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# Meiofauna Distribution from Arukkattuthurai to Aiyyampattinam, South East Coast of India

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#### Abstract

The study of meiofauna is important as it could be an indicator of overall aquatic productivity. In the present study a survey of meiobenthic fauna was carried out in five different coastal areas. The results indicate that nematodes are dominant followed by foraminiferans, harpacticoids, ostrocodes, cumacea, cnidarians and turbellarians. The maximum species diversity was recorded at station 3 and minimum species recorded at station 1. In the present study confirming that anthropogenic disturbance in the intertidal coastal area and also pollution affect the species diversity.

**Keywords:** Nematodes; Foraminiferans; Harpacticoids; Ostrocodes; Cumacea; Cnidarians

## Introduction

Benthos harbours a community of organisms including microorganisms, animals and plants. The term meiobenthos fauna relate usually to multicellular animals with a size between 50 and 500 mm [1]. The meiobenthos has so far mainly been studied in the context of the formation of sediments and ecotoxicology in marine environments and freshwater lakes [2-4]. However, it should also be an interesting subject for food web studies. The whole phylum currently contains some 20,000 species, of which about 4,000 species are free living marine forms. Meiofauna occupies about 80% of the total marine biomass and its of great importance in the marine ecology and the marine mineralogy [2]. Some of the meiofauna groups form a direct food for Macrobenthos, juveniles of demersal fishes and also of shrimps [5]. The meiofauna are primary consumers and found to feed on organic matter. Meiofauna are also known to be sensitive indicators of environmental disturbances and have great potential as pollution indicators. It is shown to have advantages that include their sessile habitat, high abundance, high species diversity, short generation time, direct benthic development and ubiquitous distributions of marine sediments. Very little work was done especially on the benthic species diversity. So the present study was attempted to investigate the benthic biodiversity in five coastal environments of south east coast of India.

## Materials and Methods

The field survey was conducted from September-2007 to August-2008 in five different stations. Station-1 Arukkattuthurai (10'23'30.51" N; 79'52'07'.14" L), Station-2 Pointcalimere or Kodiakkarai (10° 18' N; 79° 51' E), - Station-3 Mallipattinam (100 16'

	Stations							
Meiobenthos	1	2	3	4	5			
Cnidarians	2	2	2	2	2			
Turbellarians	2	2	2	2	2			
Nematodes	27	37	41	39	30			
Foraminiferans	28	32	36	34	31			
Cumacea	4	4	4	4	4			
Harpacticoids	15	17	19	18	16			
Ostrocodes	12	16	18	17	13			
Total	90	110	122	116	98			

Table 1: Total species recorded in all five stations.

35" N; 790 19' 12" E), Station-4 Manalmelkudi (10° 25' 13" N, 79° 18' 51"E) and Station-5 Aiyyampattinam (09° 57' 27" N, 79° 11' 02"E). The sample collection was made monthly five times for one year in all the stations. The samples collected on shore with the shallow region at the depth of 0 to >10m. Peterson grabs were used to collect sediment, after collection the sediments stored in polyethylene cover and preserved in 5% formalin. Then after five hours the species were sieved to get individual species, on direct observations to help of light microscope at a magnification of 10x10, then number of individuals (N) per unit area (10 cm<sup>2</sup>) was estimated. The water quality parameters were also estimated by following standard methods.

#### **Results and Discussion**

Nematode was a dominant species in the present study. They

S:No	Meiobenthos	ST-1	ST-2	ST-3	ST-4	ST-5
	Cnidarians					
1	Halammohydra sp	*	*	*	*	*
2	Psammohydra sp	*	*	*	*	*
	Turbellarians					
1	Macrostomum sp	*	*	*	*	*
2	Otoplana sp	*	*	*	*	*
	Nematodes					
1	Astomonema sp	*	*	*	*	*
2	Chromadora sp		*	*	*	*
3	Comesomoides sp		*	*	*	
4	Daaptonema oxycerea	*	*	*	*	*
5	D. conicum	*	*	*	*	*
6	Daaptonema sp	*	*	*	*	*
7	Desmodora falcatus	*	*	*	*	
8	D. pontica	*	*	*	*	*

