Tough species of corals can go mobile and lay the foundations for new reefs in otherwise inhospitable areas, a stud

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Corallith. Credit: Sebastian Hennige

Tough species of corals can go mobile and lay the foundations for new reefs in otherwise inhospitable areas, a study shows.

Scientists have discovered that the rolling and resilient corals can act as a base upon which other corals attach and build reefs by creating their own stable habitats.

The finding sheds new light on the mobile corals – called coralliths – which grow on pebbles or fragments of dead reefs, and can survive being buffeted by waves and ocean currents.

Their ability to establish themselves in harsh environments mean coralliths could play a key role in efforts to conserve and restore reef habitats, the team says.

Scientists from the Universities of Edinburgh, Glasgow and Heriot-Watt University made the discovery while doing fieldwork on coralliths in the tropical waters of the Maldives.

They identified a variety of structures – from pea-sized balls to boulders several feet across – in places where corals would not otherwise be able to settle and survive.

The finding suggests many existing coral habitats – particularly those in areas dominated by sand and rubble – may have been created by coralliths.

Coralliths have previously been identified in the fossil record, and evidence suggests that they have played a role in reef formation since at least the last Ice Age, researchers say.

The study is published in the journal *Scientific Reports*. It was funded by the Natural Environment Research Council.

Dr Sebastian Hennige, of the University of Edinburgh's School of GeoSciences, said: "For years we assumed that coral reefs, and small patches of coral in sandy habitats, needed stable ground on which to build. Now we know that corals can engineer their own stable environment from nothing, and create habitats for all sorts of species in places that we thought were unsuitable for reef formation."

Dr Heidi Burdett, of Heriot-Watt University, said: "This discovery makes us question many things we have taken for granted in coral ecology, such as how some reefs formed in the first place, and whether coralliths may play a role in reef restoration following disasters."

Importantly, not all coral species can form coralliths, notes Dr Nick Kamenos of the University of Glasgow's School of Geographical and Earth Sciences: "Corallith-forming species are robust and resilient to environmental change and physical damage – features that may give them an advantage in the future as climate change progresses. The ecological processes described by our hypothesis may therefore become even more prevalent in the future."

More information: S. J. Hennige et al. The potential for coral reef establishment through free-living stabilization, *Scientific Reports* (2017). DOI: 10.1038/s41598-017-13668-7

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