

DATE: 7/19/85

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Marine Center: Pacific

OPR: L123

Hydrographic Sheet: H-10158

Locality: South San Francisco Bay, California

Time Period: September 24, 1984 - April 5, 1985

Tide Station Used: 941 4510 Dumbarton Bridge, CA
941 4519 Mowry Slough, CA
941 4549 Guadalupe Slough, CA
941 4575 Coyote Creek, CA

Plane of Reference (Mean Lower Low Water):

941 4510 = 3.02 ft. 941 4549 = -0.21 ft.

941 4519 = 2.51 ft. 941 4575 = -0.44 ft.

Height of Mean High Water Above Plane of Reference:

941 4510 = 7.8 ft. 941 4549 = 8.4 ft.

941 4519 = 7.8 ft. 941 4575 = 8.3 ft.

Remarks: Recommended Zoning:

See Page 2


Chief, Tidal Datums Section

July 19, 1985

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H-10158, OPR-L123

Recommended Zoning:

1. West of longitude $122^{\circ}05.0'$, zone direct on 941 4510.
2. East of longitude $122^{\circ}05.0'$ to $122^{\circ}03.5'$, zone on 941 4510 and apply $\times 1.05$ range ratio to all heights.
3. East of longitude $122^{\circ}03.5'$ to $122^{\circ}00.0'$.
 - a. In Mowrey Slough zone direct on 941 4519
 - b. In Guadalupe Slough zone direct on 941 4549
 - c. In Coyote Creek and Alviso Slough, zone direct on 941 4575
4. East of longitude $122^{\circ}00.0'$
 - a. In Alviso Slough zone on 941 4575 and apply +15 minute time correction and $\times 1.04$ range ratio to all heights.
 - b. In Coyote Creek zone on 941 4575 and apply +15 minute time correction to all heights.

FIELD TIDE NOTE

OPR-L123-PHP-81, (H10158)

Sloughs at Southeast End of San Francisco Bay

Reductions

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

Tide Zone Correctors

Predicted tides were adjusted with correctors supplied by the Tides and Water Levels Branch, Rockville, Maryland, 14 October 1983.

The correctors used on this sheet are listed as:

South of 37 30.0 N.
East of 122 05.0 W. apply X 1.75 range ratio and:
+ 1 hr. 05 min. HW time corrector
+ 2 hr. 05 min. LW time corrector

Stations

Four tide stations (ADR Gages) were installed, operated, and maintained by PHP personnel in conjunction with three permanent stations maintained and operated by NOAA, Pacific Tide Party.

The PHP operated stations are at the following sites:

Dumbarton Railroad Bridge, Ca. 941-4510
Position: 37/29/56 N. 122/06/23 W.
Digital Record: 40.3 feet above the staff.
Duration: 11 May 1983 to present

Coyote Creek, Ca. 941-4575
Position: 37/27.9 N. 122/01.4 W.
Digital Record: 30.2 feet above the staff.
Duration: 1 June 1984 to 18 April 1985

Short term stations operated by PHP in the sloughs are:

Mowry Slough, Ca. 941-4519
Position: 37/29/33.43 N. 122/02/42.07 W. (3 pt. fix)
Digital Record: 9.7 feet above the staff.
Duration: 19 November 1984 to 4 January 1985

Upper Guadalupe Slough, Ca. 941-4519
Position: 37/25/56.8 N. 122/00/18.6 W.

Digital Record; 10.0 feet above the staff.
Duration; 18 January 1985 to 11 February 1985

The PTP operated permanent stations are at the following sites:

Fort Point (San Francisco), Ca. 941-4290
Type; Primary
Position; 37/48.4 N. 122/27.9 W.

Alameda, Ca. 941-4750
Type; Secondary
Position; 37/46.5 N. 122/17.9 W.

San Mateo, Ca. 941-4458
Type; Secondary
Position; 37/34.8 N. 122/15.2 W.

Frequent checks with PTP confirmed that there were no breaks in the data on their stations during the times of survey acquisition.

