

# Ocean acidification

When carbon dioxide dissolves in seawater it decreases the pH of the ocean, driving the seawater towards acidity. The huge increase in our CO<sub>2</sub> emissions means this is happening on an unprecedented scale. This is known as ocean acidification.

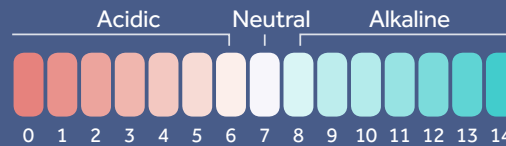


The ocean currently absorbs over **1 million tonnes of human-made CO<sub>2</sub> per hour**



The pH scale measures acidity or alkalinity of a solution

The scale runs from 0 to 14 and pH7 is neutral

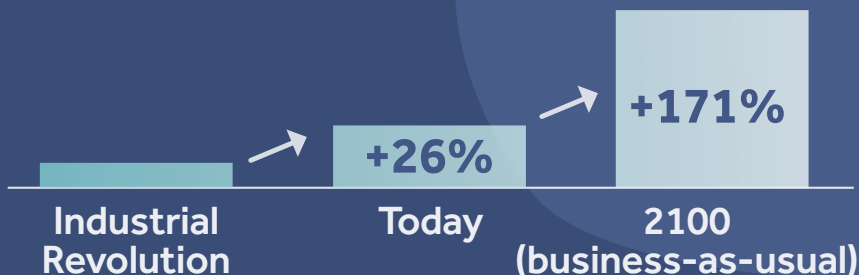


Under normal conditions the ocean is slightly alkaline, with an average pH of 8.2.

Since the Industrial Revolution its pH has decreased by an average of 0.1, to 8.1 – this equates to a **26% increase in acidity**

The **unprecedented increase** in carbon emissions means **acidification** is happening about **10 times faster** than at any time in the **last 300 million years**

Rise in ocean acidity



Ocean acidification affects many sea creatures and the world's coral reefs – putting marine ecosystems at risk and threatening vital services such as coastal protection and fisheries

## Impacts



Coral, shellfish, and some phytoplankton rely on calcium carbonate to form their shells and hard skeletons. **Rising acidity affects the animals' growth, reproduction and resistance to disease**



Some of the animals that may be affected lie at the bottom of marine food-webs, so changes have the potential to **impact entire ecosystems**



Acidification makes **coral reefs less able to recover from bleaching**



**Healthy coral reefs protect coastal communities** from storm surges and erosion, but **acidification threatens this**



Annual loss to the UK economy due to acidification **impacts on the shellfish industry** is estimated at **£23 to £88 million**