

**Embargoed until Thursday, October 9 at 14.30 CEST**

## **Climate engineering by fertilising the oceans: a good idea?**

Today at the IUCN World Conservation Congress, IUCN is convening a debate on the controversial issue of geo-engineering in the oceans as a potential approach to mitigating climate change. A representative of the marine geoengineering industry will present the case for fertilisation in front of an oceanographer, a lawyer and an economist in what is likely to be an impassioned exchange of ideas.

### **Background**

Iron fertilisation experiments have been carried out in the oceans over a number of years. Marine geoengineering companies are proposing to scale up these operations and to sell carbon offsets through informal carbon markets. A number of intergovernmental, legal, scientific and non-governmental organisations consider the practice to be highly controversial and demand that more scientific evidence be gathered on the practice to address concerns over its environmental safety and effectiveness for carbon sequestration which, they say, could potentially lead to large-scale ocean degradation.

### **How it Works**

One of the proposed approaches to the problem of mitigating climate change is that of ocean fertilisation – that is artificially stimulating phytoplankton growth by releasing iron or other nutrients into the surface ocean. Phytoplankton remove carbon dioxide out of the atmosphere through photosynthesis, and the theory is that stimulating plankton blooms will increase removal of carbon dioxide from the atmosphere and mitigate climate change.

### **Key Arguments**

- David Santillo, Senior Scientist at Greenpeace, will argue that any decision to proceed to ever bigger open ocean ‘experiments’, designed primarily as proof of concept for the application of fertilisation as a climate change mitigation strategy, cannot be justified by the possible gains in scientific knowledge which may result. He maintains that pursuit of such a concept is also morally indefensible as it relies on an assumed capacity of natural systems to assimilate and adapt to human-induced changes, rather than on actions which can be taken to avoid those changes, and therefore runs counter to fundamental principles of sustainability.
- Margaret Leinen, Chief Scientist at Climos, will argue that science shows there were times in the Earth’s past that the oceans were more productive than they are today and may have sequestered more carbon. Two important questions for her are whether iron could stimulate plankton blooms in the oceans to consume and sequester more carbon than they do today, and if so, what the environmental consequences of that sequestration would be. If such additional sequestration could be safely stimulated, ocean iron fertilisation could assist in decreasing the CO<sub>2</sub> concentration in the atmosphere until our global energy economy can make the transition to fewer emissions.
- Ken Buesseler, Senior Scientist at the Woods Hole Oceanographic Institute, will give an overview of ocean fertilisation. He will demonstrate that while several important studies of ocean fertilisation have been undertaken, the efficacy by which it sequesters atmospheric CO<sub>2</sub> to the deep sea remains poorly constrained, and we do not understand the full range of intended and unintended biogeochemical and ecological impacts. He believes that it is premature to sell carbon offsets using this method unless it is shown that it effectively removes CO<sub>2</sub> from the atmosphere, sequesters it below 1500m in the ocean for at least 100 years, and has acceptable and predictable environmental impacts.
- Philomene Verlaan, Adjunct Professor of Ocean Policy at the University of Hawaii, will argue that there are formidable legal obstacles to ocean fertilisation, that the precautionary principle requires geo-engineering proponents to prove that they do not adversely affect the marine environment, and that countries are legally obliged to reduce greenhouse gas emissions at source.
- Francis Vorhies, Director of Earthmind, will argue that the interest in the voluntary carbon markets will depend on being able to verify scientifically-sound additionality. The voluntary markets are interested in

buying large-scale, low-cost carbon offsets, but only if these are offsets are considered to be environmentally responsible and quantifiable, which remains a challenge for ocean fertilisation.

### **Where:**

- WORKSHOP: Thursday 9 October 14.30-16.00 CEST, Room Plenary B: Title: ***Climate change – Is marine geo-engineering a solution?***
- PRESS EVENT: Thursday 9 October 17.00 CEST, Press Room

### **Spokespersons:**

David Santillo, Senior Scientist, Greenpeace  
Margaret Leinen, Chief Scientist at Climos  
Ken Buesseler, Senior Scientist, Woods Hole Oceanographic Institute  
Philomene Verlaan, Adjunct Professor of Ocean Policy, University of Hawaii  
Frank Vorhies, Economist and Director of Earthmind

### **Materials for the Media:**

IUCN Fertilisation fact sheet.

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### **About IUCN**

IUCN, the International Union for Conservation of Nature, helps the world find pragmatic solutions to our most pressing environment and development challenges by supporting scientific research; managing field projects all over the world; and bringing governments, NGOs, the UN, international conventions and companies together to develop policy, laws and best practice.

The world's oldest and largest global environmental network, IUCN is a democratic membership union with more than 1,000 government and NGO member organizations, and almost 11,000 volunteer scientists and experts in some 160 countries. IUCN's work is supported by over 1,000 professional staff in 60 offices and hundreds of partners in public, NGO and private sectors around the world. IUCN's headquarters are located in Gland, near Geneva, in Switzerland.

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