

Rules proposed to save the world's coral reefs

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An international team of scientists has proposed a set of basic rules to help save the world's imperiled coral reefs from ultimate destruction.

Their proposal is being unveiled at the World Ocean Conference 2009 in Manado, Indonesia, where leaders of six regional governments plus Australia and the United States are meeting to declare the largest-ever marine reserve in world history, the Coral Triangle Initiative.

"The catastrophic decline in the world's coral reefs demands urgent management responses on two fronts," say the researchers from the Australian Research Council's Centre of Excellence for Coral Reef Studies (CoECRS), The Australian Museum, Woods Hole Oceanographic Institution, James Cook, Perpignan and the United Nations Universities and The Nature Conservancy.

These are the "...reduction of immediate direct threats such as climate change, over-fishing and water pollution, and actions to protect or enhance the resilience of [reef ecosystems](#) in the face of existing and unavoidable future threats," they say.

The key to saving threatened coral ecosystems is to maintain the links (connectivity) between reefs allowing larvae to flow between them and re-stock depleted areas, the team led by Pew Fellow Dr Laurence McCook of Australia's Great Barrier Reef Marine Park Authority (GBRMPA) argues.

"Ecological connectivity is critically important to the resilience of coral

reefs and other ecosystems to which they are linked," says Dr McCook. "The ability of reefs to recover after disturbances or resist new stresses depends critically on the supply of larvae available to reseed populations of key organisms, such as fish and corals. For reefs to survive and prosper they must in turn be linked with other healthy reefs."

The researchers propose six 'rules of thumb' for keeping coral ecosystems viable, based on the results of research carried out in the Bohol Sea in the Philippines, the Great Barrier Reef in Australia, and Kimbe Bay in [Papua New Guinea](#).

These rules are:

1. allow margins of error in extent and nature of protection, as insurance against unforeseen threats;
2. spread risks among areas;
3. aim to create networks of protected areas which (a) protect all the main types of reef creatures, processes and connections, known and unknown; (b) achieve sufficient protection for each type of reef habitat type, and for the whole region; (c) achieve maximum protection for all reef processes (d) contain several examples of particular reef types to spread the risk;
4. protect whole reefs where possible; place buffer zones around core areas.
5. allow for reef species to spread over a range of distances, especially 20◆ km; and
6. use a range of conservation approaches, including marine

protected areas.

The rules are designed to operate in a range of situations, including where detailed scientific knowledge of local coral reefs and their species is sparse, the team says in a review article in the journal *Coral Reefs*.

Protecting reef connectivity and allowing reef species to freely recharge depleted areas is vital to ensuring that coral reefs remain resilient in the face of mounting human and climatic pressures. To ignore the protection of connectivity until sufficient scientific data was available on all reefs would mean allowing reefs to continue to degrade for many decades to come.

"The risks of inadequate management arising from ignoring connectivity are greater than those associated with any scientific uncertainty," the researchers say.

Their review paper "Management under uncertainty: guide-lines for incorporating connectivity into the protection of coral reefs" appears in the latest issue of the journal [Coral Reefs](#). Its authors are L. J. McCook, G. R. Almany, M. L. Berumen, J. C. Day, A. L. Green, G. P. Jones, J. M. Leis, S. Planes, G. R. Russ, P. F. Sale and S. R. Thorrold. The work was funded jointly by the World Bank Coral Reef Targeted Research program and the ARC Centre of Excellence for Coral Reef Studies.

"The Coral Triangle Initiative is one of the most important marine conservation measures ever undertaken anywhere in the world and the first to span several countries. It involves the six nations of Indonesia, the Philippines, Malaysia, Papua New Guinea, East Timor and the Solomon islands, and is as much about nation building and food security as it is about reef conservation" says Professor Terry Hughes, Director of the CoECCRS, attending the Coral Triangle meeting today in Manado.

The 'rules of thumb' proposed in the research paper were an example of the sort of science being carried out across the region which will assist the Coral Triangle Initiative to achieve its goals, he said.

More information:

www.coralcoe.org.au/

www.woc2009.org/

Source: ARC Centre of Excellence in Coral Reef Studies

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