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9	D. sanguinea		*	*	*	*
10	D. tenuispiculum		*	*	*	*
11	Desmodora sp	*	*	*	*	*
12	Draconema sp	*	*	*	*	*
13	Enoploides sp	*	*	*	*	*
14	Gomphionema sp		*	*	*	*
15	Gonionchus sp	*	*	*		
-				*	*	*
16	Greeffiella sp	*	*	*	*	*
17	Halalaimus filum	*				*
18	H.setosus		*	*	*	
19	Metapselionema sp	*	*	*	*	*
20	Oncholaimus sp	*	*	*	*	
21	Oxystomina sp	*	*	*	*	*
22	Pandolaimus sp	*	*	*	*	
23	Paralinhomoeus sp		*	*	*	*
24	Polygastrophora sp	*	*	*	*	*
25	Prochaetosoma sp	*	*	*	*	*
26	Pselionema sp	*	*	*	*	*
27	Pseudolella sp	*	*	*	*	*
27	,	*	*	*	*	*
-	Quadricoma sp	*	*	*	*	
29	Rhynchonema sp	*		*	*	*
30	Sabatieria sp		*			*
31	Steineria sp	*	*	*	*	
32	Syringolaimus sp		*	*	*	*
33	Theristus partenuis	*	*	*	*	*
34	T. clax	*	*	*	*	*
35	Theristus sp	*	*	*	*	*
36	Trichotheristus sp	*	*	*	*	*
37	Tricoma sp	*	*	*	*	*
38	Vasostoma sp		*	*	*	
39	Viscosia viscosa	*	*	*	*	
			*	*	*	*
40	V. macramphida	*	*	*	*	*
41	V. carnleyensis					
42	Viscosia sp	*	*	*	*	*
	Foraminiferans					
1	Ammobaculities exigus			*	*	*
2	Ammonia beccari	*	*	*	*	*
3	Ammonia sp					
4	Amphisorus hemprichii			*	*	*
5	Asterorotalia inflata	*	*	*	*	*
6	Bolivina sp					
-		*	*	*	*	*
7	Cibicides lobatulus	*	*	*	*	*
8	Cyclammina sp	*	*	*		*
9	Cymbaloporetta bradyi	*				
10	Diffusilina sp		*	*	*	*
11	Discorbis sp	*	*	*	*	*
12	Elphidium advenum	*	*	*	*	*
13	Eliphidium sp	*	*	*	*	*
14	Ephonides repandus	*	*	*	*	*
15	Globigerina ruber		*	*	*	*
16	Globigerina sp					
17	Hanzawaia sp	*	*	*	*	*
18		*	*	*	*	*
	Hauerina sp	*	*	*	*	*
19	Lagena semistriata	*				
20	Lagena sp		*	*	*	*
21	Nonion depressulum	*	*	*	*	*
22	Nonionoiddes boveanum	*	*	*		
23	Osangularia venusta		*	*	*	*
0.4	Operculina sp	*	*	*	*	*
24						
24 25	Oridosalis umbonatus		*	*	*	*

