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Species Diversity of Polychaete Worms from Some Selected Freshwater Environment of Thenkasi District, Tamil Nadu

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ABSTRACT

The number of freshwater species in the world is quite small when compared with the vast number of marine species. There are several marine forms which are penetrated brackish and freshwater but remain unable to breed there while others have adapted sufficiently to remain for their entire life span. Polychaetes are commonly found in Indian estuaries, among 152 species recorded, 119 species from the east coast, 10 species from both east and west coasts. A total of 8 species were identified along Thenkasi District. Macro benthic polychaetes highlighted the presence of indicator species at all stations. Most of the benthic studies explored that Nereididae is the dominant species. The polychaetes observed throughout this study were a similar size and this is a clear indication of extreme disturbance imposed on the sediment. The present findings show macrobenthic polychaete diversity rich all along the Thenkasi District of Tamil Nadu.

KEYWORDS: *Polychaetes, Nereididae, Estuaries, Diversity, Thenkasi*

1. INTRODUCTION

The number of freshwater species in the world is quite small when compared with the vast number of marine species. There are several marine forms which are penetrated brackish and freshwater but remain unable to breed there while others have adapted sufficiently to remain for their entire life span. Polychaetes are commonly found in Indian estuaries, among 152 species recorded, 119 species from the east coast, 10 species from both east and west coasts.

Many investigations were carried out on the abundance and distribution of polychaetes in the estuarine environments of the southwest coast of India (Ramachandran *et al.* 1984, Sarala Devi *et al*. 1991a, Prabhu *et al.* 1993, Sheeba, 2000, Feebarani, 2009). Among the 34 estuaries of the southwest coast of India, the largest number of polychaetes species, 19 were recorded in the Cochin Estuary (Ajmal Khan and Murugesan, 2005). Of some 60 polychaete families, only 7 have been reported as having freshwater representatives. These are the Nereididae, Nephthyidae, Lumbrineridae, Spionidae, Capitellidae, Ampharetidae, Sabellidae and Serpulidae (Wesenberg-Lund, 1958). A large number of freshwater species are of the families Nereididae and Sabellidae, The others having fewer than five representatives. The Nereididae (Blainville, 1818) is among the most diverse of polychaete families, comprising over 540 species and 43 genera (Beesley *et al.* 2000). They are most common in shallow marine habitats, but the Nereididae are the ones that have been more economically found in freshwater environments compared to other polychaete families (Bakken and Wilson, 2005).

2. Materials and methods

Freshwater species are collected in much the same manner as marine forms. Those from shore areas and shallow water are collected with a shovel and a fine sieve. The sediment is placed in the sieve. Washed through and the remaining animals then removed. Those from deeper water may be collected by dredging or by the use of grab samplers the sediment from which is then washed through a fine sieve. Polychaetes should be initially preserved in 10% formalin and subsequently transferred to 70% ethyl alcohol. As usual, whenever possible observations should be made on the living animal noting such things as coloration, presence of eyes etc as these may possibly change or disappear in the preservatives. Collected samples were brought to the laboratory and sorted out. For the present study samples were taken from different areas of Thenkasi District, Tamil Nadu (Table1). The samples were identified by using standard keys (Southern, 1921, Fauel, 1953, Days, 1967, Kausal and Binford, 1999, Avnimelech *et al*. 2001, Bakken and Wilson, 2005, Gravely, 2005).

Table1. The geographical position of the study stations

Sl. No	Name of the station	Latitude	Longitude
1	Thrumalaikovil pond	12.86	79.08
2	Kasiviswanathar temple pond	12.73	79.36
3	Chittar River	12.08	79.73
4	Thamirabarani River	12.45	79.85
5	Manimuthar River	12.72	78.99
6	Chervalar Dam	12.29	78.92
7	Adavinainar Dam	12.58	78.95
8	Kadana nathi	12.88	79.10

Table.2. Checklist of species diversity in some selected stations of Thenkasi district

Sl. No	Species	Family	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8
1	Laeonereis culveri	Nereididae	+			+		+		
2	Lycastoides alticola	Nereididae	+	+	+	+	+	+	+	+
3	Lycastopsis humelincki	Nereididae	+		+	+			+	+
4	Namanereis hawaiiensis	Nereididae		+	+	+	+	+		
5	Nereies limnicola	Nereididae	+			+		+	+	
6	Nereis auccinea	Nereididae	+	+	+		+	+		+
7	Manyunkia speciosa	Sabellidae		+			+	+	+	
8	Mercierella enigmatica	Serpulidae	+		+			+		+

S-1 Thirumalai Kovil Pond; S-2 Kasiviswanathar temple Pond; S-3 Chittar River; S-4 Thamirabarani River; S-5 Manimuthar River; S-6 Chervalar Dam; S-7 Adavinainar Dam; S-8 Kadana Nathi

