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 25, 1996

HYDROGRAPHIC BRANCH: Atlantic

HYDROGRAPHIC PROJECT: OPR-K204-AHP

HYDROGRAPHIC SHEET: H-10589

LOCALITY: Galveston Bay, Point Bolivar to Pelican Island, Texas

TIME PERIOD: February 22 - May 11, 1995;
January 16 - February 20, 1996 NO HOURLY HEIGHTS FORM

TIDE STATION USED: 877-1328 Port Bolivar, Tx.
Lat. 29° 21.9'N Lon. 95° 46.8'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 3.37 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.4 ft.

TIDE STATION USED: 877-1450 Galveston Pier 21, Tx.
Lat. 29° 18.6'N Lon. 94° 47.6'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 3.74 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.3 ft.

REMARKS: RECOMMENDED ZONING

Galveston Bay Zone GB7 - bounded by the MapInfo polygon points:

-94.751861 29.334374
-94.766809 29.336281
-94.760243 29.362859
-94.750655 29.370058
-94.743041 29.364432
-94.751861 29.334374

Apply a -18 minute high water, a -12 minute low water, (**average -12 minute time correction**) and a X1.09 range ratio to heights using Galveston Pier 21, Tx. (877-1450).

Galveston Bay Zone GB8 - bounded by the MapInfo polygon points:

-94.789135 29.319471
-94.820301 29.315622
-94.826444 29.303934
-94.781734 29.307094
-94.770405 29.320919
-94.766809 29.336281
-94.760243 29.362859
-94.762176 29.368156
-94.769631 29.365507
-94.776828 29.336948
-94.781362 29.333016
-94.789135 29.319471

Times and heights are direct using Galveston Pier 21, Tx. (877-1450)

Galveston Bay Zone GB9 - bounded by the MapInfo polygon points:

-94.825688 29.298403
-94.844462 29.295242
-94.851858 29.314145
-94.837558 29.331329
-94.820793 29.334336
-94.820301 29.315622
-94.826444 29.303934
-94.825688 29.298403

1995

Apply a +18 minute high water, a +18 minute low water, (**average +18 minute time correction**), and a X0.95 range ratio to heights using Galveston Pier 21, Tx. (877-1450).

Galveston Bay Zone GB10 - bounded by the MapInfo polygon points:

-94.860241 29.291376
-94.874541 29.327033
-94.876514 29.348942
-94.868131 29.370852
-94.859824 29.382127
-94.841959 29.376332
-94.821278 29.368403
-94.824738 29.352379
-94.817341 29.343787
-94.820793 29.334336
-94.837558 29.331329
-94.851858 29.314145
-94.844462 29.295242
-94.860241 29.291376

Apply a +36 high water, a +36 minute low water, (**average +36 minute time correction**), and a X0.90 range ratio to heights using Galveston Pier 21, Tx. (877-1450).

Galveston Bay Zone GB26 - bounded by the MapInfo polygon points:

-94.821278 29.368403
-94.824738 29.352379
-94.817341 29.343787
-94.807735 29.34721
-94.809593 29.36441
-94.821278 29.368403

Apply a +12 minute high water, a +18 minute low water, (**average +12 time correction**), and a X0.95 range ratio to heights using Port Bolivar, Tx. (877-1328).

Galveston Bay Zone GB27 - bounded by the MapInfo polygon points:

-94.777303 29.363123
-94.789065 29.367466
-94.798192 29.368189
-94.809593 29.36441
-94.807735 29.34721
-94.798071 29.342154
-94.781362 29.333016
-94.776828 29.336948
-94.769631 29.365507
-94.777303 29.363123

Times and heights are direct using Port Bolivar, Tx. (877-1328).

Galveston Bay Zone GB28 - bounded by the MapInfo polygon points:

-94.787821 29.387336
-94.779938 29.384807
-94.772885 29.377582
-94.777303 29.363123
-94.789065 29.367466
-94.787821 29.387336

Apply a +12 minute high water, a +24 minute low water, (**average +18 minute time correction**), and a X0.97 range ratio to heights using Port Bolivar, Tx. (877-1328).

Galveston Bay Zone GB29 - bounded by the MapInfo polygon points:

-94.809593 29.36441
-94.821278 29.368403
-94.814372 29.377943
-94.802756 29.384807
-94.787821 29.387336
-94.789065 29.367466
-94.798192 29.368189
-94.809593 29.36441

Apply a +12 minute high water, a +24 minute low water, (**average +18 minute time correction**), and a X0.97 range ratio to heights using Port Bolivar, Tx. (877-1328).

