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Parrotfish are critical to coral reef island building

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Summary: As well as being a beautiful species capable of changing its colour, shape and even gender, new research shows that parrotfish, commonly found on healthy coral reefs, can also play a pivotal role in providing the sands necessary to build and maintain coral reef islands.

FULL STORY

Parrot grind up coral during feeding and, after digesting the edible content, excrete the rest as sand, which can then be used in island building.

Credit: Chris Perry, University of Exeter

As well as being a beautiful species capable of changing its colour, shape and even gender, new research published today shows that parrotfish, commonly found on healthy coral reefs, can also play a pivotal role in providing the sands necessary to build and maintain coral reef islands.

The study, based on work in the Maldives and published in the journal *Geology,* found that parrotfish produced more than 85% of the new sand-grade sediment on the reefs around these reef islands.

Reef islands are unique landforms composed entirely of sediment produced on their surrounding coral reefs. Despite being of vital importance to island development and future maintenance, the sources of the sediment that are most important to island building, and the rates at which this sediment is produced, has remained very poorly examined.

Professor Chris Perry from Geography at the University of Exeter, lead author of the study said: "Previous research has highlighted how important parrotfish are for the general health of coral reefs, specifically because they help to control algal growth and promote coral recruitment. Our study quantifies another fascinating aspect of the species -- the major role they can play in producing the sediment necessary to build and sustain reef islands."

Using survey and sedimentary data, the researchers explored the links between reef ecology and sediment production around the island of Vakkaru in the Maldives.

They identified parrotfish as the major sand producers, generating more than 85% of the new sand-grade sediment produced on the outer reef flat each year. The fish grind up coral during feeding and, after digesting the edible content, excrete the rest as sand, a proportion of which can then be transported to adjacent island shorelines.

Professor Perry added: "Coral reef islands are considered to be among the most vulnerable landforms to climate change and especially to future sea-level rise. This study demonstrates the critical links that exist between the ecology of the reefs that surround these islands and the processes of sand supply. We provide evidence that protecting parrotfish populations, and the habitats on which they depend, is likely to be vital to ensuring a continued supply of the sediment from which these Maldivian reef islands are built."

Story Source:

The above post is reprinted from materials provided by **University of Exeter**. *Note: Materials may be edited for content and length.*

Journal Reference:

1. C. T. Perry, P. S. Kench, M. J. O'Leary, K. M. Morgan, F. Januchowski-Hartley. **Linking reef ecology to island building: Parrotfish identified as major producers of island-building sediment in the Maldives**. *Geology*, 2015; DOI: 10.1130/G36623.1
