

INTERTIDAL AMPHIPODS FROM THE INDIAN COAST

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This paper deals with a total number of 132 species belonging to 54 genera of Gammaridean amphipods occurring in the intertidal region of the Indian Coast. The original reference, locality and habitat of the species dealt with are given in a table. The study has revealed that 111 species are found exclusively in the intertidal region, 11 species are common to intertidal and plankton, 7 species to intertidal and benthic and 3 species are common to all the habitats; i.e. intertidal, plankton and benthic. The genus *Maera* Leach seems to be a dominant one with 17 species occurring only in the intertidal and benthic habitats. *Maera hironellei* Chevreux has been reported for the first time from the Indian waters. The genus *Hyale* Rathke comes next in order with 11 species in total, of which 9 are exclusively intertidal and 2 are exclusively planktonic. The genus *Elasmopus* Costa is represented by 10 species all of which are exclusively intertidal.

INTRODUCTION

The order Amphipoda is a diverse group of Crustaceans which includes the suborders Gammaridea, Hyperixea, Caprellidea and Ingolfiellidea. The Gammaridea is the most dominant group including more than 3300 species embraced in 670 genera (Barnard 1969). From the Indian Coast only 164 species belonging to 68 genera have so far been recorded (Tambe and Desh Pande 1964; Rabindranath 1969), Sivaprakasam 1968 *a, b*; 1969 *a, b*). Although there is considerable work on amphipoda in general, so far no attempt has been made to provide a complete list of intertidal amphipods. The intertidal zone is a favourite habitat for these forms and hence it was felt that a consolidated account may be of some use as a ready reference to workers in this field.

The present paper deals with gammarids, the most dominant suborder of the amphipoda. Caprellids which contribute only a few species to the intertidal amphipod fauna are not taken into consideration here. For the sake of convenience and ready comparison the species are given in a tabular form and the original reference, localities and habitat are mentioned for each species. The data given here are based on the information collected from literature and on the collections made by the author.

The paper also deals with *Maera hironellei* Chevreux, which is recorded for the first time from India.

Suborder : GAMMARIDEA
Family : Gammaridea
Genus : *Maera* Leach

Maera hironellei Chevreux

(Chevreux 1900, p. 84, pl. 11, fig. 1 a-j; Stebbing 1906, p. 732; Chevreux 1911, p. 218; Barnard 1916, p. 194; Chevreux and Fage 1925, p. 241, fig. 252; Chevreux 1927, p. 101; 1935, p. 117; Pirlot 1939, p. 61).

Intertidal gammarids from the Indian coast

Name of the species	Original reference	Locality	Habitat	Remarks
AMPELISCIADAE				
<i>Ampelisca pusilla</i> Sars, 1891	<i>Crust. Norway</i> , 1, 181	Bay of Bengal, Arabian Sea	Intertidal, Estuarine	Recorded at Buxar in Ganga (fresh water)
<i>A. scabripes</i> Walker, 1904	<i>Rep. Govt. Ceylon Pearl Oyster Fish. Gulf of Mannar</i> , Pt. 2, 250.	Bay of Bengal	Intertidal and Plankton	East Africa (Arabian sea)
AMPHILOCHIDAE				
<i>Amphilocheus brunneus</i> Della Valle 1893.	<i>Fauna Flora Neapel Monogr.</i> 20, 596.	-do-	Intertidal Estuarine	Mediterranean, North sea, Tale Sap
<i>A. schubarti</i> Schellenberg, 1938	<i>Zool. Jb. System</i> , 71, 204.	-do-	Intertidal (Ascidians), Estuarine	Atlantic (Brazil)
<i>Cyproidea ornata</i> (Haswell 1880)	<i>Proc. Linn. Soc. N. S. W.</i> , 4, 320.	Bay of Bengal Arabian sea	Intertidal and Plankton	Indo-Pacific, Red Sea
<i>Gitanopsis subpusilla</i> Rabindranath, 1969	<i>Ph. D. Thesis, Univ. Kerala</i> , 86.	Arabian sea	Intertidal	
AMPITHOIDAE				
<i>Ampithoe africana</i> Barnard, 1926	<i>Ann. S. Afr. Mus.</i> , 20, 361	Arabian sea	Intertidal	S. Africa
<i>A. kergueleni</i> Stebbing, 1888	<i>Rep. Sci. Res. of the Voyage of H.M.S. Challenger, Zool.</i> , 29, 1116	-do-	-do-	Southern Ocean
<i>A. ranondi</i> Audouin, 1826	<i>Descr. de l' Egypte, Hist. Nat.</i> 1 (4), 93.	Bay of Bengal Arabian sea	Intertidal Plankton	Cosmopolitan in tropical temperate seas
<i>Cymadusa filosa</i> Savigny, 1816	<i>Mem. Anim. Sans Vert. Napoli</i> , 2, 109.	-do-	Intertidal Benthic	Circumtropical
<i>C. microphthalma</i> (Chevreux 1901)	<i>Mem. Soc. Zool. Fr.</i> , 14, 422.	-do-	Intertidal (Sponges)	Seychelles
<i>Paragrubia vorax</i> Chevreux, 1901	<i>Mem. Soc. Zool. Fr.</i> , 14, 427.	Arabian Sea	Intertidal	Indo-Pacific
<i>Pleonexes auriculata</i> Rabindranath, 1969	<i>Ph. D. Thesis, Univ. Kerala</i> , 379.	Bay of Bengal	Intertidal -do-	

