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DISCOVERY

## Artificial reefs enter uncharted waters: Experiment may spur growth of freshwater habitat

**Caption:** A diver checks out one of the submerged Reef Balls in Stoney Lake.

*By Howard Lovy / The Detroit News*

Metro Detroit's urban sprawl has made its way upstream to Oxford, with a brand new condo development. But nobody is complaining, because these new, odd-shaped units are going up underwater, where fishing and diving enthusiasts are hoping to attract huge numbers of tenants.

Divers at U.S. Scuba Park in Oxford are spending a lot of time these days at the rocky bottom of Stoney Lake, busy building and studying what they have nicknamed the "arti-fish condos."

They're a kind of artificial reef and they have helped to re-establish marine ecosystems in salt water over the past few years. But this is the first time a project like this has been tried in fresh water. If all goes well, these Reef Balls -- the name literally describes their appearance -- will be home not only to a wide variety of critters but to larger and more-abundant ones.

The idea came from Bud Uren of U.S. Scuba in Rochester, which runs the scuba park at Stoney Lake. A little over a year ago, he sank a sailboat out on the lake to provide a home for congregations of fish and a destination for divers. But sunken ships and other artificial structures often can be harmful to lakes, or stimulate algae and bacteria growth that interferes with the natural ecosystem. When Uren heard about the Reef Balls, he jumped at the chance because it's a safe habitat for fish and won't pollute the water.

"What we're trying to find out -- and it's a fun thing for our divers to get involved with -- is can we, by introducing an artificial habitat, increase the fish population and also by increasing the habitat, can we increase the size of the fish?" Uren said. "And that's what's happened in salt water in the coastlines because the little critters now have a place to hide so the bigger critters can't get to them."

If this study yields positive results, that could mean diving and fishing enthusiasts could enjoy better views and better crops in man-made and natural lakes, which often contain just a lot of sand and rocks on the bottom, but no decent underwater neighborhoods for a fish to raise a family.

U.S. Scuba received a grant from the Reef Ball Development Group -- a group of 28 volunteers in Atlanta whose stated mission is to help restore the world's marine ecosystems -- to use the Reef Ball molds for four months. The Michigan Department of Natural Resources has signed off on the project, satisfied that "it's going to improve and make excellent fish habitat" and not harm the environment, said Michigan conservation officer Wade Hamilton.

Uren and his crew at U.S. Scuba will make 16 Reef Balls, the largest of which will be 4 feet tall by 5 feet in diameter, and place them in a 100-by-300-foot area of the lake. The reef balls are made out of a special neutralized concrete with a rough surface texture that provides shelter for life to grow without being devoured immediately by the fish. In salt water, this allows for the settlement and growth of hard corals. In fresh water, algae and snails will move in and provide feeding ground for the fish.

Researchers hope that with the abundance of fish food, the Reef Balls will be not only a fish attractor, but a fish producer.

It's this mimicking of nature that sets apart the Reef Balls from other types of artificial reefs, said Todd Barber, president of the Reef Ball Development Group in Atlanta. Most artificial reefs are put down for the purpose of simply attracting more fish, either for fishermen or for recreational diving. The trouble is, all of these organisms in a small area are easier to catch. They also compete for food, get weaker and produce fewer eggs with the long-term result being fewer fish.

"Our goal is to create a natural species diversity and population density that you'd see on a natural reef," Barber said. "So, we would say a reef is successful if we can look at a 6-foot Reef Ball and look at a 6-foot (natural) reef and we count the exact same number of fish and the same types of fish."

This success already has been documented in salt water, but not in fresh water. That's where Uren and his team at U.S. Scuba come in. Store manager Tim Sellick teaches a Research Diver course. Divers who take the course will be given 30-minute shifts to lay down on the bottom of the lake and count the numbers and types of fish entering and exiting a grid they've set up using special pipes. In return, the divers will get a free day out on the lake. The study will be conducted for the next three years.

Ray Hill, a diver from Oakland Township, is excited about the prospect of making Stoney Lake a more-diverse and enjoyable dive site. He's helping with the initial research and so far, he's observed large-mouth bass, crappie and a huge variety of sunfish. Carp and catfish have been spotted near the Reef Balls at night.

For Uren, improving the overall vitality of Stoney Lake is just a continuation of what his store has always attempted to do in its involvement and donations to ecological projects all over the world. Education also is a strong motivation -- not only for the divers who take his course, but for schools. This spring, Uren is considering bringing in classes from local schools to make miniature Reef Balls and put them in the lake. He would have underwater video cameras set up so the kids could watch their homemade fish habitats in action.

For Barber, that's the reason his Reef Ball company -- which ordinarily works on a larger scale in efforts to save saltwater reefs from extinction -- is involved in this smaller-scale freshwater project.

"The education benefit alone of this project makes it worth it," Barber said. "It gets you thinking about reefs and the roles they play in ecosystems."

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