

Marine benthic cyanobacteria overgrow coral reef organisms

Received: 14 September 2005

Accepted: 26 September 2005

Published online: 10 November 2005

© Springer-Verlag 2005

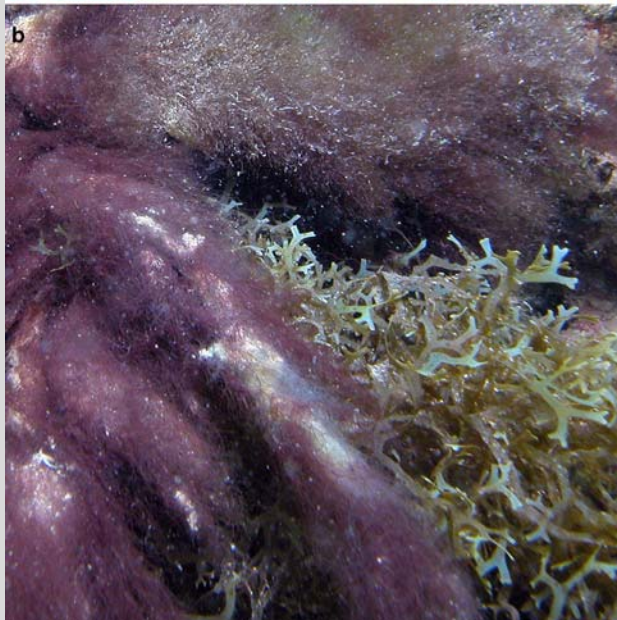


Fig. 1a *Lyngbya confervoides* overgrowing *Montastrea cavernosa* in the Florida Keys, USA. **b** *Lyngbya* sp. overgrowing brown algae (*Dictyota* sp.) in Bocas Del Toro, Panama

Some marine cyanobacteria have a positive role for corals as nitrogen fixing symbionts (Lesser et al. 2004). Cyanobacteria can also have negative effects on corals through disease (e.g. black band disease, Rützler and Santavy 1983) and settlement inhibitors for coral larvae (Kuffner and Paul 2004). Some researchers including Hallock (2005) have noted that “cyanobacteria are becoming increasingly prominent on declining reefs...”. Even so, there is little experimental evidence for the ecological consequences of overgrowth by often-persistent cyanobacterial blooms on the benthic community. During recent research (2004–2005) on different Caribbean coral reefs (including Bahamas, Belize, Florida, Panama, and St John, US V.I.) we have noted a frequent occurrence of benthic cyanobacteria overgrowing a variety of reef organisms (Fig. 1). It is often difficult to determine if cyanobacteria are overgrowing dead organisms or actively killing the live ones that they overgrow, illustrating our lack of knowledge of the impact of cyanobacteria on coral reef organisms.

Acknowledgements Thanks to the Smithsonian Marine Science Network and a Canon National Parks Science Scholars Program grant to Rikki Grober-Dunsmore for making our travel possible. This is contribution # 623 of the Smithsonian Marine Station at Fort Pierce.

References

- Hallock P (2005) Global change and modern coral reefs: New opportunities to understand shallow-water carbonate depositional processes. *Sediment Geol* 175:19–33
- Kuffner IB, Paul VJ (2004) Effects of the benthic cyanobacterium *Lyngbya majuscula* on larval recruitment of the reef corals *Acropora surculosa* and *Pocillopora damicornis*. *Coral Reefs* 23:455–458
- Lesser MP, Mazel CH, Gorbunov MY, Falkowski PG (2004) Discovery of symbiotic nitrogen-fixing cyanobacteria in corals. *Science* 305:997–1000
- Rützler K, Santavy D (1983) The black band disease of Atlantic reef corals. I. Description of a cyanophyte pathogen. *PSZNI Mar Ecol* 4:301–319

R. Ritson-Williams (✉) · V. J. Paul
Smithsonian Marine Station at Fort Pierce,
701 Seaway Dr, Fort Pierce, FL 34949, USA
E-mail: williams@sms.si.edu

V. Bonito
Votua Village, PO Box 136, Korolevu, Fiji Islands,
South Pacific