Name of the species	Original reference	Locality	Habitat	Remarks
ANAMIXIDAE				
<i>Paramixis indicus</i> Sivaprakasam, 1968.	<i>Proc. Zool. Soc. Calcutta</i> , 21, 131.	Bay of Bengal	Intertidal (Sponges)	
AORIDAE				
<i>Lembos kergueleni</i> (Stebbing 1888)	<i>Rep. Sci. Res. of the Voyage of H.M.S. Challenger Zool.</i> 29, 1087	-do-	-do-	Southern Ocean, Indian Ocean
<i>L. leptochetirus</i> Walker, 1909	<i>Trans. Linn. Soc. Lond. (Zool)</i> Ser. 2, 12, 338.	-do-	Intertidal	E. Coast of South Africa, Suez
<i>L. podocerooides</i> Walker, 1904	<i>Rep. Govt. Ceylon Pearl Oyster fish. Gulf of Mannar Pt. 2</i> , 279.	Bay of Bengal Arabian Sea	Intertidal (Zoantharian Colony and <i>Membranipora</i> sp.)	1st record from Arabian Sea, Material from Zoantharian Colony deep yellow with brown bands, from <i>Mem-</i> <i>branipora</i> sp. Pale with dark bands. Red Sea, Indo-Pacific
ATYLIDAE				
<i>Atylus mimikoi</i> (Walker, 1905)	<i>Gardiner Fauna & Geogr. Maldive Laccadive Archls.</i> 2(1) 925.	Bay of Bengal Arabian sea	Intertidal (Hydroids) and Plankton	Specimens granulose Atlantic, Pacific
CALLIOPIDAE				
<i>Atylopsis latipalpus</i> Walker & Scott, 1903	<i>Forbes Nat. Hist. Sokotra and Abd el Kuri</i> , 222.	Bay of Bengal	Intertidal	Abd-el-kuri
<i>Paracalliope fluviatilis</i> (Thompson, 1879)	<i>Trans. Proc. N. Z. Inst.</i> , 11, 240.	-do-	Intertidal, Estuarine	Recorded in fresh water at New Zealand.
<i>P. indica</i> Barnard, 1935	<i>Rec. Indian Mus.</i> , 37, 280.	-do-	Intertidal, Estuarine and Plankton	

COROPHIDAE

<i>Corophium acherusicum</i> Costa, 1857	<i>Reale. Accad. Sci. Napoli Mem.</i> , 1, 232.	Bay of Bengal	Intertidal, Tube dwelling	Cosmopolitan in tropical temperate seas
<i>C. madrasensis</i> Nayer, 1950	<i>J. Wash. Acad. Sci.</i> , 40(7), 225.	-do-	Intertidal Estuarine	
<i>C. triaenonyx</i> Stebbing, 1904	<i>Spolia zeylan.</i> , 2, 25.	Bay of Bengal, Arabian Sea	Intertidal, Estuarine and Plankton	Wood boring
<i>Erichthonius brasiliensis</i> (Dana, 1853)	<i>U.S. expl. Exp.</i> 13(2), 976.	-do-	Intertidal and Plankton Tube dwelling	Cosmopolitan in tropical temperate, seas.
<i>E. colabaensis</i> Tambe & Desh Pande, 1964	<i>J. Univ. Bombay (N. S.)</i> 31(5), 113-117.	Arabian Sea	Intertidal	
<i>E. plumosae</i> Tambe & Desh Pande, 1964	<i>J. Univ. Bombay N. S.</i> 31(5), 113-117.	-do-	-do-	
<i>Granditierella bonnierii</i> Stebbing, 1908	<i>Rec. Indian Mus.</i> , 2, 120.	Bay of Bengal	-do- (Brackish water)	Atlantic, Cuba
<i>G. gilesi</i> Chilton, 1921	<i>Mem. Indian Mus.</i> , 5, 552.	Arabian sea, Bay of Bengal	Intertidal, Estuarine, under stones in muddy area	
<i>C. gravipes</i> Barnard, 1935	<i>Rec. Indian Mus.</i> , 37, 297.	Arabian Sea	Intertidal, Estuarine under stones in muddy area and sand encrus- tations	
<i>G. macronyx</i> Barnard, 1935	<i>Rec. Indian Mus.</i> , 37, 300.	Bay of Bengal	Intertidal Estuarine	
<i>G. megnae</i> (Giles 1888)	<i>J. Asiat. Soc. Bengal</i> , 57, 231.	Bay of Bengal, Arabian Sea	Intertidal Estuarine and Plankton	

