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3D-printed seawalls may be coming soon to a beach near you, thanks to this Miami startup



Riley Kammer
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Sea levels are rising, and Miami stands to be one of the first places in America to bear the brunt of this climate change.

Miami-Dade County [predicts](#) that by 2040, sea levels will be 10 to 17 inches higher than they were in 2000.

One Miami-based company has developed a tech-forward solution to turn back the tides of climate change. The [Addition Company](#) is working to create a system for 3D printing so-called 'living' seawalls, mimicking coral reefs and mangroves. On [the front lines of protecting shorelines](#), the high-tech firm is leading the way in an innovative approach to water quality.

What's the advantage of the 3D printing approach? Freeman explained that they are much faster to construct, and there is more freedom in the design. There's also a financial advantage, she told *Refresh Miami*: "They're much cheaper to build [than traditional seawalls] because we can print 95% of the project."



Freeman underscored the urgency of addressing rising sea levels. A report from the US Army Corps of Engineers, the government body in charge of seawall projects, noted that Miami will be hardest hit by rising seas, with property damages predicted to cost Miami's upwards of \$200 billion within the next 20 years. For comparison, the second most affected city in the US will be New York, which is anticipated to have \$100 billion in damages.

In response to rising sea levels, the report argues that the US will have to spend \$400 billion on seawalls. \$70 billion of that spending will happen in Florida. Freeman noted that these figures are so large in part because of how expensive it is to build seawalls today. "This is a big opportunity," she said of the Addition Company's prospects.

While traditional seawalls only last 30 or 40 years, Freeman's 3D printed solution is expected to last longer thanks to a proprietary additive that strengthens the seawalls without rebar.

"By mixing the concrete with recycled marine plastic fibers, our seawalls are twice as strong and last twice as long because we're not using rebar," Freeman said. She acknowledged that in the beginning, the team will have to use rebar for building code purposes. But her vision is to eventually not use rebar at all.

The Addition Company will also put 5G-enabled sensors in these seawalls. That will track essential data such as pH levels and water temperature in real time.

Currently, the team is working on a proof of concept: two pilot projects building 100 foot tall seawalls. Freeman estimates that this will take about a year.

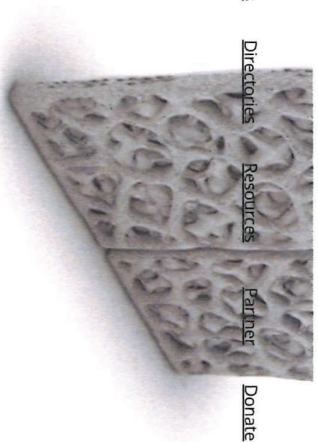
The Addition Company aspires to become a platform that develops the tools and technologies to empower contractors to build their own seawalls. "The reason we want to be a platform technology company and not a construction company is because to achieve the necessary scale," said Freeman.

The next few months for the Addition Company are expected to be busy. The startup, which was part of [Seaworthy Collective's first cohort](#), has just joined EndeavorLab's cleantech and climate tech cohort. It also plans to launch a \$1 million fundraiser this May at the [Aspen Ideas: Climate conference](#) in Miami Beach.

Freeman is excited to be building this startup in Miami, a city at the forefront of climate change. "The rest of the world is waiting to see how Miami will respond," she said. "It's either going to be a lesson for the rest of the world if we fail, or an example."

Let's all hope for the latter.





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I am a Palm Beach-based technology researcher and writer with a passion for sharing stories about the South Florida tech ecosystem. I particularly enjoy learning about GovTech startups, cutting-edge applications of artificial intelligence, and innovators that leverage technology to transform society for the better. Always open for pitches via Twitter @rileywk or www.RileyKaminer.com.

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