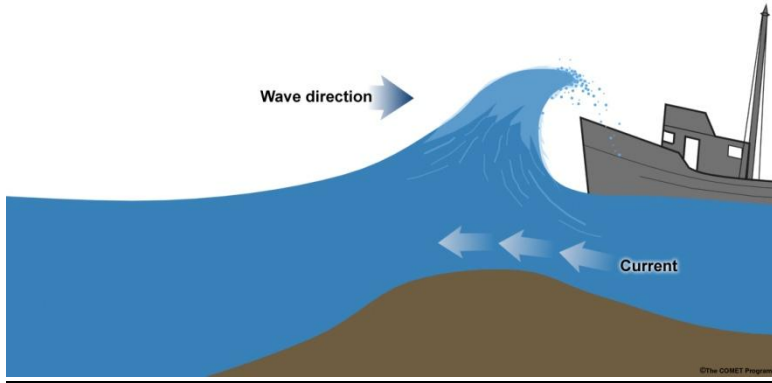


Weather hazards for the North Coast of California

Dangerous harbor entrances

The harbor entrance for Humboldt Bay can be very dangerous because of the interaction of shallow water, steep waves, and strong tidal currents, as shown in the image below. Outgoing tides increase the danger because the outgoing water pushes against the incoming waves causing them to become steeper. The information below provides advice for entering and leaving the bay, but remember this one important rule regarding the Humboldt Bay harbor entrance: **It is always more dangerous during outgoing tides!**

(note that a some harbor entrances have hazards on incoming tides, such as the south shoal of San Francisco Bay)



Because the shallow water in the harbor entrance is caused by sand bars, the resultant dangerous areas is often referred to as the “bar” and therefore entering or leaving the harbor requires that you “cross the bar”.

Most accidents and deaths that occur on coastal bars are from capsizing which can happen while leaving or entering the bay. A particular challenge coming into the bay is that the seas are on the stern and the boater may have less control over the vessel. Also, the boat can start surfing down the face of the incoming wave and that never turns out well.

Therefore it is important to not just check the conditions for when you plan to leave the bay, but also for when you plan to return from a trip out.

Plan your trip:

1. Check the Coastal Waters Forecast to make sure it is safe out in the ocean.
2. Check the forecast conditions at the bar for the time you are going to leave. You can check the Bar Forecast at www.weather.gov/eureka, under the marine forecast option. Otherwise, make sure the tide is coming in and that the waves are under five to six feet (or even smaller for small open boats). Adjust your departure time to ensure that you can get out safely, or cancel your trip.
3. Check the forecast bar conditions for the time you plan on returning to port using the same approach as above. Remember that it can be more dangerous coming into the bay during rough bar conditions.

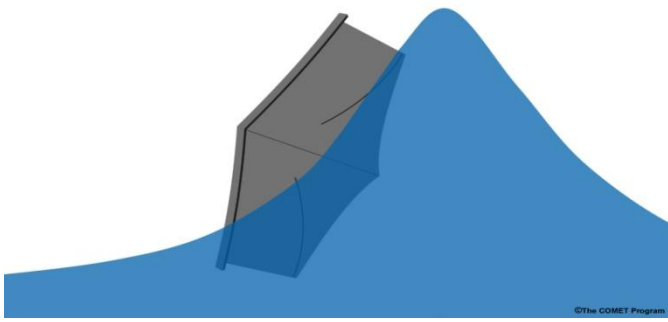
4. Right before you leave, check the current conditions at the bar by checking with the Coast Guard or other boaters who have recently crossed the bar. Contact the Coast Guard for a bar report at 707-443-2212 or via VHF radio CH 22A. You can also verify the conditions are as reported by looking at the bar cam at www.weather.gov/eureka, under the marine forecast option.

Some final pointers for crossing the Humboldt Bar:

- Don't be fooled by a period of smaller waves. Sets of larger waves can appear without warning after periods of smaller waves that can last for up to twenty minutes. In particular, don't take short cuts out of the navigational channel because these short cuts put you over shallow water. If you are in this shallow water when a set of larger waves arrive, you can suddenly find yourself in breaking wave conditions.
- Make sure everyone aboard is wearing a personal flotation device while crossing the bar, no matter what the conditions are – waves can always surprise you.
- Do not allow the waves to catch your boat on the side (beam). This condition can easily result in capsizing. This is why it is risky to change your mind in the middle of a bar crossing; Turning around requires that your beam is exposed to the waves. Checking the forecast and the bar conditions before leaving the dock is better than “going to have a look” because of the danger of turning around in rough bar conditions.
- Avoid sudden weight shifts from passengers or gear moving around in the boat.
- If conditions are really bad, consider having passengers lie down as near the centerline of the boat as possible.