Name of the species	Original reference	Locality	Habitat	Remarks
DEXAMINIDAE				
<i>Guinea dentata</i> Tambe and Desh Pande, 1964	<i>J. Univ. Bombay</i> , N. S. 31(5), 113-117.	Arabian Sea	Intertidal	
EUSIRIDAE				
<i>Eusiroides diplonyx</i> Walker, 1909	<i>Trans. Linn. Soc. Lond.</i> Ser. 2, 12, 333.	Bay of Bengal	-do-	Indo-Pacific
<i>Pontogenia subrostrata</i> Rabindranath, 1969	<i>Ph. D. Thesis Univ. Kerala</i> , 149.	Arabian Sea	-do-	
GAMMARIDAE				
<i>Ceradocoides ehiltoni</i> Nicholls, 1938	<i>Australian Antarctic Exped.</i> 1911-14 : <i>Sci. Rep.</i> ser. 6, 10(4), 123.	Bay of Bengal	-do-	Australia
<i>Ceradocus rubromaculatus</i> (Stimpson, 1855)	<i>Proc. Acad. nat. Sci. Philad.</i> , 7, 394.	Arabian Sea	Intertidal Estuarine (Hydroids)	Indo-Pacific
<i>Elasmopus brasiliensis</i> (Dana, 1853)	<i>U.S. Expl. Exp.</i> , 13(2), 956, Fig. 10	-do-	Intertidal	Micronesia (Pacific)
<i>E. erythraeus</i> (Kossmann 1880)	<i>Reise Roth Meer 21, Malacost.</i> , 132, pl. 4, figs. 1-8.	Bay of Bengal	-do-	Red Sea, S. Arabian Sea
<i>E. palpifera</i> Tambe and Desh Pande, 1964	<i>J. Univ. Bombay N. S.</i> 31 (5) 113-117.	Arabian Sea	-do-	
<i>E. pectiniferus</i> (Bate 1862)	<i>Catalogue of the specimens of</i> <i>amphipodus Crustaceans in the</i> <i>collection of the British Museum,</i> <i>London</i> , 192.	Bay of Bengal	Intertidal (Zoantharian) Hydroids, Crinoids and Sand encrusta- tions)	Specimens from Zoantharian Colony deep yellow

<i>E. rapax</i> Costa, 1853	<i>Rend. Soc. Reale Borbonica Accad. Sci. Naples, new ser.</i> , 2, 175.	Bay of Bengal Arabian Sea	Intertidal, common on pillings and shallow water	Cosmopolitan tropical and temperate seas
<i>E. spinibasus</i> Sivaprakasam, 1968	<i>J. mar. biol. Ass. India</i> , 10(1), 45	Bay of Bengal	Intertidal	Indo-Pacific
<i>E. spinidactylus</i> Chevreux, 1907.	<i>Bull. Mus. Hist. nat. Paris</i> , 6, 412	-do-	-do-	Ceylon
<i>E. spinimanus</i> Walker, 1904	<i>Rep. Govt. Ceylon Pearl Oyster Fish. Gulf of Mannar</i> , Pt. 2, 277.	-do-	-do-	
<i>E. subpectiniferus</i> Tambe and Desh Pande, 1964	<i>J. Univ. Bombay N.S.</i> , 31(5) 113-117.	Arabian Sea	-do-	
<i>E. suensis</i> (Haswell, 1879)	<i>Proc. Linn. Soc. N.S.W.</i> , 4, 335.	Bay of Bengal	-do-	
<i>Eriopisa chilkenis</i> (Chilton, 1921)	<i>Mem. Indian Mus.</i> , 5, 531.	Bay of Bengal, Arabian Sea	Intertidal	S. Africa, Siam
<i>Eriopisella sechellensis</i> (Chevreux, 1901)	<i>Mem. Soc. Zool. Fr.</i> , 14, 403	Arabian Sea	Estuarine (Corals), Intertidal	Seychelles, Red Sea, Siam
<i>Maera grossimana</i> (Montagu, 1809)	<i>Trans. Linn. Soc. Lond.</i> 9, 97.	-do-	Intertidal	1st record from India, N.
<i>M. hironidellei</i> Chevreux, 1900	<i>Res. campagnes Sci. Albert l' er Monaco</i> , 16, 84.	-do-	Intertidal (<i>Membranipora</i> sp.) Shallow and deep waters	Atlantic, Mediterranean, S. Africa
<i>M. inaequipes inaequipes</i> (Costa, 1951)	<i>F. W. Hope, Cat. Crost. Ital.</i> : 45.	Bay of Bengal Arabian Sea	Intertidal	Cosmopolitan
<i>M. i. serrata</i> Schellenberg, 1938	<i>K. Syenska Vetenska Akad Handl. ser 3</i> , 16(6), 41.	Bay of Bengal	-do-	Indo-Pacific
<i>M. insignis</i> (Chevreux, 1901)	<i>Mem. Soc. Zool. Fr.</i> , 14, 406.	Bay of Bengal Arabian Sea	-do-	Tropical Pacific, Indian Ocean
<i>M. latibrachium</i> Walker, 1905	<i>Gardiner Fauna & Geogr Maldive Laccadive Archi.</i> 2(1), 928.	Bay of Bengal, Arabian Sea	-do-	
<i>M. latibrachiodes</i> Sivaprakasam, 1968	<i>J. mar. biol. Ass. India</i> , 10(1), 106.	Bay of Bengal	-do-	
<i>M. mastersii</i> (Haswell, 1879)	<i>Proc. Linn. Soc. N.S.W.</i> 4, 265.	Bay of Bengal, Arabian Sea	-do-	Indo-Pacific

