Is Saba Bank becoming a 'sponge reef'?

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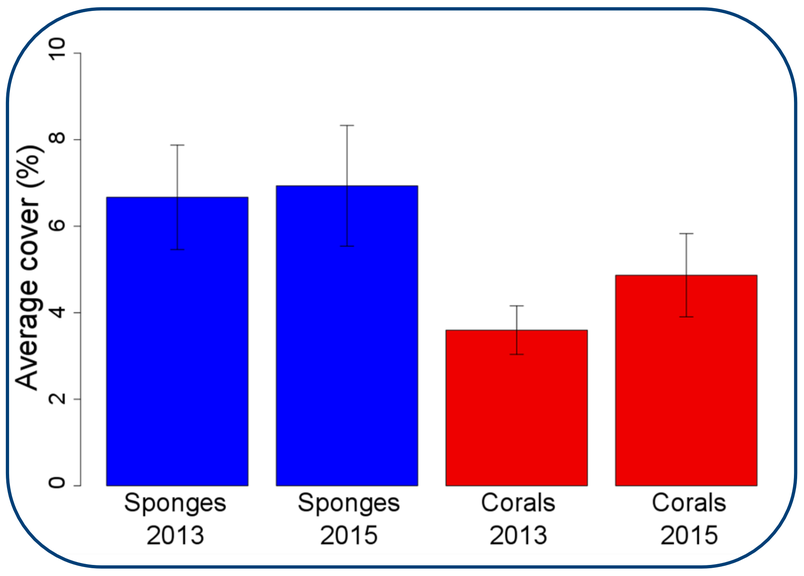


Fig. 1. Average sponge and coral cover on Saba Bank in 2013 and 2015. Percentages of total benthic cover. Error bars ± SE. No significant difference among years.

Saba Bank Nature Park

- Largest marine protected area in the Dutch Caribbean (2400 km2)
- CBD EBSA "Ecologically or Biologically Significant marine Area"
- Removed from large landmasses
- Allows study of general processes on Caribbean coral reefs without anthropogenic stressors from land

Objectives

- Assess sponge and coral cover
- Quantify the diversity and health of the sponge assemblages on Saba Bank

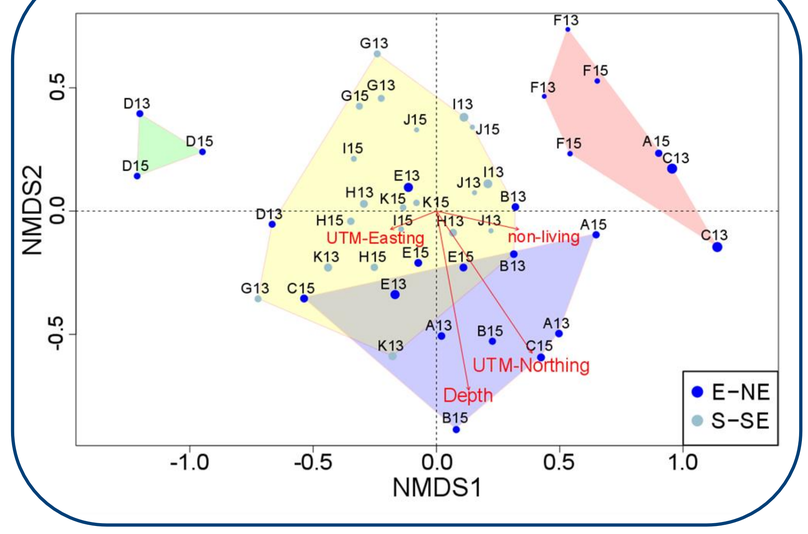


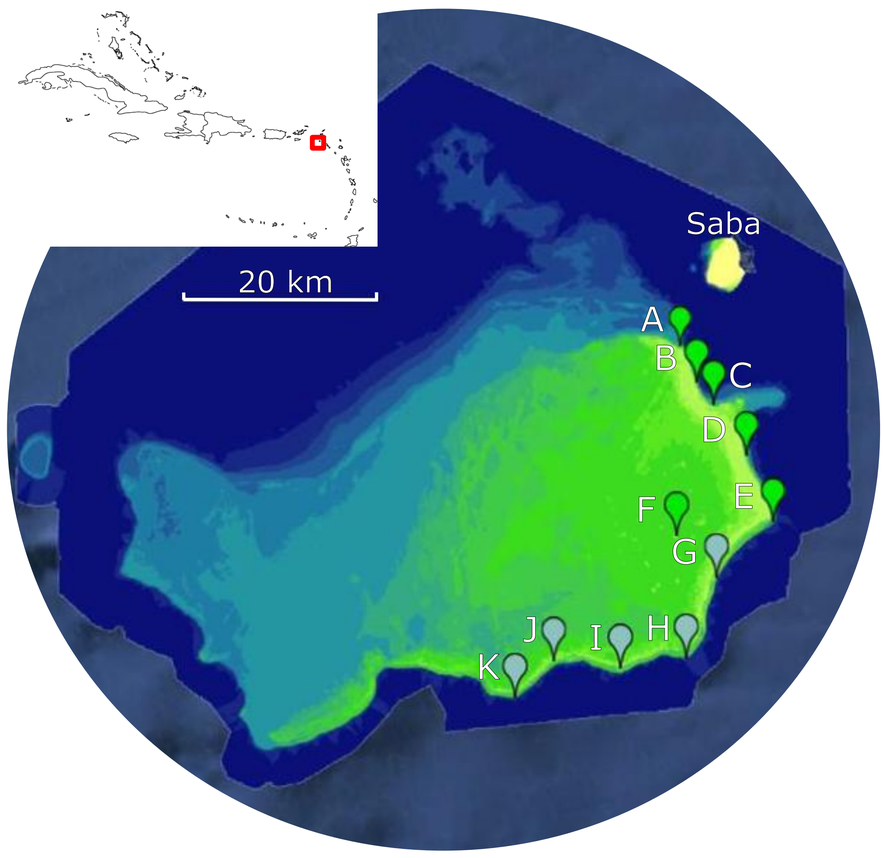
Fig. 2. Multivariate analysis (nMDS) of the sponge communities on the Saba Bank in 2013 and 2015. A division of sites in the Eastern/North-Eastern part (**blue**) and Southern/South-Eastern part (**light blue**) of the bank is made. Size of the dots is based on waterdepth. Four clusters are formed using hierarchical cluster analysis (in green, red, yellow and blue)

