

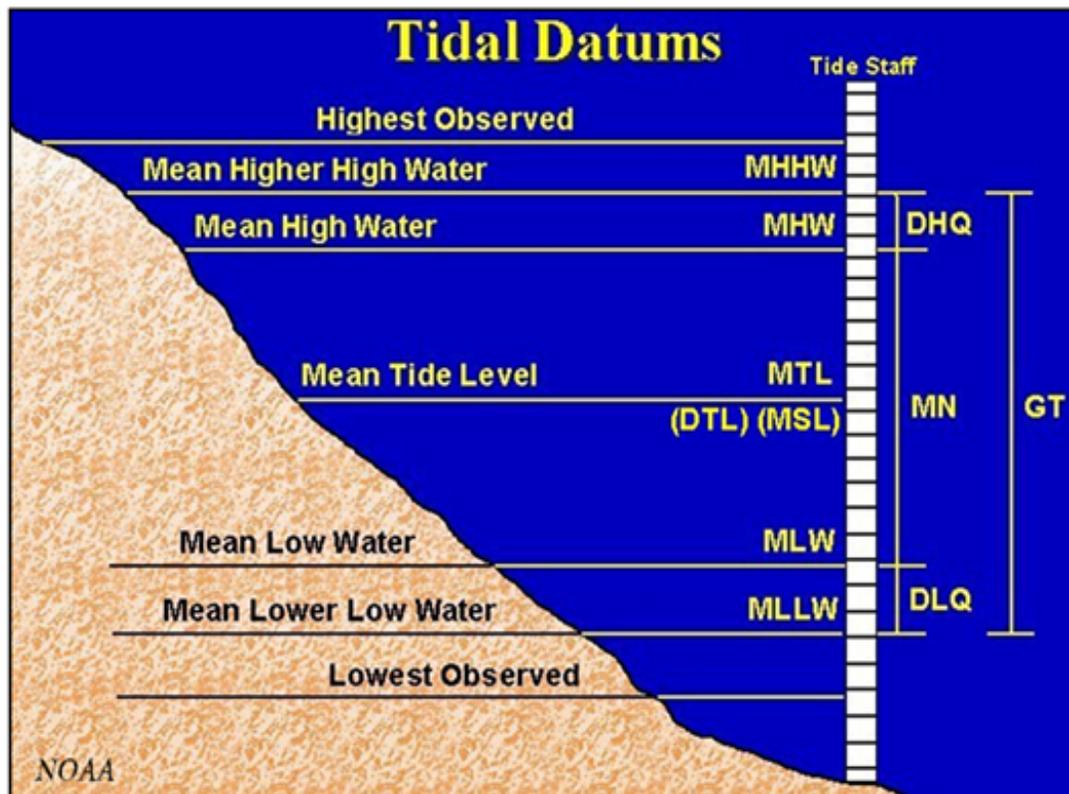
Tidal Datums¹

Acronym	Meaning	Definition	Notes
HAT	Highest Astronomical Tide	Elevation of highest predicted astronomical tide expected to occur at a specific tide station over the National Tidal Datum Epoch (NTDE).	NTDE defined as the time segment over which tide observations are taken for tidal datums; this is a 19-year period established by NOAA's National Ocean Service.
MHHW	Mean Higher High Water	Average of all higher high water height of each tidal day observed over the National Tidal Datum Epoch. A tidal day refers to the time it takes the Earth to rotate with respect to the moon (instead of to the sun); this is approximately 24 hours and 50 minutes.	For stations with shorter series (i.e., those without long-term observed data), observations are compared with control tide stations in order to derive standard equivalent datum of NTDE.
MHW	Mean High Water	Average of all high water heights observed over the National Tidal Datum Epoch.	For stations with shorter series, observations are compared with control tide station in order to derive standard equivalent datum of NTDE.
DTL	Diurnal Tide Level	Average of mean higher high water and lower low water.	
MTL	Mean Tide Level	Arithmetic mean of mean high water and mean low water.	
MSL	Mean Sea Level	Arithmetic mean of hourly heights observed over the National Tidal Datum Epoch.	Shorter series are specified in the name (e.g., monthly MSL, yearly MSL).
MLW	Mean Low Water	Average of all low water heights observed over the National Tidal Datum Epoch.	For stations with shorter series, observations are compared with control tide station in order to derive standard equivalent datum of NTDE.
MLLW	Mean Lower Low Water	Average of all lower low water heights observed over the National Tidal Datum Epoch. Datum used by National Weather Service (NWS). In Stamford, approximately 3.3 feet higher than NGVD 29.	For stations with shorter series, observations are compared with control tide station in order to derive standard equivalent datum of NTDE.
LAT	Lowest Astronomical Tide	Elevation of the lowest astronomical predicted tide expected to occur at specific tide station over the National Tidal Datum Epoch.	
GT	Great Diurnal Range	Difference in height between mean higher high water and mean lower low water.	