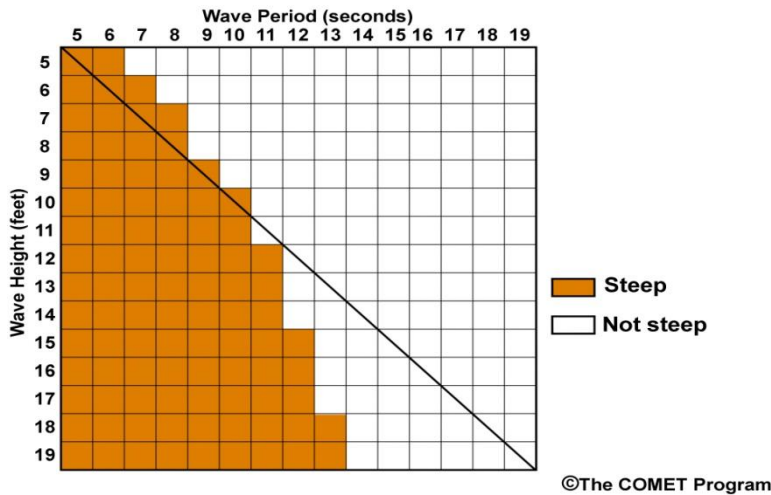
Steep Waves

The north coast frequently experiences steep waves. Steep waves are more dangerous because they can cause a boat to tip far enough over to capsize, as shown in the image below. They can also break over the side or bow of a boat causing it to fill with water. Don't be fooled by the small height of steep waves.



Even a wave as small as six feet can be dangerous if it is very steep. You can tell if a wave is steep by comparing the height to the interval between waves (known as the “wave period”). A six foot wave with a five second period, for example, is very steep but a six foot wave with a 10 second period is not steep at all. A decent rule of thumb is that a wave is steep if its period is equal to or smaller than its height. This rule is not perfect because it

over estimates the steepness for waves bigger than 10 feet, but it's still handy. If you want to really know if a wave is steep, look at the table below. The black diagonal line represents the rule of thumb mentioned above. Two last points: (1) Swells can be steep, and frequently are on the North Coast, and (2) waves on the North Coast can be dangerously steep and big even when the wind is light.



Strong winds

The winds on the North Coast can change quickly during the course of the day and can be very different from place to place. It is a grave mistake to make assumptions about how strong the wind will be somewhere else or at a different time based on what you see right here and right now. Listen to the forecast carefully and plan your trip accordingly. If the wind strengthens earlier than forecast, stop believing the forecast and run for port! Winds are often light in the morning and then quickly increase in the afternoon, but they can increase at other times as well.

The winds can blow much stronger just a hand full of miles off shore, and can move in fast enough to catch you off guard. Your first defense is to know the forecast. You can also often tell this situation is likely while on the water by the steep “lumpy” waves that the strong winds send in to the beach. You should always associate those lumpy waves with stronger wind offshore that can move in at any time.

Cape Mendocino and Punta Gorda

The wind, wave, and currents are often more hazardous around all great capes, and Cape Mendocino and Punta Gorda are particularly dangerous. Don't try rounding these capes or fish in their vicinity without local knowledge – unless the weather is calm.

Shoaling waves near the coast

Long period waves often make for nice conditions in the open ocean, but they can really trick you in shallow water. Long period waves, say with a period greater than 10 seconds, become steep and break when they feel the sea floor.

It turns out that the longer the period of waves, the more likely they are to have sets of bigger waves with long periods of smaller waves in between sets. Because the periods of smaller waves can last for up to twenty minutes, it's easy to think it is safe to get close to shore based on the smaller waves. Then, once you are in shallow water, a set of larger waves can arrive without warning and start breaking where you are at. Don't be fooled by a period of smaller waves. When long period waves are present, stay away from shallow water.

Fog

The North Coast is famous for its fog and it can move in and out quickly. For boaters, it can result in your not being able to find your way back to port. When you see fog moving into your area, think about how you will get back to port if the fog persists. Remember that once you are in fog with limited visibility, you'll have to slow down. That can delay your arrival to port and may force you to cross the bar during an outgoing tide.