

## Domination and Disappearance of the Black Sponge: A Quarter Century after the Initial *Terpios* Outbreak in Southern Japan

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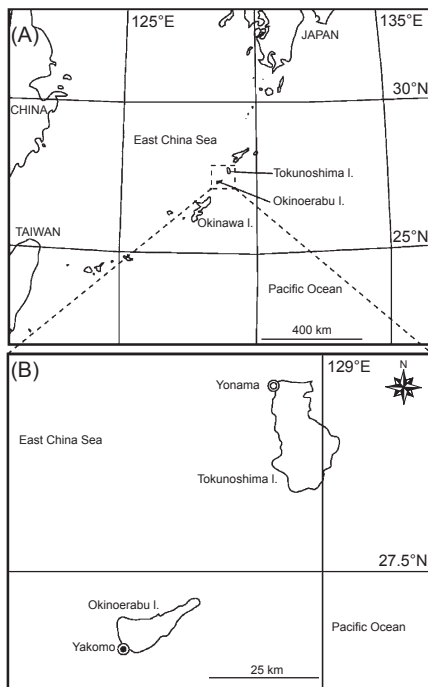
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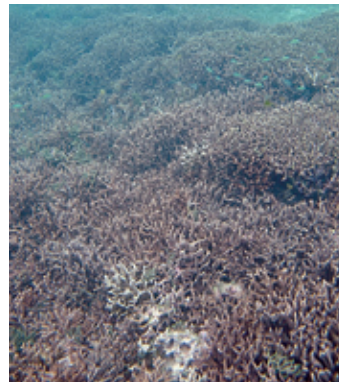
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The encrusting cyanobacteriosponge *Terpios hoshinota*, reported from western-Pacific coral reefs, competes for space by encrusting reef substrata including live corals, and has been expanding its range in the northwestern Pacific Ocean (Liao et al. 2007). This species occasionally undergoes massive outbreaks which can cause considerable damage to reefs (Bryan 1973, Rützler and Muzik 1993). In Japan, the 1st outbreak was reported in 1986 at Yonama, Tokunoshima I. (Fig. 1), with up to 87.9% cover, killing most corals in the area (Marine Park Center Foundation 1986). Since then; however, very little research has been conducted on *T. hoshinota*, and the nature and causes of the outbreaks remain unknown. In early spring 2010, Tokunoshima I. and neighboring Okinoerabu I. were investigated to determine the

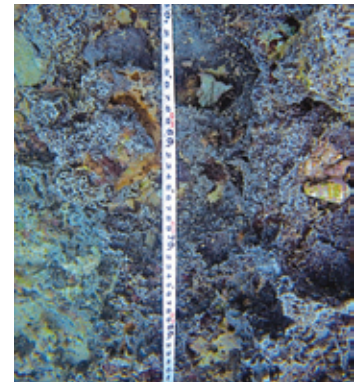
current status of *T. hoshinota*. Surprisingly, no *T. hoshinota* patches were present at Yonama, and much of the site was covered in dense *Acropora* colonies (Fig. 2). Furthermore, while there was little or no *T. hoshinota* present at most other examined sites on both islands, a new massive outbreak was confirmed at Yakomo, Okinoerabu I. (Fig. 1), with total cover often exceeding 50% according to transect data (Figs. 3, 4). These preliminary results suggest that *T. hoshinota* outbreaks, although very destructive, may be sporadic in nature, and not always an irreversible “climax” for affected reefs. However, the continued presence of *T. hoshinota* almost 25 yr after its initial outbreak indicates that this species is able to persist once it enters a reef. <http://zoolstud.sinica.edu.tw/Journals/50.3/394.pdf>



**Fig. 1.** Map showing locations investigated in this study. (A) Location of Tokunoshima and Okinoerabu in the western Pacific Ocean. (B) Locations of the past outbreak (Yonama) and current outbreak (Yakomo) of *Terpios hoshinota*.



**Fig. 2.** Dense *Acropora* colonies with no *Terpios hoshinota* at Yonama.



**Fig. 3.** Example of high coverage of *Terpios hoshinota* in a transect at Yakomo.



**Fig. 4.** *Terpios hoshinota* overgrowing live coral at Yakomo.

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