Ocean acidification changes the behaviour of baby coral

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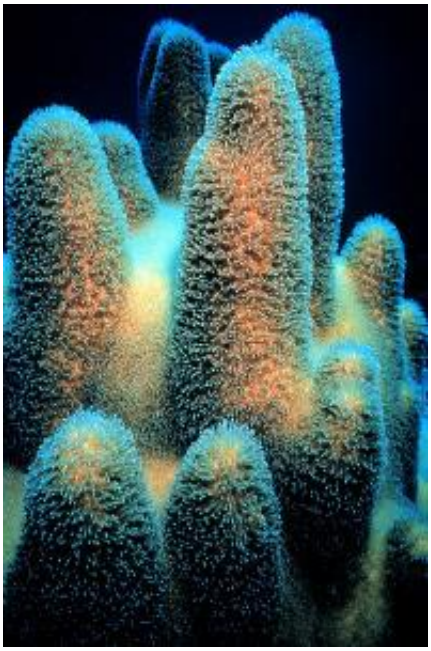

Pillar coral, Dendrogyra cylindricus. Image: NOAA

(Phys.org) -- Ocean acidification caused by human development can alter the behaviour of baby corals, a new study shows.

A team of researchers from the School of Biological Sciences and Global Change Institute at The University of Queensland studied how ocean acidification affects the settlement of baby corals onto a reef.

The study, published in the April edition of the prestigious journal

Ecology Letters, found that increasingly acidic conditions in the ocean appears to have a dramatic effect on the ability of baby corals to sense their surroundings.

The report's lead author and research scientist Christopher Doropoulos, said acidification caused the coral to settle in less suitable places, threatening their ability to survive.

“Baby corals are initially found as swimming larvae before they choose their place to attach to the reef and settle for life, a critical step to their survival and the maintenance of coral reefs,” he said.

“The coral larvae normally have this amazing ability to settle on one particular type of rock-like seaweed called Titanoderma. This stony seaweed is a safe haven for young corals, yet we found that, as levels of ocean acidification increased, the coral larvae avoided this seaweed and started to settle absolutely anywhere.”

Working at a remote island on the Great Barrier Reef, the team made the discovery of the disrupted ancient relationship between coral larvae and their favourite nursery habitat.

Christopher Doropolous said the outcomes may have major repercussions for the survival of baby corals and their ability to grow into the beautiful corals that sustain reefs worldwide.

“Ocean acidification also changed the types of seaweeds available to the corals and had a damaging effect on their preferred species of Titanoderma,” said Mr Doropoulos.

He said human development had increased the levels of carbon dioxide in the atmosphere, causing the oceans to become more acidic.

This new study adds to a growing body of research that demonstrates the negative effects of climate change on natural processes that sustain coral reefs, emphasizing the imminent need for humans to reduce carbon emissions.

Professor Peter Mumby, head of the Marine Spatial Ecology Laboratory, said the study warned of severe consequences for coral reefs.

"Our study identifies three major negative impacts of ocean acidification on baby corals. It reduces the number of corals settling, it disrupts their behaviour so that they make unwise decisions, and reduces the availability of the most desirable substrate for their survival. This may have severe consequences for how coral reefs function and how they recover from major disturbances."

More information: Doropoulos, C., S. Ward, G. Diaz-Pulido, O. Hoegh-Guldberg, and P. J. Mumby. 2012. Ocean acidification reduces coral recruitment by disrupting intimate larval-algal settlement interactions. *Ecology Letters* 15:338-346.

Provided by University of Queensland