

Meiofauna of Netravathi-Gurpur Estuary (Mangalore), West Coast of India

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Nematodes and gastrotrichs dominated during premonsoon season (Feb.-May). The meiofauna during postmonsoon season (Oct.-Dec.), were composed of protozoans, benthic copepods and other groups like polychaetes and chironomid larvae. Peak abundance of meiofauna was in Oct. The meiofauna was related to the nature of sediment.

Benthos of estuarine and coastal areas of west coast of India¹⁻⁷ have been studied. However, there are no studies on meiobenthos (100-1000 μ m size) of Netravathi-Gurpur estuary. This paper deals with seasonal fluctuations of meiobenthos of this estuary in relation to sediment texture.

Monthly sampling was done during Jan. to Dec. 1982 (except in June to Aug.) at 5 stations in the estuarine zone of Netravathi and Gurpur rivers (Fig. 1). The depth at each station varied between 2 and 4.25 m depending on the tide at the time of collection. Sediment samples were collected using a peterssen grab. Seawater ice technique⁸ was used for the separation of the fauna. Meiofauna was sorted using a sieve (No. 72, mesh size 210 μ) and preserved in 5% neutralised formalin.

A small quantity of the sediment was air dried and later subjected to particle size analysis adopting the combined sieving and pipette method⁹. Higher percentage of sand fraction was recorded in sediments during major part of the study (Table 1). Lowest percentage of sand was recorded at st 1 during Oct., while highest (100%) was recorded at sts 1 and 2 during Jan. and March respectively. Generally, low percentage of silt and clay was recorded at all stations.

Meiofaunal density (no. m⁻²) varied from 22,500 to 1,44,000. During premonsoon period (Feb.-May), lower values were recorded and the meiofauna was dominated by nematodes, gastrotrichs and at few stations copepods. During postmonsoon period, (Oct.-Dec.), nematodes, gastrotrichs and protozoans (ciliates and tintinids) dominated followed by benthic copepods and other groups of meiofauna. Other representatives were polychaetes and chironomid larvae. Percentage distribution of those groups are given in Table 1.

It is known that the macrobenthic communities of the marine environment are influenced by the texture of sediment in which they establish themselves and live¹⁰. The meiofauna being smaller in size could be even more sensitive to changes in the sediment texture. Nematodes were abundant, whenever the sediment contained higher percentage of sand, which is in accordance with earlier observations of Divakaran *et al.*⁵ Abundance of nematodes and gastrotrichs during premonsoon months is again related to the largest percentage of fine fraction in the sediment.

Reasonable abundance of protozoans in almost all stations during postmonsoon months (Oct.-Dec.) and their conspicuous absence during premonsoon months are due to the inflow of copious quantities of freshwater laden with inorganic nutrients congenial for production¹¹. Percentage distribution of nematods and gastrotrichs was high during the premonsoon period (Table 1).

In the present study, contrary to reports from other coastal areas of the west coast, the abundance of polychaetes was less, which may be due to the predominance of sand fraction in sediments¹¹ at most of the stations.

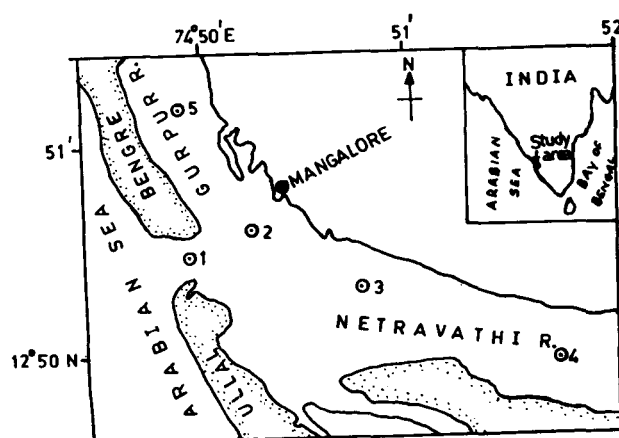


Fig. 1—Stations location

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Table 1—Percentage Distribution of Meiobenthos in Relation to Sediment Structure

	Jan.	Feb.	March	April	May	Sept.	Oct.	Nov.	Dec.
St 1									
Sand percentage	95.94	85.62	100	94.04	96.40	98.62	44.99	89.82	91.07
Silt-clay percentage	4.06	14.48	—	5.96	3.60	1.38	55.01	10.18	8.93
Protozoans	—	—	—	—	—	16.66	52.63	38.7	—
Nematods	68.42	60	71.42	66.66	66.66	41.66	15.78	28.7	50
Copepods	—	—	—	—	—	—	—	—	—
Gastrotrichs	31.58	40	28.58	33.34	33.34	25	31.59	29.03	50
Others	—	—	—	—	—	24.68	—	7.57	—
St 2									
Sand percentage	100	82.13	84	85.92	88.04	97	80.76	97.62	77.05
Silt-clay percentage	—	17.87	16	14.08	11.36	3	19.24	2.38	22.95
Protozoans	—	—	—	—	—	30	50	23.07	—
Nematods	53.84	66.66	60	100	57.14	40	22.22	30.76	50
Copepods	—	—	—	—	23.57	—	—	—	—
Gastrotrichs	46.16	33.34	40	—	14.29	20	—	46.27	50
Others	—	—	—	—	—	10	27.78	—	—
St 3									
Sand percentage	99	95.2	89.17	79.58	52.44	97.9	87.48	87.13	89.17
Silt-clay percentage	1	4.8	10.83	20.42	47.36	2.1	12.52	12.87	10.83
Protozoans	—	33.33	25	—	—	—	30	58.82	—
Nematods	51.61	50	50	80	13.33	62.5	25	23.52	57.14
Copepods	—	—	—	—	—	—	—	—	—
Gastrotrichs	48.39	16.67	25	20	73.33	37.5	15	27.66	42.86
Others	—	—	—	—	13.34	—	30	—	—
St 4									
Sand percentage	99.24	78.32	99.16	65.28	88.74	98.2	93.59	99.35	99.65
Silt-clay percentage	0.76	21.68	0.84	34.72	11.26	1.8	6.41	0.65	0.35
Protozoans	—	—	—	—	—	—	41.18	46.66	—
Nematods	51.85	42.8	60	60	60	28.57	11.76	13.34	60
Copepods	—	—	—	—	—	—	—	—	—
Gastrotrichs	48.15	57.2	40	40	40	28.57	17.64	20	40
Others	—	—	—	—	—	42.86	29.42	20	—
St 5									
Sand percentage	83.42	92.3	87.68	86.7	81.88	98.3	92.7	92.62	94.72
Silt-clay percentage	16.58	7.7	12.32	13.3	18.12	1.7	7.3	7.38	5.28
Protozoans	—	—	—	—	—	—	11.76	20	—
Nematods	62.5	66.66	71.42	75	50	33.33	23.52	33.33	66.66
Copepods	—	—	—	—	—	—	23.52	26.67	—
Gastrotrichs	37.5	33.34	28.58	25	33.33	33.33	41.2	20	33.34
Others	—	—	—	—	16.67	33.34	—	—	—

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