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Acid oceans 'need urgent action'

- The oceans are thought to have absorbed about half of the extra CO₂ put into the atmosphere in the industrial age
- This has lowered its pH by 0.1
- pH is the measure of acidity and alkalinity
- The vast majority of liquids lie between pH 0 (very acidic) and pH 14 (very alkaline); 7 is neutral
- Seawater is mildly alkaline with a "natural" pH of about 8.2
- The IPCC forecasts that ocean pH will fall by "between 0.14 and 0.35 units over the 21st Century, adding to the present decrease of 0.1 units since pre-industrial times"

[Natural lab shows sea's acid path](#)



The world's marine ecosystems risk being severely damaged by ocean acidification unless there are dramatic cuts in CO₂ emissions, warn scientists.

More than 150 top marine researchers have voiced their concerns through the "Monaco Declaration", which warns that changes in acidity are accelerating.

The declaration, supported by Prince Albert II of Monaco, builds on findings from an earlier international summit.

It says pH levels are changing 100 times faster than natural variability.

Based on the research priorities identified at The Ocean in a High CO₂ World symposium, held in October 2008, the declaration states:

"We scientists who met in Monaco to review what is known about

ocean acidification declare that we are deeply concerned by recent, rapid changes in ocean chemistry and their potential, within decades, to severely affect marine organisms, food webs, biodiversity and fisheries."

'The other CO2 problem'

It calls on policymakers to stabilise CO2 emissions "at a safe level to avoid not only dangerous climate change but also dangerous ocean acidification".

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The researchers warn that ocean acidification, which they refer to as "the other CO2 problem", could make most regions of the ocean inhospitable to coral reefs by 2050, if atmospheric CO2 levels continue to increase.

The also say that it could lead to substantial changes in commercial fish stocks, threatening food security for millions of people.

"The chemistry is so fundamental and changes so rapid and severe that impacts on organisms appear unavoidable," said Dr James Orr,

chairman of the symposium.

"The questions are now how bad will it be and how soon will it happen."

Another signatory, Patricio Bernal, executive secretary of the UN Intergovernmental Oceanographic Commission, outlined how the marine research community intended to respond to the challenge.

"We need to bring together the best scientists to share their latest research results and to set priorities for research to improve our knowledge of the processes and of the impacts of acidification on marine ecosystems."

Prince Albert II used the declaration to voice his concerns, adding that he hoped the world's leaders would take the "necessary action" at a key UN climate summit later this year.

"I strongly support this declaration. I hope that it will be heard by all the political leaders meeting in Copenhagen in December 2009."