCCUPATION
NOAA <del>Pacific Hydrographic Party</del>	USATF 801 Beach Drive Rio Vista, CA 94571-2003	

Submitted by: *Serd F. Glang*  
 Name: **Gerd F. Glang, LT, NOAA** Title: **Chief** Date: **04/14/92**  
 Agency: **NOAA/NOS/C&GS/PHP** Address: **Same as above.**

UNITED STATES BOARD ON GEOGRAPHIC NAMES DOMESTIC GEOGRAPHIC NAMES REPORT	Controversial name	Recommended name: <b>LITTLE FRANKS TRACT</b>
	<input checked="" type="checkbox"/> Name change	State <b>California</b>
	Changed application	County <b>Contra Costa</b>
	Other	

Lat. 38° 03' 00" N, Long. 121° 39' 00" W, Mouth End Center (Circle one)  
 Lat. \_\_\_\_\_ " N, Long. \_\_\_\_\_ " W, Heading End (Circle one)

Description of feature: where appropriate, give shape, length, width, direction of flow or trend, direction and distance of extremities from points with established names, and section, township, range, meridian where useful, also elevation if known.

LITTLE FRANKS TRACT is the proposed name for a small body of water located approximately 18 NM NW of the Stockton Deep Water Channel Turning Basin, San Joaquin River, in Stockton, CA. LITTLE FRANKS TRACT is immediately W of Franks Tract, N of Piper Slough (which separates it from Bethel Island), S of False River (which separates it from Webb Tract and Bradford Island), and E of Taylor Slough (which separates it from Jersey Island).

Published Maps Using Recommended Name (Map name, date, agency, & scale)	Variant Name or Application	Map or Source Using Variant (Map name, date, agency, & scale)
NONE.		

Available information as to origin, spelling, and meaning of the recommended name and/or statement concerning nature of difference in usage or application

LITTLE FRANKS TRACT was formerly an artificial island created for agriculture in the late 1800's. Local sources claim this tract of land was then used as a bird sanctuary, until 1986 when the surrounding levees broke and the land flooded. LITTLE FRANKS TRACT is incorrectly depicted on NOS Chart 18661 as dry land. LITTLE FRANKS TRACT is considered navigable to small boats with soundings ranging from 1.5 meters to 2.5 meters. Inshore areas along the old levee are considered mostly foul with large snags. The old levee is awash in several areas at high water along Piper Slough and False River. Small boats can enter LITTLE FRANKS TRACT safely at the old bird sanctuary observation platform in position 38°02'55.8"N, 121°38'34.8"W, from Piper Slough. LITTLE FRANKS TRACT is the commonly used geographic name for this body of water and it appears on several pleasure craft/tourist maps of the Delta region.

AUTHORITY FOR RECOMMENDED NAME	MAILING ADDRESS	OCCUPATION
NOAA Pacific Hydrographic Party	USATE 801 Beach Drive Rio Vista, CA 94571-2003	

Submitted by: *Gerd F. Glang*  
 Name **Gerd F. Glang, LT, NOAA** Title **Chief** Date **04/14/92**  
 Agency **NOAA/NOS/C&GS/PHP** Address **Same as above.**



UNITED STATES BOARD ON GEOGRAPHIC NAMES DOMESTIC GEOGRAPHIC NAMES REPORT	Controversial name	Recommended name <b>HOLLAND CUT</b>
	<input checked="" type="checkbox"/> Name change	State <b>California</b>
	Changed application	County <b>Contra Costa</b>
	Other	

Lat. 38° 00' 00" N. Long. 121° 34' 50" W. Mouth End Center (Circle one)  
 Lat. \_\_\_\_\_ " N. Long. \_\_\_\_\_ " W. Heading End (Circle one)

Description of feature: where appropriate, give shape, length, width, direction of flow or trend, direction and distance of extremities from points with established names, and section, township, range, meridian where useful, also elevation if known.

Recommend the name HOLLAND CUT be added to NOS Chart 18661 SC. HOLLAND CUT is the western half of a narrow waterway which extends from the Old River at the north end of Palm Tract, north to its confluence with Sand Mound Slough and Old River, along Holland Tract. HOLLAND CUT is approximately 15 NM W of the Stockton Deep Water Channel Turning Basin, San Joaquin River, in Stockton, CA.