27         Quinoqueloculina sp         •         •         •         •           28         Rosalia guloularis         •         •         •         •           30         Rotalia pulchella         •         •         •         •           30         Rotalia pulchella         •         •         •         •           31         Spirolina sp         •         •         •         •           32         Spiroloculina sp         •         •         •         •           33         Spiroloculina sp         •         •         •         •           34         Textularia agglutinans         •         •         •         •           36         Trochammina sp         •         •         •         •           37         Triloculina sp         •         •         •         •           2         Gynodiasytlis sp         •         •         •         •           3         Nannastacus sp         •         •         •         •           4         Picrocuma sp         •         •         •         •           3         Aseliopsis sp         •         •         •<		I					
Rosania giobilaris         Image: state	27	Quinoqueloculina sp	*	*	*	*	*
29         Rotalia sp         *         *         *         *         *           31         Spirolina sp         *         *         *         *         *           33         Spiroloculina sp         *         *         *         *         *           34         Textularia agglutinans         *         *         *         *         *           36         Trochammina sp         *         *         *         *         *           36         Trochammina sp         *         *         *         *         *           37         Triloculina sp         *         *         *         *         *         *           37         Triloculina sp         *         *         *         *         *         *           38         Nannastacus sp         *         *         *         *         *         *           4         Picrocuma sp         *         *         *         *         *           4         Acuticaudatus         *         *         *         *         *           5         Cervinia sp         *         *         *         *         *	28	Rosalina globularis	*	*	*	*	*
300         Relates by the second	29	Rotalia pulchella	*	*	*	*	*
31         Spinitional minutata         Image         Image <thimage< th=""> <thimage< th="">         Image</thimage<></thimage<>	30	Rotalia sp	*	*	*	*	*
32         Spiroloculina sp         *         *         *         *           33         Spiroloculina sp         *         *         *         *           34         Textularia sp         *         *         *         *           35         Textularia sp         *         *         *         *           36         Trochammina sp         *         *         *         *           37         Triloculina sp         *         *         *         *           38         Nannastacux sp         *         *         *         *           4         Picrocuma sp         *         *         *         *           3         Asellopsis sp         *         *         *         *           4         Ganuella sp         *         *         *         *           5         Cervinia sp         *         *         *         * <td>31</td> <td>Spirillina limbata</td> <td></td> <td>*</td> <td>*</td> <td>*</td> <td></td>	31	Spirillina limbata		*	*	*	
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34         Textularia sgluturaris         *         *         *         *           35         Textularia sp         *         *         *         *         *           36         Trochammina sp         *         *         *         *         *           37         Triloculina sp         *         *         *         *         *           3         Mannastacus sp         *         *         *         *         *           2         Gynodiasyllis sp         *         *         *         *         *           4         Picrocuma sp         *         *         *         *         *           3         Nannastacus sp         *         *         *         *         *           4         Acuticaudatus         *         *         *         *         *           3         Asellopsis sp         *         *         *         *         *           4         Canuella sp         *         *         *         *         *           5         Cervinia sp         *         *         *         *         *           6         Cylindropsyllus sp         * <td>33</td> <td>Spiroloculina sp</td> <td>*</td> <td>*</td> <td>*</td> <td>*</td> <td>*</td>	33	Spiroloculina sp	*	*	*	*	*
35       Textularia sp       ·       ·       ·       ·         36       Trochammina sp       ·       ·       ·       ·         37       Triloculina sp       ·       ·       ·       ·         37       Triloculina sp       ·       ·       ·       ·         38       Mannactacus sp       ·       ·       ·       ·       ·         1       Campylaspis sp       ·       ·       ·       ·       ·       ·         3       Nannastacus sp       ·       ·       ·       ·       ·       ·       ·         4       Picrocuma sp       ·       ·       ·       ·       ·       ·       ·         3       Ananastacus sp       ·       ·       ·       ·       ·       ·       ·         4       Protocuma sp       ·       ·       ·       ·       ·       ·       ·       ·       ·         3       Asellopsis sp       ·	34	Textularia agglutinans	*	*	*	*	*
