

Uncovering the hidden life of 'dead' coral reefs

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Rubble Biodiversity Samplers (RUBS) deployed in dead rubble habitat on a coral reef in Palau to attract the great diversity of cryptic animals. Credit: University of Queensland

"Dead" coral rubble can support more animals than live coral, according to University of Queensland researchers trialing a high-tech sampling

method.

UQ's Dr. Kenny Wolfe said that reef rubble habitat was often overlooked as desolate, unattractive and 'dead', however reef rubble was very much alive.

"When people think of [coral reefs](#) they often think of larger invertebrates that are easily found, such as [sea cucumbers](#), starfish and giant clams," Dr. Wolfe said.

"But interestingly, dead coral rubble supports more of what we call 'cryptic' [animals](#) than live coral. Cryptic animals are simply hidden creatures, that include tiny crabs, fishes, snails and worms—all of which hide in the nooks and crannies of the reef to avoid predation. And just like on land with [small insects](#) and bugs, biodiversity in the sea can be dominated by these tiny invertebrates."

As these creatures try to remain hidden, finding and surveying them requires particular care and attention.

Dr. Wolfe teamed up with UQ Innovate to design 3-D-printed coral stacks called RUBS (RUBble Biodiversity Samplers), to survey cryptic animals on coral reefs.

The 3-D-printed "coral" mimics the surrounding reef rubble, seamlessly inviting hidden reef organisms to be unknowingly monitored.

"Every piece of coral or rubble is different," Dr. Wolfe said.

"RUBS provide a uniform method to survey the hidden majority on coral reefs. By sampling the RUBS' structures over time, the team were able to identify changes in the cryptic population, adding pieces to the puzzle and filling in the unknowns of coral reef food webs. This data

fills important knowledge gaps, such as how small cryptic animals support coral reefs from the bottom of the food chain, all the way up to bigger predators."

Dr. Wolfe believes that the new technique is another step in better understanding our precious reefs—whether considered "alive" or "dead."

"We're really pulling back the curtain on just how alive these 'degraded' reefs are," he said.

"These are important habitats, which support coral reef biodiversity and important food webs. This new technology is a new opportunity for reef management, particularly for [reef](#) education and awareness. We're excited to learn about and celebrate the diversity of life in this misunderstood habitat."

More information: Kennedy Wolfe et al. RUBble Biodiversity Samplers: 3-D-printed coral models to standardize biodiversity censuses, *Methods in Ecology and Evolution* (2020). [DOI: 10.1111/2041-210X.13462](#)

Provided by University of Queensland

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