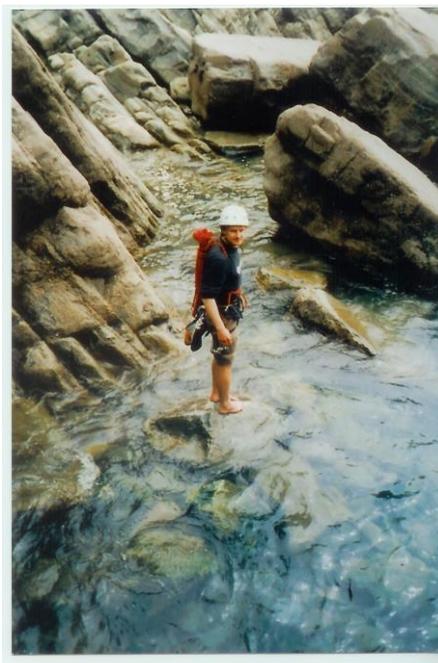


Climbers and the Sea.

Whether it's personal Climbing or guiding as a Mountaineering Instructor we may find ourselves operating near the sea. Some of us may find ourselves working in other related sports such as Coastal traversing or Coaststeering or as Technical Advisors for these. But during recent workshops some people have asked for more information and a greater understanding of the Tide.

So here goes, it's wet and wobbly and comes in and out, right? Well there is more of a science to it than that. So here is a brief, back of a stamp explanation that will hopefully be enough to get you by.

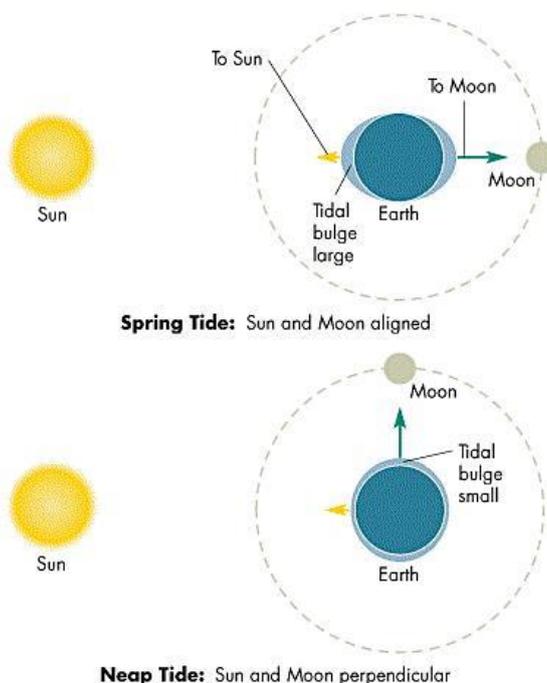
Tides are periodic rises and falls of the sea, that are caused by the gravitational interaction between the Earth, the Sun and the Moon. The gravitational attraction of the moon causes the oceans to bulge out in the direction of the moon. Since the earth is rotating while this is happening, two tides occur each day.



There are two main types of tide, Spring and Neap tides that rotate through a rough monthly cycle. Therefore you can predict what will be happening in the next few days/week/month.

Spring tides don't have anything to do with the season but are especially strong tides. They occur when the Earth, the Sun, and the Moon are in a line. The gravitational forces of the Moon and the Sun both contribute to the tides. Spring tides occur during the full moon and the new moon. As the polarity is all in one direction, this causes a highest tide at high tide and a lowest tide at low tide. I.e. it goes out the furthest and comes in the furthest.

Neap tides are weaker tides. They occur when the gravitational forces of the Moon, the Earth and the Sun are at right angles to one another. Neap tides occur during quarter moons and the tide doesn't go out as far or come in as far. I.e. less movement.



There is more to it than this, i.e. waxing and waning crescents and gibbous happen in-between spring and neaps, and the moon doesn't always travel at the same distance from the earth, it rotates in an egg shape getting closer and further that also add to creating larger and smaller tides. But let's accept the above for now.

The tide is generally accepted to come in for 6 hours (Flow), stop (slack) and then go out for 6 hours (Ebb) and repeat. Again this does vary slightly. The slack water after each ebb and flow creates about an hour causing the tide to be later the following day. The pattern in which the tide comes in and out follows the rule of twelfths.

The Rule of Twelfths describes the amount of water moving at different times throughout its cycle. Assuming the tidal cycle and a period is approximately 6 hours between low water and high water, then the rule states that.

In the 1st hour 1 twelfth of the tide comes in.

In the 2nd hour 2 twelfths of the tide comes in.

In the 3rd hour 3 twelfths of the tide comes in.

In the 4th hour 3 twelfths of the tide comes in.

In the 5th hour 2 twelfths of the tide comes in.

In the 6th hour 1 twelfth of the tide comes in.



This is repeated when ebbing and means *half* of the tide comes in or out during the middle two hours, now couple this with a spring tide where it needs to travel much further and this creates a massive amount of movement and speed. Hence people getting cut off at the bottom of crags or during Coastal traversing, especially during spring tides.

There are also other factors, i.e. high and low pressure can increase or decrease the tide, swell and onshore wind can bring the tide in sooner and the beach morphology can all alter the tidal state.

So always plan ahead, have an escape route or the skills to access out with an abseil rope left in place and check the swell forecast. I hope this helps, stay safe and happy sea cliff climbing.

Mark Garland is an AMI, BAIML and MTA member, and Holds a British Surfing Association Level 4 Coach and BCU Level 3 Surf Coach. He also acts as a Coaststeering guide and provides Technical Advice for all the above.

