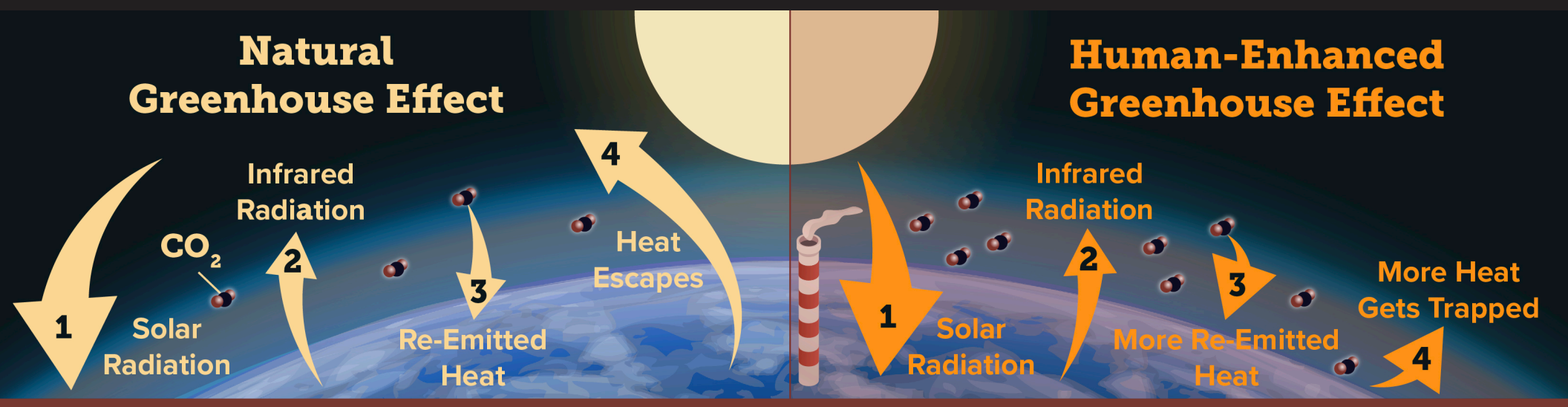
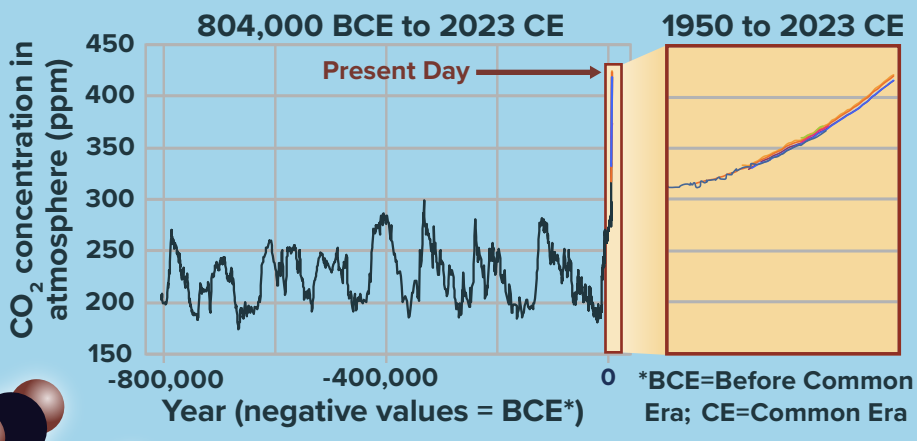
Chemistry & Greenhouse Gases

The increase in carbon emissions is changing the chemistry of the atmosphere and ocean, causing atmospheric warming and ocean acidification.



Invisible greenhouse gases trap outgoing infrared radiation, which warms the atmosphere.

Human activities, especially burning fossil fuels, release large amounts of greenhouse gases, such as carbon dioxide (CO_2). These gases are emitted to the atmosphere and absorbed by the ocean, changing the chemistry of both.

