



13 May 2020

Discovery of rhodoliths: coral-like structures that offer food and shelter for marine animals

A team of scientists, including a group from the University of Cape Town (UCT), have discovered a bed of rhodoliths – free-living, coral-like structures that offer food, shelter and nursery space for marine animals – in the newly proclaimed Amathole Offshore Marine Protected Area off South Africa's east coast. This underwater environment is the first of its kind found in South Africa's ocean.

Luther Adams, a postgraduate researcher in the UCT Department of Biological Sciences explains: "We knew we might make new discoveries when we participated in the African Coelacanth Ecosystem Programme expedition: Imida Frontiers, surveying the underexplored region off the coast of Transkei. But we didn't expect to record the first example of rhodoliths in South African waters."

Adams was part of the team, including scientists based at the national Department of Environment, Forestry and Fisheries, and the South African National Biodiversity Institute, that made the find. He was joined on the survey expeditions by his co-supervisor, Dr Denham Parker, and other UCT associate researchers, Dr Toufiek Samaai, Dr Kerry Sink and Dr Sven Kerwath also from the UCT biological sciences department.

"There have been hints at the presence of rhodolith beds in South Africa from one or two visual surveys in other areas, and a few individual rhodoliths have been found washed up on the beach in Port Elizabeth," says UCT's Dr Natasha Karenyi, a marine biologist with an interest in studying seabed ecosystems– a field known as benthic ecology – and Adams' supervisor.

"But our research presents the first verified rhodolith bed, because we have both visual and physical confirmation of their presence over a relatively large area."

The rhodoliths were discovered three kilometres offshore at a depth of between 30 and 65 metres.

The survey team, headed by Kerwath, under the auspices of the African Coelacanth Ecosystem Programme: Imida Frontiers project, used a mixture of remote sampling tools to map and explore the seabed.

Back in the laboratory, Adams and Karenyi painstakingly pieced together the information gathered during the survey. They found that there were three genera of coralline algae in the area. The team believes that there is a strong possibility that the species at the newly discovered site will prove to be endemic to South Africa, although this will only be confirmed once they have analysed the DNA.

Rhodolith ecosystems are often overlooked because they are not large and charismatic like coral reefs. Nonetheless, they play an important function as a food source and habitat for a number of commercially important species.

In Karenyi's view, this discovery – within three kilometres of the shore – highlights the fact that our marine spaces in South Africa are largely unexplored.

“Increased efforts over the past decade have improved our knowledge of our marine spaces, but there is still so much ground – or should I say, ‘seafloor’ – to cover. We don't know all the kinds of ecosystems we have or how they will be affected as efforts increase to build our ocean economy. This is why it is exciting to have our offshore marine protected areas.

“In these wonderful spaces, we can explore natural (or close-to-natural or recovering) ocean spaces and use them as a baseline against which to measure the impact of our various human uses.”

[Read the full study](#)



These rhodoliths – free-living, coral-like structures each around 4 centimetres across.

Photo: Adams et al. 2020.

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Siseko Benya, Dr Denham Parker and Luther Adams (from left to right) deploy a remotely operated vehicle off the RV Phakisa.

Photo: Kerry Sink.

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Original story by Ambre Nicolson

ENDS

Issued by: UCT Communication and Marketing Department

Aamirah Sondag

Media Liaison and Monitoring Officer
Communication and Marketing Department
University of Cape Town
Rondebosch
Tel: (021) 650 5427
Cell: (076) 947 6071

Email: aamirah.sondag@uct.ac.za

Website: www.uct.ac.za