

reefrevival

On the golden, sandy beach of a sheltered bay along the Dominican Republic's north coast, a woman crouches on the sand, facing the setting sun. She's just in front of the line of palms that frame the back of the beach, and music and chatter filter towards her from the tourist bars and restaurants behind her. The view before her could be a postcard—pristine sand the color of light brown sugar, turquoise water clear to the bottom, a cloudless azure sky.

To many passersby, the woman's face—14 feet above the ground—will not be familiar. But a few people recognize that they're looking into the wide and serene gaze of Atabey, the deity of freshwater and fertility, the supreme goddess of the indigenous Taíno people.

Like many deities, this sculpture of Atabey will take several forms. What sat on the beach at Sosúa Bay in August 2020 was her first form, a three-dimensional metal skeleton. Next, she will be transformed by a skin of marine-safe cement molded over layers of wire mesh tied tightly to her frame. While her first two forms are fairly static, her third will be one of constant evolution: After just a few weeks on the beach, she will be moved into the clear waters of Sosúa Bay, where she will be planted with coral.

Global Coralition is building massive sculptural reefs in an attempt to save coral ecosystems. BY LINDSEY J. SMITH



COURTESY OF GLOBAL CORALITION

MEMBERS OF THE SOSÚA BAY COMMUNITY AND GLOBAL CORALITION TEAM WITH THE SCULPTURE OF TAÍNO GODDESS ATABEY. KYLE BLOCK (FAR RIGHT) AND ANGELENE CHEN (SECOND FROM RIGHT) ARE GLOBAL CORALITION'S CO-FOUNDERS.

Atabey IS THE LATEST PROJECT of Global Coralition, a nonprofit that melds art, science and community to restore coral reefs. Founded by artists Angeline Chen and Kyle Block, Global Coralition works with local and international artists to build sculptural reefs, and then collaborates with scientists to use the latest coral-growing and reef-restoration technology to seed and maintain the sculptural reefs in partnership with the local community.

Chen and Block began developing the idea in Thailand in 2015. The two were living in Hin Wong Bay on the island of Koh Tao, spending their days painting and snorkeling. They fell in love with the area, with the ocean and the marine life around them, returning again in 2016 and 2017. However, each time they went back, they were increasingly troubled by what they saw underwater. “It went from lots of [colorful] coral coverage and fish everywhere to gray [coral] covered in algae,” Chen recalls.

The reefs in Hin Wong Bay were not the only ones suffering: Half of the world’s coral reefs have died in the last 30 years, and scientists estimate that as much as 90 percent of reefs could be dead by 2050.

Many people assume that corals are plants, but they’re actually animals.



ABOVE AND LEFT: ATABEY’S WIRE FORM WILL RECEIVE A COATING OF MARINE-SAFE CONCRETE BEFORE BEING PLACED IN THE OCEAN, WHERE CORAL GROWN ON CERAMIC PLUGS USING MICROFRAGMENTATION WILL BE TRANSPLANTED ONTO HER SKIN.

COURTESY OF GLOBAL CORALITION (2)

There are an estimated 800 species of reef-building corals; 64 species are found in the coral reefs of the Dominican Republic.

When we’re diving or snorkeling, what we perceive as a single coral—shaped, among other things, like a brain or antlers or spires—is actually a community of hundreds of thousands of polyps. Corals can be hard or soft, but the hard types, made from calcium carbonate, are what form reefs. Corals get their color from the microscopic algae that live symbiotically in them. However, when water temperatures fluctuate too drastically, the coral will expel those tiny algae and become “bleached.” If a coral stays bleached long enough, it can die.

Bleaching is just one of the many threats corals are facing more frequently due to climate change. Our oceans have absorbed about 30 percent of all the carbon dioxide we’ve released into the atmosphere, making seawater both warmer and more acidic, which means it’s more difficult for hard corals to maintain their calcium carbonate skeletons. Overfishing, disease outbreaks, pollution, sediment runoff, and stronger and more frequent storms also threaten the survival of coral reefs worldwide.

A die-off of the magnitude predicted over the next 30 years would spell serious trouble for human and oceanic species alike. Healthy coral reefs support a quarter of all marine life, protect shorelines from erosion and storm surge, and provide nearly \$30 billion in net benefits per year worldwide. But convincing people that reefs are important is challenging, Chen says. “Reefs are just kind of forgotten. They look like rocks under water—and many people don’t even go under water.”

THE MORE CHEN AND BLOCK learned about ailing corals, the more determined they felt to use their talents to help. As they began considering what to do, they noticed that some artists were building beautiful underwater sculptures related to climate change, but these weren’t specifically reefs. They also noticed that most

artificial reefs created by scientists looked “a little bit boring,” as Block put it. “I think one of the big things they leave out is how do we make it engaging for people who don’t care about coral or literally have no connection to the ocean.”