Published Maps Using Recommended Name (Map name, date, agency, & scale)	Variant Name or Application	Map or Source Using Variant (Map name, date, agency, & scale)
USGS Quadrangle "Rio Vista"	(15 minute series)	

Available information as to origin, spelling, and meaning of the recommended name and/or statement concerning nature of difference in usage or application

The name HOLLAND CUT occurs on USGS Quadrangle "Rio Vista" and accurately describes a body of water which is unnamed on NOS Chart 18661 SC. The name HOLLAND CUT is an excellent reference to boaters who frequent the maze of waterways in the Delta region of the Sacramento and San Joaquin Rivers. On several occasions, the hydrographer has attempted to hail other vessels in passing or meeting situations while on this waterway, and was unable to adequately describe his own location. Discussions with Coast Guard Station Rio Vista indicate the waterways in this area are confusing as the course of the Old River intersects several inadequately described Sloughs and Cuts. Any additional geographic names on NOS Chart 18661 will greatly aid chart users.

AUTHORITY FOR RECOMMENDED NAME	MAILING ADDRESS	OCCUPATION
NOAA Pacific Hydrographic Party	USATF 801 Beach Drive Rio Vista, CA 94571-2003	

Submitted by: Gerd F. Clang  
 Name **Gerd F. Clang, LT, NOAA** Title **Chief** Date **04/14/92**  
 Agency **NOAA/NOS/C&GS/PHP** Address **Same as above.**

UNITED STATES BOARD ON GEOGRAPHIC NAMES DOMESTIC GEOGRAPHIC NAMES REPORT	<input type="checkbox"/>	Controversial name	Recommended name: <b>SHEEP SLOUGH</b>
	<input checked="" type="checkbox"/>	Name change	State <b>California</b>
	<input type="checkbox"/>	Changed application	County <b>Contra Costa</b>
	<input type="checkbox"/>	Other	

Lat. 38° 00' 25" N. Long. 121° 34' 45" W. Mouth End Center (Circle one)  
 Lat. \_\_\_\_\_ " N. Long. \_\_\_\_\_ " W. Heading End (Circle one)

Description of feature: where appropriate, give shape, length, width, direction of flow or trend, direction and distance of extremities from points with established names, and section, township, range, meridian where useful, also elevation if known.

Recommend the name SHEEP SLOUGH be added to NOS Chart 18661 SC. SHEEP SLOUGH is the eastern half of a narrow waterway which extends from the Old River at the west end of Little Mandeville Island, north to its confluence with Sand Mound Slough and Old River, along Quimby Island. SHEEP SLOUGH is approximately 15 NM W of the Stockton Deep Water Channel Turning Basin, San Joaquin River, in Stockton, CA.

Published Maps Using Recommended Name (Map name, date, agency, & scale)	Variant Name or Application	Map or Source Using Variant (Map name, date, agency, & scale)
USGS Quadrangle "Rio Vista"	(15 minute series)	

Available information as to origin, spelling, and meaning of the recommended name and/or statement concerning nature of difference in usage or application

The name SHEEP SLOUGH occurs on USGS Quadrangle "Rio Vista" and accurately describes a body of water which is unnamed on NOS Chart 18661 SC. The name SHEEP SLOUGH is an excellent reference to boaters who frequent the maze of waterways in the Delta region of the Sacramento and San Joaquin Rivers. On several occasions, the hydrographer has attempted to hail other vessels in passing or meeting situations while on this waterway, and was unable to adequately describe his own location. Discussions with Coast Guard Station Rio Vista indicate the waterways in this area are confusing as the course of the Old River intersects several inadequately described Sloughs and Cuts. Any additional geographic names on NOS Chart 18661 will greatly aid chart users.

