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States Attempt To Clean Up After Failed Artificial Reef

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FORT LAUDERDALE, Fla. - In the waters off Fort Lauderdale, just past the second reef, lies a bizarre graveyard of discarded tires.

An estimated 2 million of them are scattered over 35 acres of ocean floor, dumped there in the early 1970s in an attempt to create an artificial reef.

The reef of tires turned out to be a spectacular failure. Few marine creatures made their homes among the steel-belted radials. And the nylon bands that held bundled tires together broke, allowing the tires to break free, ride the currents and slam into the natural coral reefs.

Now state and county environmental officials are trying to find ways to haul them back up - a difficult and expensive endeavor, but one they say is necessary to protect the existing reefs.

"It looks like a hazardous waste dump," said Ken Banks, a reef expert with the Broward County Department of Planning and Environmental Protection. "We want to get rid of them."

Like many serious mistakes, this one grew out of the best of intentions. In the 1960s, before recycling caught on, used tires were piling up at an alarming rate. Illegal dumps arose in rural areas. Some caught fire. Many became spawning grounds for mosquitoes.

Meanwhile, fishing captains were looking for materials to build artificial reefs - structures that would attract fish and other marine life by providing hiding places and hard surfaces. Tire reefs appeared to be the answer. Hoping to establish better fish habitat, Florida, Texas, Virginia, North Carolina and several other states dumped millions of used tires into the ocean.

In Fort Lauderdale in the early 1970s, a group of fishermen decided to create a reef of tires off Hugh Taylor Birch State Park. Broward County endorsed the project, as did Fort Lauderdale and various state and federal agencies. Goodyear Tire & Rubber Co. agreed to provide equipment.

On a spring day in 1972, more than 100 boats carrying tires headed out to sea for the first big drop, accompanied by the USS Thrush, according to a presentation by Gregory McIntosh, a member of Broward Artificial Reef Inc., to a 1974 conference on artificial reefs at Texas A&M University. On a signal from the Goodyear blimp, they dropped thousands of tires into the ocean. They planned to add to the reef at the rate of up to 500,000 tires a year.

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"Tires, which were an esthetic pollutant ashore, could be recycled, so to speak, to build a fishing reef at sea," McIntosh told the conference.

Today, he is less eager to discuss it. Asked last week to talk about his work on the reef and what has been learned since then about artificial reef construction, McIntosh, now president of a marine consulting company, said, "I have no comment on any of those issues."

It turned out that Fort Lauderdale's reef was an environmental disaster, as were most of the others built around the United States. While sponges and corals occasionally latched onto tires, most marine creatures had a difficult time finding a home on the unstable rubber surfaces. Studies by the Florida Fish and Wildlife Conservation Commission found that few fish spent much time among the tires and that sponges and other immobile organisms could rarely live on them for long. Worse, the tires began to move.

When Hurricane Bonnie hit North Carolina in 1998, it picked up thousands of tires from the ocean floor and hurled them onto the beach. Hurricane Opal in 1995 swept more than 1,000 tires onto the Florida Panhandle west of Pensacola. And last year, during the Ocean Conservancy's International Coastal Cleanup, volunteers removed 11,956 tires from beaches all over the world.

"The reefs that were supposed to be a solution to pollution were washing up on beaches and becoming a source of pollution," said Jack Sobel, the Ocean Conservancy's director of strategic conservation. "I don't know of any cases where there's been a success with tire reefs."

At the reef off Fort Lauderdale, the tires began drifting with the currents. By 2001, the tire field had doubled to 35 acres, according to a report by the Florida Fish and Wildlife Conservation Commission.

Using an underwater video camera, state and county environmental officials have begun mapping the tire field. The tires had originally been dropped between the second and third reefs, about three-quarters of a mile from shore. Now they've drifted onto the face of the second reef. They've floated onto the third reef. And they've drifted seaward to the far end of the third reef. Many of the corals, sponges and other reef creatures are extremely sensitive and can die if hit or shaded from sunlight.

"When these tires encroach on the reef, they can dislodge and abrade and eventually kill some of the coral reef community," said David Gilliam, research scientist at Nova Southeastern University's Coral Reef Institute.

Anxious to prevent the tires from harming the reefs, state and county environmental officials are considering ways to haul them back up. No one knows what it would cost to get rid of them. Using one estimate of $20 per tire, the job could cost up to $40 million. At a higher estimate of $50 a tire, it could cost $100 million.

"The magnitude of the project is incredible," said Banks, the reef expert.

To pay for the work, the Florida Department of Environmental Protection plans to go after companies or organizations planning work that could damage reefs.

Three energy companies have proposed undersea natural gas pipelines from the Bahamas to Broward or Palm Beach County. Port Everglades plans to deepen and widen its main channel, which could destroy about 20 acres of reef. In the past, they would have been required to "mitigate" the damage by constructing artificial reefs of limestone, concrete or heavy steel. But now, as a condition of approving these projects, the state and county may have them remove tires.

"We all of a sudden have all these big projects coming down," Banks said. "We don't need any more artificial reefs."

Environmental groups question the mitigation plan, saying it will simply hasten the destruction of more reef. The state should remove the tires and pay for the work, they

said, not just use tire removal to grease the way for construction projects that would harm natural coral reefs.

"It's clear they made a mistake with the artificial tire reefs, and they're causing damage," said Sobel, of the Ocean Conservancy. "But now to allow other damage because they're cleaning up tires seems crazy to me."

Paul Johnson, special projects manager for Reef Relief, said the state should simply do its duty and clean up an environmental disaster on its own territory.

"It seems to me a straightforward state-lands problem and shouldn't be used as mitigation," he said. "Recovering tires needs to be done, but I don't think it should be done because of future impacts to reefs."

In North Carolina, where every powerful storm sweeps a few hundred tires onto the beach, the state sends prison inmates in trucks to pick them up. State workers also collect tires, and the state has paid shrimp boaters to haul them up. Of the 700,000 or so tires dumped off the North Carolina coast, about 180,000 have been recovered - including old truck tires, airplane tires and whitewalls that went out of style in the 1960s.

"It's unbelievable what went overboard," said James Francesconi, North Carolina's artificial reef coordinator. "We don't do tires anymore. And I encourage no one else to put another piece of freaking rubber in the ocean again."

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