Name of the species	Original reference	Locality	Habitat	Remarks
<i>M. octodens</i> Sivaprakasam, 1968	<i>J. mar. biol. Ass. India</i> , 10(1), 36	Bay of Bengal	Intertidal	
<i>M. othonoides</i> Walker, 1904	Rep. Govt. Ceylon Pearl Oyster Fish. Gulf Mannar, 1971, Pt. 2, 271	Bay of Bengal	Intertidal	S. Africa
<i>M. pacifica</i> Schellenberg, 1938	<i>K. Svenska Vetensk Akad. Handl. Ser. 3</i> , 16(6), 42.	-do-	Estuarine	Indo Pacific
<i>M. quadrimana</i> (Dana, 1853)	<i>U.S. Expl. Exped.</i> , 13(2), 955.	-do-	Intertidal	1st record from Arabian Sea
<i>M. sokotrae</i> (Walker and Scott, 1903)	<i>Forbes Nat. Hist. Sokotra and Abd-el-Kuri</i> , 223.	-do-	(Holothurians)	Indo Pacific
<i>M. spinosa</i> Tambe and Desh Pande, 1964	<i>J Univ. Bombay N. S.</i> , 31(5), 113-117.	Arabian Sea	Intertidal	Abd-el-kuri
<i>M. subcarinata</i> (Haswell, 1880)	<i>Proc. Linn. Soc. N.S.W.</i> 5, 103.	Bay of Bengal, Arabian Sea	-do-	Ceylon, New Zealand
<i>Melita fresneli</i> (Audouin, 1825)	<i>Descr. Egypt.</i> 1(4), 93 Crust.	-do-	Benthic	Mediterranean
<i>M. inaequistylis</i> Dana, (1852)	<i>Proc. Am. Acad. Arts Sci.</i> , 2, 214	-do-	Intertidal	Cosmopolitan in Tropical Sub-tropical seas
<i>M. nitida</i> Smith, 1873	<i>A. E. Verrill Rep. U.S. Fish. Comm. New England</i> , 1871-1872, 1, 560.	Arabian Sea	Intertidal	N. Atlantic
<i>M. orgasmos</i> Barnard, 1940	<i>Ann. S. Afr. Mus.</i> , 32 (5) 454.	Bay of Bengal	Estuarine	S. Africa
<i>M. subchelata</i> Schellenberg, 1925	<i>Michaelson, W. Beitrage Zur Kenntnis des Meeresfauna Westafrikas</i> , 3(4), 153.	Arabian Sea	Intertidal	
<i>M. zeylanica</i> Stebbing, 1904	<i>Spolice Zeylan</i> , 2, 22.	Bay of Bengal, Arabian Sea	-do-	Wood boring, Ceylon
<i>Parelasasmus abidus</i> (Dana, 1853)	<i>U. S. Expl. Exp.</i> , 13(2) 948.	Bay of Bengal	Intertidal	S. Africa
			Estuarine inhabiting <i>Sphaeroma</i> sp. burrows in wood	
			Intertidal	S. Pacific

