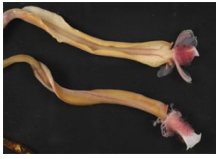


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By: Stefan Anitei, Science Editor



Bizzare Deep Sea Creatures in Cold Seeps off New Zealand

The first explorations of cold seeps in south-west Pacific

A team of American and New Zealandish researchers have researched for the first time the "chemosynthetic" ecosystems from around deep-sea methane seeps off New Zealand. The scientists spotted eight cold seep sites to the east of New Zealand's North Island, at depths of 750-1,050 m (2,300-3,200 feet). The research was made on board of New Zealand's National Institute of Water and Atmospheric Research's (NIWA) deepwater research vessel Tangaroa. Cold seeps are areas of the sea floor where methane or hydrogen sulphide gas emerge from below. Like hydrothermal vents, cold seeps harbor unique and bizarre ecosystems. The potential seep sites were located by a sonar. The researchers employed a towed video and still camera system to watch seep organisms. The cameras captured footage of 30-40 cm (12-16 inch) long tube worms at the core of the seeps growing from beneath limestone rocks. The colorful tube worms (photo) form symbiosis with microbes that can convert through chemosynthesis methane and hydrogen sulphide into organic products without sunlight. The rocks were blotted by blackened sediment and pockets of white bacterial mats. Deep sea corals and sponges were also found in this community where methane is the primary energy source. Most sites presented extensive shell beds consisting of live and dead shells of different types of clams and mussels. The seeps were fringed with stands of another gutless bacterial-symbiotic deep-sea tube worm species. "We've collected samples of the animals living around the seeps for formal identification, but the distance to previously studied cold seeps implies that there are several species new to science among these new collections," said Dr Ashley Rowden from NIWA. The scientists think that cold seeps are very abundant along New Zealand's eastern continental platform. These abyssal communities totally rely on chemosynthetic bacteria for food, through symbiosis or direct ingestion. "New Zealand is one of the few places in the world where at least four types of chemosynthetic habitats occur in close proximity, allowing scientists to address key questions about the patterns of biological distribution that cannot be addressed elsewhere," declared scientists at NIWA. "This is the first time cold seeps have been viewed and sampled in the southwest Pacific, and will greatly contribute to our knowledge of these intriguing ecosystems," said Dr. Amy Baco-Taylor, from the Woods Hole Oceanographic Institution (WHOI) in Massachusetts. "The seeps off New Zealand are also remarkable in the sheer extent of their chemosynthetic communities." The expedition also revealed human impact on the communities lying at such depths. "At all of the seep sites, there was evidence of fishing damage in the form of trawl marks, lost fishing gear, and extensive areas of deep-sea coral rubble". Photo credit: NIWA