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## Features



*Artificial reefs can't eradicate the causes of reef destruction, but by adding structure to the seafloor, they provide shelter for fish and a place for plants and coral to grow.*

**By Phil Bourjaily**  
*Thursday, February 24, 2000*

**T**hink of reefs as rain forests of the seafloor.

Like the towering trees of the rain forest, reefs support an extraordinary diversity of species. Like trees of the rain forest, they often take centuries to mature. And like the rain forests, they are in peril.

Pollution, temperature change, dredging, ship groundings, commercial fishing, even recreational diving — all have wreaked havoc on reefs.

Artificial reefs can't eradicate the causes of reef destruction, but by adding structure to the seafloor, they provide shelter for fish and a place for plants and coral to grow.

### LIVE CHAT

**Read the transcript from the Live ENN Chat**  
Join a live chat with **Todd Barber**, chairman of the Reef Ball Foundation, about the health of the world's coral reef systems and the threats posed by pollution and other issues. Barber's organization has worked around the world to protect and regenerate coral reefs.

[Read the Transcript!](#)

They also divert anglers and divers from fragile natural systems by providing new destinations for sport. An artificial reef fashioned in the shape of the Southern Cross that serves as a snorkeling trail has eased traffic and reduced damage to Australia's Great Barrier Reef.



Courtesy NOAA

**Like the rain forests, the world's coral reefs are in peril.**

Artificial reefs are not a new concept, but only in the past 20 years have they become friends of the marine environment. The first artificial reefs were made from tires, appliances, sunken ships, junked cars, culverts and concrete rubble.

Many do more harm than good. Tires wash ashore. Appliances, cars and ships leak harmful chemicals. Heavy objects damage natural reefs as currents toss and turn them over the seafloor. Today, only concrete and heavy-gauge steel are allowed in most U.S. waters. Deliberately sunk ships must be thoroughly cleaned before they are left to drown.

Structures are now being designed specially as artificial reefs, and stable, non-toxic concrete is the material of choice. The ReefBall, created by Florida diver Todd Barber, is a squat, concrete dome with lots of holes. The structure comes in eight sizes, the smallest of which is about the size of a basketball.

The holes in the concrete provide cover for fish and marine invertebrates. The rough sides allow plants and coral to cling to the concrete. According to Barber, the ReefBall needs only a few years in the ocean to be fully shrouded in sea growth. The ReefBall also sits still on the seafloor, as most of its weight is concentrated at its base.

Barber's company, the ReefBall Development Group, has planted 50,000 units around the world since 1993. The company sponsors reef restoration eco-tours will even mix your ashes into an "Eternal Reef" ball if your will stipulates it.

#### TAKE THE POLL

Do you think the construction of artificial reefs is ecologically sound?

Yes

No

Vote!

#### JOIN THE DEBATE

What is the best way to ease man's pressure on reef ecosystems?

[TELL US WHAT YOU THINK](#)

#### FEATURED BOOKS



**What Is Natural? : Coral Reef Crisis**

by Jan Sapp — \$22.50

Amazon.com  
Students of marine biology have long been fascinated by the superorganisms called coral reefs, formed over thousands of years from ...

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Courtesy Todd Barber

**ReefBall Development Group has planted 50,000 ReefBalls on the world's seafloors since 1993.**

Efforts in California to restore kelp beds have shown that even simple concrete rubble can provide the right foundation. "We've found the bed has to be at least 10 hectares (24.7 acres) for the kelp to persist," says Dennis Bedford of the California Department of Fish and Game. "The rubble piles have to low-relief. We found high peaks of rubble concentrate kelp eating fish and inhibit kelp growth."

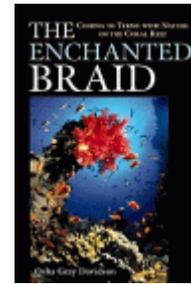
Kelp will start to form on rubble piles within a year. In 15 years, an entire community will likely flourish.

Although artificial reefs no longer pollute or wash up on shore, a troubling question remains: Do reefs increase fish populations or make them easier prey for anglers?

Marine officials say artificial reefs provide more habitat and increase fish populations. They also allow that angling harvests are on the rise, effectively canceling the population growth.

"In some cases fish seem to prefer artificial reefs to lower-relief natural reefs nearby, but they're moving into a baited trap, because anglers know where the artificial reefs are," says Jon Dodrill of the Florida Division of Marine Fisheries.

Building mitigating artificial reefs when real reefs are damaged doesn't address problems of pollution, nutrient runoff and over-exploitation of the oceans, he adds.



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Courtesy NOAA

**Marine officials say artificial reefs provide more habitat and increase fish populations. They also allow that angling harvests are on the rise, effectively canceling the population growth.**

"Artificial reefs are a good management tool," says Dodril, "but you have to clearly establish your goals when you construct a reef. You can't increase fish numbers and creating a fishing spot. You have to choose one or the other."

### Take action

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[Reef Environmental Education Foundation](#) provides a wealth of information and updates about reef balls.

For general information and current research news about coral reefs, visit the [Planetary Coral Reef Foundation](#).

To learn more about oceanography, marine issues and what you can do to get involved, visit the [National Oceanic and Atmospheric Administration](#), the [American Oceans Campaign](#) or ENN's [Year of the Ocean](#) site.

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