

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: June 15, 1989

MARINE CENTER: Pacific

OPR: L-202

HYDROGRAPHIC SHEET: H-10293

LOCALITY: Carquinez Strait, Grizzly Bay, CA.

TIME PERIOD: January 26 - March 24, 1989

TIDE STATIONS USED: 941 5265 Suisun Slough Entrance, CA.

PLANE OF REFERENCE (MEAN LOWER LOW WATER): = 2.86 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: = 4.4 ft.

REMARKS: RECOMMENDED ZONING

1. South of 38 9.0'N and for all of Montezuma Slough on this sheet zone direct.
2. On Suisun Slough north of 38 9.0'N, apply a X1.04 range ratio to all heights, and a +0 hr 07 min time correction.

  
CHIEF, TIDAL DATUM QUALITY  
ASSURANCE SECTION

FIELD TIDE NOTE

OPR-L202-PHP-88

PHP 10-1-89, (H-10293)

GRIZZLY BAY, CALIFORNIA

REDUCTIONS

Soundings on the field sheet were reduced on the basis of predicted tides for San Francisco, Golden Gate, Presidio, Fort Point, CA, (941-4290). Tide correctors were generated at 0.2-ft intervals using the DIGITAL PDP-8e computer system and program AM 500 "Predicted Tide Generator".

TIDE\_ZONE\_CORRECTORS

Predicted tides from the San Francisco, Fort Point, California tide gage (941-4290), were adjusted by the application of correctors supplied by NOAA, Office of Oceanography and Marine Assessment, Sea and Lake Levels Branch, Rockville, MD (N/DMA121). The correctors accompany project instructions OPR-L202-PHP-88, dated 02 December 1988.

The correctors used for this survey are as follows:

South of Latitude 38/09/00 N

+ 2 hr 45 min High Water  
+ 3 hr 30 min Low Water  
X 0.85 Height Ratio

North of Latitude 38/09/00 N

Montezuma Slough

+ 3 hr 00 min High Water  
+ 3 hr 45 min Low Water  
X 0.85 Height Ratio

Suisun Slough

+ 3 hr 00 min High Water  
+ 3 hr 45 min Low Water  
X 0.90 Height Ratio

## STATIONS

Two permanent tide stations bracket the survey area. These two stations are operated by NOAA, Pacific Operations Group (POG), N/DMA1214. The gage at San Francisco, Fort Point (941-4290) is to the southwest of the survey area and Port Chicago (951-5144), Concord, CA is to the south. Frequent checks with POG confirmed that there were no significant breaks in the data from these stations (latest levels performed in November 1988). These gages were operated using Pacific Standard Time.

Tide stations operated by PHP during this survey are:

Suisun Slough Entrance, Grizzly Bay (941-5265)  
Gage Type: Fischer-Porter ADR  
Geographic Locale: 38/07.3 N  
122/04.4 W  
Installation Date: 1/12/89  
Removal Date: after completion of sheet "C"  
Staff zero on Analog: 20.1  
Record's Time Meridian: 000

Montezuma Slough Bridge (941-5402)  
Gage Type: Fischer-Porter ADR  
Geographic Locale: 38/11.2 N  
121/58.8 W  
Installation Date: 12/12/88  
Removal Date: after completion of sheet "E"  
Staff zero on Analog: 9.1 from 1/25 to present  
Record's Time Meridian: 000

Joice Island, Suisun Slough (941-5379)  
Gage Type: Fischer-Porter ADR  
gage changed on 4/14  
Geographic Locale: 38/10.8 N  
122/02.7 W  
Installation Date: 1/10/89  
Removal Date: after completion of sheet "E"  
Staff zero on Analog: 17.1 from 1/23 to 2/1  
16.9 from 2/6 to 4/14  
Record's Time Meridian: 000

## INSTALLATION, LEVELS AND OPERATION

Suisun Slough Entrance, Grizzly Bay (941-5265)

The gage was installed at the historical site.

Bench marks 5265 B 1977, and V552 1980 were recovered as described. Bench marks 5265 A, C and D 1977 were destroyed. Bench marks 5265 F, G, and H 1988 were set in concrete monuments by the Pacific Hydrographic Party.

Third order levels were acquired on 1/12/89. The levels closed to within the required tolerance between levels. There were no historical differences to compare since V552 was reset in 1980.

Montezuma Slough Bridge (941-5402)

The gage occupies the historical site.

Data acquired from this gage before 2230 UTC on 1/25/89 should be rejected. Before 1/25/89, the orifice was in the mud and the float wire was kinked which caused the difference between the staff and the gage to change.

Bench marks 5402 A, B, D, E, 1977 were recovered as described. Bench mark 5402 C 1977 was searched for but not recovered. Bench mark 5402 F 1988 was installed. The mark was set in a concrete monument by the Pacific Hydrographic Party.

Third Order levels were acquired on 1/5/89. The closure between the runs meets the tolerance limits.

Comparison with historical levels shows that bench mark A has moved 0.1 meters closure to the level of the rest of the bench marks. The mark was scratched and gouged on the top. It appeared as if some work had taken place in the vicinity.

Joice Island, Suisun Slough (941-5379)

The gage was installed across the pier from the historical site. The California Water Resources ADR gage occupies the historical site.

The gage was changed on 4/14/89 because of a bad connection between the battery and the motor. The data from 4/10/89 to 4/14/89 should be rejected. The break in data does not affect any soundings on sheet "D", H-10293, since it was completed before this date.

Bench marks 5379 A, and D 1977 were recovered as described. Bench marks 5379 B, C, and E 1977 were destroyed. GPS S42, set by California Water Resources, was used for levels.

Bench marks 5379 F, and G 1988 were set in concrete monuments by the Pacific Hydrographic Party.

Third Order levels were acquired on 1/10/89 and 2/10/89. The levels on 2/10/89 were acquired because the scales which were screwed into the staff were moved. The location of the rod stop was not changed. The graduation corresponding to the top of the rod stop was recorded on the Tide Station Report and the Level Book dated 2/10/89. The levels on 2/10/89 included 3 bench marks only.

The closure between the runs for 1/10/89 and 2/10/89 meets the tolerance limits.

Comparison to historical levels shows that the difference from marks A to D is 0.006 meters greater than it was in 1977.

There were no unusual fluctuations between adjacent gages other than those described above.


There were no unusual currents or tidal conditions.

The zoning on the tidal zoning chart is accurate for this survey.


Tidal data was acquired from all three gages for all times of hydrography.

Request for smooth tides will come from Pacific Hydrographic Party, N/MOP223.

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