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Polychaetes from Santa Catarina State (southern Brazil): checklist and remarks on species distribution

PAULO ROBERTO PAGLIOSA[1,6], JOÃO GABRIEL DORIA[1], GIORGIA FREITAS ALVES[1], TITO CESAR MARQUES DE ALMEIDA[2], LUCIANO LORENZI[3], SERGIO ANTONIO NETTO[4] & PAULO DA CUNHA LANA[5]

[1]*Universidade Federal de Santa Catarina, CFH, Departamento de Geociências, 88040-970, Florianópolis, SC, Brazil.*
[2]*Universidade do Vale do Itajaí, Laboratório de Ecologia de Comunidades Aquáticas, 88302-202 Itajaí, SC, Brazil.*
E-mail: tito@univali.br
[3]*Universidade da Região de Joinville, Laboratório de Bentologia, 89240-000 São Francisco do Sul, SC, Brazil.*
E-mail: llorenzi@ps5.com.br
[4]*Universidade do Sul de Santa Catarina, Laboratório de Ciências Marinhas, 8874-900 Tubarão SC, Brazil. E-mail: sergio.netto@unisul.br*
[5]*Universidade Federal do Paraná, Centro de Estudos do Mar, 83255-976 Pontal do Sul, PR, Brazil. E-mail: lana@ufpr.br*
[6]*Corresponding author: E-mail: paulo.pagliosa@ufsc.br*

Abstract

This study summarizes taxonomic information on polychaetes from Santa Catarina State, southern Brazil, between 25º57'S and 29º23'S, and provides species distribution records together with information on habitats, based on historical data and novel records from primary surveys. Rarefaction curves showed that most species were found in the shallow sublittoral (to 60 m) rather than in deep sublittoral (>60 m) or estuarine habitats. Altogether, 228 valid species belonging to 141 genera and 44 families were recorded. This inventory adds 141 new records to previous regional reports. We found a shift in occurrence of species when comparing data from the study area with data from both southward (29–33º S) and northward (23–26º S) sites. Few species were shared between consecutive sites: this could be a response to the regional behaviour of the atmosphere and water masses, with a progressive increase in the influence of subantarctic waters and a decrease in the influence of subtropical waters.

Key words: species list, biodiversity, South Atlantic, geographic distribution, Annelida

Introduction

Santa Catarina State, in southern Brazil, has a coastline of 564 km (or 1,874 km if bays and islands are included) and comprises a variety of marine habitats, such as mangrove, salt marsh, seagrass, sandy beaches, reefs, lagoons, bays, channels, inlets, and islands. This area is regarded as the southern distribution limit of many tropical and subtropical marine species, including molluscs (Ruhland & Saalfeld 1987), sponges (Moraes 1987), rhodoliths (Horta *et al*. 2008), diatoms (Corte Real & Aguiar 1971) and mangrove trees (Schaeffer-Novelli *et al*. 2000). This transitional characteristic is partly determined by the shift between subantarctic and subtropical shelf waters (Möller Jr *et al*. 2008), as the Subtropical Convergence reaches its southern limit at Santa Catarina (Campos *et al*. 1996). Seasonal dynamics depend on the variation in intensity and frequency of oceanographic fronts acting on meso- and small-scales (Piola *et al*. 2008). These particulars of the water masses may act as filters or ecological barriers to marine biodiversity and species distribution limits. Nevertheless, how polychaete species respond to such conditions is as yet unknown.

Fritz Müller, who lived on Santa Catarina Island (formerly Desterro) during the second half of the 19th century, was the first naturalist to study polychaetes in Brazil. He described 13 new polychaete species (Müller 1858). After more than 150 years, all species described by Müller remain valid (Read & Fauchald 2011). Unfortunately, his pioneering study was discontinued and, until recently, most of the current information on the regional polychaete

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