

# TYPE OF TIDE

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In Tidal theory, type of tide is a classification based on characteristic forms of a tide curve. Qualitatively, when the two high waters and two low waters of each tidal day are approximately equal in height, the tide is said to be semidiurnal. When there is a relatively large diurnal inequality in the high or low waters or both, the tide is said to be mixed; and when there is only one high water and one low water in each tidal day, the tide is said to be diurnal.

**Semidiurnal tide** - Having a period or cycle of approximately one-half of a tidal day. The predominant type of tide throughout the world is semidiurnal, with two high waters and two low waters each tidal day. Tides along the East Coast of Florida are semidiurnal.

**Diurnal tide** - Having a period or cycle of approximately one tidal day. The tide is said to be diurnal when only one high water and one low water occur during a tidal day. Tides along the Gulf Coast of Florida generally west of Apalachicola are of the diurnal type.

**Mixed tide** - Type of tide characterized by a conspicuous diurnal inequality in the higher high and lower high waters and/or higher low and lower low waters. These terms are defined under tidal datums. Also, a mixed tide may be thought of as a transitional tide occurring between areas of semi-diurnal and diurnal tides. Tides along the Gulf Coast of the Florida from the Keys to Apalachicola are generally of the mixed type although some areas tend to be more diurnal.

National Ocean Service (NOS) has established two criteria to determine what constitutes an occurrence of a high or low tide as follows:

- 1. One-tenth rule:** Adjacent high and low waters must be different in elevation by one-tenth of a foot or more in order to be counted as a tide. If the height difference is less than 0.10 foot, they are excluded.
- 2. Two-hour rule:** Adjacent high and low waters must be different by two hours or more in time in order to be counted as a tide. If the time difference is less than two hours, they are excluded.

This criteria is especially applied to tidal data in the Gulf of Mexico and tidal data of low range in other geographic areas in the following situations:

1. At diurnal type tide stations near the times of minimum declination when the secondary, equatorial tides make their first and last appearance. This is a brief attempt of a diurnal tide to become semi-diurnal. This situation can be found at places on the Florida Gulf Coast.
2. At a tide station where the tides are of small range and the seiche effects and meteorological effects are often of the same or greater magnitude than the tidal signal. A seiche is a long-term wave due to atmospheric disturbances.
3. In areas of little or no tidal range, a mean surface elevation is determined by averaging the heights of the water at equal intervals of time, usually hourly, over a specific period of time, and is known as mean water level (MWL). The elevation of this datum on the shore is the equivalent of all datum lines, mean high water, mean low water, etc. It is as if all of the tidal datums were compressed into one. These areas are not common. Two examples are the Indian River at Melbourne, Florida and Blackwater Sound, Key Largo, Florida.
4. At mixed type tide stations, near the times of maximum declination, when the semidiurnal tides cannot be sustained and the lower high water merges with the higher low water until it disappears. This, in tidal theory, is known as the vanishing tide and can be found along much of the Florida Gulf Coast.