

# Iron fertilisation sunk as an ocean carbon storage solution

December 12 2012

---

(Phys.org)—A University of Sydney engineer has ruled ocean iron fertilisation an uneconomical solution to carbon capture and storage despite its early promise.

Ocean iron fertilisation is a process that attempts to encourage phytoplankton growth in regions with unused [nutrients](#) and stores carbon away from the atmosphere.

Daniel Harrison, a postgraduate researcher and author of a paper published in this month's *International Journal of [Global Warming](#)*, says while iron fertilisation of high-nutrient, low-chlorophyll regions of the ocean captures and stores carbon dioxide from the atmosphere, it does not store carbon long enough to be an attractive contributor to climate management.

Iron fertilisation is more expensive than carbon capture and storage (CCS) and is much more expensive than the Australian [carbon price](#), which is currently charged at \$23 per tonne of carbon dioxide, says Harrison.

In his paper 'The cost of delivering iron to the Southern Ocean to sequester carbon', Harrison argues that the cost of iron fertilisation will vary with the oceanographic conditions at the time and location of fertilisation, but in almost all situations it is an expensive operation. As well as being expensive, the amount of carbon stored for more than a century is so small that it is uncertain whether measurable storage will

occur at all.

"This means that while under certain conditions the cost may be moderate, under less ideal conditions, iron fertilisation may actually create more [greenhouse gas](#) than is sequestered," says Harrison.

The study used average results from iron fertilisation experiments conducted in the [Southern Ocean](#) and concluded that the mean price will be over US \$400 per tonne of carbon dioxide sequestered from the atmosphere for [100 years](#) or more.

"If the ocean is to play a greater role in storing carbon, we will need to develop more effective and economical technologies that are competitive with abatement opportunities on land," says Harrison.

Harrison's research is being conducted at the [Sydney Institute of Marine Science](#), part of the University of Sydney's cross-disciplinary research program investigating the impact of climate change on the ocean. Attention at the university will now focus on other ocean carbon storage strategies that have promise to store carbon at less than \$23 per tonne of [carbon dioxide](#).

Provided by University of Sydney

Citation: Iron fertilisation sunk as an ocean carbon storage solution (2012, December 12) retrieved 19 April 2024 from <https://phys.org/news/2012-12-iron-fertilisation-sunk-ocean-carbon.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.