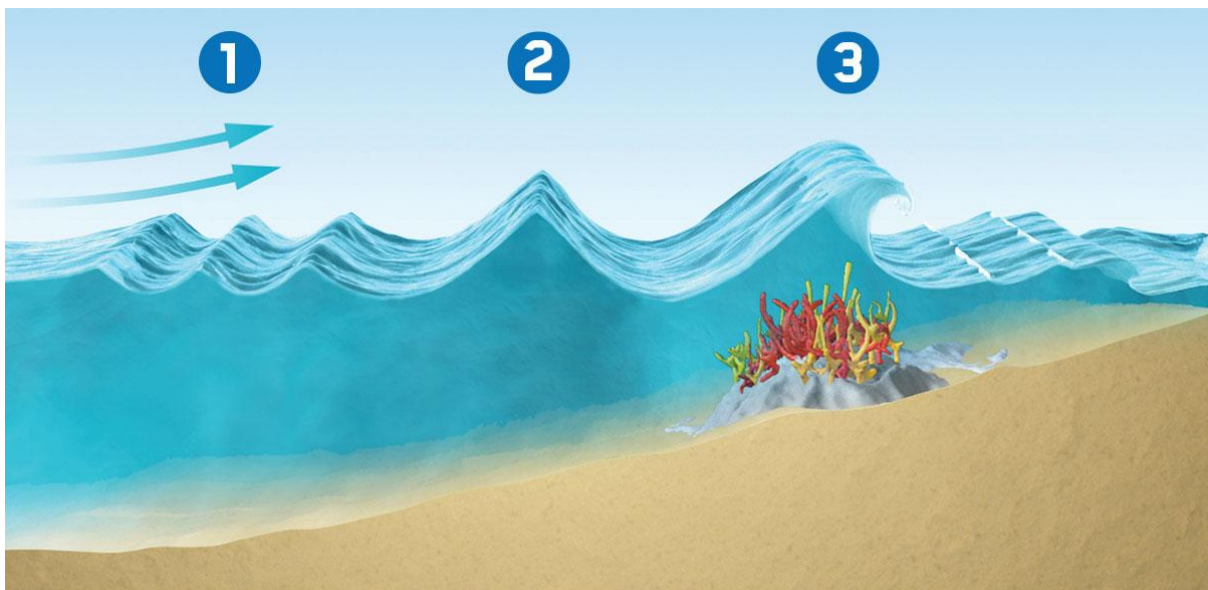


# WAVES, REEFS, LINK WITH THE HUMAN

## WHAT'S A WAVE ? :

First of all a move of water due to wind on the sea. The swell is caused by a atmospheric currents that are far from the coast. The swell is due not only to the pressure and shear force of the air currents, but also to atmospheric pressure differences. The height, the length between the ridges, the period and the direction of the waves are very variable. The duration of action and the length of action make it possible to evaluate the strength of the waves.

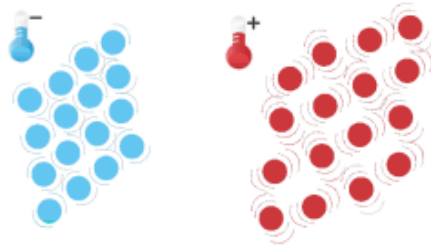
The little roll you can see in a wave happen when the depth is less long than the length of the waves.



Why the human is linked to the marine activity ? :

Our planet, is warming herself, with or without the human. Because of this warming the water is in expansion, that means that water molecules take more space so the level of

water raise. There is also the ice melting so it produce more liquid water so the level raise too. But human activity is accelerating this phenomenon.



*The water expansion happen when the temperature is changed, you can see it also with you fridge water and boiled water*

## WHAT CAUSES THE RISE OF THE WATER ? :

Many activities has modified the water cycle:

The dams built has increased the continental volume of water, this increased of 700% during the 50 last years because of creation of 40 000 news greats dams,it makes 35000 more between 1950 and today. The water tanks of the dam contains a lot of water, so the average residence time of the continental water multiplied by 3 from the same period. Dams has an impact over transport of substances contained in the water and are rejected in the oceans.



*The water dam of Idukki in Kerala, in india reach in 2018, 90% of its capacity.*

Agricultural irrigation, is a main source of river water withdrawal, is also affecting the water cycle, because a big part of this water transform in steam and don't reach the rivers, lakes

and sea.



*A good example for this phenomenon is the Aral sea, when USSR deflect the water for the kazakhstan cultures.*

If we keep the example of Aral Sea, a lot of settlement were deserted. Yes, marines activities has a influence of human habitation. Because human feed him with product of water.

## HUMAN DEVELOPMENT AND THE SEA:

The indirect link between human and the reefs : The human developpe himself, with industry; we know that heavy production of greenhouse gas product greenhouse effect. But the carbon dioxide produced by the industry go in the water. When it dissolve in the water, today it's about 30% of the CO<sub>2</sub> produced by the factory, goes into water and reduce the pH of the water. We call this ocean acidification. This acidification destruct the shell of little animal, and then they are more in danger in front of the predator. After we eat these animal, so it has an impact on human health too. The coral reef is one of the most rich ecosystem, and acidification is destructing it.



*The great barrier reef, in Australia, is in danger, in 9 months, she loose 30% of corals*

Mangrove swamp, are ecosystem, which are growing near the littoral and the tide zone. It's also one of the most productive and rich ecosystem in the world. Mangrove swamp protect the ground from erosion, and the littoral from tsunamis. This ecosystem is threatened because human, take the wood from it, and do culture of shrimps. For example in 2004, since the big tsunami, people are now aware of the importance of the protection of it, because if the mangrove swamp wasn't destruct, the tsunami would be stopped by the

mangrove swam

