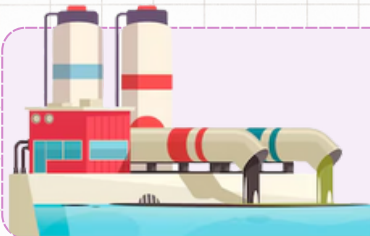


OCEAN ACIDIFICATION

HOW CARBON EMISSIONS IMPACT MARINE LIFE

- Carbon dioxide (CO_2) levels in the atmosphere rise due to human activities that burn fossil fuels.
- Driving, creating electricity, and deforestation are all activities that emit carbon dioxide.

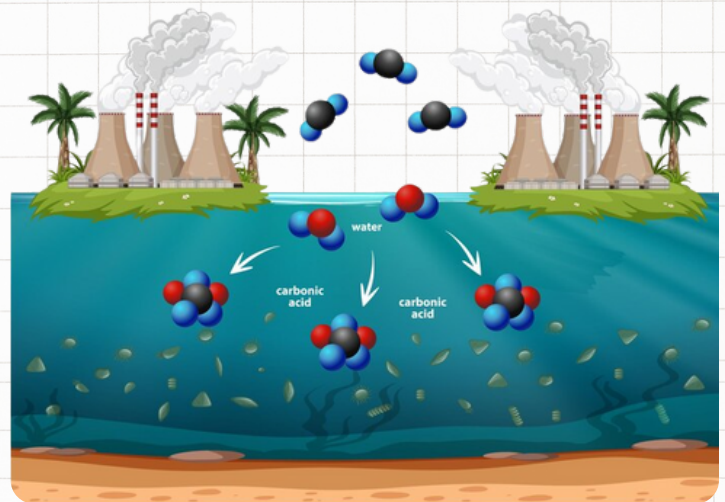


DID YOU KNOW:

The ocean's pH has changed from 8.2 to 8.1 since the Industrial Revolution. This may sound small, but it is **actually a 30% increase in acidity**.



Excess carbon dioxide dissolves into the ocean, where it reacts with water (H_2O) to create carbonic acid. This chemical reaction increases the acidity of the ocean. Ocean acidity is measured by pH (a lower pH = higher acidity).

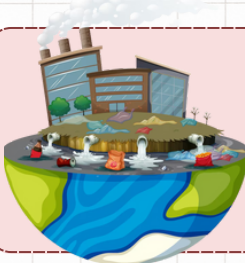


Humans who are dependent on marine resources are **negatively affected**. Many humans depend on the ocean for food or livelihoods.

Acidification impacts the marine ecosystem, and makes it difficult for humans to get resources from the ocean.

Organisms with shells can't get enough carbonate ions to build their shells, and can't maintain their shells or skeletons.

Increased acidity harms marine life. Even small changes in pH can have a big impact.



Acidity threatens plankton and other organisms that form the base of the food chain. This disruption of the food chain makes it harder for larger organisms to get enough food.

Some fish can't function well in higher acidity environments and may have trouble detecting predators, growing and developing, or finding suitable habitats.

HOW CAN WE STOP OCEAN ACIDIFICATION?

Estimates of future ocean acidification are a pH of 7.8 if we continue business as usual. But there are some actions we can take to slow ocean acidification:

Reducing atmospheric carbon emissions directly decreases the amount of carbon absorbed by the ocean.

Seaweed farming: Seaweed absorbs CO_2 , which may locally counteract acidification.

Growing plankton: Plankton absorb CO_2 from the atmosphere and trap carbon on the ocean floor.

Geoengineering: These technologies, called 'geoengineering', may help reduce climate change.