

## **SEA CONDITIONS WHILE CROSSING COASTAL BARS AND INLETS**

There are three primary functions of nature that influence sea conditions on bars and inlets; coastal swell and sea state, long shore currents, bathymetry and geography and tides and currents. Having some basic knowledge of how these factors influence each other will provide a wealth of understanding of the hazards nature creates in these highly dynamic areas.

**Coastal swell and sea state:** Swells that impact our coastlines are created by the transfer of the winds energy to the surface of the water. The duration, velocity, direction, and the area over which it blows, called fetch, creates swells that become higher and longer as they move from their point of origin. Because no one weather system is alike each creates its own distinct patterns. As these different swell patters intermingle they organize into groups of larger swells. his group of larger waves is known as a “series.” The alternating grouping of smaller swells between each series is known as the “lull.”

**Tides and currents:** Spring tides occur twice during the lunar month during full or new moons when the moon, earth and the sun are directly aligned. This is when the tidal range, rise and fall, is at its peak. Approximately seven days after a spring tide, when the moon and sun are at 90° angles to the earth there will be a period of moderate tides where the range from high to low is significantly less. This is known as a “neap tide.” Because of the shear range in the volume of water from High to Low tide, spring tides create much stronger tidal currents where neap tides are less extreme.

**Bathymetry/geography:** The shape, depth, and size of the estuary dictate the direction and the velocity tidal currents travel as the water level rise and fall. Water seeks a path of least resistance and will travel from shallow waters to deeper channels and the bar or inlet area acts as a funnel, focusing the current into a choke point. Shoreward advancing ocean swells are also affected by bathymetry. As swells reach shallow water they are affected by the friction of the rising ocean floor. As they advance shoreward there period decreases, distance between advancing swell crests, and their height increases as they react to shallower water until they become unstable and break. Strong ebb currents and large ocean waves colliding on the bar can create breaking waves in very deep water. Hazardous conditions just don't occur between the headlands or jetty tips. As the tidal current flows out past the geographical structure of the bar or inlet, long shore currents can collide with strong ebb currents creating isolated areas of very choppy or turbulent seas.

**More Information**

[National Weather Service](#)

[Tips for Crossing Coastal Bars and Inlets](#)