

# **Saving the creatures of the deep: A federal government plan aims to protect Florida's reefs before a precious ecosystem**

March 5 2009, By David Fleshler

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A few miles from the southeast Florida coast, at a depth of crushing pressure and frigid temperatures, lies an eerie world of snowy coral, undiscovered forms of life and rock towers thrusting through ink-dark water.

Although the deep ocean reefs of the southeastern United States rose before the pyramids, their existence had only been hinted at by geological evidence until ruggedly built submersibles reached them in the late 1990s. Now, before commercial fishing damages a still-pristine ecosystem, the federal government is considering protecting a stretch of ocean floor from the Florida Keys to North Carolina, an area six times the size of Yellowstone National Park.

The South Atlantic Fishery Management Council plans to vote in June on banning bottom trawls, bottom longlines and other destructive fishing gear across 23,000 square miles, an area thought to encompass the largest deepwater reef system in the world. Although elsewhere such reefs have been mown down by commercial fishing gear, the reefs being considered for protection have sustained little impact from human activities, and the council wants to act before any damage takes place.

"We want to protect these very fragile, vulnerable ecosystems that we know very little about," said Myra Brouwer, a biologist with the Fishery Management Council. "They grow very slowly, and they're thousands of

years old."

More remote than the polar ice caps or the Himalayan peaks, the deep ocean has surrendered its secrets slowly. It took the use of submarine-hunting sonar, for example, for scientists in the 1950s to map out the oceans' submerged mountain ranges. And while they suspected the existence of reefs in the ocean depths, they only acquired the tools to study them with the development of deep-diving submersibles, multibeam sonar and remotely operated vehicles.

John Reed, senior scientist at the Harbor Branch Oceanographic Institute at Florida Atlantic University, discovered many of the deepwater reefs off Florida riding the submersible Johnson-Sea-Link 2,500 feet below the surface, where no sunlight penetrates and the water temperature drops into the 30s. During undersea trips from Jacksonville to Miami, he counted about 400 coral mounds, one reaching a height of 400 feet, mostly composed of a delicately branched, snow-white coral called *Lophelia pertusa*. He saw eels, scorpion fish and several examples of the huge sixgill shark, a primitive species that hunts near the surface at night and spends the day in the depths.

During a dive off southeast Florida, he peered through the submersible's acrylic bubble as the craft inched toward the coast. Searchlights swept the black water, revealing only small fish and sandy bottom. But as the craft came within 15 miles of the hotels and condominium towers of Miami, Fort Lauderdale and Boca Raton, the ocean floor sloped sharply upward, in a rugged, rubble-strewn ascent of more than 1,000 feet.

At the top, about 900 feet below the surface, a lush undersea landscape of sea fans, black corals, sponges and other creatures covered the reef called the Miami Terrace. New species of fish, crab and coral have been found in these reefs, and scientists expect to find many more.

"We really don't understand a lot about the ecology of these deepwater reefs," Reed said. "We're still learning what lives there - what animals, what fish."

Despite encompassing a vast stretch of ocean floor, the plan is not particularly controversial. A small amount of commercial fishing takes place along the periphery of the reef systems, mostly for shrimp and golden crab. The new rule would allow the fishing to continue, although it would freeze the footprint of the golden crab fishery in place.

But a group of recreational fishermen called deep-droppers, who catch fish at depths of 400 feet to 3,000 feet, are worried that the protected zone could be a prelude to restrictions on their activities. Mark Sagerholm, president of the 100 Fathom Fishing Club, said he supports protecting the coral, so long as it doesn't lead to restrictions on deep-dropping.

"Our real concern is any time someone says, 'Hi, I'm from the government and I'm here to help,'" he said. "Even though right now there's no restrictive language against deep-dropping, we're concerned that later restrictive language will be put in."

Unlike famous landscapes such as the South Dakota badlands, Florida Everglades or Amazon rain forest, the reefs of the deep ocean can't be experienced except through photographs and videos. Pressed for an explanation of why we should care about protecting them, scientists talked of the pharmaceuticals that could be developed from deep reef species and spoke of our duty to prevent harm to ecosystems with their own integrity and beauty, whether or not we can see them directly.

"This is a unique ecosystem that occurs right in our backyard, and we should act as stewards," Reed said. "They're very similar to ancient redwood forests. Once they're clear-cut, they're not going to grow back

in our lifetimes."

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