To finance their vision of rebuilding coral reefs, the duo sold works made by Thai, Cambodian and Burmese artists as part of The Art Rising, an initiative they founded, and used the proceeds to make a sculpture that would double as an artificial reef. In 2018, they returned to Hin Wong Bay and built a 4,000-pound, 10-foot-tall sculpture of the head and torso of Mazu, an East Asian goddess of the sea. They gifted the sculpture to the local dive community, who helped deploy it and continue to monitor and care for it. Within four months, Mazu had grown a layer of crustose coralline algae, which baby coral need to help establish themselves on a surface. Now she is home to 5,000 coral transplants and is part of a square kilometer of artificial reef.

After Mazu, Chen and Block returned to the United States and began building Global Coralition in earnest. They incorporated as a nonprofit, networked tirelessly with scientists and other artists, spread the word about their work, and raised funds, then began looking for a site for their second reef. Friends who live in the Dominican Republic suggested Sosúa Bay could be a good candidate, so Chen and Block visited for a week. “It was very clear that we could make things happen here,” Chen says. Local officials, ecologists, scientists, schools, and the dive and fishing communities were all excited about the prospect and eager to help.

And reefs in the Dominican Republic do need help. Across the Caribbean, coral reef coverage has decreased by an estimated 50 to 80 percent, according to the Nature Conservancy. And a six-week survey of Dominican coral reefs done by the Reefscape Project in 2018 described the reefs as “patchy,” with conditions

ranging from “healthy to damaged.”

The project the group is wrapping up in the Dominican Republic was funded by a handful of angel donors, a fundraiser in New York City that garnered \$25,000, more sales of art, and personal savings. Although Global Coralition has used some paid local labor to bring the project to life, it has also relied on some two dozen volunteers to help design, create and deploy the sculpture of Atabey.

ONE SUCH HELPER is Anoushka Mirchandani, a San Francisco-based visual artist. Although she mostly works as a painter and ceramicist, her role was to help build the metal frame. For Mirchandani, the experience was deeply moving. “Creating Atabey allowed me to make art with a first-degree impact,” she says. “The work I was doing was building a sculpture that was going to be deployed in the ocean [and] serve as a coral restoration site.”

Not only will Mirchandani’s work have an impact, it also made a deep impression on her. She came to the project without much knowledge of the state of reefs worldwide, other than a vague awareness that they’re in trouble. She spent two weeks in Sosúa Bay in early March helping build Atabey’s metal frame and learning about the challenges coral are facing. Her most powerful experience was going to see the reefs nearby, witnessing how degraded they were and how much trash was in the water. “We [volunteers] all leave with so much learning and knowledge that we can then spread,” Mirchandani says.

Two of the people central to bringing Atabey into the world are Irka Mateo and Manuel Rodriguez. Mateo is a singer-songwriter and keeper of Taíno traditions and stories who served as Global Coralition’s cultural guide for designing Atabey. “Every time we had a decision, like ‘Can the hands be like this or are they like this?’ or ‘Are those hands or are

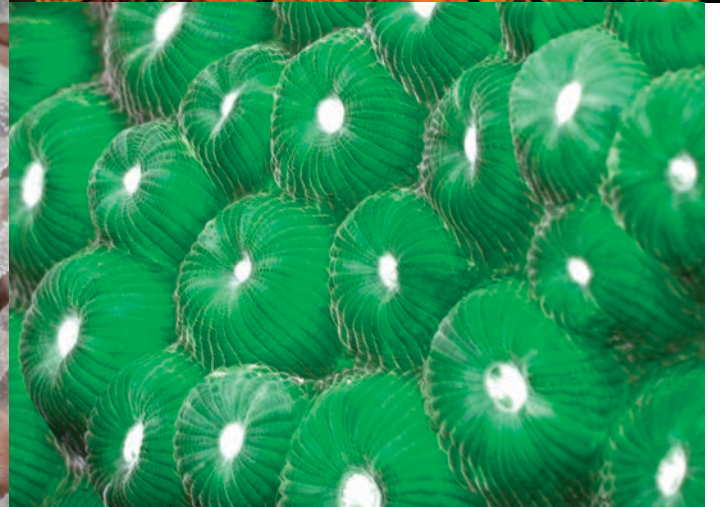
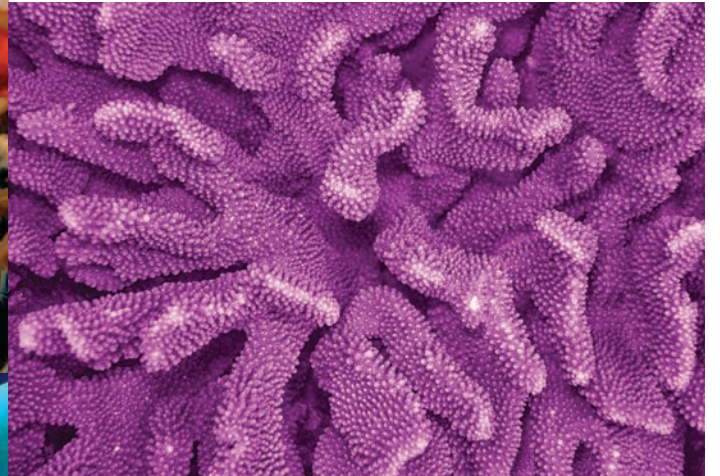


