

# New study shows shallow water corals evolved from deep sea ancestors

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New research shows that the second most diverse group of hard corals first evolved in the deep sea, and not in shallow waters. Stylasterids, or lace corals, diversified in deep waters before launching at least three successful invasions of shallow water tropical habitats in the past 40 million years. This finding provides the first strong evidence that a group of deep-sea animals invaded and diversified in shallow waters.

"When we look at the DNA and fossils of these animals, we can trace how these transitions from deep water to shallow habitats have popped up in different parts of the family at different points in time," says Alberto Lindner, a coral researcher at the University of São Paulo, Brazil.

"We also see this story unfold in which the corals are building skeletal defenses, possibly in a long-running arms-race with their predators. Together, it shows us how wrong it is to think of deep-sea ecosystems as being isolated and static."

Lindner and co-authors Stephen Cairns and Cliff Cunningham will publish these new findings in the June 18 issue of the journal *PLoS ONE*. This article follows a presentation by Lindner at the American Association for the Advancement of Science (AAAS) Annual Meeting in Boston, MA.

Although deep-sea research is often difficult and expensive, Lindner and his colleagues hope their work will further inspire scientific exploration

and broad evolutionary studies in the oceans. "The deep sea and the shallow-water tropics are the most diverse environments in the oceans, but how deep and shallow-water species have built these different marine habitats is still poorly understood. Our study shows that integrating deep-sea and shallow-water species in evolutionary studies is key to understanding the evolution of life in the oceans."

Citation: Lindner A, Cairns SD, Cunningham CW (2008) From Offshore to Onshore: Multiple Origins of Shallow-Water Corals from Deep-Sea Ancestors. PLoS ONE 3(6): e2429.

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