

Florida has a beach sand shortage: Could beer bottles be part of the solution?

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Florida's coastal counties spend millions trucking in sand to preserve the eroding beachfront. But what if a cheaper possible solution could be found in the garbage and recycling bins of Miami bars?

Glass is made from sand so what about doing the reverse?

Paola Barranco thinks such a new source of soft, precious stuff could be an attractive, environmentally friendly option in a state with a shortage of quality beach [sand](#).

The company she co-founded, Glass for Life, is still small but Barranco has big ideas and hopes.

Her company operates out of a small warehouse in The Hammocks neighborhood in southwest Miami, so far using just one professional [glass](#) pulverizer no bigger than an office copy machine. The machine is simple to use. It has a hole you stick the bottles in, a series of powerful hammers and grinders and a spout that spews out the resulting sand.

The team separates the bottles by color and only one bottle can be recycled at a time. The machine separates chunks too big to crush, but someone has to manually sift through the labels and bottle caps. Each bottle makes a handful of sand in seconds, and in half an hour, someone could probably push about 100 bottles through the pulverizing machine. Enough for a sandbag but not enough to make a difference on a beach. But with more machines, more bottles?

"With this kind of machine, we won't solve the climate crisis," Barranco said. "But maybe it will open the door for something bigger. To do something better and think outside the box."

Seeking more partners

The company is already hoping to scale up, partnering with a handful of commercial clients including 1Hotel and Krus Kitchen in Coconut

Grove.

The 1Hotel in South Beach said it partners with Glass for Life to help meet the hotel's goal of diverting 70% of its waste from the landfill.

"Now, thanks to Glass For Life, over 10,000 glass bottles are pulverized into sand and repurposed, resulting in saving raw materials, using less energy, and cutting CO₂ emissions," Paula Lombardo, 1Hotel's sustainability manager wrote in an email. "Glass For Life is the perfect fit because so few recyclers actually recycle glass waste even if they collect it."

The fees start at \$100 a month for weekly pickups, with personalized quotes depending on the location and number and size of containers used. The 1Hotel has pick-ups twice a week.

"The price for this service is not cheap and they do not pay us for the glass," Lombardo said. "But we are willing to pay the price because it is the right thing to do."

Their company's next goal is to move into residential pickups and drop off stations.

Lots of glass to mash

There is a lot of unused glass in the waste stream. Since their first pick up in January, Glass for Life has diverted more than 23,400 bottles from landfills that are fast filling and release greenhouse gases that contribute to climate change.

The Environmental Protection Agency reports that less than a third of glass in the United States gets recycled.

According to a Florida Department of Environmental Protection 2020 report, South Florida falls far short of the national figure, with only 7% of the glass in Miami-Dade county being recycled. European countries do a far better job, with the average collection of glass packaging for recycling hitting 80% in 2021, according to Close the Glass Loop, a industry outlet which tracks the data.

Sweden is the best example of this in the world, recycling 94% of its used glass into new glass. Recycling the old glass into new glass uses less carbon emissions than creating glass from scratch by melting down sand and ash.

The process isn't always clean and green. In Portland, Oregon, there are reported issues of glass recycling plants emitting toxic pollution. The Owens-Brockway glass-recycling plant that melts down used bottles was fined by the Oregon Department of Environmental Quality more than \$1 million for multiple air quality violations.

Simply crushing glass into sand is a far cleaner process, however.

A common question for Barranco: Won't this stuff cut you up? The answer is no. The pulverizer produces material you can roll in your hand with no harm. It can crush glass into a beach-like powder or chunkier pieces if desired.

The sand can be used for more than just beach from coastal erosion too. It can be repurposed into sandbags to protect against hurricanes and storm surge, both expected to increase with climate change., Its also a big need in the construction industry whether it be for gravel or flooring. Glass for Life has also offered the sand to artists to use for mosaics or ceramics.

The idea from the company actually emerged from Glass for Life's sister

company, Compost for Life that is founded by Francisco Torres. Last summer, it rained a lot and Torres and Barranco needed help draining their compost. Mixing in glass pieces added stability and ventilation to the compost, Barranco said.

Right now, they don't have a process to separate out the polymers and tint that contaminate the glass. In the near future, they are hoping to work with researchers to test their product and its safety on the ecosystem, animals and marine life.

A shortage of sand

South Florida's coastal cities have been battling for the dwindling resource of sand for years, with renourishment projects dredging up much of the available deposits nearshore. A lot of sand types aren't good on a beach, too fine and prone to wash away in waves, or too coarse for beachgoers to stroll on. Finding appropriate material can be expensive.

Some spots in Miami Beach have been replenished with sand from southwest of Lake Okeechobee at \$70 per cubic yard. To replenish Bal Harbor Beach, the feds had to dredge out sand from the party-spot destination, the Haulover Sandbar.

Glass for Life is inspired by Glass Half Full in New Orleans, which worked for a year with scientists to test if the glass sand would be safe for the ecosystem. Now, the New Orleans company recycles about 100,000 pounds of glass a month and have used tons of pounds of glass sand for two wetland restoration projects.

The pulverizer was more than a \$10,000 investment, and Barranco hopes it is only the beginning of the technology they will use to scale up the company. She just needs to first convince people that there's value in paying for another waste management service.

"It's for our children," Barranco said. "They're going to spend more time in hurricanes, in fires—so we need them to remember that we fought and we tried to do something."

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