

Meet the Woman Planning an Underwater Highline

Part public housing for fish, part carbon-capture project, part art installation, Ximena Caminos's project for Miami Beach, known as the ReefLine, aims to call attention to the challenges facing the city's marine life.



Ximena Caminos, who is developing the ReefLine in Miami Beach, is an art curator, cultural placemaker and founder of the ocean-centric nonprofit BlueLab Preservation Society. Eva Marie Uzcategui for The New York Times

New York has the High Line, Miami has the Underline and, in the next few years, Miami Beach will have the ReefLine — a monumental public work featuring an art-studded underwater sculpture park, a carbon-sequestering artificial reef and a seven-mile snorkel trail running from Fourth Street in South Beach to Bal Harbour.

Ximena Caminos, an art curator, cultural placemaker (one who uses planning, art and design for community development) and founder of the ocean-centric nonprofit BlueLab Preservation Society, spearheaded this cross-disciplinary project in collaboration with the Miami-based art studio Coral Morphologic. Other partners include the City of Miami Beach, the Office of Metropolitan Architecture (OMA), which is responsible for the 15-acre master plan, and players in the blockchain universe like Aorist, a digital art platform, and Decentraland, a 3-D virtual world.

The city recently approved a \$5 million bond issue to help finance the ReefLine (ranking it on par with Miami Beach’s most significant cultural institutions, like the New World Symphony and Bass Museum), and the first and second phases of the project are supposed to start construction in early 2023.

“The ReefLine is a manifestation of all the spheres I care most about,” Ms. Caminos said. “It’s art as a tool for change. It’s sustainable. It’s informed by science and technology. And above all, it’s participatory, free and open to the public.”

Ms. Caminos shared the concept behind the ReefLine, how technology and art can come together, and what has kept her pushing forward. The conversation has been edited for length and clarity.

How did the ReefLine come about?

The idea grew out of a conversation I had with the marine biologist Colin Foord, the founder of Coral Morphologic, about how artificial reefs could be used to restore and protect Miami Beach's marine ecosystem, which is disappearing along with the area's natural coral reefs. It got me thinking about how we could unite art and science to create sustainable change. Colin and I ended up putting together a grant proposal for the Knight Foundation Arts Challenge Award, which looks for really out-of-the-box ideas, and we won. That gave us the seed money to start bringing the idea to life.



Render of *Heart OF Okeanos* on the seabed.

What is the ReefLine supposed to do?

Most people don't know that after water, concrete is the second most commonly used material on earth, and its production accounts for 8 percent of all global carbon emissions. I wanted to build something that would help capture the three-billion-plus tons of carbon being dumped into the atmosphere each year and serve as an example for other cities.

For the ReefLine, the British artist Petroc Sesti developed an entirely new art medium called Carbon Xinc — a zero-cement geopolymers concrete with mineralized carbon dioxide gas that captures carbon destined for the atmosphere and stores it for an indefinite amount of time.

In terms of biodiversity, there is very little habitat left for reef species to live and propagate. The ReefLine will be public housing for fish with tons of nooks and crannies for life to grow and thrive. We're working in conjunction with marine biologists and field experts who will test the site for coral resiliency, to learn what strengthens a coral's ability to survive and recover from environmental stressors, and there will be plenty of community programs for those who want to help scientists monitor fish populations, or outplant coral fragments cultivated in coral nurseries onto specific sections of the ReefLine.



Render of *Heart OF Okeanos* on the seabed.

Ximena Caminos hopes the ReefLine will spur action on global warming. Eva Marie Uzcategui for The New York Times

You're working with some heavy-hitting creative talent. What can we expect from the design?

After we won the grant, I called the architect Shohei Shigematsu, of OMA, to do the master plan. We've worked together before and I knew his genius would take this project to the next level. The first installation, which we tested in the University of Miami's hurricane simulator, will be sunk 600 feet off the coast of Fourth Street. We commissioned the Argentine artist Leandro Erlich to create a site-specific work with 22 life-size Carbon Xinc car sculptures submerged about 20 feet underwater. The artwork serves as a cautionary tale of what will happen to our coastal cities if we don't address global warming. It also takes this modern symbol of carbon emissions and turns it into a carbon sink that will be colonized by marine life, which is just amazing.

Mr. Sesti is using laser-scanning techniques to create a work entitled "Heart of Okeanos," a five-foot Carbon Xinc sculpture of a blue whale heart inspired by a real-life 400-pound specimen preserved by scientists after it washed ashore in Canada in 2014. We plan to unveil the artwork during Art Week this December before symbolically returning it back to the ocean.

The installations will be connected by a snorkel trail made from OMA-designed shapes that fit together like Legos and act as a coral topiary. For future installations, we have a bucket list of artists we'd love to work with, and we plan to have open calls and public competitions to ensure everyone's ideas are represented.

In addition to innovative materials, how is technology playing a critical role in the development of the ReefLine?

During Art Week last year, BlueLab Preservation Society partnered with Aorist and the artist Refik Anadol, who created an NFT art collection of wildly colorful A.I. data sculptures inspired by the ReefLine. A portion of the NFT sales went to the ReefLine. This year, we're partnering again with Aorist, as well as the London-based art collective and collaborative studio Random International. I also just applied for a grant to create an augmented reality iteration of the ReefLine, so people can use their phones to see digital depictions of the underwater art installations from the beach with details about the artists and aquatic species living there. And with Decentraland we are building a ReefLine in the metaverse so people can adopt a virtual coral with cryptocurrency, which is great for raising awareness of environmental issues.

What do you hope the ReefLine will accomplish?

This project is a gargantuan undertaking, and there have been times when I've hesitated because it feels like a herculean task. But I had the good fortune of meeting the ocean conservationist Dr. Sylvia Earle — “Her Royal Deepness!” — at the Aspen Climate Ideas Summit. At first she was skeptical about what we're doing, but after reviewing all the research and talking to the field experts, she publicly affirmed she was in favor of the project because we're rebuilding what was once there, and it's a model that can inspire and be replicated by others. That really gave me the courage and strength to keep going.

I hope the ReefLine will start a global conversation about restoring the health of our oceans and convince people that they can make a difference. There's no better place to do that than underwater in Miami Beach, ground zero of climate change.

Follow New York Times Travel on Instagram, Twitter and Facebook. And sign up for our weekly Travel Dispatch newsletter to receive expert tips on traveling smarter and inspiration for your next vacation. Dreaming up a future getaway or just armchair traveling? Check out our 52 Places for a Changed World for 2022.