



## TIDE CLOCKS

### How to set your tide clock

The moon is the major cause of the tides. The lunar day (the time it takes for the moon to reappear at the same place in the sky) is 24 hours and 50 minutes. Most places have two high tides and two low tides each day. This clock is designed so that its hand rotates once every 12 hours and 25 minutes (twice each lunar day). Your tide clock always stays in exact step with the moon. But there are many other factors that can make the day-to-day tides a little earlier or later than the tide clock shows.

To minimize this variation, insert an AA battery into the clock on the day of a full moon (or within a couple of days of a full moon) at exactly the time of the high tide according to local tide times, and with the hand on the clock pointing to HIGH TIDE. This way your tide clock will stay in step with the moon indefinitely.

The sun also affects the tides, but has less than half the influence of the moon. When the sun, moon and earth are lined up, as they are at the time of a new moon, and full moon, their influences combine, and high tide is higher than normal, and low tide is lower than normal. When the sun and the moon are at right angles, as they are at the first quarter and last quarter of the moon, the sun cancels some of the moon's effect and the range of the tide is smaller than usual. Also, at these times the sun will make the tides somewhat earlier or later than average. This is why it is important to set your tide clock on the day of a full moon, as the moon has the dominating effect on the tides, but the sun can throw the times off slightly in the middle of a lunar cycle.

There are actually two tidal cycles: a twice daily cycle and a once daily cycle. On a tide when the two cycles help each other, high tides will be higher and low tides lower. On the next tide, when they conflict, the tidal ranges will be smaller. The relative strength of these two cycles varies from week to week and also varies from one place to another.

Abnormal atmospheric pressure can temporarily affect the time and height of the tides. Difference of one inch in barometric pressure will cause a one foot difference in sea level. Strong onshore winds will also cause a temporary increase in sea level. Both these effects will change the times of low and high tides as well. Tides in the lower portions of rivers will be affected by the changing volume of river flow.

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