

## **Ocean Fertilization - Can anthropogenic stimulation of biological productivity be used to engineer the Earth's atmosphere?**

As global temperatures continue to rise, many scientists turn to drastic policy changes and reduced anthropogenic input of greenhouse gasses in order to save the planet. A modest few, however, propose that a solution may be much simpler than that. John Martin, an American oceanographer, was one of these few. In 1988, he famously interrupted a seminar presentation at the Woods Hole Oceanographic Institute, stating “Give me a half a tanker of iron and I’ll give you the next ice age.” Two years later, he published a paper that would give rise to the idea known as “The Iron Hypothesis.”

In short, the iron hypothesis states that surface productivity in the oceans of the modern world is limited by a lack of iron, and that by strategically and artificially fertilizing surface waters, primary productivity can be substantially increased. This increase in productivity would consequently decrease atmospheric CO<sub>2</sub>, and potentially reverse the current trend of global warming. Although John Martin would pass away before ever seeing his theory put to the test, 12 small-scale experiments have since been performed, and have proven that it is possible to artificially stimulate organic surface activity, but the theory remains controversial. Critics argue that the long-term storage of CO<sub>2</sub> sequestered by this method is negligible, and that it remains unknown what secondary lasting effects that this method may have on ecosystems and ocean chemistry. Due to it lying in a scientific gray area, ocean fertilization continues to be a hotly debated issue, not only in the world of oceanography, but in the media and political worlds as well. Is ocean fertilization the solution to an approaching climate disaster, or will it be the cause of a disaster of its own?