36       Trochammina sp       *       *       *       *         37       Triloculina sp       *       *       *       *         1       Campylaspis sp       *       *       *       *         2       Gynodiasytis sp       *       *       *       *       *         3       Nannastacus sp       *       *       *       *       *         4       Picrocuma sp       *       *       *       *       *         1       Acuticaudatus       *       *       *       *       *         2       Arenosetella indica       *       *       *       *       *         3       Asellopsis sp       *       *       *       *       *         4       Canuella sp       *       *       *       *       *         5       Cervinia sp       *       *       *       *       *         6       Cylindropsyllus sp       *       *       *       *       *         7       Diarthrodes sp       *       *       *       *       *         10       Laphacutiferans       *       *       *       *	35			*	*	*	*
37         Triloculina sp         I         I         Cumacea           1         Campylaspis sp         I         I         I           2         Gynodiasytlis sp         I         I         I           3         Nannastacus sp         I         I         I         I           4         Picrocuma sp         I         I         I         I           1         Acuticaudatus         I         I         I         I           2         Arenosetella indica         I         I         I         I           3         Asellopsis sp         I         I         I         I         I           4         Canuella sp         I         I         I         I         I           5         Cervinia sp         I         I         I         I         I           6         Cylindropsyllus sp         I         I         I         I         I           7         Diarthrodes sp         I         I         I         I         I           8         Emertonia minuta         I         I         I         I         I           9         Eutrpina acutiferans         I			*	*	*	*	*
Cumacea           1         Campylaspis sp         *         *         *         *         *           2         Gynodiasytlis sp         *         *         *         *         *           3         Nanastacus sp         *         *         *         *         *           4         Picrocuma sp         *         *         *         *         *           4         Picrocuma sp         *         *         *         *         *           4         Acuticaudatus         *         *         *         *         *           2         Arenosetella indica         *         *         *         *         *           3         Asellopsis sp         *         *         *         *         *           4         Canuella sp         *         *         *         *         *           5         Cervinia sp         *         *         *         *         *           6         Cylindropsyllus sp         *         *         *         *         *           9         Eutrpina acutiferans         *         *         *         *         *		,			*	*	*
1       Campylaspis sp       •       •       •       •         2       Gynodiasytlis sp       •       •       •       •         3       Nannastacus sp       •       •       •       •         4       Picrocuma sp       •       •       •       •         1       Acuticaudatus       •       •       •       •         2       Arenosetella indica       •       •       •       •         3       Asellopsis sp       •       •       •       •         4       Canuella sp       •       •       •       •         5       Cervinia sp       •       •       •       •         6       Cylindropsyllus sp       •       •       •       •         7       Diarthrodes sp       •       •       •       •         10       Laophonte sp       •       •       •       •         11       Leptastocus pp       •       •       •       •         12       Laptascus sp       •       •       •       •         13       Macrosetella sp       •       •       •       •         14<							
2         Gynodiasytlis sp         *         *         *         *         *         *           3         Nannastacus sp         *         *         *         *         *           4         Picrocuma sp         *         *         *         *         *           1         Acuticaudatus         *         *         *         *         *           2         Arenosetella indica         *         *         *         *         *           3         Asellopsis sp         *         *         *         *         *           4         Canuella sp         *         *         *         *         *           5         Cervinia sp         *         *         *         *         *           6         Cylindropsyllus sp         *         *         *         *         *           7         Diarthrodes sp         *         *         *         *         *           10         Laphonte sp         *         *         *         *         *           11         Leptastocus euryhalinus         *         *         *         *           12         Laptascus pp </td <td>1</td> <td></td> <td>*</td> <td>*</td> <td>*</td> <td>*</td> <td>*</td>	1		*	*	*	*	*
3       Nannastacus sp       *       *       *       *       *         4       Picrocuma sp       *       *       *       *       *         1       Acuticaudatus       *       *       *       *       *         2       Arenosetella indica       *       *       *       *       *         3       Asellopsis sp       *       *       *       *       *         4       Canuella sp       *       *       *       *       *         5       Cervinia sp       *       *       *       *       *         6       Cylindropsyllus sp       *       *       *       *       *         7       Diarthrodes sp       *       *       *       *       *         9       Eutrpina acutiferans       *       *       *       *       *         10       Laophonte sp       *       *       *       *       *         11       Leptascous sp       *       *       *       *       *         13       Macrosetella sp       *       *       *       *       *         16       Phyllopodosylliis sp			*	*	*	*	*
