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A literature review of the Polychaeta of the Caribbean Sea

HARLAN K. DEAN

Department of Invertebrate Zoology, Museum of Comparative Zoology, Harvard University, 26 Oxford Street, Cambridge, Massachusetts 02138 USA. E-mail: harlan.dean@umb.edu

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Abstract

A list of all known polychaete species reported in the primary literature is presented for the Caribbean Sea. The most species-rich polychaete faunas are those of Cuba in the North Caribbean ecoregion and Trinidad-Tobago and Colombia in the South Caribbean ecoregion while the ecoregion with the greatest number of species is the Greater Antilles. While part of the explanation for these higher diversity areas may be due to collection effort, these areas may also be higher in species number as a result of being ecotones between the Gulf of Mexico in the north and the northern South American region to the south. The most species-rich families are the Syllidae, Eunicidae, Nereididae, Polynoidae, Sabellidae, Serpulidae, Terebellidae, and Spionidae. A brief discussion of the history of polychaete research identified many of the more important workers in the characterization of the polychaete fauna of the region. An analysis of the species-record accumulation curve for polychaetes indicated that this fauna has not yet been fully characterized. One portion of the polychaete fauna identified as being especially poorly known is that from the deep-water areas of the Caribbean.

Key words: biogeography, species richness, taxonomy

Introduction

The Caribbean Sea is a large marine region that has been identified as one of five worldwide marine biodiversity "hotspots" with many of its species considered to be endemic to the region (Roberts *et al.* 2002). Based upon the results of the Census of Marine Life of the Caribbean Miloslavich *et al.* (2010) reported 12,046 known marine species in the region with about 60% of these species being fishes, crustaceans, and molluscs. The identification of this region as an area of high marine biodiversity is based mainly upon these three taxa as they are the most extensively collected and best known taxonomic groups. Other taxonomic groups known to contribute greatly to the diversity of marine ecosystems, such as the polychaetes, are considered less well known.

Costello *et al.* (2010) reported that the annelids (mainly polychaetes) made up only about 5% of the known marine species in the Caribbean based on the Census of Marine Life data. These authors developed a state-of-knowledge index derived from the number of identification guides, the number of these less than 20 years old, and the number of taxonomic experts in the region for each taxon. Based on this index, these authors characterized the taxonomy of the polychaetes of the Caribbean as being only poorly known. Perhaps indicative of our lack of knowledge of the polychaete fauna of the region is that, in their review of the marine biodiversity of Hispaniola, Geraldes & Vege (2005) listed no known reports of annelids from the island. Blake (1997), however, has pointed out that usually 45–50% of the species in benthic communities at shelf and slope depths are polychaetes and they may comprise up to 80% of the individuals in these communities. It is obvious that the polychaete fauna of the Caribbean Sea would be expected to be much more species rich than our current level of knowledge indicates.

While our lack of knowledge of the polychaetes of the Caribbean is most likely a product of a lack of sample effort and taxonomic expertise it is also apparent that much of what is known of the polychaetes of the region has not been widely disseminated. Miloslavich *et al.* (2010) listed only 658 known species of annelids in the Caribbean and Gobin's inventory of known polychaetes for the Caribbean (in Miloslavich *et al.* 2010) listed only 546 named species. Based on the literature cited in these works it is obvious that many records of Caribbean polychaetes have been either unknown or unavailable to workers. To this end, the present work is a review of what is known of the polychaete fauna of the Caribbean Sea based upon the primary literature. It is hoped that this literature review will be of help in the analysis of the marine biodiversity of this region and will provide a useful tool for future taxonomic studies of this ecologically important taxon.