

Tethys Expedition

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The ocean area southeast of Hawaii to the mainland is a "biological desert"-a virtual Sahara of the sea, research conducted at The University of California's Scripps Institution of Oceanography indicates.

Indeed, the entire width of the Pacific between the equatorial currents and the latitude of San Diego on the east and Shanghai on the west may be almost barren of life, says John A. McGowan, Graduate Research Biologist who led Scripps' recent Tethys Expedition to Hawaii.

The cruise was planned to study the distribution and abundance of creatures living in the deep sea. Results show there are remarkably few of them. "We knew that the life out there in the surface waters was not rich," McGowan says, "but we were surprised at how much less of it there was in the deeper zones. On one deep net haul we would filter out all the organisms that lived in 80 million gallons of water-- more than the amount used by a city the size of San Diego in a day. Out of all that water we would collect about a quart bottle of marine creatures, mostly tiny floating crustacea."

The area lies under an atmospheric subtropical high pressure cell. Winds are generally calm. This leads to a very stable, stratified temperature system in the ocean waters, McGowan says, without the stirring that brings up nutrients from the bottom of the ocean.

To the north, traveling storms and seasonal changes in temperature keep the water stirred up. To the south the great equatorial current systems produce the same effect. Only near coastlines is the water notably productive. Along the California coast, upwelling produces a far richer plant and animal life than is found in the adjacent waters offshore. This effect was particularly noted on the return trip from Hawaii, McGowan says. The amount of living matter captured by the hauls increased sharply as the ship came within 300 miles of the coast.

Tethys Expedition returned to San Diego with one of the largest collections of deep-living fishes and other deep-water creatures that has ever been taken by an American cruise, McGowan says. The specimens will be studied by the research staff of the Scripps Institution.

Enough specimens were taken to make possible for the first time a study of the vertical stratification of organisms in a systematic manner over a wide area, McGowan says.