



Ocean acidification



Acidification refers to a reduction in the pH of the oceans caused primarily by the uptake of CO_2 from the atmosphere, although it may be caused by other chemical additions or subtractions from the ocean.

Ocean acidification is expected to have an impact on ocean species to varying degrees:

- Photosynthetic algae and sea grasses may benefit from higher CO_2 levels in the ocean.
- Studies have shown that a more acidic environment has a dramatic effect on some calcifying species. Calcium carbonate minerals are the building blocks for the skeletons and shells of many marine organisms. The acidification of seawater leads to a reduction in the concentration of carbonate ions, which makes building and maintaining shells and other calcium carbonate structures difficult for calcifying organisms such as oysters, clams, sea urchins, shallow water corals, deep sea corals, and calcareous plankton.

- These changes in ocean chemistry can also affect the behaviour of non-calcifying organisms. The ability of certain fish to detect predators decreases in more acidic waters. When these organisms are at risk, the entire food web may also be at risk.
- Ocean acidification affects all the world's oceans, including coastal estuaries and waterways. Many economies are dependent on fish and shellfish, and people worldwide rely on food from the ocean as their primary source of protein.

Ocean acidification is thus an emerging global problem. Over the last decade, many studies have focused on its potential impacts. Predictions suggest that, in the future, the oceans will continue to absorb CO₂ and become even more acidic. Estimates of future CO₂ levels indicate that, by the end of this century, the surface waters of the ocean could be nearly 150 percent more acidic, resulting in a pH level that the oceans have not experienced for more than 20 million years.

Coral reefs and ocean acidification

Corals are colonies of tiny individual animals called polyps, which have soft bodies and stinging tentacles. In tropical corals, the polyps are protected by a hard, external skeleton made of calcium carbonate. Coral reefs cover less than one percent of the sea floor but are home to 25 percent of marine species. Due to the increased acidification of the ocean all coral reefs are in jeopardy. Find in the available literature and internet the impact on wildlife of this "rainforest of the sea" if corals get extinct due to the increased acidification of the ocean water.

Some of the website addresses can serve as a starting point when searching for more information:

<https://climateinterpreter.org/content/effects-ocean-acidification-coral-reefs>

<https://usa.oceana.org/effects-ocean-acidification-corals>

<https://www.nationalgeographic.org/media/acidification-reefs/>