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Tubeworms Colony Discovered Off Cyprus

When a field of tubeworms was unexpectedly discovered on the side of a large underwater mountain 50 miles off the coast of Cyprus this summer, the finding was notable both for the discovery itself and for the process of the discovery.

Found by a team of researchers led by marine explorer Robert Ballard, the tubeworms, in the genus Siboglinidae, have a symbiotic relationship with chemosynthetic bacteria; they both work together to metabolize warm, mineral-rich water that is seeping out of the seafloor. Numerous colonies of the tubeworms were found between 900 and 1200 meters deep amid crabs, sea urchins, deep sea corals and belemnite bacteria in a coldwater seep on the slope of Eratosthenes Seamount, an underwater mountain in the Eastern Mediterranean south of Cyprus. The next nearest known colony of the unusual animals is found 190 miles away on the Anaximander Mountains, an underwater mountain chain.

The tubeworms were identified during a research expedition aboard Ballard's ship *E/V Nautilus*, which was broadcast live, 24 hours a day, over the Internet, so thousands of people may have been watching the discovery as it happened.

Equally noteworthy, a team of scientists ashore with expertise in a wide range of disciplines -- called Doctors on Call -- were called upon to assist in identifying the animals at the moment they were found. It was the first time the Doctors on Call program, created by Ballard for this expedition, and the live broadcasts were combined to make a scientific discovery.

"The process worked exactly as I envisioned it would," said Ballard, a Professor of Oceanography at the University of Rhode Island, President of the Institute for Exploration, and a National Geographic Explorer-in-Residence. "It's impossible to have every expert you may need aboard ship when you're exploring the oceans, so having them on call

and able to view exactly what the shipboard scientists are seeing is the next best thing."

"We were doing a visual transect up the slope of the seamount, when we came upon an enormous cliff face with some orange staining and white fuzzy-looking patches on it," explained Katherine Croff Bell, a University of Rhode Island graduate student and National Geographic Emerging Explorer who was the expedition leader onboard. "The white fuzzy things turned out to be clusters of tube worms, and the orange stains were areas where fluid is coming out of the rocks, which is likely what the tube worms were living on."

Scientists from Israel, Cyprus, and three universities in the United States -- URI, the University of New Hampshire, and Woods Hole Oceanographic Institution -- assisted in identifying the biological communities where the tubeworms were found.

The technology that made this discovery and collaboration possible includes high-definition video cameras on remotely operated underwater vehicles, high-bandwidth satellite telecommunications linking the *Nautilus* to the Inner Space Center at the University of Rhode Island, and remote science consoles and Internet2 linking the Inner Space Center with the Doctors on Call and the general public.

A summary of the expedition findings and the Doctors on Call program was presented December 14 at a meeting of the American Geophysical Union in San Francisco.

Story Source: The above story is reprinted from materials provided by University of Rhode Island.