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Wave of future habitats: Reef Balls, Fish Havens

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Associated Press

PENSACOLA -- Artificial reefs have been made of nearly anything that sinks: shipwrecks, old tires, junked cars, surplus Army tanks, building debris, washing machines and other major household appliances.

However, those materials of opportunity, as they are known, tend to deteriorate quickly. They break apart or move during hurricanes and storms, often washing ashore or becoming navigation hazards. Some have caused pollution or served more as fish attractors than habitats.

As a result, state and federal regulators are prohibiting many old standbys. As a result, reef building programs worldwide are switching to prefabricated structures specifically designed as fish shelters, or to mimic natural reefs, and engineered to stay put in storms.

"We're creating environmentally safe and productive balanced habitat," said Scott Bartkowski, president of Artificial Reefs Inc., which makes pyramid-shaped Fish Havens in Pensacola. "There's so many fish out there it looks like it's snowing."

Bartkowski began his profit-making venture last year following in the footsteps of Reef Ball Development Group Ltd., a nonprofit organization based in Bradenton, that began producing domed structures eight years ago.

True habitats

Although they differ in shape, both types are made of concrete and filled with holes so nutrients, water and fish can circulate inside and out. Each type has survived hurricanes without being dislodged.

"Both are acceptable," said John Dodrill, reef program administrator for the Florida Fish and Wildlife Conservation Commission. "You know it's going to be in one place and stay in one piece."

There is little dispute artificial reefs attract marine life, but critics contend that's all they do, just making fish easier to catch.

Bartkowski and Reef Ball president Todd Barber agree that is a valid criticism for materials of opportunity. But they contend their reefs are true habitats, providing places where marine life can feed, hide from predators and reproduce, thus replenishing declining fish populations.

There is a dearth of research on that issue, but the uniform shape of the prefabricated designs should help find some answers, Dodrill said. The University of West Florida several years ago tried to compare more than 30 artificial reefs but gave up because there were too many variables, including depth, bottom material and fish species.

The Conservation Commission will try again later this year, deploying Reef Balls and culverts, a common material of opportunity, at the same depths and locations so fair comparisons can be made, Dodrill said.

The state also is funding a fish census on ships sunk off Broward County as artificial reefs. The findings will be compared to nearby natural bottom habitat. While attractive for divers, shipwrecks are considered poor fish habitats because water cannot flow freely inside, resulting in dead zones with insufficient oxygen to support life, Bartkowski said.

Pyramid power

Bartkowski 40, is a retired Navy bombardier-navigator, whose interest in fishing and diving led to his reef business. He decided on a triangle shape because of its stability.

“You don't see too many pyramids sliding across the ocean bottom or out there in Egypt,” he said.

Barber, 36, a scuba enthusiast whose mother owns a dive shop in Athens, Ga., came up with Reef Balls after a hurricane wiped out a coral reef in the Cayman Islands where he was a regular visitor. Barber, an Atlanta management consultant at the time, talked with biologist friends about how the reef could be restored.

“We sort of came up with a crazy idea of taking a beach ball and putting concrete around it and floating out and popping the ball and letting it sink to the bottom,” Barber said.

Experimenting in West Palm Beach, they found concrete refused to stick unless they put chicken wire around the ball. “We built three Reef Balls that way and it took 21 of us seven days to make three, so we quickly decided that wasn't going to work,” Barber said.

The design eventually evolved into its present form. The dome shape imitates natural reefs and provides streamlining to prevent waves or currents from moving it. The bottom is flat and contains 80 percent of the weight for added stability.

Concrete is poured into Fiberglas molds with an inflatable rubber bladder in the middle that keeps the Reef Ball afloat while being towed to sea.

Reef Balls plentiful

Reef Balls are made in the group's Sarasota plant and given to agencies or groups that deploy them to enhance the environment. Molds are donated for similar use elsewhere. Reef Balls also are available commercially from 18 licensees with royalties helping finance the free Reef Balls. Another fund-raising activity is burying cremated remains in Reef Balls.

Since 1991, 50,000 Reef Balls have been placed at 500 sites around the world, Barber said. In addition to almost every coastal county in Florida, there are heavy concentrations in Georgia and South Carolina. Prison inmates made Reef Balls in New Jersey. Foreign placements include Mexico, Brazil, Malaysia, Caribbean, Australia, the Maldives, Oman, Belize, Guam, Indonesia, and Qatar.

Reef Balls range in size from a basketball to a Volkswagen and weigh from 350 to 4,000 pounds. Commercial prices are \$80 to \$300. (In the article was a color photo of a Reef Ball in Cancun)