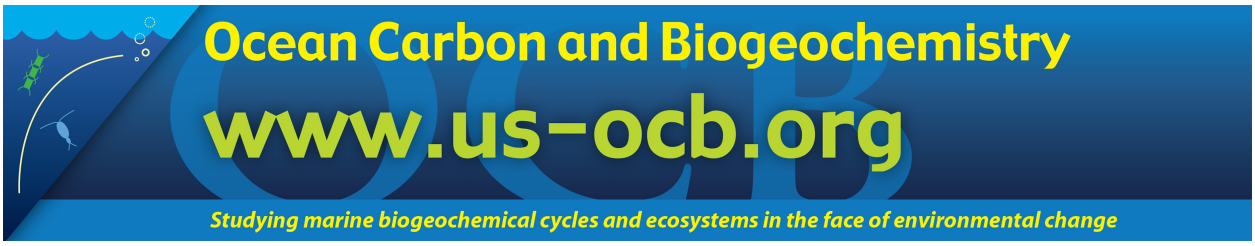

In late summer 2012, a fishing boat was chartered and 100 metric tons of iron-rich dust was added to the waters off western Canada. The apparent aim was to aid the recovery of local salmon fisheries while using the carbon credit income to offset the costs of the experiment. In August 2012, a phytoplankton bloom on the order of ~10,000-20,000 km^2 occurred in this region. Although natural processes cannot be ruled out, this bloom was easily visible in satellite observations, consistent with the reported location of the iron addition. This perturbation occurred despite international moratoriums prohibiting ocean iron fertilization experiments other than those approved as legitimate scientific research (e.g., London Convention and Protocol). This event underscores how easy it is for corporations or private individuals willing to disregard these agreements to manipulate ocean ecosystems. Similar events are likely to occur in the future by individuals or groups seeking to profit from carbon credits or enhance local fisheries. However, we lack adequate knowledge to predict the outcomes, especially over larger spatial and temporal scales.

The U.S. Ocean Carbon and Biogeochemistry (OCB) Program (www.us-ocb.org) is in support of well-controlled in-situ ocean perturbation experiments, such as iron enrichment or pumping deep waters to the surface, to better understand ocean processes and predict ecosystem responses to added ocean nutrients. However, this research should be considered experimental and not suitable for trading of carbon credits. It should be planned, organized, and reported in a transparent manner that upholds rigorous scientific standards and complies with international protocols for open dumping. Unless there is a reasonable permitting process and funding for such activities through federal or high seas intergovernmental sponsors, this work will continue to be done by "rogue geoengineers." An improved scientific understanding is needed to predict the outcomes and associated risks for the environment and potential for altering the efficacy by which carbon is taken up by the ocean and sequestered on longer time scales. To go forward without this understanding at this time is simply irresponsible to both our science and to the marine ecosystems we study.

For more informational resources on ocean fertilization research, please visit the OCB ocean fertilization website (http://www.whoi.edu/ocb-fert). The content of this letter reflects the opinion of the undersigned parties, but not necessarily that of any funding agency supporting OCB researchers.

The OCB Scientific Steering Committee (www.us-ocb.org/about/committees.html)
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