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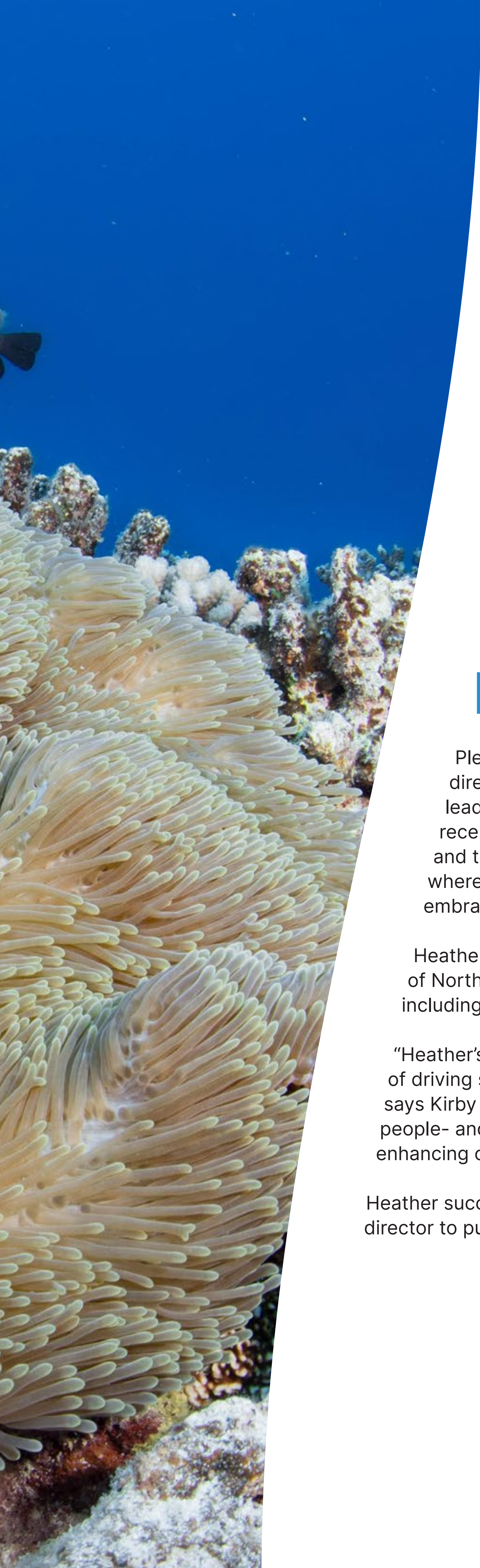
Meet Our New Executive Director!

Photo by Teresa Wood



Help Us Welcome Heather Starck

Heather Starck
Executive Director

Heather Starck Joins CORAL as New Executive Director

Please help us welcome Heather Starck as CORAL's new executive director. Heather brings a wealth of experience in environmental nonprofit leadership to CORAL, along with a background in marine biology. Most recently she served as the executive director for Audubon North Carolina and the vice president of Grassroots Capacity Building for Audubon, where she helped lead the organization in a strategic planning process that embraced a new era of conservation.

Heather received her undergraduate degree in marine biology at the University of North Carolina Wilmington and spent several years working in the field, including conducting shark tagging studies and dolphin surveys in Florida.

"Heather's passion for conservation and the oceans mixed with her track record of driving successful nonprofit operations will be the perfect addition to CORAL," says Kirby Ryan, chair of the Board of Directors at CORAL. "Her pragmatic, people- and mission-centered approach will help CORAL further our mission while enhancing our culture."

Heather succeeds Dr. Madhavi Colton, who stepped down from her role as executive director to pursue more direct science work after a 10-year tenure with CORAL.

What is Coral Restoration, and Can it Save Coral Reefs?

Can coral restoration save coral reefs? That's a question we at CORAL have been asked time and time again. It's a good question—but it's also a complex one. The answer may not be what you think.

Left: Roatan Marine Park staff must clean coral trees regularly to prevent algae growth. Photo by Antonio Busiello

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The risks with growing and planting corals

In many scientific communities, “coral restoration” refers to the act of growing corals and then planting them in the wild. While it’s an incredibly popular method of coral reef conservation, research has shown that if done alone, the act of growing and planting corals is unlikely to save coral reefs. For starters, it only works if local threats to coral reefs are reduced. If corals are planted in an area where existing corals are already threatened by wastewater pollution or overfishing, then the newly planted corals don’t have a high chance of survival.

