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Michael P. Crosby, president and CEO of Mote Marine Laboratory & Aquarium, helps plant Staghorn coral on Hope Reef in this June 26, 2018, file photo, during the Combat Wounded Veteran Challenge and the SCUBAnauts coral planting. [CONOR GOULDING / MOTE MARINE LABORATORY]

All about health. Yours, and coral's

Unique partnership injects funding into coral restoration

Venice-based Enzymedica hopes to help fund Mote Marine coral restoration efforts through sales of new Aqua-Biome fish oil product, as scientists toil to save the Florida Reef Tract.

SARASOTA — Enzymedica, the Venice-based digestive health and wellness company, has followed science to create a distinctive line of vitamins and supplements to promote human health and well being.

In the process, President and CEO Scott Sensenbrenner has fostered the development of an environmentally aware company that has a carbon-neutral footprint at its facility on Commerce Drive and that has supported a variety of nonprofits ranging from Safe Place and Rape Crisis Center and the Autism Hope Alliance to Vitamin Angels and the Rescue Freedom Project, which fights for animal rights and the elimination of product testing on animals.

The company also followed science in its latest partnership with Mote Marine Laboratory & Aquarium.

Unveiled Oct. 15 in the New Pass Room of the Keating Marine Education Center at Mote, this partnership could have a far-reaching impact on the efforts to restore coral reefs that are failing in part because of ocean acidification caused by global warming.

As part of a cross promotional effort for its new line of Aqua-Biome fish oil products, Enzymedica has adopted the tag line "Buy a Bottle, Save a Reef," and will donate at least $1 from the sale of each bottle of Aqua-Biome — which comes in a variety of strengths or mixed with natural ingredients to boost sports performance, digestive relief or improve joint health.

Enzymedica partners with Peruvian fisherman to use anchoveta — a member of the anchovy family — to produce Aqua-Biome fish oils, using a special process that produces the Omega oils EPA and DHA as well retains the oil DPA.

"The DPA is the key ingredient that has been scientifically established to improve the human microbiome," Sensenbrenner said, referring to the community of microbes in a person's digestive system.

The process is the first in the industry to be certified pure by the Clean Label Project.

The partnership has already generated $65,000 through the sales program.

The eventual hope is that Enzymedica would donate as much as $250,000 a year — all of which is earmarked specifically for the outplacement of restoration coral.

That's enough to cover the cost of planting roughly 10,000 new corals a year, noted Dr. Erinn Muller, director of science for Mote Marine's Elizabeth Moore International Center for Coral Reef Research and Restoration, located on Summerland Key.

That's about half of the Mote's goal of planting 20,000 corals a year.

Mote has identified a 10-meter by 1-meter plot on a specific portion of the reef 8 miles offshore of the center that will be dedicated to corals from Enzymedica.

"We've identified it as a great spot to start new restoration efforts," Muller said, with thousands of corals from a half-dozen species expected to be planted there in the next few months.

The goal is to have a healthy reef that's going to spill over into adjacent reef areas, she added.

Sensenbrenner learned of Mote's efforts when he moved to the area a decade ago and learned about Mote's strategy to repopulate the ocean's reefs.

"That's when I wanted to get involved, to really give back," Sensenbrenner said. "We're not just making product to help people, we want to help the planet, too."

Enzymedica uses its packaging to help promote Mote's coral efforts, too.

While one panel is dedicated to the benefits of the product — defining the microbiome, or community of microbes in a person's digestive system — another panel is dedicated to Mote's coral restoration efforts.

"It helps us spread the word about what's happening with our planet that's been screaming to us," Sensenbrenner said. "As we see the disease going around the great Florida Reef and around the world, the ocean has been saying, 'Help!'"

Additional information on Mote is included inside the box as well.

"That's all to raise awareness of what we're all trying to do with this partnership today," he added.

Mote President and CEO Michael Crosby called the packaging on and inside the box a great education tool that will be marketed around the world.

That, he added, also helps with another Mote goal of enhancing ocean literacy around the world.

Mission of restoration

The strategy to repopulate coral reefs that caught Sensenbrenner's attention involves a technique called microfragmenting — a process that capitalizes on the natural healing process and allows corals to grow 25 times faster than normal — that was developed by Dr. David Vaughan, the former director of Mote's coral facility, and staff biologist Christopher Page.