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“Just as we scaled up production of forestry for replanting trees, we can scale up corals for the underwater forest.”



ABOVE: IRKA MATEO, TAÍNO ELDER, WHO ADVISED THE GLOBAL CORALITION TEAM. RIGHT: A SHARP-TAIL SNAKE EEL FORAGING ON A CORAL REEF. PREVIOUS PAGE: SYMBIOTIC ALGAE GIVE CORAL THEIR VIVID COLORS.

they her headdress?’ she just broke down every single thing,” Block says.

It was important to Chen and Block that the sculpture reflect the indigenous history and culture of the Dominican Republic, which occupies a little more than half of the island of Hispaniola. The island, once called Quisqueya, was one of the first places Christopher Columbus landed on his 1492 voyage. It was inhabited by the Taíno, who were long believed to have been killed by the colonizers. Yet Taíno DNA has been found in people throughout the Caribbean and United States, and the culture’s traditions have been resurging in recent years. Still, many have never heard of Atabey.

Shortly after Global Coralition moved Atabey from its workspace to Sosúa Beach, a local came by to ask the team whether the sculpture was of Buddha. No, the team replied, it’s of Atabey, a Taíno goddess. “I am Dominican, and I have never seen or heard of this,” he

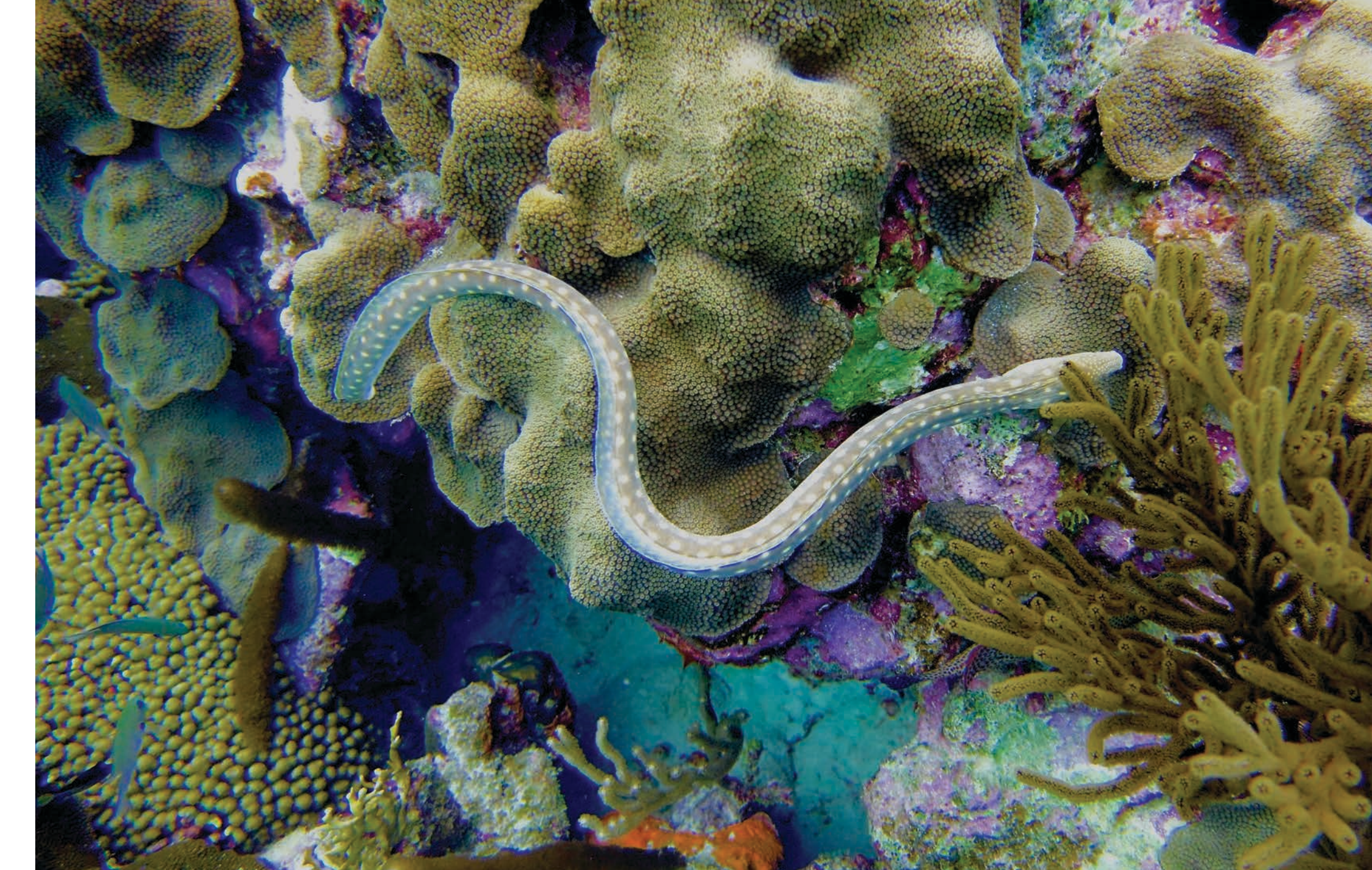
said. For Global Coralition, this is why representing Taíno culture in the art was essential, so that locals can see their history reflected in their future.