4         Picrocuma sp         *         *         *         *         *         *         *           1         Acuticaudatus         *         *         *         *         *         *           2         Arenosetella indica         *         *         *         *         *         *           3         Asellopsis sp         *         *         *         *         *         *           4         Canuella sp         *         *         *         *         *         *           5         Cervinia sp         *         *         *         *         *         *           6         Cylindropsyllus sp         *         *         *         *         *           7         Diarthrodes sp         *         *         *         *         *           8         Emertonia minuta         *         *         *         *         *           9         Eutrpina acutiferans         *         *         *         *         *           10         Laposcus sp         *         *         *         *         *           13         Macrosetella sp         * <t< td=""><td></td><td></td><td>*</td><td>*</td><td>*</td><td>*</td><td>*</td></t<>			*	*	*	*	*
Harpacticoids           1         Acuticaudatus         *         *         *         *           2         Arenosetella indica         *         *         *         *           3         Asellopsis sp         *         *         *         *           4         Canuella sp         *         *         *         *           5         Cervinia sp         *         *         *         *           6         Cylindropsyllus sp         *         *         *         *           7         Diarthrodes sp         *         *         *         *           9         Eutrpina acutiferans         *         *         *         *           10         Laophonte sp         *         *         *         *           11         Leptascus sp         *         *         *         *           13         Macrosetella sp         *         *         *         *           14         Metis         *         *         *         *           15         Microsetella sp         *         *         *         *           16         Phyllopodosylliis sp         *         <		-	*	*	*	*	*
1       Acuticaudatus       •       •       •       •         2       Arenosetella indica       •       •       •       •         3       Asellopsis sp       •       •       •       •         4       Canuella sp       •       •       •       •         5       Cervinia sp       •       •       •       •         6       Cylindropsyllus sp       •       •       •       •         7       Diarthrodes sp       •       •       •       •         8       Emertonia minuta       •       •       •       •         9       Eutrpina acutiferans       •       •       •       •         10       Laophonte sp       •       •       •       •         11       Leptascus sp       •       •       •       •         13       Macrosetella sp       •       •       •       •         14       Metis       •       •       •       •         15       Microsetella sp       •       •       •       •         16       Phyllopodosylliis sp       •       •       •       •	4						
1       Actinocational data       *       *       *       *         2       Arenosetella indica       *       *       *       *         3       Asellopsis sp       *       *       *       *         4       Canuella sp       *       *       *       *         5       Cervinia sp       *       *       *       *         6       Cylindropsyllus sp       *       *       *       *         7       Diarthrodes sp       *       *       *       *         8       Emertonia minuta       *       *       *       *         9       Eutrpina acutiferans       *       *       *       *         10       Laophonte sp       *       *       *       *         11       Leptascous euryhalinus       *       *       *       *         12       Laptascus sp       *       *       *       *         13       Macrosetella sp       *       *       *       *         14       Metis       *       *       *       *         15       Microsetella sp       *       *       *       * <t< td=""><td></td><td>•</td><td></td><td></td><td></td><td></td><td></td></t<>		•					
2       Akellopsis sp       *       *       *       *       *         3       Asellopsis sp       *       *       *       *       *         4       Canuella sp       *       *       *       *       *         5       Cervinia sp       *       *       *       *       *         6       Cylindropsyllus sp       *       *       *       *       *         7       Diarthrodes sp       *       *       *       *       *         9       Eutrpina acutiferans       *       *       *       *       *         10       Laophonte sp       *       *       *       *       *         11       Leptascus uryhalinus       *       *       *       *         12       Laptascus sp       *       *       *       *         13       Macrosetella sp       *       *       *       *         14       Metis       *       *       *       *       *         15       Microsetella sp       *       *       *       *       *         16       Phyllopodosylliis sp       *       *       *							
