Structure of the Benthic Community of Rasa Island, Rio de Janeiro, Brazil

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Introduction

The study of community structure provides information to improve the management of the exploitation and conservation of the natural resources and recovery of degraded environments. To know the structure of a community, two main parameters are the number of species and abundance of these species, which together describe the diversity of the ecosystem. The benthic community structure of consolidated substrate of the coastal zone of southeastern Brazil is little known.

The objective of this research was to identify and quantify the benthic species found on the Island Rasa, Rio de Janeiro, to describe the structure of the sponge community.

Materials and Methods

The morphotypes found belong to the groups Algae (Chlorophyta, Ochrophyta and Rhodophyta), Porifera (Calcareae and Demospongiaceae), Cnidaria (Hydrozoa and Anthozoa), Mollusca (Gastropoda, Amnella) (Serpulidae), Annelida (Serpulidae), Bryozoa (Gymnozoon), Echinoderma (Echinoidea) and Chordata (Ascidiacea). The results demonstrate that community of Rasa Island has moderate diversity and evenness (Table 1).

Results

A total of 101 morphotypes were observed within the quadrate which six species represented 50.1% of the total cover: Tedania ignis, Corallinaceae 1, Diplapora sp. 4, Serpulidae, Didemnum sp. 5, Lobophora variegata (Figure 3).

Discussion

Rasa Island has been affected by sewage effluent from Ilha eutrificia and eutrophic water of the Guanabara Bay. The diversity and evenness indexes reflect this and Muricy (1991) consider a similar environment as moderately polluted. Silva (2010) analyzed the community structure of Cagaras, Comprida e Redonda Islands that are close to the Rasa Island, but she found a lower diversity. It can be due to these island are closer to the sources of pollution or to method, which they used random points (CPCE) while we used the whole area (Image 1).

Acknowledgements

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References


Table 1. Range of the structural parameters per 500x500 cm2 quadrat with values of median, mean, maximum and standard deviation.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>min</th>
<th>mean ± sd</th>
<th>max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Richness</td>
<td>19</td>
<td>33.56</td>
<td>106</td>
</tr>
<tr>
<td>Diversity</td>
<td>2.8</td>
<td>3.64 ± 0.4</td>
<td>4.6</td>
</tr>
<tr>
<td>Evenness</td>
<td>0.7</td>
<td>0.74 ± 0.8</td>
<td>0.1</td>
</tr>
</tbody>
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