Anthony F. Amos was a research fellow and past-director of the then Animal Rehabilitation Keep. He passed away in September of 2017. As an animal rehabilitator and oceanographer, he left a legacy that continues today. Prior to his passing Mr. Amos generated tide predictions through 2025.

These tidal charts are provided for your personal, non-profit use only, and not intended for navigational use. The charts are provided free of charge, but if you would like to contribute to the Amos Rehabilitation Keep (ARK)here at UTMSI, we would gratefully accept any donations. The ARK rehabilitates injured and sick sea turtles and large aquatic birds such as pelicans, herons, loons, cormorants, gannets, boobies, gulls and terns. Send donation checks to The University of Texas Marine Science Institute, 750 Channel View Drive, Port Aransas, Texas 78373-5015. Make them out to UTMSI, but mark "For the ARK" on the check. All monies donated go towards the maintenance of the facility (food, medicines, supplies, etc.) and no overhead charges are assessed. Donations are fully tax-deductible.

<u>About Tides</u>

Ocean "tides" are controlled by the gravitational pull of the moon and the sun on the surface of the sea, causing it to rise and fall in a rhythmic pattern which we familiarly call the tides. These are the astronomical tides, and it is these on which this calendar is based. Quite accurate predictions can be made of those changes in water level caused by the moon's and the sun's pull. However, predicting the tides for any location is a complex business and, in fact, is not completely possible because the rise and fall of the sea or of bay and estuary waters is also affected by the following: winds, storms, rainfall, floods, atmospheric pressure, temperature, earthquakes, the shape of the coastline and large-scale alteration of the natural topography (dredged channels, waterways, passes between bays and the sea).

Along the Texas coast the range of the tides (the difference in height between the highs and the lows) is quite small, amounting to less than two feet on average. Because the slopes of our beaches are slight and our bays are shallow, the tide is nonetheless very important to coastal residents, navigation, commerce, and recreation. There are many peculiarities about our tides some of which will be explained here without going into too much technical detail. There are 37 different periods of tidal fluctuation which go into the prediction of the tides. Two of those periods dominate: the once-per-day high and low (diurnal) tide, and the twice-per-day high and low (semidiurnal) tide. Unlike most places on the East Coast of the US, for example, where they get two high tides and two low tides each day, we get week-long periods of diurnal tides, followed by a week of semidiurnal tides. Because of this, you cannot rely on the time of high tide one day to be a predictable number of minutes later the next day, and so-on (as you can along other US coastlines).

Some say the "tide goes backwards" here (meaning that for a few days the tides progress as above, but then one day, the main tide is at an earlier time than it was the day before). This makes those watches and clocks that show the tides not too reliable here. The diurnal tides here have a much greater range than do the semidiurnal periods. To simplify all these peculiarities, I have developed tide calendars for several places along the Texas coast. (Note, that only Port Aransas tides are available for 2018-2025).

The Amos Tide Calendars

Tide-calendars are available showing predicted tides for the Aransas Pass Ship Channel connecting the Gulf of Mexico with Corpus Christi Bay. Predictions are based on measurements of the actual tides at each location. The method needs at least a year of data. At Port Aransas, the data is based on a one-year series of measurements, made in 1993 at the University of Texas Marine Science Institute's Pier Laboratory (located off the South Jetty of the Aransas Pass Ship Channel). From the series, 37 harmonic constituents of the astronomical tide were calculated and used in a modification of the standard National Ocean Survey tidal prediction program to make hourly water-level predictions and establish the times of the highs and lows for each day. The water level is adjusted to Mean Sea Level, rather than the Gulf Coast Datum. Consequently, the annual and semi-annual variation in sea level can be clearly seen in the position of the daily tide fluctuations relative to the zero mean sea level line (compare January when low tides prevail with October when the opposite is true). Each hour is indicated by a vertical line connecting the curve with the zero line. In general, slack water will be at the times which the curve intersects the zero axis, but when the curve is offset as in January and October, some interpolation may be necessary. Flood and ebb tidal currents will be at a maximum at the times of high and low water, respectively. This astronomical tide is often radically changed by strong winds before and during the passage of cold fronts and during extra tropical depressions. The astronomical signal will still be found "riding" on top of the meteorological surges. Past history has shown that the predicted times are quite accurate, although the range of the tides in the predictions is somewhat exaggerated.

Local times of the highs and lows are listed beneath each daily box (all heights are given in feet and all times are local because it is the system most commonly used by the general public). Highs and lows are listed in "order of appearance": if the first tide extreme is a low then the time and height will be preceded by L1 for Low 1; the next tide will be H1 for High 1, etc. (These numbers may be difficult to read on some older VGA screens.) The shaded areas each day show the hours of darkness. Phases of the moon are shown for each day with the New Moon (NM), First Quarter (FQ), Full Moon (FM), and Last Quarter (LQ) marked on the moon symbol where appropriate. The relative size and shape of the moon will be quite close to reality each day, but the moon's orientation is always vertical on the calendar (the author is working on a method of depicting the moon as it appears to the observer). The symbols appear on the night of the day closest to when the phase occurs, e.g., if full moon is at 1215 (24-hour clock) on the 25th of the month, then the symbol will appear straddling midnight of the 25th. Should it occur at 1145, then the symbol will appear on the 24th of the month. Also shown is the Julian Day (JD). In 2015, a non-leap year, 1 January = JD 1, and 31 December = JD 365. These numbers appear either to the upper right or lower right of each daily box. In case you want to know how fast time flies, in the opposite corner of each box, the number of days left in the year is printed. The local time zone in use is given at the top of each monthly chart. On the days when Daylight Savings Time comes into effect in April and reverts to standard time in October, the symbol "CDT" for Central Daylight Time, or "CST" for Central Standard Time appears. The appropriate day’s length will be 23 hours in April and 25 hours in October. Notice how this messes up a perfectly good calendar. This was one of the more difficult aspects of the calendar to program.