

Electricity protects coral from overgrowth by an encrusting sponge in Indonesia

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On some Biorock reef restoration projects in the Maldives and in Bali and Lombok, Indonesia, overgrowth of corals by several sponge species has been a problem. These experiments tested whether sponge growth was accelerated more than the coral growth by electrical currents, shifting competitive advantages to sponges. Direct growth measurements were made of a highly susceptible coral species, *Acropora microphthalma*, and a sponge species overgrowing it, as a function of distance from the electrical field. Results showed that coral growth was stimulated around the Biorock Structure, not only on it, and under it, but also 3 m away from the structure, but not 10, 30 or 100 m away. These results show that in the vicinity of the electrical field stimulated coral growth around the structures to a distance between 3 and 10 m. In contrast, sponge growth was sharply reduced, but only directly on the structure itself. Increased electrical current therefore favors coral survival over sponges on the electrified structures. Increasing the current resulted in a sharp decrease in sponge abundance. The lower growth of sponges on the structure may be due to high pH caused by electrolysis dissolving sponge silica spicules. High abundance of sponge overgrowth on *Acropora microphthalma* on the structures must therefore be due to much higher settlement of sponge larvae on the structure due to attraction by the electrical field and/or unhindered growth on preferred shadowed substrate on the underside of a bar wherefrom sponges attack corals attached on top.



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