Installation, Level, and Operation:

Dumbarton Railroad Bridge, Ca. (941-4510) was installed by PHP personnel per project instructions (OPR-L123-PHP-81, 11 August 1981, Change #5) on 18 July 1983. This station was used for Survey H-10102 and remains in place for control of survey H-10158. Fischer/Porter ADR gage, S/N 7404A0407M17, a floatwell, and a staff were installed on 11 May 1983. For details of the installation and maintenance of this station prior to the starting date of Survey H-10158 (24 September 1984), refer to the Descriptive Report to Accompany Survey H-10132, San Francisco Bay, Coyote Hills Slough to Long Point, PHP-10-1-84. The last levels conducted prior to Survey H-10158 were six month maintenance levels on 18 June 1984.

Levels run during the period of Survey H-10158 were conducted on 18 December 1984. No movement of the gage or staff was detected. Good records were obtained with no interruptions in the data during survey operations. The gage showed some flat spots in the data in the March 1985. This was traced to the slow clogging of the well. The well was plunged early in April 1985 and the data looks good to the end of the survey. No other problems were experienced with this station.

Coyote Creek, Ca. (941-4575) was installed at the 1975 historic site. A new staff was installed at the historic location on 2 November 1983. The new staff is attached to a redwood plank and this plank is bolted to the concrete tower footing and the original iron top bracket. Fischer/Porter ADR gage S/N 7403A3402M2 was installed atop the historic floatwell on 2 November 1983. The gage was started at the time of installation but N/OMA 121 was contacted and advised that the gage would not be tended regularly until the start of hydrography south of the Dumbarton Railroad Bridge gage (941-4510).

Regular observations at this station were started on 1 June 1983. The station was used throughout Survey H-10158. The station was leveled at installation (4 Nov. and 13, 15 Dec. 1983) and on 20 July 1984 (the start of hydrography using this station), on 12 February 1985, and on 16 and 18 April 1985. The April 1985 levels were the removal levels and they were run to seven recovered marks. No new marks were installed. The levels generally agree well with history and there is no apparent movement of either staff or gage. There seemed to be an anomaly concerning BM F555 1956. This mark seems to have moved roughly 1 cm. between 1979 and the present. At the time of the removal levels, it appeared to have returned to the pre-1979 value. The removal levels were extended to cover marks on either side of the suspect mark. The results verify the relative movement of BM F555 1956. There were no significant breaks in the data, none at all during times of hydrography.

Mowry Slough, Ca. 941-4519 was installed at the 1976 historic site. The original free standing piling was in place but in need of repairs. Re-inforcing work was done on the piling and some braces were added to the shoreward (north) side of the structure. The original staff was still in place but unreadable in the area of interest. A new staff was fabricated and installed on 19 November 1984. A new top section was installed on the well and the bottom section was serviced by NOAA/PHP divers. Fischer/Porter ADR gage S/N 7304A1380M5 was installed atop the well with a std. coupling. Levels were run to five recovered marks on 26 November 1984. On 27 November 1984 a 7.12 foot drop in the tide level was noted in 30 min. PHP was notified through the normal evaluation procedures and subsequent investigation showed that this must have been temporary clogging of the intake, this did not re-occur. The station was levelled again on 3 January 1985 and discontinued on 4 January 1985. The same five recovered marks were used. All levels agree well with history and there were no breaks in the data during the period of operation.

Upper Guadalupe Slough, Ca. 941-4549 was installed at the 1976 historic site on 16 January 1985. This free standing piling also required re-inforcing work. Some new piling braces were installed and a new staff/plank was driven into the bottom and attached to the these braces. The historic well was full of debris and mud, therefore, unusable. NOAA/PHP divers cut the old well loose and it was pulled free of the bottom. The mud line on the old well was 2 ft. above the intake indicating siltation of 2 to 3 ft. since 1977. A new well was fabricated using side intakes starting 1.5 ft. above the bottom of the well. The new well was driven into the mud 1.2 ft. to allow the float some extra bottoming room as there was concern about the stations ability to record the lowest tides. Fischer/Porter ADR gage S/N 7304A1380M5 (just removed from Mowry Slough) was installed atop the well with a std. steel coupling. Levels were run to three recovered marks as per PHP project instructions for stations in service for less than 30 days, on 17 January 1985. There are only three historic Bench Marks in the area. One of the historic marks was destroyed (4549 E 1976) and one was thoroughly searched for but not found (4549 C 1976). Removal levels