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Photo courtesy of Reef Ball Development Group Ltd.

"Reef Balls" are being manufactured in six different sizes with various types of concrete. Their shape makes them stable in areas with strong currents."

South Carolina busy with reef revival

By MIRIAM ROMAIN

Build it and they will come. That's what is happening in South Carolina as various types of materials are being used as catalysts to build reefs where none existed before.

To date, the state has 40 permitted artificial reef construction sites along its coast, according to Mel Bell, manager for the South Carolina Marina Artificial Reef Program in Charleston. The program in South Carolina actually dates back to the early 1970s, but there were earlier efforts in the late 1960s, Bell said. "The primary purpose, initially, was to improve recreational saltwater fishing for people here in South Carolina. It's not something we invented. People have been putting manmade structures in the water for hundreds of years to improve their fishing successes."

Today's program is part of the Office of Fisheries Management within the Marine Resources Division of the South Carolina Department of Natural Resources. The primary purpose is still to improve recreational fishing opportunities for people in the state and to increase the amount of productive habitats near the shore and offshore, he said.

But, one thing has changed over the years. Aside from recreational fishing, many people have turned to

recreational scuba diving. The divers like to swim around the structures and even take photos.

Along the South Carolina coast, and up and down the eastern coast, old limestone outcroppings protrude through the sand, which are called hard bottom areas, or live bottom areas. This is basically a hard substrate that provides a base for the formation of a reef community. Only 5-10% of the ocean along the South Carolina coast has this type of bottom. The rest is just sand. Therefore, the state is taking some sort of hard substrate, like a concrete "Reef Ball" or old ships or bridges, sinking them in strategic places, and starting new reefs, Bell explained. "You'll find that different programs have everything from old Army tanks to Navy ships to concrete and steel bridges. The list of materials is amazing," he said.

The idea is to take a hard material, place it on the ocean floor, and create an area of hard bottom that nature did not provide on that location. The reef community then develops on and around this material. Everything except the material is perfectly natural, he explained. Other reasons also exist for forming reefs. One is to spread the fishing out and take pressure off the natural areas. Another is economic. For example, the South Carolina program generates roughly \$20 million a year just from fishing activities that take place.

"There are a lot of incentives for building reefs. You're basically providing additional habitat, you're providing opportunities to fishermen, you're providing economic incentive, and you're helping to support the recreational fishing and diving industry," Bell commented. And, if recycled materials are used, such as old bridges, these materials do not have to take up valuable space in landfills, he added.



Courtesy of Reef Ball Development Group, Ltd.

Reef Balls and other submerged structures provide a starting point for the growth of sealife. Eventually, these artificial reef communities contribute to improved saltwater fishing and other recreational activities. South Carolina specifically sites its reefs on what it considers barren, non-productive bottom, in fishing terms-locations that typically do not support commercial fisheries. The tracts range in size from a quarter of a square mile to one square mile.

While it is usually preferred to use recycled items like bridges, tug boats, or old tires, these items are not always readily available. That is when designed materials, such as Reef Balls, made in Doraville, GA, can be used. These are specifically engineered to be in the water and provide the nooks and crannies needed for sealife to begin living on and around the concrete structures.

Reef Balls are made from molds and can be manufactured as light or heavy as needed, depending on whether they are to be placed in areas of high current, Bell said. Sizes and number of holes can also be adjusted. And according to the company and to Bell, some of the concrete mixes that are used for Reef

Balls are projected to last up to 500 years in the water. This helps Bell when he is looking at long-term cost effectiveness, he said.

South Carolina specifically sites its reefs on what it considers barren, nonproductive bottom in fishing terms--locations incapable of supporting any commercial fishery in their current condition. The tracts range in size from a quarter of a square mile to one square mile. The sites may be along the beach or up to 32 miles offshore, which puts them in about 110 feet of water. Only about 1.5 % of the 40 permitted areas have been covered with materials to date. Plans call for the entire program to be executed by the year 2000, with later site development done on a continuing basis.

The state is trying to spread the sites around to provide the maximum amount of access to fishermen and divers.

Although North Carolina contacts could not be reached for comment, that state also has a similar program, according to Bell. In fact, a ship was recently sunk off the North Carolina coast near South Carolina. Bell now kids his North Carolina counterpart about building a new reef for South Carolina. Bell is a member of the Atlantic States Marine Fisheries Commission, and he chairs the Artificial Reef Advisory Committee. Commission representatives come from Florida through Rhode Island and Massachusetts, he said. This is a place where successes, failures, and horror stories are shared. And everyone has had horror stories.

In North Carolina, for example, tires were used years ago to start these reefs, but no one thought to fill them with concrete or other substances to weigh them down. These tires are now washing up on the shores of the beaches. But not all tires that were used to start reefs are returning. Many, are parts of active reefs.

But South Carolina has had its horror story, too. Imagine being on the beach and seeing two nuclear ballistic missiles coming at you from the water. The state had been given some dummy Polaris missiles, the submarine launched nuclear weapons. Instead of being filled with concrete as the state thought, they were filled with some sort of foam, and they started to break apart and head for shore.

"The trick to building a good reef is being able to put a lot of stable material on the bottom at one time. A bridge provides a lot, and for a good price because everything has to break down to be cost effective for us," Bell said.

The reefs are constantly monitored by the state to see how they perform and which materials work best in terms of fish density and things growing on the structures, Bell said.

In fact, life on the artificial reefs begins in less than a year in many cases, as Bell can attest to from underwater video he recently saw.

Money for these artificial reefs has been coming from a saltwater fishing license the past four years in South Carolina called the Saltwater Fishing Stamp. North Carolina's money for artificial reefs comes from its state program and private sources, according to Bell.

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