3. Result and Discussion

The species diversity of macro polychaete appendix is given in Table. 2. A total of 8 species were identified along Thenkasi District. Macro benthic polychaetes highlighted the presence of indicator species at all stations. Most of the benthic studies explored that Nereididae is the dominant species. The polychaetes observed throughout this study were a similar size and this is a clear indication of extreme disturbance imposed on the sediment. The present findings show macrobenthic polychaete diversity rich all along the district. When compared with other species *Lycastoides alticola* was present in all stations and it is the dominant species when compared with others. *Laeonereis culveri* poorly distributed in all stations. In station No. 2, 3, 5, 7 & 8, the species *Laeonereis culveri* were absent. *Nereis auccinea* present in all stations except station 4 and 7. The polychaetes observed throughout this study were a similar size and this is a clear indication of extreme disturbance imposed on the sediment. The present findings show macrobenthic polychaete diversity rich all along the district.

4. Reference

[1] Ajmal Khan S., and Murugesan P., 2005, Polychaetes diversity in Indian estuaries, *Indian Journal of Geo-Marine Sciences*, 34**:**114-119

[2] Avnimelech Y., Ritvo G., Meijer L. E., and Kochba M., 2001, Water content, organic carbon and dry bulk density in flooded sediments, *Aquacultural Engineering*, 25**:**25-33.

[3] Bakken and Wilson, 2005. Phylogeny of nereidids (Polychaeta, Nereididae) with paragnaths *Zoologica Scripta*, **34**(5): 507-54

[4] Beesley, P. L, Ross G. A. B., Glasby C. J. 2000, Beesley, P. L., Ross, G. J. B. and Glasby, C. J. 2000. Polychaetes & Allies: The Southern Synthesis. CSIRO Publishing: Melbourne. xii + 465pp. *A recent overview of Polychaetes, and related groups including myotomes (Myzostomida), pogonophorans (Pogonophora), echiurans (Echiura) and sipunculans (Sipuncula).*

[5] Blainvile, 1818. Blainville, H. de. 1818. Mémoire sur la classe des Sétipodes, partie des Vers à sang rouge de M. Cuvier, et des Annélides de M. de Lamarck. Bulletin des Sciences, par la Société Philomatique de Paris.82.

[6] Day, J. H. 1967. A monograph of the Polychaeta of southern Africa. *Part 1. Errantia. Part 2. Sedentaria. British Museum (Natural History), London.* 656(2):87-88.

[7] Fauvel P., 1953, *The Fauna of Indian including Pakistan, Ceylon, Burma and Malaya: Annelid Polychaeta*, the Indian Press Ltd.

[8] Feebarani J., 2009, Meiobenthos of Cochin backwaters in relation to macrobenthos and environmental parameters. *Department of Marine Biology, Microbiology and Biochemistry, School of Marine Sciences.* Kochi, Cochin University of Science and Technology.

[9] Gravely F. H., 2005, Chaetopoda. IN MUSEUMS, D. O. (Ed.) *Bulletin of the Madras government museum: The littoral fauna of Krusadai island in the Gulf of Manaar with appendices on the vertebrates and plant.* Madras, Government of Tamilnadu.

[10] Kaushal S., and Binford M., 1999, Relationship between C: N ratios of lake sediments, organic matter sources, and historical deforestation in Lake Pleasant, Massachusetts, USA, *Journal of* Paleolimnology, 22**:**439-442.

[11] Prabhu V. H., Narayan A. C., and Katti R. J., 1993, Macrobenthic fauna in near-shore sediments off Gangolli-west coast of India, *Indian Journal of Geo-Marine Sciences*, 22**:**168

[12] Ramachandra U. T., GuptaR. C., and Katti R. J., 1984, Macrobenthos and sediment characteristics of Mulki estuary, west coast of India, *Indian Journal of Geo-Marine Sciences*, 13**:**109-112.

[13] Sarala Devi K., Sankarnarayanan V.N., and Venugopal P., 1991a, Distribution of nutrients in the Periyar River estuary, *Indian Journal of Geo-Marine Sciences,* 20**:**49-54.

[14] Sheeba P., 2000, Distribution of benthic infauna in the Cochin backwaters in relation to environmental parameters. Ph.D. Thesis NIO-RC.Kochi, Cochin University of Science and Technology.

[15] Southern R. 1921, Polychaeta of the Chilka Lake and also of fresh and brackish waters in other parts of India. *Memoirs of the Indian Museum.*

[16] Wesenberg-Lund, Elise. 1958. Lesser Antillean polychaetes chiefly from brackish waters, with a survey and a bibliography of fresh and brackish water polychaetes. *Studies on the Fauna of Curaçao and other Caribbean Islands.* 8:1-41.