Zoological Studies

An Unexpectedly High *Acropora* Species Diversity at the Inlet of a Nuclear Power Plant within Kenting National Park, Southern Taiwan

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The Third Nuclear Power Plant (TNPP), situated in the southeastern part of Kenting National Park (KNP), southern Taiwan (21°57'20.48"N, 12°45'13.34"E), began commercial operation in 1984. The warm outflow seawater from the cooling system caused coral bleaching in 1987 with several subsequent episodes (reviewed in Dai 1997). Decreasing coverage of certain coral groups, such as *Acropora*, was observed at the outlet reefs as well as other monitoring sites based on long-term ecological research (LTER) in KNP (Chen and Dai 2004, Meng et al. 2004).

In contrast, the coral community which has developed at the breakwaters of the inlet of the TNPP is fully protected from both anthropogenic and natural stresses (Fig. 1a). About 0.01 km^2 of scleractinian coral beds, mainly *Acropora* patches with large stands of mixed branching species (*A. muricata*, *A. intermedia*, *A. puchlra*, and *A. valenciennesi*) and tablet species (*A. cytherea*, *A. hyacinthus*, *A. microclados*, and *A. clathrata*), has developed at 1-6 m in depth along the 2 wings of the inlet (Figs. 1b, c). Overall, 25 acroporids representing over 56% of the *Acropora* species diversity in Taiwan (Wallace and Dai 1997, Dai and Horng 2009) were recorded, with several species (e.g., *A. aspera*, *A. pulchra*, and *A. horrida*) now rarely seen outside the inlet area. Fishing and tourist activities are forbidden in the inlet area, thus preventing destructive practices at *Acropora* patches and providing a home to attract reef fishes (Figs. 1b, c). Although the warm outflow water of the TNPP often caused localized coral bleaching near its outlet, the high *Acropora* species diversity found in the inlet exemplifies the potential of this area as a refuge for depleted coral reefs (Wen et al. 2007). http://zoolstud.sinica.edu.tw/Journals/49.1/71.pdf

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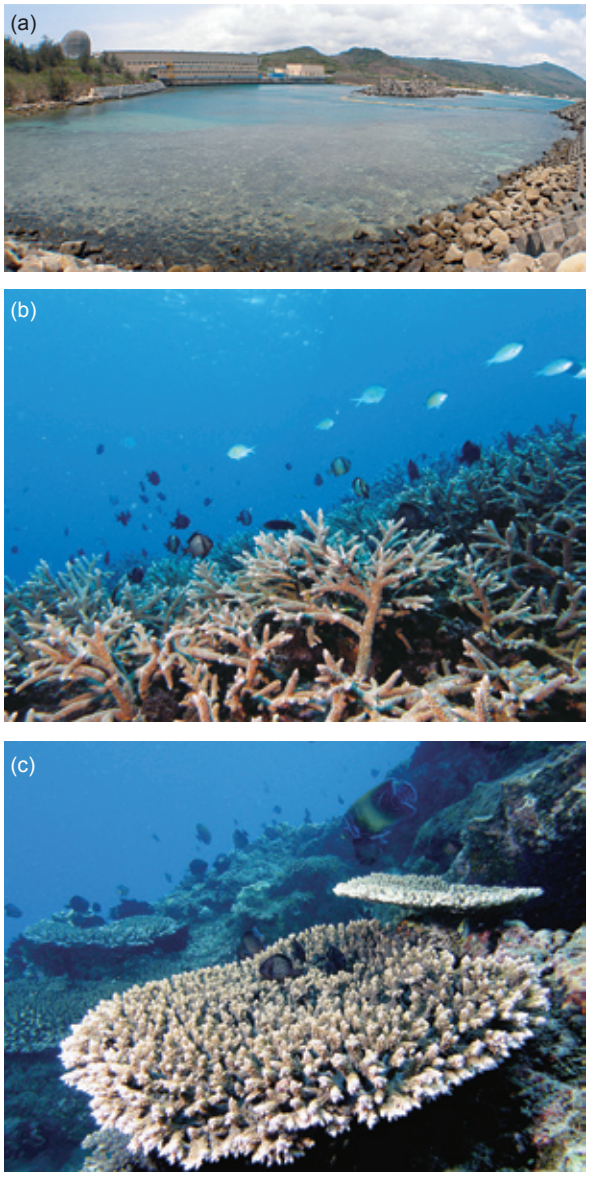

Fig. 1. Inlet to the Third Nuclear Power Plant. (a) Bird's eye view of the inlet, where breakwaters are piled up along the 2 wings; (b) dense coverage of a branching *Acropora* species (*A. muricata*); and (c) stacked layers of tablet *Acropora* species (*A. valida* and *A. cytherea*).

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