

# It's Alive!

## Can electric help save threatened corals?

In the classic horror novel *Frankenstein*, the eponymous doctor used electricity to spark human tissue back to life. In the Maldives, and in five other countries across the globe, a pair of researchers is attempting to use a similar scheme to revive ailing coral reefs.

The secret of the Biorock system, the brainchild of marine biologist Tom Goreau and architect Wolf Hilbertz, is electricity. By energizing a metal grid with a constant low-voltage charge from topside solar panels or generators, the pair say they can spur corals to grow three to

five times faster than normal.

Seed the grid with naturally broken, partially living coral fragments found on nearby reefs and new coral skeleton growth can be visible in just a few days. Some species form branches that grow at a rate of a quarter inch in less than a month, says Goreau.

A likely explanation for the phenomenon is that the electric current (safe for divers and marine life) lowers the acidity of the surrounding seawater, allowing dissolved limestone to crystallize around the frame and be used for coral skeleton growth. Under natural conditions, coral polyps must expend their own energy to create these conditions. With the Biorock grid doing the work for free, polyps can devote their energy to growth, reproduction and fighting environmental stresses like rising ocean temperatures. As evidence, Goreau points to the fact that 80 percent of Biorock corals survived a 1998 warming event in the Maldives, while more than 95 percent of the natural reef corals in the same area perished.

"Biorock technology is the best technique for restoring damaged reefs," says Goreau. "It makes it possible for fishermen to become underwater gardeners, growing their own reefs, and sustainably harvesting them, especially in areas where natural reefs have been depleted."

Under development since 1996, the Biorock system can vary in size and shape, but typically consists of a series of cone-shaped frames, each roughly 10 feet high by 20 feet wide, placed at depths to 30 feet. The

largest Biorock installation, in Bali, connects 22 structures at a total length of 725 feet.



**Lance Leonhardt**