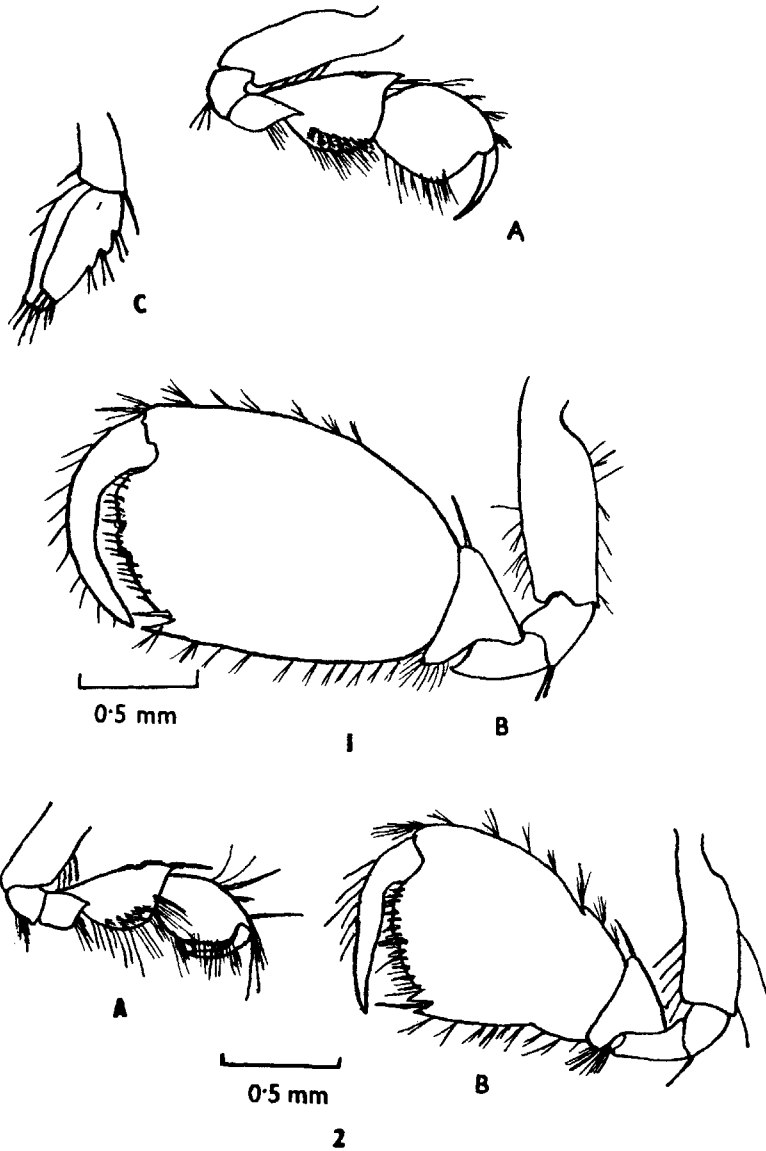
<i>P. suluensis</i> (Dana, 1852)	<i>Proc. Am. Acad. Arts. Sci.</i> , 2, 210	Bay of Bengal, Arabian Sea	Intertidal and Plankton	Red Sea Pacific
<i>Quadrivisio bengalensis</i> , Stebbing, 1907	<i>Rec. Indian Mus.</i> , 1, 160.	Bay of Bengal Arabian Sea	Intertidal, Estuarine	Indo-Pacific
HYALELLIDAE				
<i>Parhyalella indica</i> Barnard, 1935.	<i>Rec. Indian Mus.</i> , 37(3) 294.	Bay of Bengal, Arabian Sea	Intertidal	
<i>P. natalensis</i> (Stebbing, 1917)	<i>Ann. Mag. Nat. Hist. Ser.</i> 8, 20, 435.	Bay of Bengal Arabian Sea	Intertidal (Rock Crevices)	S. Africa
HYALIDAE				
<i>Hyale affinis</i> Chevreux, 1907	<i>Bull. Mus. Hist. Nat. Paris</i> 6, 415.	-do-	Intertidal	Pacific
<i>H. ayeli</i> Barnard, 1955	<i>Berince P. Bishop Mus. Bull.</i> , 215, 14.	Bay of Bengal	-do-	-do-
<i>H. chevreuxi</i> Barnard, 1916	<i>Ann. S. Afr. Mus.</i> , 15, 235.	-do-	-do-	-do-
<i>H. diplodactyla</i> Stebbing, 1899	<i>Trans. Linn. Soc. Lond. (Zool)</i> Ser. 2, 7, 403.	Bay of Bengal, Arabian Sea	Intertidal (Hydroids)	1st record to Arabian Sea, West Indies
<i>H. galatea</i> Stebbing, 1899	<i>Trans. Linn. Soc. Lond (Zool)</i> Ser. 2, 7, 402.	-do-	Intertidal	1st record to Arabian Sea and Indo-Pacific
<i>H. honoluluenis</i> Schellenberg, 1938	<i>K. Svenska Vetenska Akad. Handl.</i> 16(6), 69.	-do-	Intertidal (Coral rocks in atolls)	1st record to Arabian Sea, Indo-Pacific
<i>H. macrodactyla</i> Stebbing, 1899	<i>Trans. Linn. Soc. Lond (Zool)</i> Ser. 2, 7 404.	Bay of Bengal Arabian Sea	Intertidal	1st record Arabian Sea Atlantic, Pacific
<i>H. nigra</i> (Haswell, 1880)	<i>Proc. Linn. Soc. N.S.W.</i> , 4(3)319	Bay of Bengal Arabian Sea	-do-	Australia, N. Indian Ocean
<i>H. pontica</i> Rathke, 1837	<i>Mem. Pres. Ac. St. Petersb.</i> , 3, 378	Arabian Sea	-do-	
<i>Parhyale fasciger</i> Stebbing, 1897	<i>Trans. Linn. Soc. Lond (Zool)</i> Ser. 2 7(2) 26.	-do-	Intertidal (Sand encrustations on rocks)	Atlantic 1st, record from Arabian Sea
<i>P. hawaiiensis</i> (Dana, 1853)	<i>U.S. Expl. Exp.</i> , 13(2), 900.	Bay of Bengal Arabian Sea	Intertidal (Zoantharia and Hydroids) Estuarine	Specimens from Zoanthis are deep yellow Cosmopolitan in Tropical seas

