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Short Communication

An updated checklist of polychaetes (Animalia, Annelida, Polychaeta) from Odisha and West Bengal coasts

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The present checklist of polychaetes from the Odisha and West Bengal coasts was reviewed based on the recent surveys and published literature. Total 179 species belonging to 119 genera were found to be mixed with valid names and hence a revised checklist is prepared. The revised and updated checklist holds 179 species of eight orders of polychaete fauna comprising of Polyllodocida (47 %), Eunicida (14 %), Spionida (11 %), Sabellida (9 %), Terebellida (8 %), Captillida (7 %), Amphinomida (3 %) and Scoleisida (1 %) placed under 36 families. The current literature includes checklists and distributional records of phylum Annelida from Odisha and West Bengal, subsequent validation of species names arranged alphabetically, providing a valid scientific name, synonyms, and authorities of the species, and also the date of published records with the World Register of Marine Species (WoRMS) and World Polychaeta database.

[**Keywords**: Benthos, Coastal ecosystem, Intertidal, Revisionary studies, Taxonomy]

Introduction

Polychaetes (chaetopods) are the dominant macrofaunal community in the marine and coastal regions from the intertidal areas down to the deep sea. Most of the species are quite smaller in size and short-lived exhibiting a high secondary production. Hence, they are an important link in marine food webs and feature significantly in the diets of many bottom-feeders[1,2]. Therefore, in the trophic system, benthic fauna plays a vital role as they exploit all forms of food available in the sediment and thereby establish an important role in energy transfer[3,4]. Polychaetes are an important component in the marine food chain especially for benthic fishes and other bottom feeders[5,6]. They dominate the macrobenthic community in terms of distribution, abundance and biomass. In this way, polychaetes play a significant role in the stability and functioning of the benthic ecosystem[7]. Adding to the utilities stated above, polychaetes are also used as the most veritable marine organisms for the detection of pollution and are considered as the taxonomic group with the highest level of sensitivity to perturbation of the soft substrata[8,9]. No comprehensive study has been undertaken so far on benthic biodiversity in general and polychaete taxonomy in particular in the Odisha and West Bengal coasts of India. The first monograph on Indian polychaetes "Fauna of India, including Pakistan, Ceylon, Burma, and Malaya: Annelida Polychaeta" was published by Fauvel[10]. Reviews and checklists from different coastal regions continued to be published during the previous years[1,11-13]. Local checklists have been published at regular intervals throughout the decades; however, there are no comprehensive checklists available for the entire Indian subcontinent that could provide an overview of the marine annelid diversity[14]. A perusal of types of the literature revealed that research on diversity and distribution of polychaete on different coastal ecosystems of India has got maximum attention[8,15-17]. The present study aims to present a critical overview of previous periods in the study of Indian polychaetes, to compile an annotated checklist of the polychaete from Odisha and West Bengal based on the literature available at different source and recent collections made during the regular survey, and to list suggestions for future taxonomical polychaete research in the country.

Materials and Methods

The checklist for the polychaete species reported from Odisha and West Bengal coasts was made following exhaustive bibliographic review and analysis of published articles, monographs, catalogues, checklist, and website reports. Species names recorded in the literature were validated with WoRMS and World Polychaeta database, and all corrected names were revised and restructured checklist has been prepared. The species list was classified with accepted names, unaccepted names, emendations, and those with doubtful distribution provided as the supplementary table (Tables S1 & S2). The involvement of different orders and families

within the class polychaeta is projected in percentage.

Sample collection was performed in various intertidal regions of Odisha and West Bengal coastal ecosystems (Fig. 1). The present study deals with the marine resources *i.e.* polychaetes, their utilization, and economic importance at West Bengal and Odisha coasts. The habitat is dominated by marine water with mixing of freshwater due to monsoon rains and river runoffs. The entire area is influenced by a prolonged summer (April-June) and monsoon (July-September) with a short post-monsoon (October–November) followed by winter (December-February) and pre-summer periods (March). The polychaetes were picked with the help of a brush and transferred to plastic containers. Before fixation, the specimens were transferred to strong alcohol to keep their pharynx everted, which aids in the identification of specific groups *i.e.* Phyllodocidae, Nereididae and Glyceridae. The samples were kept overnight in 70 % ethanol and then transferred to 10 % formaldehyde. During the segregation, a rose bengal stain was added for clear identification. All the species were identified with the help of standard illustrated monographs[10,18].