Vaughan stumbled upon the process in 2006, after he accidentally broke off a piece of elkhorn coral in a tank and decided to monitor what happened to a larger piece as well as three small polyps.

Two weeks later, a quarter-sized hole in the larger piece had grown back — something that would typically take two years.

The three polyps multiplied into a dozen. Smaller corals of the same genotype will also grow together, to help accelerate the process.

Vaughan has since retired and continues his efforts through the Plant a Million Corals Foundation.

Page has continued on at Mote to develop a breeding program aimed at creating more diversified genotypes of coral that can be planted in the reefs.

Once coral raised through lab spawning is large enough, it, too, would be subject to microfragmenting.

The stakes are high. In the last 50 years, the Florida Reef Tract — the third-largest barrier reef ecosystem in the world — has lost 90 percent of its mass.

The past five years, a virulent disease now referred to as stony coral tissue loss disease, has spread with an 80 to 90 percent mortality rate, "plummeting what we have left to close to zero," Muller said.

"Without active coral restoration activities occurring through the entire Florida Reef Tract, we're not going to have a functioning reef for much longer."

The Florida Reef Tract is worth at least $6 billion annually to Florida's economy; it provides more than 70,000 jobs and is home to 25 percent of marine life.

"So that ecosystem is incredibly valuable to the biology of the world, and to our economy and to human well-being," Muller said.

"We don't just grow corals and put them out and cross our fingers; we use science to apply the best technology to this effort," she added.

Michael Crosby, president and CEO of Mote Marine Laboratory & Aquarium, left, and Scott Sensenbrenner, president and CEO of Enzymedica, fill up a coral display that marks the annual $250,000 fundraising goal for the Aqua Biome fish oil "Buy a Bottle, Save a Reef" fundraiser program. [HERALD-TRIBUNE STAFF PHOTO / EARLE KIMEL]

Muller, a recipient of the Presidential Early Career Awards for Scientists and Engineers this summer in Washington, D.C., and manager for Mote's Coral Health & Disease Research Program, has been working on identifying the pathogen for stony coral tissue loss disease, as well as identifying genomes of coral that are resistant to the disease.

"We've identified some resilient strains, and we're using field trials to validate that," Muller said. It's figuring out who's the winner and who's the loser in those species."

All of Muller's disease research is conducted in Sarasota, as the scientists do not want to risk introducing it to the laboratory's coral gene bank, which is located on Summerland Key.

In addition to finding disease-resistant genomes, the research is designed to find out what coral types are also more resistant to ocean acidification and global warming.

Currently between 80 and 90 percent of the restoration coral planted in the Florida Reef Tract have survived.

"We can't fail at this," Mueller said. "We can't put 20,000 corals out every year and have them die.

"We're excited to continue this partnership," she later added. "It provides us with a unique and exciting way to move forward with our restoration efforts, and we couldn't be more grateful to be associated with Enzymedica."

In addition to Enzymedica, Mote has several other entrepreneurial partnerships that supplement state and federal grant monies that help fund the science.

In Florida, one of the most ubiquitous involves the Protect Our Reefs license plate program.

That program grosses about $1 million a year, though one quarter of that goes to marketing the plates and administrative costs, leaving about $750,000 to support Florida-based coral restoration, research and education programs.

Some helps pay for operation costs of the facility, which is also known as the IC2R3.

Scientists at the facility currently care for more than 30,000 fragments both at the lab and in offshore nurseries and have outplanted more than 10,000 fragments this year.

The facility also serves as a base for visiting coral researchers.

Money raised from the Protect Our Reefs plates is also awarded through a competitive grant program to scientists from Mote, as well as other institutions working to save coral on the reef.

Other smaller partnerships include receiving donations based on sales made by the Seaglass Wine Company and Florida Keys Brewing Company Resistant Strain beer.

With the national reach of Enzymedica, this partnership has the potential to go a long way to help repopulate coral reefs.

"It's going to require a lot more funds than $250,000," Sensenbrenner said. "If we can keep doing it each year, I think we can hit the ultimate goal, which is what Mother Nature has been saying to us — she needs our help to heal her."

Interested?

- For more information about Aqua-Biome, visit **aqua-biome.com.**
- For more information about Enzymedica, visit **enzymedica.com.**
- For more information about Mote Marine Laboratory and Aquarium's coral reef restoration efforts, visit mote.org/research/program/coral-reef-restoration.