CAUSE AND EFFECTS OF
OCEAN ACIDIFICATION

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what are the main emission sources?

- Fossil fuels
- Deforestation
- Land clearing for agriculture

what is ocean acidification?

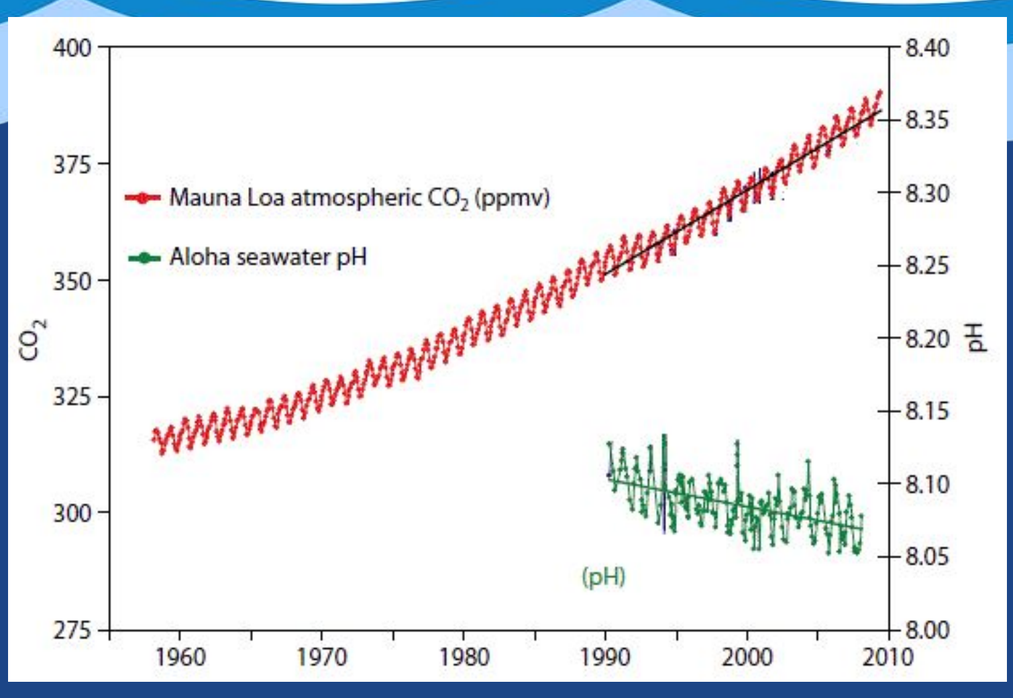
the process of carbon dioxide dissolving in the ocean, chemically breaking down and lowering the ocean's natural pH levels

Natural "buffers" like rivers typically can balance this lowered pH but with rapid increase in acidity, these buffers can't keep up

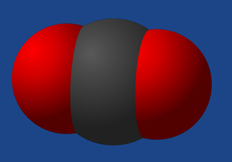
How ocean acidification happens

ocean pH pre-Industrial Revolution: **8.2** → ocean pH currently: **8.1**

While this may not look like a major change,
1 pH unit of decrease = 10-fold increase in acidity



Red line: increase in CO2
Green line: decrease in pH

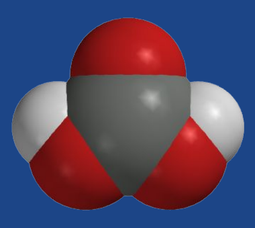


carbon dioxide (CO_2)

mixes with

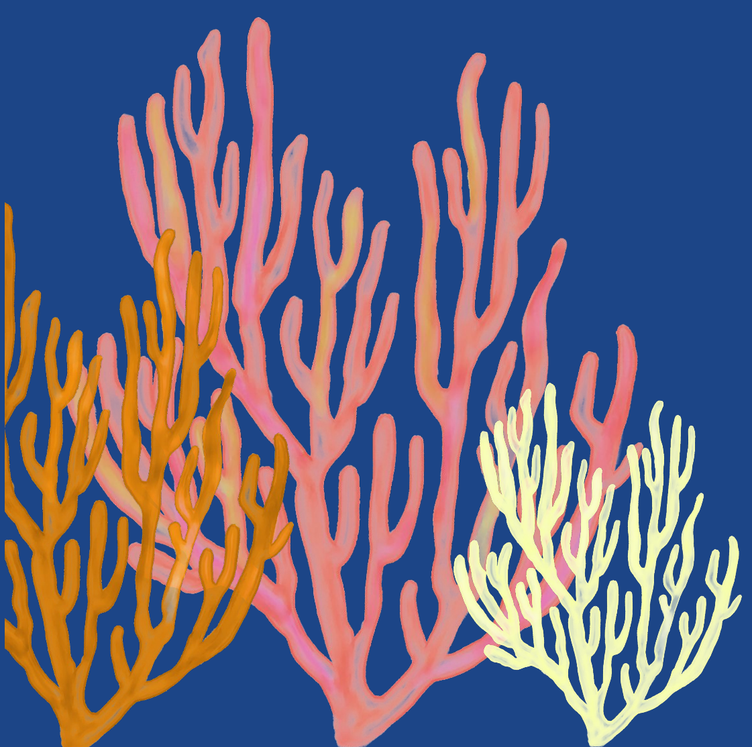
water (H_2O)

to form



carbonic acid (H_2CO_3)

This carbonic acid then releases **hydrogen** and **bicarbonate ions**



What does ocean acidification affect?

skeleton formation & coral growth

Shells dissolving over a 45 day period

- The increase in demand for carbonate ions creates weaker shells

fish habitats

- Fish, like humans are extremely sensitive to pH changes
- Acidity can slow fish growth

biodiversity

- Biodiversity decreases as ability to adapt to the environment changes between species

resources

- Ocean acidification is global warming's forgotten crisis
- Ocean Acidification and its Effects
- Global Greenhouse Gas Emissions Data
- Ocean Acidification
- Ocean Acidity Graph