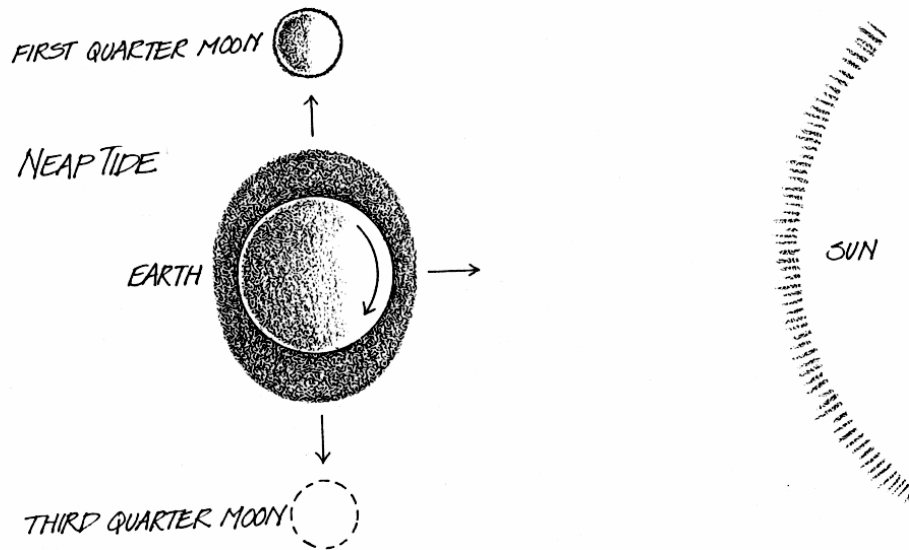


Types of Tides and Tidal Currents

by Kenn Oberrecht



At most places on earth, there are two high tides and two low tides a day. They follow a cycle that coincides with the 24-hour 50-minute lunar day, the time it takes earth to make one

complete rotation relative to the moon.

Here in the Pacific Northwest, we get mixed tides, two highs and two lows a day, characterized by significant disparity between successive tides.

Along America's Atlantic Coast, two high and low tides occur daily, with relatively little difference between successive high and low waters. Such tides are called semi-diurnal. On the north shore of the Gulf of Mexico, the tide is diurnal, meaning that it moves in and out again but once a day. Here in the Pacific Northwest, we get mixed tides, two highs and two lows a day, characterized by significant disparity between successive tides.

An incoming tidal flow is known as a flood current or flood tide; an outgoing flow is an ebb current or ebb tide. The period between flood and ebb tides, when there is little or no current, is called slack water or slack tide.

The moon is not only the greatest influence on our tides, but its phases also greatly affect their character. As the moon makes its monthly elliptical orbit around the earth, it aligns with the earth and sun semimonthly, during the full-moon and new-moon phases. At such times, we have extremely high and extremely low tides, known as spring tides, an unfortunate term that has nothing to do with the season that follows winter.

Between these phases, when the moon is in its first and third quarters, it's at right angles to the sun. This position counterbalances the gravitational interaction of the moon and sun, resulting in a period when the range between high and low tides is minimal. These are known as neap tides.

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Under certain conditions, tidal and other currents often conflict and sometimes create hazards to swimmers, boaters, and others. In the partial enclosures of bays and estuaries and at the mouths of coastal rivers, currents often collide and churn. Opposing currents sometimes occur along open ocean beaches, especially near headlands and manmade structures, such as jetties and breakwaters. Where islands are clustered near a rugged mainland in such a way as to create narrow, fjordlike passages, tidal and other currents often create turbulence.

A strong, subsurface tidal current that conflicts with another current or currents causing a violent underwater disturbance, usually in a direction contrary to that of the surface water is called a riptide. Although riptides may appear as dark or calm paths running through breakers, they can exist where there is no apparent surface commotion.

A tiderip, on the other hand, is readily apparent at the surface. This is a rip or stretch of turbulent water at sea or in a bay or strait caused by conflicting tidal currents or a tidal current moving over a rough bottom. Tiderips can appear as stretches of slightly choppy water running alongside glassy-calm water, or they might resemble whitewater rapids amid otherwise placid seas.

A knowledge of the tides makes the coast country more interesting for residents and visitors alike. Those who know the different types of tides and tidal currents are better equipped to enjoy our tidelands and tidewaters in comfort and safety.

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