No increase in sponge cover

Benthic cover of 11 sites on Saba Bank was analyzed based on 10 random photos of 1 m² on two transects from each site using Coral Point Count-e.

No differences in coral and sponge cover were found between 2013 and 2015 (Fig.1).

Sponge cover is generally higher than coral cover, but still rather low and it is not increasing on Saba Bank:
No indication of sponge reef



Connectivity along Saba Bank

Depth and Northing had a significant effect on the variation in composition of sponge assemblages (Fig. 2).

The Bray-Curtis values range from 1 to 0.211. A significant difference was found between East and South using adonis (analysis of variance using distance matrices) (R^2=0.0678, p=0.003).

Fig. 4. *Xestospongia muta* with marks of bleaching

New species records

50 new records of sponges species for Saba Bank (29 of these new sponge species were sampled)

Total number of sponges based on current and previous expeditions: **131**

Xestospongia bleaching & increase excavating sponges

High prevalence of bleaching of *Xestospongia muta* (Fig. 4)*:*

- 45% (n=44) in 2013
- 70% (n=50) in 2015

Increase excavating sponges *Cliona* spp. (Fig. 5): 32.10% (from 80 plots to 134 plots with *Cliona* spp. present)

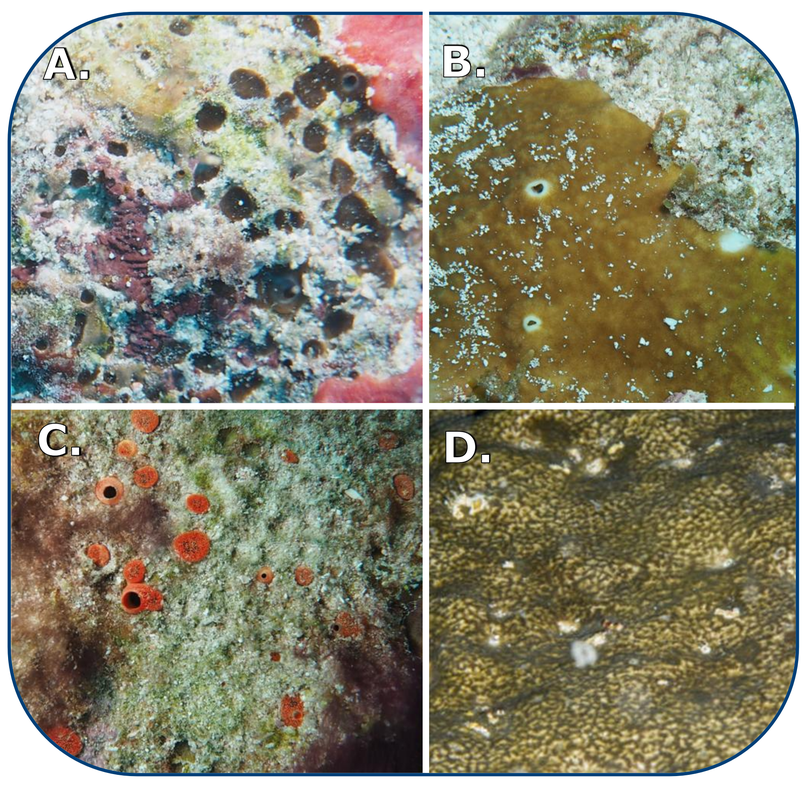


Fig. 5. *Cliona spp.* on Saba Bank. A. *C. aprica* **B.** *C. varians* **C.** *C. delitrix* **D.** *Cliona sp.* (possibly *C. tenuis*)

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https://www.wur.nl/en/project/Saba-Bank-research-programme-2011-2016.htm