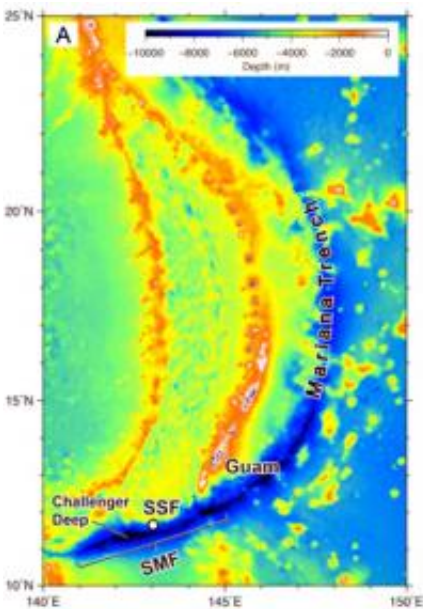


# Researchers find rare life in Pacific ocean's depths

February 23 2012, By Katherine Morales

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Shown is an image of the Mariana Trench, which includes the Challenger Deep area, which is the deepest known point in the ocean at more than 35,700 feet.

(PhysOrg.com) -- A joint research group of U.S. and Japanese geoscientists, including a team from UT Dallas, has discovered a system of hydrothermal vents teeming with life three miles below the surface of the western Pacific Ocean.

Their findings appeared in a recent issue of the [Proceedings of the National Academy of Sciences](#).

According to the researchers, the deep sea is as barren as a desert because [sunlight](#) cannot penetrate to the depths for [photosynthesis](#) to occur.

“Nutrients provided by dead plants and animals that live and die near the ocean’s surface are mostly gobbled up before they fall very far,” said Dr. Robert Stern, professor of geosciences at UT Dallas and one of the paper’s authors.

Thus, these vents are “oases in the abyss” because chemical-laden waters rise from the sinking Pacific plate into deep fissures through rocks of the Earth’s mantle and flow to the surface, creating an environment ripe for life.



Here is an extensive clam community that was found at 5,622 meters deep.

“Understanding the source of these fluids and how life takes advantage of these may give us important clues as to the emergence of life on Earth and how it might exist on other planets,” Stern said.

Dr. Ignacio Pujana, senior lecturer in geosciences at UT Dallas, and

graduate student Julia Ribeiro, also contributed to the research.

It was during one of several deep-sea expeditions to study the Challenger Deep area that the team discovered the hydrothermal vent system and the colonies of large clams thriving nearby. The Challenger Deep is the deepest known point in the ocean, at more than 35,700 feet. It's located about 300 miles south of the island of Guam.

“These kinds of low-temperature fluid vents are very difficult to find and may be very widespread on the ocean floor,” Stern said. “And they can sustain high-biomass communities. This has implications for the chemical composition of the oceans and the distribution of [deep-sea](#) life.”

Similar clam communities are known at other sites on the seafloor, but this is the first site discovered in the Mariana region, which is in the South Pacific east of The Philippines. The discovery falls within the U.S.’s newest national monument, the Marianas Trench Marine National Monument, established by President George W. Bush on Jan. 6, 2009.

Stern said his UT Dallas and Japanese colleagues are working on a proposal to return in the next year or two to make more dives with Shinkai 6500, a manned submersible vessel, to further study this unusual environment.

Researchers from Shizuoka University, the University of Iowa, the University of Hawaii at Manoa, the University of Rhode Island, Fukada Geological Institute (Japan), the Japan Agency for Marine-Earth Science and Technology, the Hydrographic and Oceanographic Department and the Japan Coast Guard also contributed to the study.

Provided by University of Texas at Dallas

Citation: Researchers find rare life in Pacific ocean's depths (2012, February 23) retrieved 18 April 2024 from <https://phys.org/news/2012-02-rare-life-pacific-ocean-depths.html>

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