3       Aseinopsis sp       *       *       *       *       *         4       Canuella sp       *       *       *       *       *         5       Cervinia sp       *       *       *       *       *         6       Cylindropsyllus sp       *       *       *       *       *         7       Diarthrodes sp       *       *       *       *       *         9       Eutrpina acutiferans       *       *       *       *       *         10       Laophonte sp       *       *       *       *       *         11       Leptastocus euryhalinus       *       *       *       *       *         12       Laptascus sp       *       *       *       *       *         13       Macrosetella sp       *       *       *       *       *         14       Metis       *       *       *       *       *       *         15       Microsetella sp       *       *       *       *       *       *         16       Phyllopodosylliis sp       *       *       *       *       *       * <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>*</td></t<>							*
4       Canuelia sp       -       -       -       -       -         5       Cervinia sp       *       *       *       *       *         6       Cylindropsyllus sp       *       *       *       *       *         7       Diarthrodes sp       *       *       *       *       *         8       Emertonia minuta       *       *       *       *       *         9       Eutrpina acutiferans       *       *       *       *       *         10       Laophonte sp       *       *       *       *       *         11       Leptascus sp       *       *       *       *       *         12       Laptascus sp       *       *       *       *       *         13       Macrosetella sp       *       *       *       *       *         15       Microsetella sp       *       *       *       *       *         16       Phyllopodosyllis sp       *       *       *       *       *         18       Sewellina reductus       *       *       *       *       *         19       Stenhelia sp <td></td> <td>Asellopsis sp</td> <td></td> <td></td> <td></td> <td></td> <td>*</td>		Asellopsis sp					*
S         Cervinia sp         * <th< td=""><td>4</td><td>Canuella sp</td><td></td><td></td><td></td><td></td><td></td></th<>	4	Canuella sp					
6         Cyminologyndus sp         *	5	Cervinia sp	*	*	*	*	*
Production       Production <td>6</td> <td>Cylindropsyllus sp</td> <td>*</td> <td>*</td> <td>*</td> <td></td> <td></td>	6	Cylindropsyllus sp	*	*	*		
B         Eutronia minuta         *	7	Diarthrodes sp			*	*	*
9         2 Lupina acutierans         *	8	Emertonia minuta		*	*	*	
10       Lapprolife sp       *      <	9	Eutrpina acutiferans	*	*	*	*	*
11         Leptastocus eurynamus         *	10	Laophonte sp	*	*	*	*	*
12       Image: Capital Spin (1)       Image: Capital Spin (1)       Image: Capital Spin (1)         13       Macrosetella spin (1)       *       *       *       *       *         14       Metis       *       *       *       *       *       *         15       Microsetella spin (1)       *       *       *       *       *       *         16       Phyllopodosylliis spin (1)       *       *       *       *       *       *         17       Psammastacus       1       *       *       *       *       *         18       Sewellina reductus       *       *       *       *       *       *         19       Stenhelia spin (*       *       *       *       *       *       *         19       Stenhelia spin (*       *       *       *       *       *       *         2       Basslerites liebaui       *       *       *       *       *       *         3       Conchoecia spin (*       *       *       *       *       *       *         4       Cyprideis spin (*       *       *       *       *       *       *	11	Leptastocus euryhalinus	*	*	*	*	*
13       Macrosetella sp       *	12	Laptascus sp	*	*	*	*	*
14       Metis       *       *       *       *       *       *         15       Microsetella sp       *       *       *       *       *       *         16       Phyllopodosylliis sp       *       *       *       *       *       *         16       Phyllopodosylliis sp       *       *       *       *       *       *         17       Psammastacus       *       *       *       *       *       *         18       Sewellina reductus       *       *       *       *       *       *         19       Stenhelia sp       *       *       *       *       *       *         14       Actinocythereis scutigera        *       *       *       *         2       Basslerites liebaui       *       *       *       *       *         3       Conchoecia sp       *       *       *       *       *         4       Cypridia sp       *       *       *       *       *         5       Cypridina sp       *       *       *       *       *         6       Keijella reticulata       *	13		*	*	*	*	*
15       Microsetella sp       *       *       *       *       *       *       *         16       Phyllopodosylliis sp       *       *       *       *       *       *         17       Psammastacus        *       *       *       *       *         18       Sewellina reductus       *       *       *       *       *       *         19       Stenhelia sp       *       *       *       *       *       *         19       Stenhelia sp       *       *       *       *       *       *         11       Actinocythereis scutigera        *       *       *       *         2       Basslerites liebaui       *       *       *       *       *         3       Conchoecia sp       *       *       *       *       *         4       Cyprideis sp       *       *       *       *       *         5       Cypridina sp       *       *       *       *       *         6       Keijella reticulata       *       *       *       *       *         9       Neocytheretta sp       * </td <td>14</td> <td></td> <td>*</td> <td>*</td> <td>*</td> <td>*</td> <td>*</td>	14		*	*	*	*	*
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\* - Species recorded in different stations (Station 1– Arukkattuthurai, Station 2- Pointcalimere, Station 3– Mallipattinam, Station 4– Manamelkudi, Station 5- Aiyyampattinam).