AUTHORITY FOR RECOMMENDED NAME	MAILING ADDRESS	OCCUPATION
NOAA Pacific Hydrographic Party	USATF 801 Beach Drive Rio Vista, CA 94571-2003	

Submitted by: Gerd F. Glang  
 Name **Gerd F. Glang, LT, NOAA** Title **Chief** Date **04/14/92**  
 Agency **NOAA/NOS/C&GS/PHP** Address **Same as above.**

**HYDROGRAPHIC SURVEY STATISTICS**

H-10413

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET		1	SMOOTH OVERLAYS: POS., ARC, EXCESS		6
DESCRIPTIVE REPORT		1	FIELD SHEETS AND OTHER OVERLAYS		4
DESCRIP-TION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/SOURCE DOCUMENTS
ACCORDION FILES	4				
ENVELOPES					
VOLUMES	2				
CAHIERS					
BOXES				1	

**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			4193	
POSITIONS REVISED	12		12	
SOUNDINGS REVISED	160		160	
CONTROL STATIONS REVISED				
	TIME-HOURS			
	VERIFICATION	EVALUATION	TOTALS	
PRE-PROCESSING EXAMINATION				
VERIFICATION OF CONTROL				
VERIFICATION OF POSITIONS	85		85	
VERIFICATION OF SOUNDINGS	304		304	
VERIFICATION OF JUNCTIONS				
APPLICATION OF PHOTOBATHYMETRY				
SHORELINE APPLICATION/VERIFICATION				
COMPILATION OF SMOOTH SHEET	193		193	
COMPARISON WITH PRIOR SURVEYS AND CHARTS		27	27	
EVALUATION OF SIDE SCAN SONAR RECORDS				
EVALUATION OF WIRE DRAGS AND SWEEPS				
EVALUATION REPORT		26	26	
GEOGRAPHIC NAMES				
OTHER*				
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	582	53	635

Pre-processing Examination by <b>J. Griffin</b>	Beginning Date 7/2/92	Ending Date 7/6/92
Verification of Field Data by <b>L. Deodato</b>	Time (Hours) 582	Ending Date 7/2/92
Verification Check by <b>J. Stringham</b>	Time (Hours) 44	Ending Date 8/3/93
Evaluation and Analysis by <b>J. Green</b>	Time (Hours) 53	Ending Date 8/4/93
Inspection by <b>B. Olmstead</b>	Time (Hours) 12	Ending Date 9/29/93

# EVALUATION REPORT

H-10413

## 1. INTRODUCTION

Survey H-10413 is a basic hydrographic survey accomplished by the Pacific Hydrographic Party under the following Project Instructions.

OPR-L208-PHP, dated June 17, 1991

This survey occurred in California and covers an area in the delta of the Sacramento and San Joaquin Rivers, a region of rivers and navigable sloughs which are extensively used by small boats. The surveyed area includes Franks Tract, False River, Old River, Connection Slough, Sand Mound Slough, Dutch Slough, Taylor Slough and Piper Slough. Tracts of agricultural land, separated by these sloughs and rivers, protected by dirt levees rising to over twelve feet, are characteristic of the area. Dredging is conducted periodically to keep the heights and grade of the levee tops, which leave an uneven bottom. Tule is often found in the channel side of the levees. Increased cultural development along Taylor Slough, Dutch Slough and Piper Slough has resulted in many new piers, docks and boathouses. The surveyed area extends from latitude 38/00/06N on the south, north to latitude 38/04/03N, longitude 121/32/45W on the east, west to longitude 121/39/24W. The bottom consists primarily of gray and brown mud. Depths range from 0 to 14.9 meters.

Predicted tides for San Francisco, California, zoned for the survey area, were used for the reduction of soundings during field processing. Approved hourly heights zoned from Bacon Island, Dutch Slough and Jersey Island, California, gage numbers 941-5027, 941-5053 and 941-5145, 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. The electronic control correctors were adequate. The velocity correctors were extended to include the deepest depths found on this survey and the settlement and squat correctors were revised to select more accurate values from the graphs. An accompanying computer printout contains the parameters and the correctors.

A digital file has been generated for this survey that includes categories of information required to comply with Hydrographic Survey Guideline No. 52, Standard Digital 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 information.

## 2. CONTROL AND SHORELINE

Sections H and I of the hydrographer's report and the Horizontal Control Reports for OPR L208-PHP, October 1991 and May 1992, contain adequate discussions of horizontal control and hydrographic positioning.

Positions of horizontal control stations used during hydrography are 1992 field and published values based on NAD 83. These values were used during office processing for the computation of positions. The smooth sheet and accompanying overlays are annotated with NAD 27 adjustment ticks based on values determined by N/CG121. Geographic positions based on NAD 27 may be plotted on the smooth sheet utilizing the NAD 83 projection by applying the following corrections.

