

LIVING WITH WATER

DATUMS

Datum

A base elevation used as a reference from which to reconcile heights and depths

Tidal Datum

A standard elevation defined by a certain phase of the tide; the up-down motion of the water surface must be mathematically fixed to obtain a reference for depths on charts, maps, and to predict elevations of the tide.

Tidal datums are used as references to measure local water levels and should not be extended into areas having differing oceanographic characteristics without substantiating measurements.

For more information, visit https://tidesandcurrents.noaa.gov/datum_options.html#MHW

National Tidal Datum Epoch (NTDE)

The specific 19-year period (18 years and 7 months to be exact-related to the Moon's orbit of the Earth) adopted by the National Ocean Service as the official time segment over which tide observations are taken and reduced to obtain mean values (e.g. mean lower low water) for tidal datums. It is necessary for standardization because of periodic and apparent secular trends in sea level. The recent NTDE is a 1983 through 2001 and is actively considered for revision every 20-25 years.

Mean High Water (MHW)

The average of all the high water heights observed over the NTDE. This type of high water datum is typically applied to engineering design and construction of coastal structures (ex. bulkheads, beach nourishment, breakwaters, offshore platforms, etc.) The elevation of this datum on the shore is the MHW line (where the high tide is represented).

Mean Higher High Water (MHHW)

The average of all the higher high water height of tidal day observed over the NTDE. In S.C., there are two high tides in a day so the higher of the two will be used in the average. This type of high water datum can also be applied to engineering design and construction of coastal structures.

Mean Low Water (MLW)

The average of all the low water heights observed over the NTDE. The elevation of this datum on the shore is the MLW line (where the low tide is represented)

Mean Lower Low Water (MLLW)

The average of the lower low water height of each tidal day observed over the NTDE. In S.C., there are two low tides in a day so the lower of the two will be used in the average. This is the lowest tidal datum that is computed; it is referenced on nautical charts due to its practical advantages for boat captains. By using MLLW, a margin of safety is provided because a boat captain will know the minimum depth in a navigation channel to help them ascertain if they have enough draft (water depth to float their vessel). The United States Army Corps of Engineers also use MLLW when performing dredging operations for navigation channels.