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Rehabilitating Singapore's impacted coral reefs

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Singapore's rapid coastal urbanization since the 1960s resulted in a 65% loss of its coral reefs to land reclamation. Increased sedimentation reduced underwater visibility from 10 m in the early 1960s to less than 2 m now. Reef rehabilitation to increase coral cover of degraded reefs and promote colonization of non-reef areas however, is deemed viable based on predictable mass spawning events, recruitment and vigorous growth. Techniques employed should be compatible with the high sediment load and destabilized reef substrate. Fixed horizontal table nurseries were most suitable for sites with sediment-coated substrate as they elevated the fragments above the bottom while the supporting mesh net on which coral fragments were placed reduced sediment accumulation around them. Of the 1,251 fragments from 22 hard coral genera raised in the nurseries over a year, 92% survived. The observation is part of an on-going project aimed at assessing 1) if rehabilitation can effectively assist with degraded reef recovery, 2) whether "new" reefs can be created in non-reef areas, and 3) the survivability of corals in close vicinity to coastal development. Results from the project when completed will help to establish protocols to support management decisions on reef rehabilitation.

Biography

CHOU Loke Ming is Adjunct Research Professor at the Tropical Marine Science Institute, National University of Singapore. He obtained his PhD in Zoology from the University of Singapore in 1976. His research on coral reef ecology and integrated coastal management covers Southeast Asia. His current research focus is reef restoration and he is particularly interested in how corals can be re-established in the highly turbid conditions of rapidly developing coastal areas. He is an Honorary Fellow of the Singapore Institute of Biology and a Fellow of the Singapore National Academy of Science.

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