

Exploration of relict faunas on the deep slopes of the Queensland Plateau

An exceptional sessile invertebrate fauna was discovered in the 1970s on the Norfolk Ridge in the SW Pacific. This fauna is remarkable because it contains populations of animals that were previously thought to be extinct but have persisted almost unchanged on the deep reef slopes since the late Mesozoic (>65 MYA). Our own expeditions to the Coral Sea in Australia in the mid-1990s discovered components of this deep-water fauna around Osprey- and Shark Reefs, but detailed exploration was not possible at that time. In this project we now aim to deploy scientific submersibles to investigate in detail the biodiversity of Mesozoic relict faunas and mud mound-structures down to a depth of 1000 m around Osprey- and Shark Reefs on the Queensland Plateau (Coral Sea, Australia). These remnant relict faunas ('living fossils') are of great interest to the biodiversity and geobiological sciences as they provide a window into past environments. We will capitalize on the unique opportunity provided by the arrival of Deep Ocean Expedition's 'Deep Australia' voyage of discovery (www.deepoceanexpeditions.com) with the newly refitted RV 'Deep Ocean Quest' and its two deep rover submersibles, capable of diving to the required depth, in the Coral Sea in early 2006. This project will provide substantial new knowledge on a completely overlooked and unique marine biodiversity and new genetic resources to promote a further understanding of ecology, (molecular) diversity, phylogeography, phylogeny, and trends in evolution of these 'living fossils' and their environments.