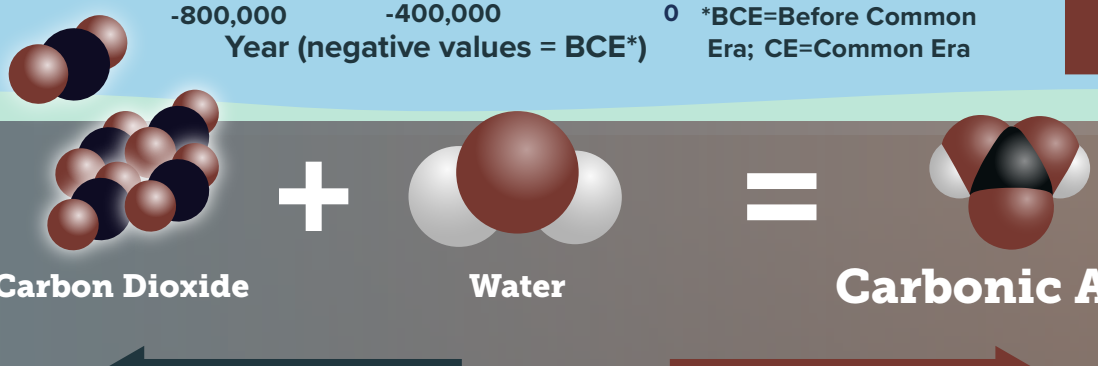


From 1990 to 2019, the warming effect from emissions due to human activity

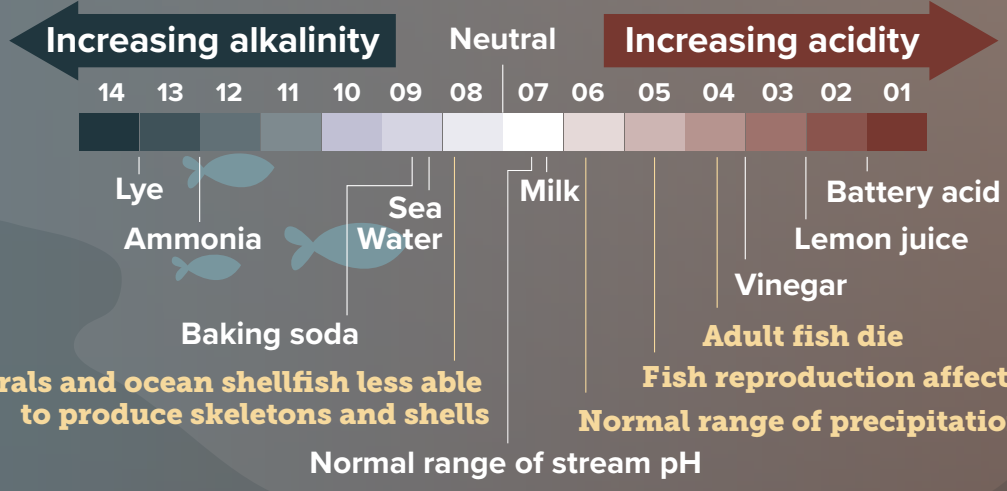
INCREASED BY 45%

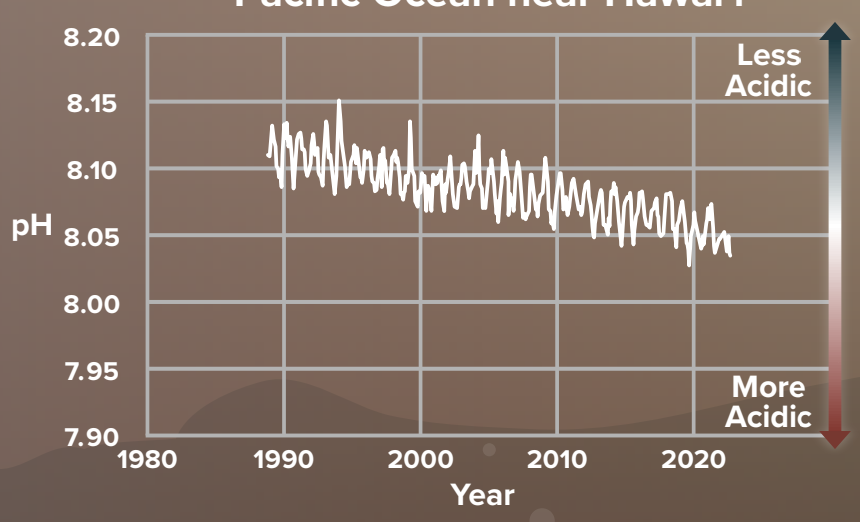
The warming effect associated with CO_2 alone has

INCREASED BY 36%



Acidity has increased in the Pacific Ocean near Hawai'i





The increase in acidity makes it difficult for some marine life to make and maintain their calcium carbonate shells.

EPA

epa.gov/climate-indicators

January 2025
EPA 430-F-25-002