

Acidic oceans could aid photosynthesis

May 18 2009

(PhysOrg.com) -- Groundbreaking Victoria University research shows that ocean acidification may have no negative effect on tropical corals and local sea anemones - in fact it may improve photosynthesis.

Ocean acidification is when carbon dioxide from the atmosphere dissolves into our oceans and makes them more acidic. Research to date has shown that if carbon dioxide emissions are not reduced, ocean acidification could have severe—and irreversible—consequences for marine life.

But Victoria Master's student Michael Doherty says his research shows that ocean acidification has no negative effect on [photosynthesis](#) in the coral and sea anemone he studied, and that it might actually improve the process.

“Plants and [algae](#) get carbon from the [atmosphere](#) in the form of carbon dioxide, and photosynthesis is the process by which the organism turns this carbon into sugar—providing essential energy for life. Algae live within ‘animals’ like corals and anemones, and through photosynthesis provide energy for themselves and the animal,” says Mr Doherty.

“What we found is that [ocean acidification](#) was making the algae photosynthesise more, because more [carbon dioxide](#) was available to them. This means they produce more energy for themselves and, as a result, for the animal too.”

However, he says the energy needs of the animal seem to increase too,

meaning the coral or anemone is likely to be no better or worse off.

He says it's important to note that although from a photosynthetic point of view tropical corals may be fine in acidic waters, there is still a risk.

“The tropical coral already faces a problem in that it won't be able to form a skeleton in predicted acidic conditions. Sea anemones on the other hand won't face this problem because they have no skeleton to begin with—so it's entirely likely that they could be better off in acidic waters.”

He says the value of coral reef communities to human life cannot be understated. “Fifteen percent of the world's population lives within 100 km of a coral reef, and millions depend on this resource for their survival. This research better equips us to predict and manage the impacts of climate change on this extremely important ecosystem.”

He also says research in this field is particularly important for New Zealand. “Acidified oceans are predicted to hit the poles first and head to the equator—meaning that New Zealand will experience it before the tropics do. What we see here is an indicator for what may happen in the more diverse and economically important [coral](#) regions elsewhere.”

Provided by Victoria University

Citation: Acidic oceans could aid photosynthesis (2009, May 18) retrieved 23 April 2024 from <https://phys.org/news/2009-05-acidic-oceans-aid-photosynthesis.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.