Climate change is another concern—as ocean temperatures warm, corals that aren’t heat tolerant will have a harder time surviving. In some situations, scientists and conservationists focus just on planting coral species that are more heat tolerant. But that can be inherently risky, because it means that we as humans are picking the species that we believe will be better suited for future conditions, when we don’t know with certainty what those future conditions will be.

In some situations, corals can be bred to be more heat tolerant—these are sometimes called “super corals.” While this sounds promising, a new study that we recently collaborated on shows that in order for these types of outplanting projects to be effective at protecting corals from climate change, they would need to be done at a large scale for hundreds of years in conjunction with efforts to reduce local threats to coral reefs.

That’s not to say that growing corals and planting them in the wild isn’t worthwhile—it can be a great way to repopulate an area after a storm or boat anchor damage, for example. It can also be helpful in engaging communities and tourists, and bringing more awareness to the plight of coral reefs. In fact, a lot of our partners engage in coral planting and have found it to yield promising results when combined with reducing local threats to reefs.

True coral restoration goes beyond just planting corals

Outside of specific scientific and conservation communities, the term “restoration” refers to reverting something to its original or natural state. When it comes to coral reefs, that is definitely something we do—and it’s a practice that can save coral reefs.

Our programs that focus on reducing land-based pollution and addressing overfishing aim to restore coral reefs to a more natural, healthier state and protect them from human impacts. And our research shows that when we restore coral reefs in this way, they can adapt to climate change on their own—without too much human interference.

What does this kind of restoration look like on the ground? It looks like our work in West End, Roatan, in Honduras, where we helped the community operationalize a wastewater treatment plant and as a result saw the amount of coral disease drop from 25 percent to zero percent. It looks like our work in Maui, Hawaiʻi, where over 100 volunteers have restored a section of dirt roads by using native plants to trap sediment runoff and keep it off coral reefs. And it looks like our work in Tela Bay, Honduras, where we’ve seen a 483 percent increase in fish biomass after partnering with communities to build sustainable fisheries.

All of these efforts help restore coral reefs back to a healthier state, where they not only have a better chance of adapting to climate change, but are also more resilient to disease, storm damage, bleaching, and more.

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Photo by Renee Capozzola

So can restoration save coral reefs?

As our research has shown consistently over the last six years, the key to protecting coral reefs long term is to restore coral reefs to a healthier state and create the conditions that will allow corals to adapt to climate change.

There are two parts to this: the first is curbing our carbon emissions to reduce the rate of climate change. There are a lot of great organizations working in this space and advancing initiatives around clean energy, sustainable production, and more. While we still have a long way to go to truly solve the climate crisis, the fact that we are seeing these conversations and this work more amplified than ever before gives us hope. We're also doing our part by joining public calls to action, sitting on global committees to influence governments that make climate decisions, and using our position as scientists and conservationists to build more awareness around the urgency of climate action.

The second part is what we focus on at CORAL: building networks of healthy, diverse coral reefs. We know that coral larvae can travel for miles before ultimately settling on a reef. We also know that some corals have adapted to become more heat tolerant than others. Therefore, we reduce local threats where corals are already more heat tolerant and in places where their babies are settling, which allows corals to spread their heat-tolerant genes and ultimately change the overall makeup of some coral reefs to become more heat tolerant.

So yes, coral restoration that focuses on reducing human impacts and reverting corals back to a healthier, less threatened state can save coral reefs. And in some cases, coral planting to supplement those efforts might make sense, particularly in places where threats have already been addressed. •

Photo by Teresa Wood

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What is That Stench?

The smell of rotting eggs—and the seaweed that causes it—is covering beaches across the Caribbean and Mesoamerican region.

Sargassum is a seaweed that grows in the Amazon River plume. As it blooms it moves with the current and can float across the ocean in large island-like masses.

While sargassum blooms are a natural occurrence, climate change and direct human impact have led to an explosion of new nutrient-dense seaweed, which is accumulating on the beaches in the Mesoamerican and Caribbean regions.

"The seaweed grows quickly," says Javier Pizaña-Alonso, CORAL's Program Manager in Cozumel. "Under these perfect conditions, blooms can double in size in about 18 days. It can become an issue, depending on how long the blooms drift in the ocean."

