**Buoyant Flake Ocean Fertilisation**.

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Previous attempts to farm the sea or to increase carbon sequestration have used soluble, artificial chemicals that do not remain near the surface. However, long-lived, ultra-slow-release buoyant flakes can be disseminated annually by ship over selected ocean areas. The tiny flakes are comprised of natural organic materials and mineral wastes. Like a self-feed system, it does not so much release the nutrients to the environment, as it makes them available at the sunlit sea surface where the phytoplankton which need them can ’suck’ them out of the exposed mineral particles in the flakes using their transporter enzymes or ligands. Thus, there is little chance of either over-fertilisation, eutrophication, toxicity, or of the nutrients being lost rapidly to the dark depths. The foundation of each flake is a single rice husk, rich in the opaline silica needed by diatoms. Glued to this by plant-derived lignin hot-melt glue is a matrix of air and minerals designed to provide phytoplankton communities with whatever nutrients are wanting in that part of the ocean. As dark blue ocean waters are deficient in one or more nutrients or trace elements (typically phosphate, iron, silica and transition metals - reactive nitrogen being able to be made from air by cyanobacteria), using buoyant flakes could turn these blue or ‘desert’ ocean regions into productive, turquoise seas. Krill and other diel vertically migrating species consume the phytoplankton, then respire and excrete the carbonaceous wastes at depths of up to a kilometre, thereby sequestering it.