¹ Adapted from National Oceanic and Atmospheric Administration (NOAA), 2011. Tidal Datums: http://tidesandcurrents.noaa.gov/datum_options.html.

MN	Mean Range of Tide	Difference in height between mean high water and mean low water.	
DHQ	Mean Diurnal High Water Inequality	Difference in height of the two high waters of each tidal day for a mixed/semidiurnal tide (i.e., two high and two low tides each day).	
DLQ	Mean Diurnal Low Water Inequality	Difference in height of the two low waters of each tidal day for a mixed/semidiurnal tide (i.e., two high and two low tides each day).	
N/A	Station Datum	Fixed base elevation at a tide station to which all water level measurements are referred; the datum is <i>unique to each station</i> and is established at a lower elevation than the water is ever expected to reach.	Station Datum is referenced to the primary benchmark at the station and is held constant regardless of water level gauge or tide changes.
NTDE	National Tidal Datum Epoch	Official time segment over which tide observations are taken for tidal datums; this is a 19-year period established by NOAA's National Ocean Service.	Necessary for standardization due to trends in sea level. NTDE is considered for revision every 20-25 years. Certain regions with unusual sea level changes (e.g., Alaska, Gulf of Mexico) operate on a modified 5-year Epoch.

Representation of Tidal Datums²



² National Oceanic and Atmospheric Administration (NOAA), 2011. Tidal Datums: http://tidesandcurrents.noaa.gov/datum_options.html.

Geodetic Datums³

Acronym	Meaning	Definition	Notes
NAVD 88	North American Vertical Datum of 1988	<p>Fixed reference for elevations determined by geodetic leveling (i.e., leveling at a high order of accuracy, usually extended over large areas to create a vertical control for the purpose of mapping and surveying). NAVD 88 <i>should not</i> be used as Mean Sea Level (MSL).</p> <p>NAVD 88 can be converted to NGVD 29 by using the conversion tool at: http://www.ngs.noaa.gov/cgi-bin/VERTCON/vert_con.prl. Precise latitude and longitude are required inputs for this tool.</p> <p>Used by the City of Stamford.</p>	NAVD 88 is the American standard, used by most states, excluding Alaska and Hawaii.
NGVD 29	National Geodetic Vertical Datum of 1929	<p>Fixed reference adopted as a standard geodetic datum for elevations determined by geodetic leveling. NGVD 29 <i>should not</i> be used as Mean Sea Level (MSL) and is no longer supported by the National Geodetic Survey.</p> <p>Used by US Army Corps of Engineers, surveyors, and engineers.</p> <p>NGVD 29 can be converted to NAVD 88 by using the conversion tool at: http://www.ngs.noaa.gov/cgi-bin/VERTCON/vert_con.prl. Precise latitude and longitude are required inputs for this tool.</p> <p>In Stamford, approximately 3.3 feet lower than Mean Lower Low Water (MLLW).</p>	Although NGVD 29 is quite outdated, the full switch to NAVD 88 has not yet happened due to the billions of dollars it would cost to readjust maps and because of the complexity of NAVD 88, which cannot be sustained by a traditional excel document.

³ Adapted from National Oceanic and Atmospheric Administration (NOAA), 2011. Tidal Datums: http://tidesandcurrents.noaa.gov/datum_options.html.