Results

The updated checklist of marine polychaete is presented in Table S1; it includes the accepted names, authors, and the locality and distribution information followed by references. In the present survey, a total of seven species of polychaetes were recorded from Odisha and West Bengal coasts. The updated checklist was prepared by enlisting species only with valid names. The list comprised 179 species, belonging to 8 orders, 36 families, and 119 genera of marine polychaetes reported from Odisha and West Bengal coasts. The percentage contribution of different families under each order within the phylum polychaeta is represented in Figure 2 in which order Phyllodocida represented the maximum percentage of polychaete families (47 %), followed by Eunicida (15 %), Spionida (10 %), Sabellida (9 %), Terebellida (8 %), Capitellida (7 %), Amphinomida (3 %) and Scoleisida (1 %). Analysis based on the family-wise contribution of some species revealed that family Nereididae represented the maximum number of polychaete species *i.e.* 33 species, followed by Spionidae (18 species), Eunicidae (9), Glyceridae (8), Polynoidae, Capitellidae, Sabellidae, Lumbrineridae (7), Amphinomidae, Phyllodocidae, Syllidae, Hesionidae (6), Orbiniidae, Onuphidae, Nepthtyidae, Serpulidae (5), Sabellariidae, Terebellidae (4), Maldanidae, Sigalionidae, Goniadidae, Pilargidae, Ampharetidae, Flabelligeridae (3), Oweniidae (2), Aphroditidae, Trochochaetidae, Paraonidae, Cossuridae, Orbiniidae, Paraonidae, Trichobranchidae, Sternaspidae, Cirratulidae, Scalibregmatidae and Magelonidae (1 species each; Fig. 3). A list of species with various inconsistencies in their accepted names is presented in Table S2.

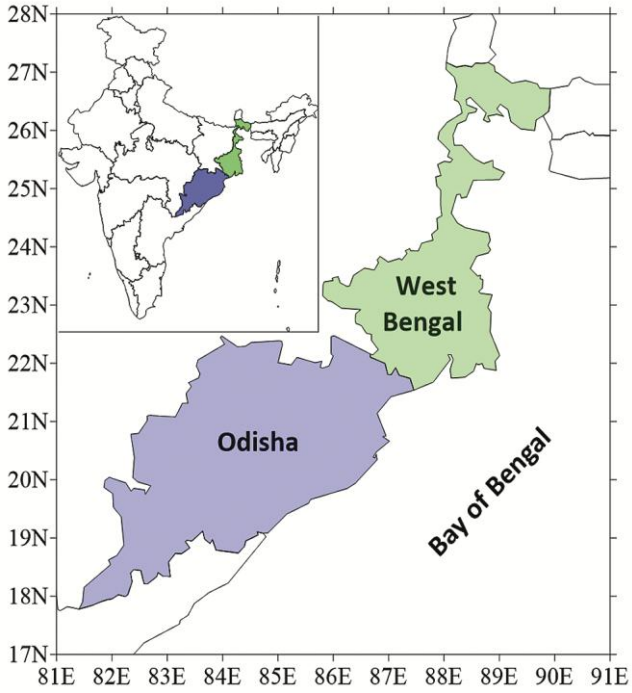

Fig. 1 — Map showing the Odisha and West Bengal

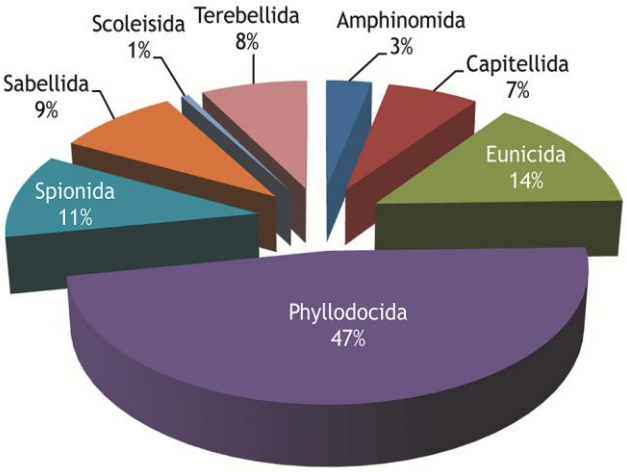

Fig. 2 — Percentage contribution of orders of Phylum Polychaeta in terms of number of families reported from Odisha and West Bengal coasts