Latitude: -0.283 seconds (-8.740 meters)  
Longitude: 3.828 seconds (93.354 meters)

The year of establishment of control stations shown on the smooth sheet originates with the previously mentioned horizontal control reports and the NGS published data.

The quality of 27 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. There are no significant plotting differences between the soundings located by these positions and those in adjacent areas. Also, none of these positions are used to locate dangers to navigation or significant features. They have been accepted.

Shoreline map TP-01060, NAD27, based on photography dated April 1983, enlarged to the scale of this survey, applies to most of this survey. There are extensive changes to the shoreline map high water line throughout this survey. These changes have resulted from breaks in berms since the photography and growth of tule. These changes are depicted on the smooth sheet from the field sheet, without supporting positional information, and from lines of delimiting hydrography. This shoreline is shown on the smooth sheet in dashed red and is adequate to supersede the charted high water line. In addition, shoreline on the south and southwest of the survey area is outside the limit of compilation photography. The shoreline shown on the smooth sheet for this area originates with chart 18661 20th Edition, June 9, 1990, and is depicted in brown. Where the charted shoreline conflicts with the hydrographic information, it is shown in dashed red from the field sheet or from delimiting hydrography. The hydrographically determined approximate high water line, shown in dashed red, is adequate to supersede the charted shoreline. Since the brown shoreline is shown for orientation purposes only, the cultural features attached to the high water line are not shown on the smooth sheet. Current photography to update the shoreline in this area should be acquired at the earliest opportunity and the shoreline source for this area upgraded.

### **3. HYDROGRAPHY**

With the exceptions noted in this report, 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.

The zero depth curve was not delineated, because of a combination of significant cultural development, numerous foul areas (grass or wreckage) or steeply sloping bottom just offshore of the mean high water line.

#### 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, March 1991 Edition.

#### 5. JUNCTIONS

Survey H-10413 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10409	1991	10,000	west
H-10421	1992	10,000	northeast
H-10435	1992	10,000	northwest

These junctions are complete. Some soundings have been transferred to this survey from each of these surveys to better portray the bottom in the common area.

There are no junction surveys to the south and east. A comparison with the charted soundings indicates good agreement.

#### 6. COMPARISON WITH PRIOR SURVEYS

H-6000 (1934) 1:10,000  
H-6003 (1934) 1:10,000  
H-6005a (1934) 1:10,000

Survey H-6000 covers all of the area of the present survey, except for a portion of Fishermans Cut on the north and the vicinity of Little Mandeville Island to the southeast. Franks Tract and the area known as Little Franks Tract have recently flooded and are now submerged, with depths primarily in the two meter range. There were no soundings in False River on survey H-6000. The southwest bank of Pipers Slough, Dutch Slough and Taylor Slough have been developed extensively, with the addition of many small piers and several marine facilities. Elsewhere on the survey the soundings vary greatly. The specific differences are discussed in section K of the hydrographer's report.

Survey H-6003 covers the southeastern corner of this survey, which includes the sloughs south and east of Little Mandeville Island. Generally the soundings on this survey agree well with the 1934 survey. Refer to section K of the hydrographer's report for additional information.

Survey H-6005a covers a small area in the northwest section of this survey known as Fishermans Cut. The soundings generally agree very well, see section K of the hydrographer's report for additional information.

There are no AWOIS items originating from prior surveys applicable to this survey.

Survey H-10413 is adequate to supersede the above prior surveys for the area of common coverage.

## 7. COMPARISON WITH CHART

Chart 18661SC, 22nd edition, dated January 9, 1993; scale 1:40,000

The hydrographer compared with the 20th edition, dated June 9, 1990, of chart 18661. The 22nd edition is identical with the 20th, except that the soundings from the 20th edition have been converted from feet to meters and decimeters and some depth curves have been revised. Additionally, the dangers reported during this survey are now charted and a position approximate visible wreck added.

### a. Hydrography

Charted hydrography originates with surveys H-6000, H-6003, H-6005a and miscellaneous sources. A miscellaneous source, Blueprint 103692, is the source for hydrographic information for Franks Tract and is discussed in detail in section M of the hydrographer's report. Many features, including AWOIS items, are not charted by the authority of Note B "CAUTION". Refer to section N of the hydrographer's report for additional discussion on the comparison with this chart.

