

Ecosystems under threat from ocean acidification

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Acidification of the oceans as a result of increasing levels of atmospheric carbon dioxide could have significant effects on marine ecosystems, according to Michael Maguire presenting at the Society for General Microbiology's spring meeting in Edinburgh this week.

Postgraduate researcher Mr Maguire, together with colleagues at Newcastle University, performed experiments in which they simulated ocean acidification as predicted by current trends of carbon dioxide (CO₂) emissions. The group found that the decrease in ocean pH (increased acidity) resulted in a sharp decline of a biogeochemically important group of bacteria known as the Marine Roseobacter clade. "This is the first time that a highly important bacterial group has been observed to decline in significant numbers with only a modest decrease in pH," said Mr Maguire.

The Marine Roseobacter clade is responsible for breaking down a sulphur compound called dimethylsulfoniopropionate (DMSP) that is produced by photosynthesising plankton. This end product is taken up and used by numerous bacteria as an important source of sulphur. A fraction of DMSP is turned into Dimethylsulfide (DMS) - a naturally occurring gas that influences the Earth's climate. DMS encourages the formation of clouds which reflect [solar radiation](#) back into space leading to a cooling of the earth's surface.

Mr Maguire's group hypothesizes that the decline of the Marine Roseobacter clade through ocean acidification may alter the release of

DMS into the atmosphere and affect the amount of available sulphur. He believes this will have a significant impact on the ocean's productivity and the overall global climate system. "[Ocean acidification](#) will not only have large scale consequences for [marine ecosystems](#) but also socio-economical consequences due to changes in fish stocks and erosion of [coral reefs](#)," he explained.

More information: Michael Maguire's talk 'Effects of increased ocean acidity on bacterial species and biochemical processes' will take place on Monday 29 March at 1500 at the Society for General Microbiology's spring meeting at Edinburgh International Conference Centre.

Provided by Society for General Microbiology

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