

The Proposed Coral Reef Marine Protected Area Network in Taiwan

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Background

Coral reefs are found in all the waters around Taiwan except in the sandy area on the west coast (Fig. 1). The main reef area is around the southern tip of the island, the Hengchun Peninsula where well-developed fringing reefs are found. The northern, northeastern and eastern rocky coasts have flourishing or patchy coral communities with scattered reef development. These coral communities are dominated by scleractinians. Coral reefs are also found on the shallow waters surrounding offshore islands including Lutao (Green Island), Lanyu (Orchid Island), Hsiaoliuchiu and Penghu Islands (the Pescadores). The coral reefs at Lutao and Lanyu, located off southeastern Taiwan, are densely covered by abundant scleractinians and alcyonaceans. Hsiao-Liuchiu, to the southwestern off Taiwan, is an uplifted reef island dominated by scleractinians. Coral communities are widely distributed in the shallow subtidal areas of islands of Penghu Islands in the Taiwan Strait. Dongsha (Pratas) Island and Taiping (Itu Aba) Island in the South China Sea are coral reef islands with rich scleractinians and alcyonaceans.

Current status

Coral reefs at 28-32 sites in 8 regions were surveyed using Reef Check protocols from 1997 to 2005. Overall, the percentage of hard coral cover in different regions showed a wide range of variation (Fig. 2). The highest coral cover was found at Lutao (Green Island, 62.5%) and the lowest at Hsiaoliuchiu (14.6%). Coral cover at reef sites on northeastern coast and Yilan County was approximately 20% indicating the marginal environment for coral growth. In southern Taiwan, coral cover was about 34%. The results also indicate a general trend of declining in coral cover on Taiwanese coral reefs.

The abundance of fish indicators remained very low at most sites from 1997 to 2005. The low densities of grouper, sweetlips and snappers indicate that most reef sites have been heavily influenced by overfishing. Most reefs also suffered from intensive aquarium fish collections.

Besides overfishing, coral reefs in Taiwan are under the stress of sedimentation, coastal fishing (Fig. 3).



Fig. 1 Distribution of coral reefs in Taiwan.

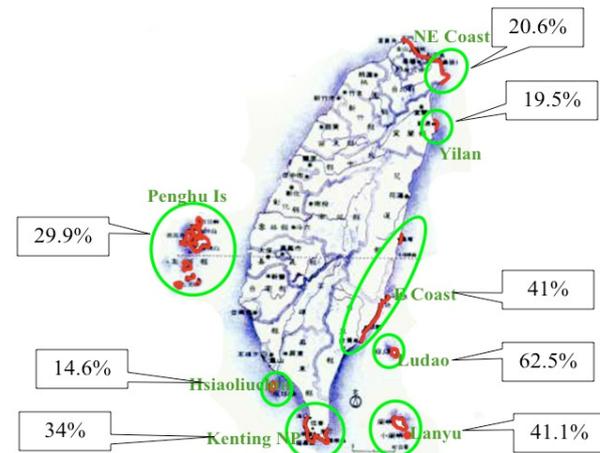


Fig. 2 Living coral cover in different reef areas based on Reef Check data from 1997 to 2005.

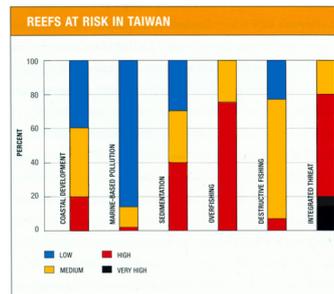


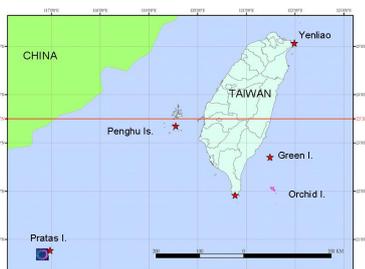
Fig. 3 Threats to the reefs in Taiwan.

Lessons learnt

1. Coral reefs are important natural resources for the sustainable development of Taiwan and the reefs are degrading.
2. Although most of the reef areas are managed by administrations of national parks or national scenic areas, the management is not effective due to the lack of adequate laws to protect the reefs and the enforcement of existing laws is lax.
3. The revisions of laws and zoning plan of protected areas are needed.
4. The necessity to establish a network of marine protected areas.

Future plans

1. The revision of zoning plan to include no-access zone, no impact zone, no-take zone, and general control zone.
2. Law enforcement and more involvement of local communities.
3. The establishment of MPA network in Taiwan (Fig. 4).
4. The establishment of ICON (Integrated Coral Observing Network) to modulate the impacts of climate change on coral reefs in Taiwan (Fig. 5).
5. Restoration of damaged coral reefs.



* Asterisks indicate the proposed ICON sites

Fig. 5 The proposed ICON sites in Taiwan.

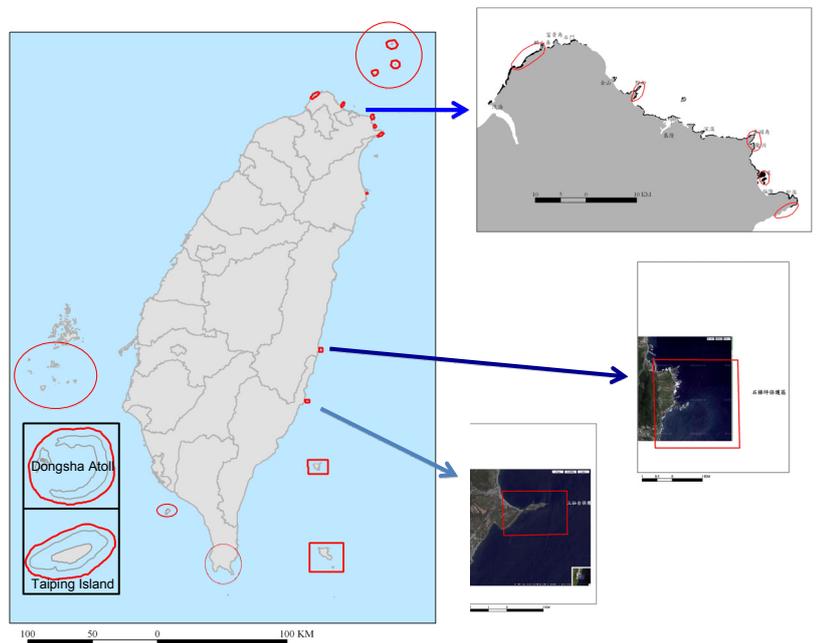


Fig. 4 The proposed MPA network in Taiwan (indicated by red lines)