

Marco man's innovation extends life of crumbling seawalls

By Jeremy Cox

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When Jim Timmerman's concrete seawall started to crumble at his Marco Island home in 2002, he turned to the drawing board, not his checkbook, to solve the problem.

The only way to fix the 80-foot-long wall, which had developed a gaping crack near the water line, was to replace it, a marine contractor had told him. That would have involved tearing up his well-manicured lawn and removing his dock and boat lift at a cost of \$200,000, all told.

"I felt there were other means available," Timmerman said.

His solution: fastening the floundering panels to the shore with gigantic screws. The idea won him a patent from the U.S. Patent and Trademark Office — No. 6,908,258 — and gave the 46-year-old a second career.

A little more than a year ago, Timmerman started his own company, Dynamic Seawall Maintenance System, which manufactures the materials and specialized tools for fixing seawalls. So far, about 20 properties across Marco have been fitted with Timmerman's anchors.

Marco has been an ideal testing ground for the new technology. The island itself only measures about 4 miles wide by 6 miles long. But its seawalls, if laid end to end, would stretch from Marco to Sarasota, a distance of about 120 miles.

If the island had been developed a few decades later, modern-day regulations probably would have forbidden the construction of so many canals and seawalls, said Heyward Boyce, a former Marco councilman and one of Timmerman's clients.

"The deed is done," Boyce said, referring to the sprawling seawall network. "There's nothing we can do about it."

State and local environmental officials discourage the construction of new seawalls with high permit fees and brochures that implore homeowners to try natural shorelines instead. Seawalls do nothing to stop nutrients from running off yards and into bays and rivers — the same nutrients that fuel algae blooms.

Timmerman's seawall-fixing method can only be applied to existing seawalls, and, he argues, it is much more environmentally friendly than traditional means.

The most prevalent fix for a deteriorating seawall is plopping a new one in its place. This involves removing the old concrete panels, exposing the bare earth to the water, which can cause problems with silt building up elsewhere downstream.

Then, crews must dig trenches from the bank to a point about 15 feet away from the shore. Any trees or bushes in that path are hacked away. Workers place a steel support rod into the trench and dig another pit at the far end, where concrete can be poured to secure the rod in place.

Timmerman got the idea for his patent from the large screws used to anchor the wires that support telephone poles into the ground. If screws could brace tall polls, why not a seawall?

Timmerman, a 20-year veteran of the Merchant Marines, had been around seawalls for most of his adult life but knew little about the engineering behind them.

So, he enlisted the help of an engineer on the island, Martin Pinckney, and designed a 12-foot-long rod with three helixes, which resemble large doughnuts. These aren't for eating; they're for grabbing dirt and keeping the rod snug.

The more helixes, the narrower the hole drilled into the concrete panel would have to be. If there had been only one helix on the rod, the hole would have to measure at least a foot in diameter.

With three helixes, the hole only has to be 6 inches wide. The smaller the hole, the stronger the surrounding concrete will be and the longer the panel will last.

Using a hydraulically driven motor, workers can skewer seawalls from the water side with no digging necessary. The screws are installed every 10 feet along the shoreline.

It's not cheap.

The method requires stainless steel, instead of galvanized, and the extra skills involved drive up the labor costs, Timmerman said. Each "tie back," as the screws are called, costs at least \$1,200 to install, more than twice the cost of rods used when replacing a seawall altogether.

But Timmerman figures most homeowners will save money in the long run by not having to replace sod, landscaping, docks and other shoreline features.

Seawalls generally have a lifespan of 25 years. Timmerman thinks his screws can add 20 years or so to that, though his theory is untested.

The lone contractor who is licensed to install the anchoring system is the same one that condemned Timmerman's seawall four years ago. If the system could save that wall, it can save just about any other, said Greg Mann, owner of Blue Marlin Marine Construction in Marco.

"That made a believer out of me. Time has told me, it's the real deal," he said.

Boyce said his 170-foot-long seawall is holding up fine as well.

"That's a far more economic solution than replacing the seawall by section," he said.

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