Testing the suitability of mineral accretion for cold-water coral reef habitat restoration

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Deep-water coral reef habitats have declined globally from destructive fishing methods. Heavy bottom-trawling gear severely reduces habitat complexity, leaving fields of dead coral rubble with little or no capacity for recovery. In the northeast Skagerrak several reefs within the Koster sea archipelago have disappeared during the last two decades. The area is now protected through a recently inaugurated marine national park, which explicitly aims to restore and replant cold-water corals. There is a need to develop efficient methods for habitat restoration to compensate for loss of habitat complexity and speed up recovery of reef habitats to regain ecosystem services. Biorock technology with electrolytically induced mineral accretion provides flexibility in design and offers a semi-natural substrate in the form of aragonite, the same calcium carbonate mineral as coral skeleton. The applied electrical field over the electrodes could function as a microcurrent electrical therapy for transplanted corals, speeding recovery. Mineral accretion and its suitability as a method for habitat restoration of the local reef-building scleractinian *Lophelia pertusa* (Linnaeus, 1758) was tested in a laboratory experiment. Three levels of current densities were tested and resulted in increased budding at the lowest current density (0.06 A m-2). The results are congruent with previous studies and the increased budding could prove valuable in restoration programs since it will lead to a more rapid outgrowth of transplanted corals into a complex matrix of branches. Field experiments are planned to be launched in October 2011.

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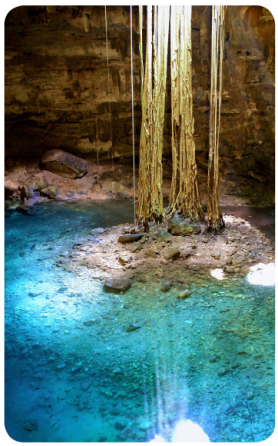


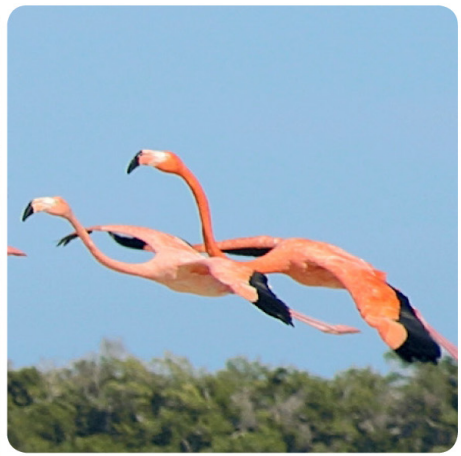

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