Chen and Block also relied on the expertise of local ecologist Manuel Rodríguez, who has been working on reef restoration in the Dominican Republic for 15 years. Rodríguez runs a range of coral restoration programs through an organization called Fundación Ecológica Magúa, including growing coral in nurseries; rescuing and replanting broken or damaged coral colonies; and reproducing coral by microfragmentation, a technique that involves slicing coral into tiny pieces that are planted near each other and fuse together as they grow, thereby covering an area faster.

“He’s really experimental,” Block says, explaining that Rodríguez is willing to prototype many different ideas. “A lot of academics will criticize [his work] because they say, ‘Oh, you didn’t go through a long period of testing things out.’” But given the current rate of coral decline, this trial-and-error style resonates with Block. “You have to be a little bit daring and a little bit experimental and, of course, have the knowledge.”

David Vaughan, PhD, the aquaculture scientist who pioneered microfragmentation, also feels that urgency to restore coral reefs. “Once we lose our oceans, life on land will be next to impossible,” he says. But he also has hope that restoration is possible. “Just as we scaled up production of forestry for replanting trees, we can scale up corals for the underwater forest.”

While he wishes more of the money that goes towards artificial reef projects worldwide went to restoring natural, living reefs, he feels sculptural reefs have a role to play, too by “[giving] a community a feeling of being incorporated, that they actually get hope that they are doing something rather than just being pessimistic that things are terrible.”



IN GLOBAL CORALITION’S unique approach to reef restoration, art is what conveys science’s message, while also drawing in the community. That engagement from locals is essential to the success of the project: Once underwater, the 19-foot-tall, 9-foot-wide, 9-foot-deep sculpture of Atabey will need to be delicately cleaned of algae every 10 days until enough coral establishes itself. The connections Global Coralition has forged with the local dive and fishing communities ensures that this work will continue after the nonprofit

moves on to another reef site.

“[Art is] a really powerful way to engage the community and actually bring them into the experience and the conversation about coral reefs and about the environment in general,” Chen says. “It’s so visually and conceptually engaging that everyone in the town knows that this is happening, and everyone wants to somehow be involved.”

Global Coralition’s vision for community involvement is larger than just ongoing maintenance, however. The

group’s intention is to create a “marine regeneration hub” in Sosúa Bay that would involve a sculptural reef or series of reefs; initiatives, including recycling and water treatment, to address local causes of coral degradation; and land-based farms where coral is grown using the most promising techniques.

The group is hoping that the hub in Sosúa Bay will serve as a blueprint so that communities all over the world can start their own grassroots coral reef restoration efforts. Although Global Coralition is

already dreaming about future projects in Hawaii, Puerto Rico, Mexico, the Philippines, Indonesia and beyond, Chen and Block believe that a grassroots approach that empowers local communities to start their own projects “at a huge scale, using the best technology available, with resources behind them, and in a way that’s fun and inspiring,” as Chen says, will be key to giving reefs a fighting chance. **WH**

Follow Atabey’s progress on Facebook and Instagram: @globalcoralition.

COURTESY OF GLOBAL CORALITION

KRISTIN HETTERMANN