



Pacific Islands & Territories Ocean Acidification Center



For more information on all Global Ocean Acidification Observing Network (GOA-ON) Regional Hubs, visit http://goa-on.org/regional_hubs/index.php

The ocean is becoming more acidic, getting warmer, and losing oxygen due to the burning of fossil fuels and other human activities.

Ocean warming, deoxygenation, acidification, and cascading ocean system changes will continue for the rest of this century and into the next century. The rate of these changes will depend on future emissions, however they are unprecedented in the context of human history and are irreversible on human time scales.

We know that ocean acidification is affecting marine life, especially organisms that build calcareous shells and structures such as coral reefs, shellfish, and crustaceans. Together with ocean warming, sea-level rise, intensifying storms, and deoxygenation, this poses challenges for coastal and marine ecosystems and their services including seafood supply.

We know enough to act NOW!

AS A POLICYMAKER WHAT CAN YOU DO?



- Lobby to reduce global emissions to protect interests and natural resources of the Pacific Islands.
- Support policy and economy-wide packages that are able to achieve systemic change in current practices.
- Coordinate across government and society to achieve ambitious and effective mitigation of fossil fuel usage.



LOBBY global audiences to reduce CO₂ emissions and make the switch to renewable energy sources.



Ian Shive / NOAA

PROTECT coral reef ecosystems to safeguard current and future food security.



PROMOTE aquaculture technologies for species at risk.

Antoine N'Yeurt and Seila Baleirara

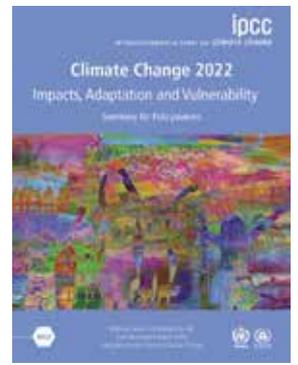


Katy Soapi / SPC

RESTORE damaged mangroves that store excess carbon and protect coastal zones.

We know the ocean is changing

The latest Intergovernmental Panel on Climate Change (IPCC) reports, *Climate Change 2022*, compile thousands of scientific articles and show without ambiguity, from chemistry to biology, that ocean acidification is driving complex changes and threatening marine species, ecosystems, and the services they provide us.

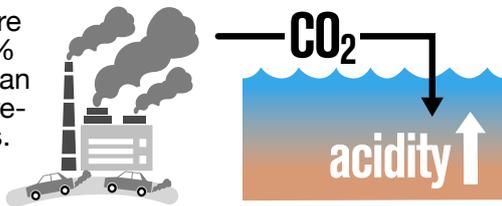


GLOBAL CHANGE

20-30% CO₂ ABSORBED

Burning fossil fuels is releasing excess carbon dioxide (CO₂) into the atmosphere. The ocean is absorbing 20-30% of this CO₂, making its chemistry more acidic.

As a result, there has been a 26% increase in ocean acidity since pre-industrial levels.



DEEP ACIDIFICATION

>2000m CO₂ PENETRATION

Acidification is spreading deeper in the ocean, surpassing 2000m depth in the North Atlantic and the Southern Ocean.

Ocean currents and mixing are moving surface CO₂ into the ocean depths.



CORAL REEFS AT HIGH RISK

25% OF MARINE DIVERSITY

Warm-water coral reef ecosystems house 25% of the marine biodiversity and provide food, income, and shoreline protection to coastal communities globally.

Ocean acidification is weakening structure-forming organisms like corals and shellfish.

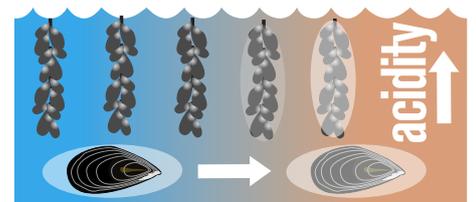


BIOLOGICAL IMPACTS

CHANGES IN MARINE LIFE

There is overwhelming evidence that global acidification is having and will continue to have negative effects on marine species and ecosystem services.

Without adaptation, shellfish aquaculture will decline due to ocean acidification.



SOLUTIONS: REDUCE EMISSIONS, PROTECT, ADAPT, AND RESTORE

Our ability to manage marine ecosystems and minimize the negative effects of ocean acidification and other stressors will continue to improve with targeted science to:

- Inform regional and global decisionmakers that ocean acidification has lasting negative impacts on Pacific marine resources.
- Raise awareness in developed countries about the impact of ocean acidification on Pacific Island communities.
- Monitor ocean acidification locally on a long-term basis.
- Conduct studies on the impact of ocean acidification on key biological resource ecosystems and species.

The following organizations participated in the creation of this policy brief.

NIWA, New Zealand; NOAA Ocean Acidification Program, USA; University of the South Pacific, Fiji; The Pacific Community, Fiji; National University of Samoa, Samoa.

In collaboration with the Pacific Island Ocean Acidification Center (PIOAC) and PI-TOA GOA-ON Hub.

This policy brief was adapted from IAEA OA-ICC.

International Atomic Energy Agency Ocean Acidification International Coordination Centre (IAEA OA-ICC); Ocean Conservancy, USA; NIWA, New Zealand; University of Gothenburg.

Design and Layout: Jane Hawkey (VisualScience.jhawkey@gmail.com) and supported by the International Atomic Energy Agency.

December 2023