

Electrified reef closer to reality in Florida town

June 22 2009, By David Fleshler

A proposal to install an electrified artificial reef on the ocean floor off Lauderdale-by-the-Sea, Fla., has won approval from a key federal agency, making it more likely the high-tech conservation project will get built.

The Army Corps of Engineers issued a permit to the town to work with Global Coral Reef Alliance, of Cambridge, Mass., to install a cluster of metal structures that would use a low-voltage current to stimulate the growth of corals, creating habitat for fish and other marine creatures. The group has used the patented Biorock process to construct artificial reefs in several other countries, including Mexico, Jamaica and Indonesia.

Under the town's \$65,000 contract with the group, structures that resemble six-foot-long Quonset huts would be placed on the ocean floor in shallow water. Divers would collect pieces of living coral that had been broken off by storms or ship groundings and attach them to the metal structures. Two buoys equipped with solar panels would provide the electricity through insulated cables. The electrical current would draw dissolved minerals from the water, causing the minerals to build up on the metal structures. According to the group's Web site, corals grow three to five times faster under these conditions and stand a better chance of surviving stressful events such as increases in water temperature.

Thomas Goreau, president of Global Coral Reef Alliance, declined at

first to discuss the project, saying he was unhappy with a previous article that quoted "people who didn't know what they were talking about" questioning the value of the technology.

The previous article quoted Richard Dodge, executive director of the National Coral Reef Institute at Nova Southeastern University, and John McManus, director of the National Center for Coral Reef Research at the University of Miami's Rosenstiel School of Marine and Atmospheric Science. In interviews this week, Dodge and McManus repeated their view the system could help young corals establish themselves and grow faster but has not been subjected to rigorous study, with no evidence the increased growth rates last beyond the first few months. Neither said they opposed the project.

McManus said Goreau hasn't published peer-reviewed studies comparing electrified reefs with identical structures in similar habitat without electricity, making it difficult to make a fair assessment of the technology. But he said the Biorock reefs do seed an area with coral, and said there is experimental evidence the technology enhances the growth and survival of newly transplanted corals.

"It doesn't seem to do much after the first four months, but the first four months are critical," he said.

Goreau, in an e-mail, said neither Dodge nor McManus had first-hand knowledge of his work, although he considered them competent scientists. He said he had done comparative experiments but was focused now on saving corals at a time when they're dying around the world.

"We have deliberately not published most of our results, because we are too busy getting results growing reefs full of corals and fish while there is still a dwindling window to do so, and don't have the patience to play these academic games fiddling while Rome burns," he wrote. "We prefer

people to see for themselves what really works, because the results are so overwhelming."

He said there have been "a dozen or more" peer-reviewed papers on the process, most of which he said were posted on his Web page, which contains many papers on various coral topics, many of which lack any indication of where or if they were published.

Asked to take a look at the papers on the Web site, Dodge responded in an e-mail, "I looked at the Web site and didn't find any peer-reviewed articles that demonstrate that organisms on Biorock reefs grow better, faster, are more healthy, etc. than others."

It's unclear when the project will get built. Goreau said the construction is probably several months off. Ken Banks, natural resource specialist with Broward County's Environmental Protection and Growth Management Department, said they need a permit from the county. He said he couldn't discuss whether they were likely to get one because they had not yet filed an application.

Lauderdale-by-the-Sea is known as one of the best spots for beach diving because the reefs are accessible from shore. Steve d'Oliveira, spokesman for Lauderdale-by-the-Sea, said the town supports the project.

"We want it done as soon as possible," he said.

Better chance of survival

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surviving stressful events such as increases in water temperature. "We prefer people to see for themselves what really works, because the results are so overwhelming."

Global Coral Reef Alliance President Thomas Goreau, responding to criticism on the absence of published peer-reviewed studies on the Biorock process

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