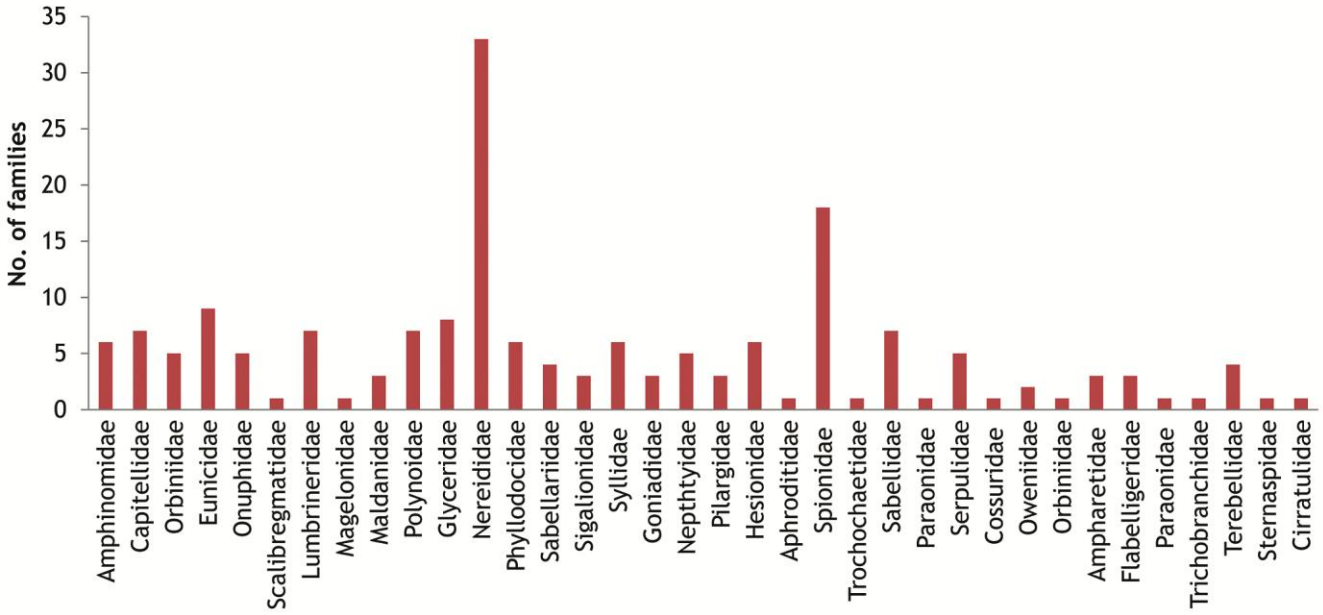

Fig. 3 — Family-wise contribution of number of species of Phylum Polychaeta reported from Odisha and West Bengal coasts

Discussion

The checklist presented in this study represents the most updated list of marine polychaete fauna recorded from the Odisha and West Bengal coasts. The updated information based on species occurrence data recorded 179 species belonging to eight orders, 36 families, and 119 genera of marine polychaetes so far reported from the Odisha and West Bengal coastal waters (Table S1). Within the recorded polychaete orders, the order Phyllodocida was found to be most diverse (47 spp.) followed by Eunicida (15 spp.), Spionida (10 spp.), Sabellida (9 spp.), Terebellida (8 spp.), Capitellida (7 spp.), Amphinomida (3 spp.) and Scoleisida (1 sp.). Fauvel[13] reported about 450 species of polychaetes in and around the Indian coastal environment and stated that this was probably half of the total number occurring in the Indian coastal region. Further, Misra *et al.*[19,20] recorded 48 species of polychaetes from Puri, Konarak, and Chandipur coasts of Odisha and 107 species belonging to 28 families of polychaetes from Chandbali, Bhitorkanika, and Talichua ecosystem of the Baitarani-Brahmani estuarine regions. Like the polychaetes, there are no updated publications on the other marine annelid groups from this region. Moreover, there is limited work to update the checklist of marine Annelida in the country[14]. This is evident from some of the recent new marine invertebrate species and checklists published from India as outcomes of ecology projects[21-24]. The updated checklists provided here may be considered as the baseline evidence for additional explorations as it was compiled to update the polychaete species list of Odisha and West Bengal for future reference. The updated checklist hopes to encourage national and international interest in improving the overall accuracy of Indian regional taxonomy and new revisionary studies.

Supplementary Data

Supplementary data associated with this article is available in the electronic form at http://nopr.niscair.res.in/jinfo/ijms/IJMS_50(06)507-510_SupplData.pdf

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Conflict of Interest

The authors have read the manuscript and have agreed to submit it in its current form for consideration for publication in the journal. We declare that we have no conflict of interest.

Author Contributions

The first author conceived surveys, identified, data analysis and wrote the manuscript, the second author conceived revisions to the scientific content of the manuscript and also provided grammatical revisions to the manuscript.

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