Name of the species	Original reference	Locality	Habitat	Remarks
<i>P. inyacka</i> (Barnard, 1916)	<i>Ann. S. Afr. Mus.</i> , 15, 233.	Bay of Bengal	Intertidal	Indo-Pacific
ISAEIDAE				
<i>Audulla chelifera</i> Chevreux, 1901	<i>Mem. Soc. Zool. Fr.</i> 14, 431.	-do-	-do-	Tropical Indian ocean
<i>Cheiriphotis megacheles</i> (Giles, 1885)	<i>J. Asiat. Soc. Bengal</i> , 54, 70.	Bay of Bengal, Arabian Sea	Intertidal (Sponges), Plankton and Benthic	Recorded as epifauna on kind crab at Digha beach
<i>Gammaropsis afer</i> Stebbing, 1888	<i>Rep. Sci. Res. of the Voyage of H.M.S. Challenger Zool.</i> 29, 1097.	-do-	Intertidal Estuarine (Hydroids and Plankton)	Pacific
<i>G. anomalous</i> (Rabindranath, 1969)	<i>Ph. D. Thesis Univ. Kerala</i> , 352.	Bay of Bengal	Intertidal	
<i>G. atlanticus</i> Stebbing, 1888	<i>Rep. Sci. Res. of the Voyage of H.M.S. Challenger Zool.</i> , 29, 1101	Bay of Bengal, Arabian Sea	Intertidal Estuarine Plankton and Benthic (Sponges)	Indo-Pacific
<i>G. digitatus</i> Schellenberg, 1938	<i>K. Svenska Vetenska Akad. Handl. Ser. 3</i> , 16(6), 84.	Bay of Bengal	Intertidal	Gilbert Island
<i>Microprotopus bicuspidata</i> Rabindranath, 1969	<i>Ph. D. Thesis Univ. Kerala</i> , 321.	-do-	-do-	
<i>M. maculatus</i> Norman, 1867	<i>British Assoc. Adv. Sci. Rep.</i> , 203.	-do-	-do-	N. Atlantic, Mediterranean
<i>Photis digitata</i> Barnard, 1935	<i>Rec. Indian Mus.</i> , 37, 302.	Bay of Bengal, Arabian Sea	Intertidal (Oyster rafts Gastropod shells), Estuarine	
<i>P. geniculata</i> Barnard, 1935	<i>Rec. Indian Mus.</i> , 37, 303.	Arabian Sea	Intertidal Estuarine	

<i>P. longicaudata</i> (Bate and West Wood, 1862)	<i>Brit. Sess. Crust.</i> , 1 , 412.	Bay of Bengal Arabian Sea	Intertidal, Estuarine (From <i>Murex</i> shell) and Benthic	Cosmopolitan
<i>P. longimanus</i> Walker, 1904	<i>Rep. Govt. Ceylon Pearl Oyster Fish. Gulf of Mannar</i> 2 , 286.	Bay of Bengal	Intertidal	Ceylon, S. Africa
LEUCOTHOIDAE				
<i>Leucothoe furina</i> (Savigny, 1816)	<i>Mem. Anim. Sans. Vert. Nepoli</i> , 1 , 109.	-do-	Intertidal (Tunicates)	Indo-Pacific
<i>L. madrasana</i> Sivaprakasam, 1967	<i>J. mar. biol. Ass. India</i> , 9 , 388.	-do-	Intertidal	Mediterranean, S. Africa
<i>L. richtardi</i> Lessona, 1865	<i>Atti Soc. Ital.</i> , 8 , 426.	Bay of Bengal, Arabian Sea	Intertidal (Sponges)	
<i>L. spinicarpa</i> (Abildgaard, 1789)	<i>O. F. Muller, Zool. Danica</i> , 3 , 66.	Bay of Bengal	Intertidal (Holothurians, Sponges) and Benthic	Cosmopolitan
<i>Leucothoides pottsi</i> Shoemaker, 1933	<i>Rap. Tortugas Lab., Carnegie Inst. Washington</i> , 28 , 249.	-do-	Intertidal	Red Sea, Pacific
LILJEBORGIIIDAE				
<i>Idanella chilkenis</i> Chilton, 1921	<i>Mem. Indian Mus.</i> , 5 , 525.	-do-	-do-	S. Indian Ocean
LYSIANASSIDAE				
<i>Lepidopecreum formiferum</i> Stebbing, 1888	<i>Rep. Sci. Res. of the Voyage of H.M.S. Challenger Zool.</i> , 29 , 686.	-do-	-do-	-do-
<i>Lysianassa ceratina</i> Walker, 1909	<i>Trans. Linn. Soc. Lond. Ser. 2</i> , 12 , 327.	Arabian Sea	-do-	Cosmopolitan in Tropical and Temperate Seas
<i>L. cinghalensis</i> (Stebbing, 1897)	<i>Trans. Linn. Soc. Lond (Zool) Ser. 2</i> , 7 (2), 28.	Bay of Bengal, Arabian Sea	-do-	Indian Ocean
<i>L. cubensis</i> (Dana, 1853)	<i>U.S. Expl. Exp.</i> , 13 (2), 915.	Bay of Bengal	Intertidal and Benthic	Atlantic, Pacific
<i>L. indica</i> (Rabindranath, 1969)	<i>Ph. D. Thesis, Univ. Kerala</i> , 19 .	-do-	Intertidal	

