Chapter 1

Introduction

1.1. GENERAL BIOLOGY

Members of the order Mysidacea are shrimp like crustaceans, commonly called “opossum shrimp”, which refers to the presence of a brood pouch or marsupium in mature female. They inhabit all regions of the oceans to depths as great as 7210 m (Belyaev, 1966). Mysids are highly adaptive group and therefore also good invaders of new areas (Ketelaars et al., 1999). There are many brackish water species and a few species occur in fresh water, some have become adapted to the specialized environments of caves and wells while yet others live symbiotically associated with animals such as sea anemones, sponges and hermit crabs (Clarke, 1955; O.S.Tattersall, 1962, 1967; Bowman, 1973; Vannini et al., 1993; Price and Head, 2004). Some species burrow into the sediment, live just above it or migrate between bottom and surface waters, a few are strictly pelagic species and some live in shallow water in the littoral zone (Mauchline, 1980). Though mysids occur widely throughout the marine environment, the most marked concentration occur in coastal regions. Coastal and epipelagic forms are small, but deeper species are large in size (Mauchline, 1980; Brusca and Brusca, 2003).

Colour: Mysids in their natural surroundings exhibit a general tone of colour which is in harmonize with their environment. The colour changes are brought about by the expansion and contraction of large chromatophores distributed all over the body. Animals on a sandy shore will be almost transparent or greyish in tint while those living among weeds will be dark green or brown and the deep water forms will be deep red in colour. (Tattersall and Tattersall, 1951; Mauchline, 1980).
Breeding season: Some species breed throughout the year, some produce three or more generations per year, some produce two and some only one generation per year. The number of embryos carried in the pouch varies according to the species and is also affected by the size of the female, the time of the year and the temperature.

Fertilization and development: Fertilization is external. The male sheds the sperm directly into the brood pouch or near to its proximity and is carried to the marsupium by currents. The eggs are shed into the brood pouch where fertilization takes place. The larval development takes place entirely within the marsupium. The development within the marsupium can be divided into three stages as eggs, eyeless larvae and eyed larvae (Mauchline, 1971). All the larvae within a single marsupium are at the same stage of development. They are regularly oriented, their heads pointing posteriorly and closely packed together. The duration of marsupial development is related to ambient temperature and salinity and varies with species and ranges from 96 hrs at 25 - 29°C (Nair, 1939) to 150 - 270 days at 0.2 -10°C (Berril, 1971; Lasenby and Langford, 1972). In general in colder temperature the length of incubation period is greater than under warmer conditions.

Growth and life span: Increase in body size is associated with moulting and in many species growth continues after sexual maturity has attained and many characters may change and hence identification of the species under Mysidacea is rather difficult. The growth is accompanied by considerable changes in the proportions and armature of the body and appendages, so that smaller individuals differ considerably from larger ones. This disconcerting phenomenon has led to much confusion among the taxonomists in the past because a few specimens at their disposal have frequently led to creation of new species, which have subsequently proved to be different growth stages of
species already described. The actual size of the animals is unfortunately not a reliable guide because those living in warmer waters mature more rapidly and undergoes the various growth stages at a much smaller size than those inhabiting in colder regions. The longevity of individuals also vary; in temperate waters length of life span is one year to eighteen months, in colder waters it will be about two years and in warmer waters mysids are mostly annuals.

**Food and feeding:** Mysids are omnivorous and capable of utilizing a wide variety of food source depending on availability. They are adapted to two types of feeding. Most coastal species utilize organic detritus and small planktonic organisms by filter feeding mechanism. Another method is to seize food masses by the thoracic endopods and consume as the animal swims away. Other than detritus, the food of mysids consists of small burrowing amphipods, cladocerans, cyclopoid copepods and diatoms.

**Vertical migration:** Mysids are primarily benthic in habit moving about during daytime just above the bottom, feeding on detritus. Many species perform a diel vertical migration, rising to the surface layers during night and returning to the deeper layers at daylight. Mysids generally avoid bright illumination; therefore light intensity appears to be the major factor controlling the vertical migration. Seasonal changes in the vertical migration have been found, to avoid seasonal extremes of temperature and salinity in littoral zone and brackish water environment.

