

Reef sites

A sea cucumber outbreak on a degraded coral reef in Sanya, China

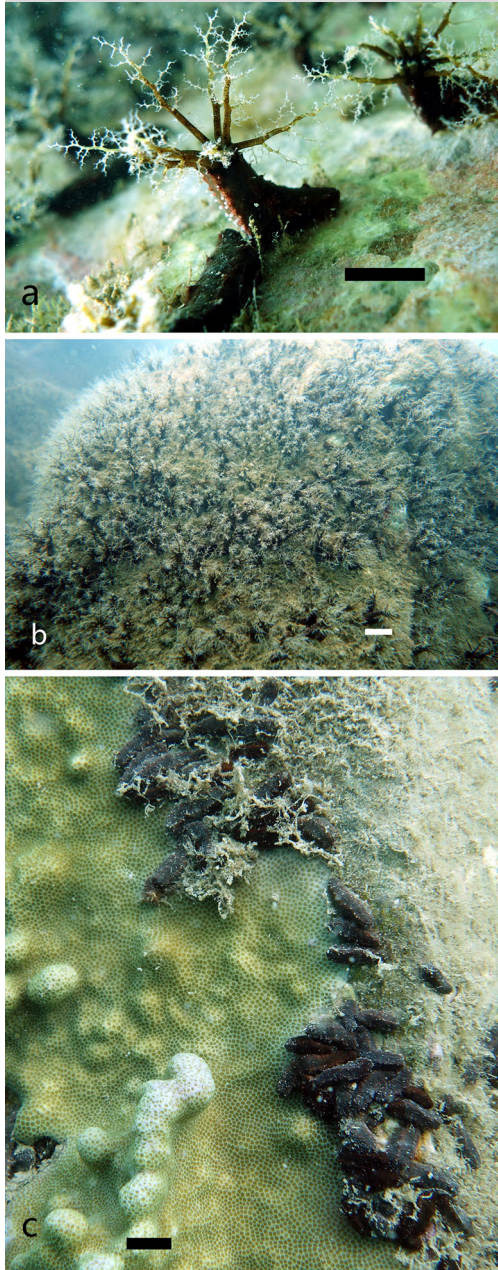


Fig. 1 Mass occurrence of sea cucumber, *Ocnus sanya*, community on degraded Luhuitou Coral Reef. **a** *O. sanya* on a rock surface with spread tentacles filtering organic particles in the seawater. Scale bar 1 cm. **b** Example of the density of *O. sanya* occupying reef rock surface. Scale bar 2 cm. **c** *O. sanya* at the edge of a *Porites lutea*. Scale bar 1 cm. Video is available on http://v.youku.com/v_show/id_XNzAwNjkxNDMy.html

The sudden mass occurrence of a new species of sea cucumber (Holothuroidea), *Ocnus sanya* (You et al. 2013), was found on Luhuitou Reef off the coast of Sanya, China. *Ocnus sanya* ranges in size from 0.5 to 4 cm and is sessile on solid substratum like rocks or coral rubble. Tube feet make it mobile enough to escape from unprotected sites so that few individuals are found living on the sand or mud around the reef. Its tentacles catch organic material in seawater, which it uses as a food source (Fig. 1a). The sea cucumber was first seen on the reef in 2008, but in low density. By April 2014, the abundance of *O. sanya* increased to more than 1,000 individuals/m² on the seabed and occupied half of the hard substratum area of the reef itself (Fig. 1b). Most of the *O. sanya* are distributed at a depth of 1–6 m on the reef with the highest density at 4 m depth. Sedimentation rates on the reef were previously described as high by Li et al. (2013). The population increase of *O. sanya* may result from the enriched organic particles in the sediment and seawater, which increase the food source for the sea cucumbers.

The outbreak of *O. sanya* may become a new threat to the living corals on the reef. While there is no bleaching, mucus, or dead tissue on corals touched by *O. sanya*, the sea cucumbers appear to compete for coral colony space (Fig. 1c). Coral larvae settlement will likely decrease where *O. sanya* occupies the substratum that would otherwise be available for coral recruits. Whether *O. sanya* kill corals directly for food or compete with corals for space is unknown. The impact of *O. sanya* on this coral reef ecosystem requires future study.

References

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