Massive coral tissue ablations in reefs of Pacific Costa Rica

Christian WILD¹,²,*, Tim RIXEN¹, Celeste SANCHEZ-NOGUERA¹,², Ines STUHLREIER¹, Carlos JIMENEZ³, and Agostino MERICO¹

¹ Leibniz Center for Tropical Marine Ecology, Fahrenheitstr. 6, 28359 Bremen, Germany
² University of Bremen, Faculty for Biology and Chemistry, Bremen, Germany
³ Centro de Investigación en Ciencias del Mar y Limnología (CIMAR), Universidad de Costa Rica, 11501–2060 San José, Costa Rica

* Corresponding author: Christian Wild
E-mail: christian.wild@zmt-bremen.de

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In January 2012, we observed massive tissue ablations of many scleractinian coral colonies of the genus *Pocillopora* (*P. elegans* and *P. damicornis*) in between 3 and 7 m water depth at location Matapalo Reef (10.538391 N, 85.765930 W) at the Northern Pacific coast of Costa Rica (Fig. 1). This was the most drastic direct coral dying event the first author of this study has ever observed in more than 1,500 dives in coral reefs around the world during the last decade. More than 50% of all observed *Pocillopora* coral colonies (n = 48) were affected, and no coral bleaching as intermediate response was visible. There were few other hard coral colonies of the genera *Porites*, *Diploria*, and *Pavona* present, but none of these massive corals exhibited the tissue ablations that were observed for *Pocillopora*. Reason for this event was not evident, because none of simultaneous measurements of water quality (pH = 8.2, water temperature = 27°C, salinity = 33, O₂ concentrations close to saturation) showed atypical values.

Despite the detachment of tissue fragments from coral skeleton has been noted in the field and in the laboratory in response to environmental stress (Sammarco 1982; Richmond 1985), and although soft tissue detachment from the skeleton of colonial scleractinian corals has been observed both in vivo and in vitro (Domart-Coulon et al. 2005), such massive coral tissue detachment and ablation at the scale observed here has never been reported for Eastern Tropical Pacific reefs in the literature before. However, this phenomenon may potentially be related to infection by pathogenic bacteria of the genus *Vibrio* as described by Ben-Haim et al. (2003) and Luna et al. (2007).
References


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