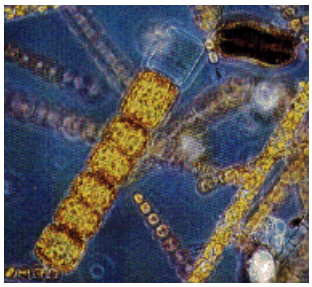

Handle with care.
New ethics guidelines aim to safeguard the environment in experiments that fertilize plankton as a means of sopping up carbon.

Credit: GSFC/NASA

An Ethics Code for Ocean Carbon Experiments

By Eli Kintisch
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Scientists and entrepreneurs alike are abuzz over iron fertilization, a controversial technique that uses iron-seeded plankton to sequester atmospheric carbon for centuries deep underwater. Now, a San Francisco-based climate startup called Climos has proposed a code of conduct to address contentious aspects of how experiments are conducted.

Some researchers envision the technique as an effective way to sequester billions of tons of carbon deep in the ocean for decades or even centuries. By dumping iron dust into the ocean, the thinking goes, scientists could stimulate the growth of plankton, for which iron is a limiting nutrient. As a plankton bloom grows, its carbonaceous waste would sink to a depth of roughly 500 meters or more. A number of medium scale experiments unrelated directly to climate change have confirmed that iron catalyzes the proliferation of plankton. But these studies weren't designed to determine whether greenhouse gases apart from CO_2 could be produced as an unwanted side effect, or whether scaling up the experiments to sequester millions of tons of carbon would damage ecosystems.

The prospect of selling carbon credits earned through iron dumps has attracted a number of commercial ventures, including Climos. But critics, including some leading oceanographers, say corporate profits could taint research, or that the risks, which could include the growth of harmful algal blooms, outweigh the possible benefits.

That's where the new code of conduct comes in. The 2-page document calls on anyone doing experiments to protect the marine environment by obtaining permits from relevant authorities, do full environmental assessments, and avoid sensitive ecosystems. It calls for openness through release of data, third party verification of carbon uptake, and collaboration with the broader scientific community. Climos official Margaret Leinen, an ocean scientist and former National Science Foundation officer, says she hopes the effort will stimulate discussion, lead to more commercial-academic partnerships on science, and take "off the table" some of the ethical and environmental objections to the important research. "This work should be done in conjunction with the scientific community," she says, adding that she hopes academics, government officials, and commercial competitors suggest their own changes to the guidelines.

Several scientists exploring the possibility of iron fertilization endorse the Climos move. "It's a positive step forward," says Ken Buesseler of Woods Hole Oceanographic Institution in Massachusetts, saying Climos' efforts show "appropriate caution." Russ George, head of a rival company called Planktos, calls the guidelines "a great thing" and says his firm would follow them.