 Table 2: Meiobenthos (No/10cm<sup>2</sup>) species recorded in all five stations.

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parameters	SEP	ОСТ	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG
Salinity(‰)	28.5	27.5	28.0	26.5	28.5	33.5	28.0	35.0	34.5	34.0	34.0	34.5
Temp (°C)	30.5	29.0	28.5	25.5	29.5	31.5	33.0	35.5	34.5	33.5	32.0	33.5
pН	7.8	7.5	7.8	7.9	7.8	8.0	8.1	8.2	8.0	8.1	8.2	8.3
Do (ml/l)	3.4	3.3	4.4	4.2	4.0	4.3	4.2	4.1	3.0	4.0	4.2	3.7

Table 3: Water quality parameters in all the station.

normally occur in any environment that provides a source of organic carbon. In every soil type, under all climatic conditions and habitats that vary from pristine to extremely polite. They do not rapidly migrate stressful conditions and many species survive dehydration, freezing or oxygen stress. Nematodes occupy on key position particularly in soil food webs. Nematodes were the most dominant at all stations in the present study that was followed by foraminifera's, Harpacticoid, Ostrocodes, Cumacea, Cnidarians and Turbellarians. Totally 42 species of nematodes were recorded in the present study. Mallipattinam had maximum number of nematodes rather than other stations (Tables 1 and 2). Out of this, 21species are present in all five stations, (Astomonema sp, Daaptonema oxycerea, Daaptonema conicum, Daaptonema sp, Desmodora pontica, Desmodora sp, Draconema sp, Enoploides sp, Halalaimus filum, Metapselionema s, Oxystomina sp, Polygastrophora sp, Prochaetosoma sp, Pselionema sp, Pseudolella sp, Quadricoma sp, Steineria sp, Theristus sp, Trichotheristus sp, Tricoma sp, Viscosia sp). Observations in the nematodes from other parts of the world have related their occurrence to the type of sediments in which they occur [7,8]. The Mallipattinam is highly productive and mud flat areas are abundant in the top few centimeters of sediments where they are easily accessible to predators including fishes.

The second dominant species in the present study are foraminifera which are good indicators for paleoenvironmental studies (Tables 1 and 2). Some species are commonly present in all the five stations (Ammonia beccarii, Rosalina bradyi, Rosalina globularis, Rotalia pulchella, Asterorotalia inflate, Triloculina austriaca, Quinqueloculina lamarckiana) either alive or dead in the environment. Foraminiferas are small level of dead species but they are active in bottom currents. Some species viz., Nonion elongatum and Asterorotalia inflate, were absent in the study of [6] from (Stations 3 & 4). The Ammonia beccarii is considered to be highly tolerant to different ecosystems. So the present study supports the survival species having high order of tolerance in turbulent conditions. Harpacticoid copepods are widely disburse and seasonally high in almost all the five stations. Copepods are very sensitive to oxygen depletion and the presence of sulfide [5]. Harpacticoid copepods are the general feature of meiofauna reported from different geographical regions [7-9]. The meiofauna higher density in pre and post-monsoon followed by low density in monsoon was the feature of this study.

Temperature is an important ecological factor, which influence the distribution of benthic organisms. High temperature 35.5°C, recorded in summer season influence the distribution of meiobenthic organisms. Low temperature 25.5°C, recorded in December and that influence higher faunal density.pH value was minimum in the month of October 7.5 and maximum in the month of August 8.3, Salinity was minimum 26.5‰ in the month of December and maximum 35.0‰ in the month of April. The pH, salinity and available nitrogen that may affect meiofauna diversity [10]. The dissolved oxygen content varied from 3.0 to 4.4 ml/l. The oxygen content was highest during the monsoon period.

The meiofauna is considered as the best indicators of environmental stress because of their smaller size and short generation time. These

benthic organisms form an important component of the detritus food chain of nutrient generators [11]. In coastal areas, the density of meiobenthos also decreases away from coral and sea grass area. Because of the fishing activities, anthropogenic disturbance and the environmental pollution. Benthic communities are widely used in monitoring the effect of marine pollution as the organisms are mostly sessile and readily integrate the effects of pollutants. It has been suggested that benthic fauna might be used as an integrating indicator of water quality within an area [1] (Table 3). Any fluctuation in their quality and quantity will directly affect the abundance of demersal fishes that are important fishery resources in the sea. In the present study free-living marine nematodes are the most dominant group among the meiofauna of marine environments. Their great abundance, adaptation to a wide range of habitats and diverse morphology suggest that nematodes play a major role in the benthic ecosystem.

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