Galveston Bay Zone GB30 - bounded by the MapInfo polygon points:

-94.786576 29.404677
-94.777449 29.403232
-94.770811 29.397813
-94.767492 29.392032
-94.766248 29.386252
-94.772885 29.377582
-94.779938 29.384807
-94.787821 29.387336
-94.786576 29.404677

Apply a +18 minute high water, a +48 minute low water, (**average +36 minute time correction**), and a X0.96 range ratio to heights using Port Bolivar, Tx. (877-1328).

Galveston Bay Zone GB31 - bounded by the MapInfo polygon points:

-94.821278 29.368403
-94.841959 29.376332
-94.832626 29.38842
-94.817348 29.398358
-94.801511 29.404677
-94.786576 29.404677
-94.787821 29.387336
-94.802756 29.384807
-94.814372 29.377943
-94.821278 29.368403

Apply a +18 minute high water, a +48 minute low water, (**average +36 minute time correction**) and a X0.96 range ratio to heights using Port Bolivar, Tx. (877-1328).

Galveston Bay Zone GB32 - bounded by the MapInfo polygon points:

-94.784917 29.42274
-94.77413 29.420934
-94.765833 29.415154
-94.760025 29.407567
-94.75712 29.398897
-94.756706 29.393837
-94.766248 29.386252
-94.767492 29.392032
-94.770811 29.397813
-94.777449 29.403232
-94.786576 29.404677
-94.784917 29.42274

Apply a +30 minute high water, a +66 minute low water, (**average +48 minute time correction**), and a X0.94 range ratio to heights using Port Bolivar, Tx. (877-1328).

Galveston Bay Zone GB33 - bounded by the MapInfo polygon points:

-94.841959 29.376332
-94.859824 29.382127
-94.84994 29.397048
-94.827727 29.414026
-94.804 29.422379
-94.784917 29.42274
-94.786576 29.404677
-94.801511 29.404677
-94.817348 29.398358
-94.832626 29.38842
-94.841959 29.376332

Apply a +30 minute high water, a +66 minute low water, (**average +48 minute time correction**), and a X0.94 range ratio to heights using Port Bolivar, Tx. (877-1328).

Galveston Bay Zone GB34 - bounded by the MapInfo polygon points:

-94.784087 29.441526
-94.771641 29.440081
-94.75961 29.433217
-94.752972 29.425992
-94.747578 29.415876
-94.745918 29.403231
-94.756706 29.393837
-94.75712 29.398897
-94.760025 29.407567
-94.765833 29.415154
-94.77413 29.420934
-94.784917 29.42274
-94.784087 29.441526

Apply a +36 minute high water, a +84 minute low water, (**average +60 minute time correction**), and a X0.92 range ratio to heights using Port Bolivar, Tx. (877-1328).

Galveston Bay Zone GB35 - bounded by the MapInfo polygon points:

-94.859824 29.382127
-94.879185 29.388585
-94.865122 29.410208
-94.848391 29.425269
-94.824744 29.435746
-94.80556 29.441201
-94.784087 29.441526
-94.784917 29.42274
-94.804 29.422379
-94.827727 29.414026
-94.84994 29.397048
-94.859824 29.382127

Apply a +36 minute high water, a +84 minute low water, (**average +60 minute time correction**), and a X0.92 range ratio to heights using Port Bolivar, Tx. (877-1328).

Note: Relative sea level trends show that the Galveston Bay, Texas area is undergoing substantial land subsidence. The relative sea level trend observed at the site for the control station for datum computation, Galveston, Pier 21, for the time period 1950 through 1993 is +0.025 ft./yr. with a standard error of 0.002 ft./yr. As a result of high rate of sea level change, the 1960 to 1978 Tidal Epoch value of Mean Lower Low Water (MLLW) used as chart datum and reference datum for NOS tidal predictions does not reflect present conditions. The data are now under review to determine an updated value of MLLW. Even though the 1960-78 Epoch value of MLLW is not the most current, the change is in the direction that is safe for navigational purposes.

Notes:
1. Times are tabulated in Greenwich Mean Time.
2. The **1995 data** for Port Bolivar, Tx. (877-1328) and Galveston Pier 21, Tx. (877-1450) are stored in Next Generation Water Level Measurement System temporary files #677-1328 and #677-1450 respectively. The 1996 data files for both stations are preceded by 877.

Note: Tidal phase progressions are inconsistent in this tidal regime. The best available time corrections are provided for both high and low water times. An average of the high and low water time corrections are provided for each zone for survey applications.

William M. Gibson
CHIEF, DATUMS SECTION