



The tiles will be monitored over the next year and a half | Photo source [University of Hong Kong](#)

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3D-PRINTED 'REEF TILES' FOR CORAL RESTORATION



The tiles provide a structurally complex foundation for coral attachment and prevent sedimentation

Spotted: The world's coral reefs have been at risk for years now and are dying off at an alarming rate. In an effort to contribute to coral restoration, a team of architects and marine scientists from the University of Hong Kong have developed "reef tiles". The idea behind the tiles is that they provide a structurally complex foundation for coral attachment, and prevent sedimentation. The complex patterns act as an anchor for coral fragments, as those that have been dislodged are unlikely to survive on their own. The reef tiles can either be seeded with coral fragments or wait for coral polyps to naturally colonise, as they are carried past on ocean currents.

With a diameter of 60 centimetres, the tiles were developed through robotic 3D-printing out of conventional terracotta clay. They were then kiln-fired at a temperature of 1,125 degree Celsius. The design was inspired by typical coral patterns and several performative aspects addressing the condition of the Hong Kong waters were also integrated. In addition, to its unique design, being made from clay makes them much more eco-friendly than if they were made from concrete or steel. The production of the latter two materials emits greenhouse gases and can also leach toxic substances into the water.

In a pilot project, 128 reef tiles were seeded with three types of native coral and deposited in Hong Kong's Hoi Ha Wan Marine Park. The tiles will be monitored over the next year and a half, to see if they can help to restore the reefs.

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Takeaway:

Due to pollution and climate change, scientists have projected that between 70 to 90 per cent of coral reefs will disappear over the next 20 years. The reef tiles developed by the team at Hong Kong University are a huge step in the right direction for coral restoration. Not only can they enhance the chances of survival for existing coral, but they can also increase the population of the coral community. Furthermore, the terracotta clay used to make the tiles will ensure that no adverse side effects are caused.