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OBSERVATORY

A Risk of Poisoning the Deepest Wells

By HENRY FOUNTAIN

Published: March 15, 2010

Fertilizing the oceans with iron has been proposed as a way of fighting [climate change](#). The idea is that iron will promote blooms of phytoplankton that will remove carbon dioxide from the atmosphere through photosynthesis. When the phytoplankton dies and sinks, the carbon will effectively be sequestered in the deep ocean.

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Enthusiasm for the idea has waned, in part because of concerns about large-scale manipulation of ocean ecosystems. Now, a study in [The Proceedings of the National Academy of Sciences](#) points out a specific risk: by promoting the growth of certain organisms, iron enrichment may result in the harmful production of a neurotoxin.

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Charles G. Trick of the University of Western Ontario and colleagues studied several species of diatoms of the genus *Pseudonitzschia*. These organisms produce domoic acid, which they use to help grow but that is toxic to many organisms, including marine mammals and humans.

Large blooms of *Pseudonitzschia* in coastal waters have led to poisonings of sea lions that eat tainted shellfish. But studies had suggested that in midocean, the diatoms did not produce the toxin.

Dr. Trick said his team's work suggested that the earlier studies were flawed. *Pseudonitzschia* collected in midocean and subjected to shipboard experiments produced plenty of domoic acid. "We found there is a lot of toxin out there," he said. "If we were to seed with iron, the amount of toxin would go up."

The researchers found evidence that increased domoic acid production enabled *Pseudonitzschia* to outcompete other phytoplankton. "So it's more toxic than it was before," Dr. Trick said, "and there's more of it."

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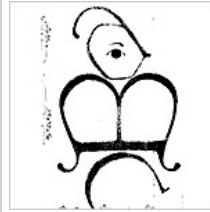
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