The PA visible wreck, shown on the 22nd edition of chart 18661, at latitude 38/00/23N, longitude 121/37/35W, was not charted at the time of this survey nor was it found. It should be retained as charted.

The sunken wreck at latitude 38/01/44N, longitude 121/35/23W, and the 0.3 meter shoal sounding at latitude 38/01/48N, longitude 121/33/56, originating from a danger to navigation report submitted by the field party, should be revised to a visible wreck and a 0.5 meter shoal sounding, respectively.

The four pile markers discussed by the hydrographer in section M (page 15) of his report are not charted, have been adequately investigated by wire drag and are disproven and, therefore, should remain uncharted. These features are shown on BP-103692 at the following locations:

<u>Feature</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
marker 1	38/02/28	121/36/13
marker 2	38/02/17	121/36/12
marker 3	38/01/49	121/36/08
marker 4	38/01/49	121/36/06

The note presently charted in Franks Tract, warning of numerous uncharted snags and piles, at latitude 38/02/30N, longitude 121/36/15, should be retained as charted. See section N (page 20) of the hydrographer's report.

A similar note, warning of uncharted snags and piles, should also be added for Little Franks Tract, in the vicinity of latitude 38/03/06N, longitude 121/39/30W. See section N (page 21) of the hydrographer's report.

Except for the PA visible wreck and the warning note discussed previously in this section, survey H-10413 is adequate to supersede charted hydrography within the common area.

b. AWOIS

All AWOIS items originate from miscellaneous sources. The dispositions of these items are contained in sections M and N of the hydrographer's report.

c. Controlling Depths

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

d. Aids to Navigation

There are no fixed or floating aids listed in the Light List for the area of this survey. Several privately maintained buoys, usually with signs limiting speed, were located during this survey. They are shown on the smooth sheet.

The hydrographer recommends two landmarks for charting. See table attached to the hydrographer's report, CARTOGRAPHIC FEATURES OF CHARTING INTEREST, COASTAL MAPPING PROJECT: CM-8400; Sacramento and San Joaquin Rivers, Sacramento to Stockton, California. Note that the coordinates provided for these features are on the North American Datum of 1927.

e. Geographic Names

Names appearing on the smooth sheet and in the survey title have been approved by the Chief Geographer. Note that Little Franks Tract is shown on the approved Geographic Names list as pending Board of Geographic Names approval. It is shown on the smooth sheet. Four NOAA Forms 9-1343, UNITED STATES BOARD OF GEOGRAPHIC NAMES DOMESTIC GEOGRAPHIC NAMES REPORT, submitted by the hydrographer are attached. 200

f. Dangers to Navigation

The hydrographer reported three dangers to the USCG, DMAHTC and N/CG221. A copy of the report is attached. No additional dangers were discovered during office processing.

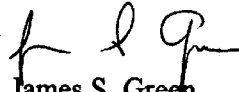
**8. COMPLIANCE WITH INSTRUCTIONS**

Survey H-10413 adequately complies with the Project Instructions.



## 9. ADDITIONAL FIELD WORK

This is a good hydrographic survey. The shoreline source for the area of this survey should be updated by current photography. An investigation of the PA visible wreck charted at latitude 38/00/23N, longitude 121/37/35W, should be accomplished at the next opportunity.



James S. Green  
Supervisory Cartographer

APPROVAL SHEET  
H-10413

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 disproval 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.

for Bruce A. Olmstead Date: 9/29/93  
Dennis J. Hill  
Chief, Hydrographic Processing Unit  
Pacific Hydrographic Section

I have reviewed the smooth sheet, accompanying data, and reports. 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: 10/4/93  
Commander Douglas G. Hennick, NOAA  
Chief, Pacific Hydrographic Section

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Final Approval

Approved:

J. Austin Yeager Date: 11/22/93  
J. Austin Yeager  
Rear Admiral, NOAA  
Director, Coast and Geodetic Survey

MARINE CHART BRANCH  
RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. 4-10413

INSTRUCTIONS

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

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

CHART	DATE	CARTOGRAPHER	REMARKS
18061	1-20-95	Thom D. Finch	Full Part <del>Before</del> After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
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