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ABSTRACTS SUBMISSION FORM

STATUS OF ELECTRIC CORAL RESTORATION PROJECTS AT IHURU ISLAND AND VABBINFARU ISLAND, NORTH MALE' ATOLL, MALDIVES

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In November 1996, a Biorock "Barnacle" reef ~4m high and 6m across, was deployed at Ihuru Island. Within a few years the structure had become a rich in coral cover, invertebrate species, and fishes. Also at Ihuru, a submerged Biorock breakwater structure in the lagoon, 45m long, 4m wide, and 1.5m high, was deployed to protect the nearby severely eroded beach. Growth of live coral on the structure, which had grown to over 50cm by September 2009, reduced wave forces, growing 15 meters of beach sand. The Biorock reefs at Ihuru had 16-50 times higher coral survival in the 1998 bleaching event than surrounding reefs. In September 2009, after several years without electrical current supplement, the Biorock reefs were rich and luxuriant, and did not appear to be much different from adjacent reefs. In November 2001, a 2m high and 12m wide ½ tonne iron structure shaped like a lotus blossom was deployed on the reef slope at ~8m at Vabbinfaru Island, as a coral nursery. Naturally broken pieces of live coral were attached to it. Around 900m of cables carrying 600 watts of direct electrical current from shore was connected to the Lotus for several years to enhance Biorock mineral growth. It was hypothesized that this would accelerate coral growth and promote natural settlement of coral larvae followed by a natural succession of other members of the reef community. By September 2009, the Lotus was covered with many species of corals, sponges and other invertebrates as well as a fish refuge. We hypothesize that while the electrical current accelerated coral growth and survival in the initial years, the years without electrical current have diminished the initial advantage that the Biorock reefs had. The presence of coral-eating *Drupella* and *Acanthaster* are continuing threats to the reefs surrounding these resort islands and further coral restoration and conservation efforts are suggested.

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