Name of the species	Original reference	Locality	Habitat	Remarks
<i>Orchomene affinis</i> (Holmes, 1908)	<i>Proc. U.S. Nat. Mus.</i> , 35 , 492.	Bay of Bengal	Intertidal (Nudibranches)	Pacific, West Coast of N. America
<i>O. mannarensis</i> Rabindranath, 1969	<i>Ph. D. Thesis Univ. Kerala</i> , 27.	-do-	Intertidal (Rock crevices)	
<i>Socarnella bonniieri</i> Walker, 1904	<i>Rep. Govt. Ceylon Pearl Oyster Fish. Gulf of Mannar</i> , pt. 2, (17) 239.	-do-	Intertidal (Compound Ascidians)	Ceylon
OEDICEROTIDAE				
<i>Periculodes longimanus</i> (Bate and West Wood, 1868)	<i>Brit. Sess. Crust.</i> , 2 , 507.	-do-	Intertidal Estuarine	
<i>Synchelidium haplocheles</i> (Grube, 1864)	<i>Die Insel Lussin Und ihre Meeress- fauna, Nach einem sechswochen- lichen Aufenthalt geschildert Von Dr. Adolph Eduard, Grube F. Hirt. Breslau</i> , 72.	-do-	Intertidal Estuarine	N. Sea, N. Atlantic Medi- terranean, Ceylon
PHLLANTIDAE				
<i>Palinotus natalensis</i> Barnard, 1940	<i>Ann. S. Afr. Mus.</i> , 32 , 445.	Arabian Sea	Intertidal	S. Africa
<i>Perionotus testudo</i> (Montagu, 1808)	<i>Trans. Linn. Soc. Lond.</i> , 9 , 102.	Bay of Bengal	-do-	East Africa
PHOXOCEPHALIDAE				
<i>Harpinia crenulata</i> (Boeck, 1871)	<i>Forhandl. Vidensk.-Selsk. Christiania</i> , (1870), 102.	-do-	Intertidal (Interstitial)	Arctic, Atlantic Mediterranean
<i>Paraphoxus rostrata</i> (Dana, 1853)	<i>U.S. Expl. Exp.</i> , 13 (2), 921.	Arabian Sea	Intertidal, Plankton and Benthic	Indo-Pacific
PODOCERIDAE				
<i>Podocerus brasiliensis</i> (Dana, 1853)	<i>U.S. Expl. Exp.</i> , 31 (2), 838.	Bay of Bengal, Arabian Sea	Intertidal (Tube dwelling in muddy bottoms), estuarine, Benthic	Atlantic, Pacific

<i>P. laevis</i> (Haswell, 1886)	<i>Proc. Linn. Soc. N.S.W.</i> , 10 , 111	Bay of Bengal	Intertidal (Hydroids)	Australia
<i>P. walkeri</i> Rabindranath, 1969	<i>Ph. D. Thesis, Univ. Kerala</i> , 425.	-do-	Intertidal	
STENOHOIDAE				
<i>Stenothoe gallensis</i> Walker, 1904	<i>Rep. Govt. Ceylon Pearl Oyster Fish. Gulf of Mannar</i> 2 (17), 261.	-do-	Intertidal, Estuarine	Indo-Pacific
<i>S. valida</i> Dana, 1853	<i>U.S. Expl. Exp.</i> , 13 (2), 924.	-do-	Intertidal (Hydroids), Pile scrapings	Indo-Pacific
SYNOPIIDAE				
<i>Tiron bombayensis</i> Tambe and Desh Pande, 1964	<i>J. Univ. Bombay N. S.</i> , 31 (5), 113-117.	Arabian Sea	Intertidal	
TALITRIDAE				
<i>Orchestia anomala</i> Chevreux, 1901	<i>Mem. Soc. Zool. Fr.</i> , 14 , 393.	Bay of Bengal	Intertidal (under stones) and Fresh water ponds	Pacific
<i>O. florestiana</i> Weber, 1892	<i>Reise Niederl Ost. Ind.</i> , 2 , 562.	-do-	Intertidal. Estuarine	Singapore
<i>O. notabilis</i> (Barnard, 1935)	<i>Rec. Indian Mus.</i> , 37 (3), 290.	Arabian Sea	Intertidal, Estuarine	
<i>O. platensis</i> Kroyer, 1845	<i>Naturch. Tidsskr. Ser-2</i> , 1 , 304.	Bay of Bengal, Arabian Sea	Intertidal Estuarine	Hawaii
<i>Talorchestia gracilis</i> (Dana, 1852)	<i>Proc. Am. Acad. Arts. Sci.</i> , 2 , 201.	Bay of Bengal	Intertidal	
<i>T. martensii</i> (Weber, 1892)	<i>Reise Niederl Ost. Ind.</i> , 2 , 564.	Bay of Bengal, Arabian Sea	Intertidal, Estuarine and fresh water	Siam East Indies
<i>T. spinipalma</i> (Dana, 1852)	<i>Proc. Am. Acad. Arts. Sci.</i> , 2 , 203.	Arabian Sea	Intertidal	



