

Understanding Tide Chart Data

Many people living in coastal communities need to keep track of the tides. In these areas, it is common to see tide tables hanging on the walls of homes and businesses. Tide tables are developed by the National Oceanic and Atmospheric Administration (NOAA). They show predictions of when high tides and low tides will occur each day and how high or low the tides will be.

Tidal height, like any elevation, is relative to a datum. A **datum** (singular form of data) is simply a fixed starting point or level from which other things can be measured. Many different data can be used to measure tides. These include Mean High Water, Mean Tide Level, Mean Sea Level, and so forth. NOAA typically uses the Mean Lower Low Water datum or MLLW. This is an average of the lowest tide reached each day over a specific 19-year period: 1983–2001.

Tide tables that use the MLLW datum will appear to have comparatively large positive numbers for the high tide heights and small positive or negative numbers for the low tide heights. It is important to remember that the value of the numbers simply reflects where the datum has been set. In this case, the datum is set at the lower portion of the tidal range.

Tide tables are useful for fishermen and boaters as they plan their outings. However, the tables may not be the best option for analyzing tidal data. Instead, graphs can be helpful for visualizing trends in the data, comparing different aspects of the data, or comparing the tidal data with other data such as moonrise, moonset, or lunar phases.

In these graphs, various aspects of the tidal data, such as tidal height, are usually plotted along the vertical y axis. Time is usually plotted along the horizontal x axis. Different graphing approaches can be used when comparing two different sets of data, such as tide height and the amount of the Moon that is visible. One approach is to add a second y axis on the right side of the graph with a scale and units appropriate for presenting the second data set. These data can then be plotted against time using the right-hand scale. Using different color points or lines can help differentiate the two data sets.

As an alternative, the two data sets can be plotted against each other directly. In this case, the amount of the Moon that is visible could be plotted along the x axis and tide height along the y axis. This will show the relationship between the two data sets but will not show how the relationship changes over time. ■