

In the Florida Keys, record ocean temps spark scramble to save dying corals

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Cynthia Lewis carefully pulled back the lid covering a 240-gallon tank.

As the bubbles subsided, there they were: her life's work, the very animals she has studied for more than two decades, dying in front of her eyes.

Corals, hundreds of them, lined the scores of saltwater tanks in the outdoor lab Lewis oversees. All showed signs of serious trouble—paled patches or bleached entirely white—and some were likely already dead.

Just days and even hours before, many of these corals were in the [open ocean](#), where temperatures surged this week into the triple digits for the first time in recorded history. A buoy stationed in the waters around Manatee Bay, to the north of Key Largo, recorded an [ocean temperature](#) of 101.1 degrees at 6 p.m. Monday. If verified, that could be the hottest sea surface temperature ever recorded on Earth.

Now, scientists are scrambling to evacuate corals from their suddenly unlivable waters. More than 1,500 corals and counting have already been harvested from offshore nurseries over the past week and delivered to their new refuge in the temperature-controlled tanks at the Keys Marine Laboratory on Long Key.

The corals will likely shelter here—in what Lewis describes as a "coral halfway house"—for months until the ocean heat subsides. This time of the year, water temperatures should be in the mid-80s, not pushing mid-90s or higher.

"It's happening so much earlier than we've ever seen it," said Lewis, the lab's director. She paused in the 95-degree heat to catch her breath.

"It's an unprecedented event: We've never seen it this hot, for this long, this early."

In a last-ditch effort to curb mass bleaching and death, scientists from

across the state who monitor offshore nurseries are using the lab as refuge. The Tampa-based Florida Aquarium, the state's wildlife commission and the University of South Florida in St. Petersburg are using the coral refuge, which as of Monday afternoon was sitting at 50% capacity with more coral scheduled to arrive in the evening.

Lewis worries for her staff. Like her, they are losing animals they dearly love. And fast.

For many working to round up corals, there's no time to grieve, Lewis says. That part will come later, as it inevitably does in this line of work, marred by disease, human-caused water quality problems and the looming threats of climate change.

But for now, she says, there is only time to act. When you're dealing with super-heated corals in an unprecedented marine heat wave, every minute counts.

"There's an emotional toll that nobody can understand unless you've been in the trenches and done it yourself," Lewis said. "They're under a lot of emotional stress. But for now, they're running on adrenaline. They've got to get it done."

'We need to protect what we can'

Last week, the federally operated Coral Reef Watch placed the Florida Keys under a bleaching Alert Level 2, the highest alert level on the scale.

That means there's a likelihood of more than 90% of all the reefs and corals in the Florida Keys bleaching at some point this summer, according to Bill Precht, a Miami-based coral scientist with more than four decades of research experience.

Acting quickly to soften the crisis, the Coral Restoration Consortium, a community of global experts, sent out guidance this week with advice for how scientists in Florida should respond: Immediately cease restoration activities, the consortium urged, and move offshore corals to land facilities. Monitor the health of rescued corals daily. Document the losses. Take pictures. And do your best.

"We are a community, we will get through this El Niño and likely mass bleaching together as we have in the past, by exchanging stories, helping each other, and improving the way we do restoration," the consortium wrote in its guidance, reviewed by the Tampa Bay Times.

"In this moment, we need to protect what we can, identify resilient corals, and experiment with techniques to help us in the future."

It's not the first time Florida has seen the damage wrought by a bleaching event.

In 2014, a third of all the elkhorn corals monitored by the National Oceanic and Atmospheric Administration in the Upper Keys were either damaged or killed in a mass bleaching event. The summer and winter of 2014 were, at the time, the warmest on record for those waters.

But this year is running hotter.

"This event, compared to that event, is like an order of magnitude worse," Precht said in an interview with the Times.

When temperatures rise, corals begin bleaching, or weakening, as they expel the tiny algae species living in their tissues. When a coral bleaches, it becomes more susceptible to diseases like the lesion-causing stony coral tissue loss disease, which is impacting more than 20 coral species across the Caribbean.

The number of weeks when the water temperature is above a coral's bleaching threshold for a given location is usually eight to 10 weeks during a bad summer, according to Precht.

This year, some areas are already entering week six.

"And it's only July. We likely haven't seen the warmest part of the year yet," Precht said. Even if temperatures were to stay the same, and not get any warmer through August and September, there could be at least nine more weeks above the bleaching threshold, he said. That could be 14 weeks, or more, with inhospitable temperatures for corals this year.

"All the clues in front of us are pointing to that this year is going to be catastrophic—unlike any other year," Precht said. "We could be losing corals in percentages that we've never lost before in a year."

'We can't just give up'

For Keri O'Neil, the ongoing coral rescue operation has been a "crazy, crazy time."

As the director of the Tampa-based Florida Aquarium's Coral Conservation Program, O'Neil and a team of researchers spent last week driving up and down the Florida Keys, scooping up elkhorn corals reined in from offshore nurseries.

The team drove those corals to Lewis and the Keys Marine Laboratory, where they "rent" a few of the 60 saltwater tanks, which range anywhere from 40 to 1,000 gallons. The lab, part of the larger St. Petersburg-based Florida Institute of Oceanography, is the favorite landing spot for most coral rescuers, as it's located roughly in the middle of the 220-mile island chain.

Over several days, caretakers monitor the rescued corals, making sure they have the appropriate treatments to shield them from disease while they're already vulnerable. Then, once they're stable, the Florida Aquarium team packs them up in heavy-duty coolers and drives them to the lab in Apollo Beach, according to O'Neil.

That journey happened last week, and at least one other transport run is scheduled for this week, O'Neil said.

Their work is especially pressing because of what's on the horizon: The August full moon, one week away, is when corals begin to spawn. It's a crucially important period when creating future corals begins—and this year, it's aligning with the marine heat wave.

"It's really easy to get to this point where you just want to throw your hands up in the air and give up," O'Neil said. "But our work is more important now than ever. We can't just give up."

There was hope, however scarce, at the lab Monday afternoon, as wetsuit-clad workers were arriving to drop off more corals.

Lewis pointed to one tank, where several corals were beginning to "color up"—a sign of rebuilding strength.

"He actually looks better than when I saw him on Saturday," Lewis said about one coral.

"These guys are not looking awful," she said about others.

Progress is being made, but it'll still be weeks at the earliest before the corals see their home waters again.

From a scientific perspective, many solutions are being explored:

Shading offshore corals. Placing corals in deeper waters. Creating more genetically strong offspring.

"Watching everything that we've worked so hard on die in front of your eyes is horribly depressing," O'Neil said. "We need to find resilient corals—but as [coral](#) scientists, our own resilience is being tested."

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