

# Bacterial 'food supplements' for small algae

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To boost their diet of mineral nutrients and sunlight, small algae also feast on bacteria in order to grow and fix carbon dioxide (CO<sub>2</sub>).

Understanding more about the lifestyle of small algae - which are major players in CO<sub>2</sub> fixation in the ocean - could help to improve ecological models of oceanic and global changes.

Professor Mike Zubkov from the National Oceanography Centre in Southampton presents his study on bacterioplankton consumption at the Society for General Microbiology's spring meeting in Edinburgh today.

The research, conducted on board the Royal Research Ship Discovery in the North [Atlantic Ocean](#) in the summer of 2007, found that the smallest [algae](#) consume more bacteria than specialised predators such as certain [protozoa](#). This conclusion was supported by further evidence gathered on subsequent research trips to the tropical Atlantic.

It was previously thought that the algae are purely phototrophic organisms, using only sunlight and mineral nutrients dissolved in seawater to fix CO<sub>2</sub> into biomass. The researchers think that the ability to also feed on bacteria may well confer an [evolutionary advantage](#) to small algae. "Feeding on bacteria provides the smallest algae with biologically concentrated nutrients, giving them a competitive survival edge in the open ocean," said Professor Zubkov.

The findings are being incorporated into ecological models to assess scenarios of oceanic and global changes. "These algae are one of the dominant groups of oceanic CO<sub>2</sub> fixers - up to 40% of the gas could be

fixed by these [microbes](#) in the open ocean. Knowing how they acquire nutrients and build biomass is essential if we are to understand the biological capacity of the ocean to absorb and to retain CO<sub>2</sub>," said Professor Zubkov.

Provided by Society for General Microbiology

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