Sounds of Life with Underwater speakers could help revive ailing coral reefs

An example of coral bleaching from a reef.

There is healing power in sound. Coral reefs are among the many victims-in-the-making of climate change, but new research offers an ingenious approach for healing them.

A recent study found that underwater speakers placed close to dead coral in Australia’s Great Barrier Reef encouraged new fish to show up and settle in. In terms of numbers, roughly twice as many fish were drawn to the speaker-enhanced dead coral compared to regions of dead coral in their natural state.

The fish weren’t listening Lizzo or Lil Nas X or anything like that. Instead, the international team of researchers from UK universities in Exeter and Bristol, plus Australia’s James Cook University and Australian Institute of Marine Science, piped in recordings of healthy coral reefs.
"Healthy coral reefs are remarkably noisy places – the crackle of snapping shrimp and the whoops and grunts of fish combine to form a dazzling biological soundscape. Juvenile fish home in on these sounds when they’re looking for a place to settle," Prof. Steve Simpson, a senior author on the study, said in a statement released by the University of Exeter.

Ailing coral reefs, on the other hand, become "ghostly quiet" as the various creatures that make up their ecosystems perish or depart. So, the researchers reasoned, giving younger fish some aural encouragement could bring them back to these dead reefs.

It worked. The study found that healthy reef sounds brought out double the number of fish, and increased the number of species present overall by 50 percent. It's a "promising" result for management of the problem on a "local basis," though we as a planet still need to solve the problems that led to coral reef degradation in the first place.

Rising ocean temperatures contributed to a widespread die-off in the Great Barrier Reef in 2015 and 2016. Coral reefs depend on a symbiotic relationship between the coral and algae that lives inside them; it's the basic building block of their existence. But rising water temperatures set off a process of coral bleaching, in which the algae is released and the reef loses its main energy source.

Ocean acidification is another source of our coral reef troubles. Burning fossil fuels creates excess carbon dioxide, which naturally dissolves into the ocean and raises the acidity of the water. It doesn't lead to the same kind of coral bleaching as rising ocean temperatures, but studies have shown how an acidified ocean can eat away at coral structures.

The new "acoustic enrichment" study doesn't fix all of these problems. It's promising research because bringing fish back to ailing coral reefs is an important piece of the puzzle. Newly arrived fish settle in to stay and clean the reef, which in turn creates space for new corals to grow – an essential part of the recovery process.

Still, recovery won't mean much if the growing impacts of climate change (and other issues plaguing our oceans) aren't curtailed.
"We still need to tackle a host of other threats including climate change, overfishing and water pollution in order to protect these fragile ecosystems," the paper's lead author, Tim Gordon, said. "Whilst attracting more fish won’t save coral reefs on its own, new techniques like this give us more tools in the fight to save these precious and vulnerable ecosystems."