

Tiny plants with a global impact - results of climate change experiment published

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Clouds of blue and green phytoplankton swirl and twine in the waters of the Bay of Biscay in this NASA Terra satellite image in 2004. Proposals to combat global warming by sowing the sea with iron to promote carbon-gobbling plankton may be badly overblown, according to a study published on Wednesday.

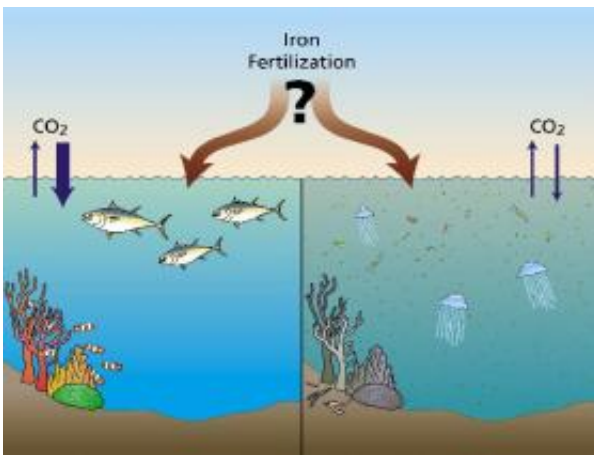
A possible solution to global warming may be further away than ever, according to a new report published in the prestigious scientific journal *Nature* this week.

Scientists measuring how much of the greenhouse gas carbon dioxide is locked away in the deep ocean by plankton when it dies found that it was significantly less than previous estimates.

Plankton is a natural sponge for carbon dioxide. It occurs naturally in the

ocean and its growth is stimulated by iron which it uses to photosynthesise and grow. When plankton dies it sinks to the bottom of the ocean locking away some of the carbon it has absorbed from the atmosphere.

Fertilising plankton by the artificial addition of iron has long been proposed as a potential way to geo-engineer the removal of carbon dioxide from the atmosphere.



Carbon sequestering

Researchers analysed an area of the Southern ocean known to be naturally rich in iron and their report reveals that the amount of carbon sequestered to the deep ocean for a given input of natural iron falls far short of previous geo-engineering estimates. This has serious implications for proposals to influence climate change through iron fertilisation of the sea.

Yet some researchers believe that the theory should not be discounted and that more research is needed

Dr Gary Fones is a marine biogeochemist at the University of Portsmouth's School of Earth and Environmental Science. He was part of the team which carried out the study around the Crozet islands in the Southern ocean.

He said: "We know that carbon is transported to the deep ocean and seabed via the plankton, but the question is how much and for how long?" The combined results of all the studies undertaken so far indicate that there could be other factors influencing the amount of carbon exported.

"No-one has found a solution yet to tackle the issue of global warming and further research is needed to determine exactly what's going on, particularly with regards to iron fertilisation."

The report is timely as it coincides with the recent halt of a controversial Indo-German expedition also in the Southern Ocean. Just days ago, a ship carrying scientists from India and Germany were prevented from dumping iron into the sea as part of an experiment to artificially fertilise the ocean and stimulate phytoplankton growth.

Reports suggest that the German government suspended the operation following claims by green campaigners that it breaches a UN moratorium on ocean fertilisation. But the scientists involved believe that legitimate scientific experiments were specifically approved by the Convention for Biological Diversity (CBD) and they assert that the research is crucial to understanding more.

Dr Fones agrees. He argues that the experiment is not so-called geo-engineering for profit but is part of an important piece of research. He said:

"Efforts to find a solution to global warming are under threat by those

people who are most concerned about climate change. But legitimate experiments like this one are crucial to learning more about the effects of iron fertilisation and will help scientists evaluate the merits of such a scheme.”

He agrees that adding iron in large quantities could potentially damage the whole biological food chain but argues that the German-Indian experiment is literally a drop in the ocean. Experiments like this will have a minimal impact on the surrounding area but will massively further our understanding of the science.”

Provided by University of Portsmouth

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