

## where **Waves** come from

**task:** Use the Word Bank below to fill in the gaps.

**WAVES ARE FORMED** by wind blowing across the surface of the \_\_\_\_\_. Swell lines are visible expressions of wave energy. Wave energy moves faster in deep water & moves at great speed in the open ocean. Big swells are caused by \_\_\_\_\_ at sea. In southern Australia these storms are generated by “cyclonic” depressions that continually move around the Southern Ocean.

**WAVES BREAK** when they meet obstacles such as reefs, points or beaches. There are 3 types of waves: \_\_\_\_\_ (preferred by surfers); \_\_\_\_\_ or dumpers; & **surging**, which don't really break. Waves tend to come in uniform \_\_\_\_\_ of 3 or 4 waves. In a given swell, if the third wave of a particular set is the biggest wave, the third wave will be the biggest wave of each set. The period between sets is known as a \_\_\_\_\_.

**THE HIGHEST POINT OF A WAVE** is called the \_\_\_\_\_ or crest. The lowest point, below the face of the wave, is called the \_\_\_\_\_. The height of the wave is determined by measuring the distance between the peak & trough. Waves break in water that is 50% deeper than their depth. (So a 1m wave will break in 1.5m deep water.) Ocean waves have been measured at over 30 metres. These mega waves rarely break.

**RIPS** are currents that help the sea level **equalise**. They are like **invisible rivers** in the surf. Rips that run out to sea are potentially very dangerous. They can occur every 40 or 50 metres along surf beaches in between the wave \_\_\_\_\_ where the biggest waves are breaking. Feeder currents that run parallel to shore are sometimes called **drifts** or **sweeps**. The bigger the waves, the stronger the rips. You can identify rips by channels of discoloured sandy &/or frothy water extending out to sea, or objects floating out to sea. Rips are difficult to identify in messy surf. You will \_\_\_\_\_ quickly & get nowhere if you try to swim or paddle against a rip. It is better to move sideways out of the rip, & catch a wave back into the shore. Use points of reference on the land to continually check your position.

**WIND THAT BLOWS** from the sea **on** to the land is called \_\_\_\_\_. Wind that blows **off** the land to the sea is called \_\_\_\_\_. If the wind is on-shore, the surf tends to be \_\_\_\_\_. If the wind is off-shore, the surf tends to be \_\_\_\_\_. Surfers prefer off-shore wind for the best waves. In settled \_\_\_\_\_, on-shore sea breezes often pick up during the day as the air over the land heats up more than air over the sea. Whitecaps are a sign of on-shore breezes.

**SURF CONDITIONS** continually \_\_\_\_\_ with changes in wind speed & direction, changes in the size of the swell & the rise & fall of the tide. Tides affect surf in different ways. For example in a given swell, waves that break over a reef or sandbar in low tide may not break at all in high tide. High tides take place approximately every 12¼ hours (or twice a day). The highest tides take place in Spring. Tides are caused by the gravitational pull of the moon. In northern Australia, the tide can rise & fall up to eight metres. **Rock fishermen & women** are most at risk from turning tides. Tide charts are both readily available & accurate.

**SURFERS** & others who spend time on or alongside our coastal waters need to be aware of a range of other **dangers**. These other dangers include the damaging rays of the sun, dehydration, waves breaking on rocks, marine creatures that bite or sting & the effects of immersion in cold water for a long time. Loss of body heat is aggravated by \_\_\_\_\_. Dangers can be minimised by following \_\_\_\_\_ rules, by using proper equipment (such as leashes), by **avoiding stunts** & never going out alone.

**SURFERS** can choose the most protected beach. They can protect themselves from the sun by wearing full-length wetsuits & rash vests, & applying sunscreen or zinc cream. They can protect themselves from rocks, shallow water & other surfboards by wearing helmets. Surf reports are available on the internet. There is a saying that “the sea is a cruel \_\_\_\_\_.” This \_\_\_\_\_ means that if you don't respect it, you will pay the \_\_\_\_\_.



**word bank**

1	alter	2	clean	3	conditions	4	lull	5	messy
6	mistress	7	ocean	8	off-shore	9	on-shore	10	peak
11	plunging	12	price	13	safety	14	sets	15	spilling
16	storms	17	tire	18	trough	19	wind chill	20	zones