FIGS. 1-2. *Maera hirondellei* Chevreux. 1, male; 2, female. A, Gnathopod 1; B, Gnathopod 2; C, Uropod 3.

Material—Two males and female from *Membranipora* sp. from a sandy beach at Tellicherry; size : male—6.5 mm, female—5 mm.

Remarks—The present material agrees with the description given by Barnard (1916) in the eyes being dark and reniform, the 5th joint of Gnathopod I being indented on anterior margin, both 4th and 5th joints pointed at its apex in both

the sexes (Figs. 1 A and 2 A). In the male the hand of the 2nd Gnathopod is broader with single palmar spine (Fig. 1 B), whereas in the female it is broader at the apex, palm distinct with two spines at palmar joint (Fig. 2 B), as shown by Chevreux and Fage (1925). Postero-lateral angle of the 3rd pleon segment acutely produced. The present material differs from Barnard's material in the number of joints of the antennae. In the males, antenna I bears 7-jointed accessory flagellum and 18-jointed primary flagellum; with the antenna II bearing a 8-jointed flagellum. In the female specimen the antenna I has 9-jointed accessory flagellum and a 22-jointed primary flagellum, with antenna II bearing 8-jointed flagellum.

Ecology—The species occurs in shallow waters. Barnard recorded this species at a depth of 80 fathoms and Chevreux at 130 meters depth as well as at low-tide region. The present material is collected from *Membranipora* sp. which was washed ashore.

Distribution—This species is recorded for the first time from India. Previously known from Azores (N. Atlatic); Ile Djerba; Algiers, (Mediterranean) Patermoster point (Off Saldanah Bay) in S. Africa.

DISCUSSION

The present study reveals that only 164 species belonging to 68 genera have so far been reported from the Indian waters. The largest number of species (132 belonging to 54 genera) are recorded from the intertidal zone, whereas only 32 species belonging to 14 genera are known to occur in other habitats, i.e. plankton and benthic.

A perusal of the Table shows that of the 68 genera reported in the Indian waters, as many as 31 genera (45.6 per cent) are found to be exclusively intertidal, whereas only five genera (7.4 per cent) are purely planktonic and four genera (5.9 per cent) purely benthic. Some of the genera are common either to intertidal and plankton (10 genera) or intertidal and benthic (7 genera). Only 5 genera are found to be common to plankton and benthic. The genera, which are common to all the three habitats, i.e. intertidal, plankton and benthic, are only six in number (8.8 per cent). Among the genera, *Maera* seems to be the dominant one with 17 species in all, having 14 and 2 species from intertidal and benthic habitats respectively and one species being common to both these habitats. This genus is totally absent in the planktonic habitat. Further, it is interesting to note that the species *M. othonides* is also reported from estuarine habitat. *Hyale* comes next in order with 11 species in total, of which nine are exclusively intertidal and two are exclusively planktonic. The genus *Elasmopus* is represented by 10 species, all of which are exclusively intertidal. The rest of the genera are represented each by a few number of species which are purely intertidal.

When we take the number of species into consideration it is seen that out of 164 species reported so far from Indian waters as many as 3 species (67.7 per cent) are found to be exclusively intertidal, 11 species (6.75 per cent) are common to intertidal and plankton, seven species (4.27 per cent) to intertidal and benthic and three species (1.9 per cent) are common to all the three habitats. The table

also shows that 33 species are also known from the estuarine habitats (Surya Rao, *in press*). The species *Ampelisca pusilla*, *Paracalliope fluviatilis*, *Orchestia anomala* and *Talorchestia martensii* are also recorded from freshwater bodies. It is evident from the above data that the faunistic constitution of the Indian gammarids is more characterised by the intertidal species than the plankton or benthic. Anyway, it is difficult to arrive at any definite conclusion as the number of species recorded so far from India are very meagre when compared to the total number of World species known under gammaridea. Moreover, the studies in India are confined largely to the intertidal zone.

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*Original not seen.