

## Deep Water Ocean Discoveries off Australia

### **Fossilized corals among ocean discoveries off Australia.**

*By David Alderton*

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A bright red, undescribed species of shell-less coral, called an anthomastid or gorgons-head coral.

Photo courtesy Advanced Imaging and Visualization Laboratory WHOI Deep ocean investigations to the southwest of Tasmania have discovered previously unknown fields of 10,000-year-old fossilized corals at depths below 4,500 feet. The collaborative research project by U.S. and Australian scientists was led by Dr. Jess Adkins from the California Institute of Technology and Dr. Ron Thresher from CSIRO's Climate Adaptation and Wealth from Oceans Flagship.

"We set out to search for life deeper than any previous voyage in Australian waters," Thresher said. "Our sampling documented the deepest-known Australian fauna, including a bizarre carnivorous sea squirt, sea spiders and giant sponges, and previously unknown marine communities dominated by gooseneck barnacles and millions of round, purple-spotted sea anemones."

The survey through the Tasman Fracture Commonwealth Marine Reserve, explored a near vertical slice in the earth's crust known as the Tasman Fracture Zone, which drops from approximately 6,500 to 13,000 feet. All of these new species are located more than 4,500 feet below the surface.

The discovery of the dead coral fields helps to provide ancient climate data that can contribute to an understanding of regional and global climate change, according to the research. Modern day coral reefs were also found at these depths, but the research suggests that this reef system is in decline, with most of the reef-forming coral deeper than 4,250 feet having already died.

"We need to closely analyze the samples and measurements we collected before we can determine what's caused this, as it could be the result of several factors, such as ocean warming, disease or increasing ocean acidity," Thresher said.