An excess of nutrients found in the seaweed doesn't just smell bad—it also threatens the health of coastal marine environments. The seaweed is rich in nitrogen, sulfur, ammonium, and heavy metals due to fertilizer runoff in the Amazon River, which is a result of rainforest deforestation and increased agriculture.

"When the sargassum washes up on shore, it degrades and creates a brown tide. This impacts water quality," says Pizaña-Alonso. Poor water quality is dangerous for animals in the ocean, including our coral reef ecosystems. Without clean ocean water, there is potential for excessive algae growth, which can quickly take over reef-building corals.

And the environmental impact isn't the only concern. Too much sargassum could also affect the local economy in Mesoamerica, which relies heavily on tourism. "Travelers don't like the smell and it affects our beautiful beaches," says Pizaña-Alonso.

There are a lot of factors involved when it comes to solving the sargassum problem. According to Pizaña-Alonso, in Quintana Roo, the navy is collecting the seaweed before it comes to shore. Meanwhile, in other affected areas like Roatan, Honduras, the government has defined a task force and different sectors are advocating for a state of emergency, which will allow for additional funds to be used to address the situation.

Pizaña-Alonso would love to get involved with his local government's efforts to address the problem and offer his expertise in marine science. He also urges governments, corporations, and individuals to learn about sargassum and why it is occurring in the first place. By simply lowering our carbon footprint and advocating for the elimination of destructive tactics like deforestation and mining, we allow for a more balanced planet and ocean for all. •

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Left: CORAL's Project and Outreach Manager Andrea Rivera-Sosa trudges through sargassum after monitoring coral reefs in Mahahual, Mexico.

Coral Bleaching ... What

Another widespread coral bleaching event is underway, and all eyes are focused on the Great Barrier Reef. This is the sixth mass bleaching event impacting Australia's famous reefs and is driven largely by the planet's rising ocean temperatures.

The first global mass bleaching event occurred in 1998, and sadly, these instances have become more and more frequent. Coral bleaching occurs when ocean waters get too warm. As a reaction, hard corals expel their small, symbiotic algae, called zooxanthellae, which live in the coral tissue and act as their primary food source. Without zooxanthellae, corals begin to bleach and are at risk of dying if they remain in this state for too long.

We've already lost 14 percent of the world's corals in the last decade, and we can't afford to lose more. After all, coral reefs act as a home to 25 percent of marine species, protect coastlines, boost economies, and feed millions of people.

As scientists and environmental advocates, we must continue to put pressure on governments, corporations, and individuals to take actions that reduce global carbon dioxide emissions and slow the rate of climate change. But there are also things that we can do at a local level to help corals survive warming ocean temperatures.

If corals are healthy, and if ocean temperatures cool quickly enough, coral reefs can survive bleaching events and recover. But if they're facing other stresses as well, like poor water quality and overfishing, then they have a harder time recovering. That's why our work reducing local threats to reefs is so important. When corals are healthy, they are more resilient and have a better chance of surviving.

Can We Do About It?

At CORAL, we also work directly with the Allen Coral Atlas, the world's first comprehensive map of shallow-water coral reefs, to improve early detection of bleaching events. Thanks to advanced algorithms, NOAA's Coral Reef Watch, and more than two million high-resolution satellite images, the Atlas is testing a new bleaching monitoring system. It measures the brightness of coral reefs and categorizes whether the bleaching risk is low, moderate, or severe. CORAL's Program and Outreach Manager, Andrea Rivera-Sosa, collaborates with field scientists around the world to verify the Atlas's bleaching alerts via direct observation in order to help refine the tool.

"Many scientists are monitoring right now and sharing information on reef conditions. By matching their findings with the Atlas's bleaching monitoring system, we can help validate the Atlas's algorithm," says Rivera-Sosa. "This will further strengthen the capacity of the bleaching monitoring system to better inform scientists and managers around the world."

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If the Atlas can successfully determine where and when bleaching events occur, it will help scientists better track these events and help communities advocate for regulations that reduce local stressors in areas impacted by bleaching. Minimizing direct threats like overfishing and water pollution, while also reducing carbon emissions, will give coral reefs a better chance of surviving and recuperating from these widespread bleaching events. •

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