**Behaviour**

(a) **Aggregation:** Many mysids show well marked aggregative behavior and aggregation within different population of mysids can be very different in origin, form and behavior. Various physiological and environmental factors
influence the formation and maintenance of mysid aggregation and based on the sociality and intrinsic biological processes, aggregation is classified under different terms like swarms, shoals or schools. (Mauchline, 1971; Wittmann, 1977). The process of aggregation aids in maintaining increased reproductive and feeding efficiency, sociality and protection from predators etc., (Emery, 1968; Clutter, 1969; Wittmann, 1977; O. ‘Brien, 1988)

(b) Kin recognition and Adoption: Wittmann (1978) observed that ovigerous females capture and introduce prematurely liberated larvae of other females into their marsupia. Ovigerous females are capable of distinguishing intra and interspecific difference among larvae. In some species of mysid (Tenagomysis tasmaniae), females are capable of recognizing their own young (Johnston and Ritz, 2005).

(c) Homing behavior: Mysid swarms at benthic coral reef sites are found to disperse into the water column in the evening and reform at the exact same location the following morning, probably reflecting the homing behavior of individual mysids (Twining et al., 2000). The ecological significance of homing is not known.

Parasites: A wide range of parasites has been reported in mysids, the most frequently described being the ellobiopsid protozoans, the choniostomatid copepods and the epicaridean isopods. All these are external parasites found on various parts of the surface of the body and appendages of the host and on the inner surface of the marsupial pouch. Many of these are probably only epizoic, merely using the mysid as a substratum for attachment. Others do penetrate the tissue of the host for nutritional purposes and so influence its growth and development. These parasites infest mysids belonging to specific
species of a number of genera, but why they occur in one species of a genus and not all is unknown.

1.2. EVOLUTION OF MYSIDACEA

Fossil mysids have been dated as far back as the Triassic period, about 248 - 213 million years ago. A group of fossil crustaceans known as Pygocephalomorha, which includes a number of Paleozoic genera from that carboniferous and Permian periods (360 - 248 mya), is possibly related to the mysids.

1.3. MYSIDS IN THE MARINE ECONOMY.

As food for man: The biomass of littoral and sub littoral mysids are often large and the standing stock attain the order of 20-200 g/m² (Mauchline, 1980). Such swarms are exploited commercially, especially in the tropical and subtropical regions and the species harvested are often not known. Omori (1978) states that several species of mixed groups of mysids are fished in local region of China, Korea and south eastern Asian countries but no descriptions of these fisheries are available. The mysids are used to make shrimp paste and sauces. Some thousand of tonnes of Neomysis sp. are harvested in Japan each year. They are boiled, dried and marketed as preserved cooked food known as “tsukundani” (Mauchline, 1980). Praunus flexuosus is collected in the Channel Islands and made into a paste called “cherche” to use as bait for catching mullet. In Korea mysids are used to improve “Kimchis” flavor, a Korean side dish. In West Ireland, boiled mysids are used with toast. In Calcutta markets, Mesopodopsis orientalis mixed with the decapod Acetes are sold as “Kada chingri” (Mauchline, 1980). In the Chilka lake region the mysids are mixed with turmeric and boiled and eaten with rice. In Maharashtra, mysids locally called “Kolim” are exploited commercially on a
small scale by the fishermen of Satpati and Alewadi villages in Thane district of the North Konkan coast (Patil and Sankolli, 1991).

**As food for fishes:** As food of fishes, mysids play a very important part in the economy of the sea. Most coastal species utilize organic detritus and are prey to the demersal fish and thus mysids are involved in a short food chain.

Organic detritus → Mysids → Fish

The records of mysids from the stomachs of marine fishes are numerous from all parts of the world. Several species are known to form shoals in the continental shelves and are consequently a potential food resources for a wide range of fish, as listed by Mauchline (1980).

Fresh water species of mysids have recently been introduced into lakes, rivers and reservoirs as food for the resident population of fish, and most of their introduction appears to have been successful (Sparrow et al., 1964; Linn and Frantz, 1965; Hansen, 1966; Stringer, 1967; Zhuravel, 1959; Boroditch, 1973). Ogle and Price (1976) had successfully used mysids as food in prawn culture and had obtained good results.

**As experimental organism:** Mysids are good experimental organisms because they are large and durable and relatively easy to handle and remain in good condition in the laboratory. The estuarine species *Mysidopsis bahia* are cultured and tested for sensitivity to various concentrations of cadmium (Nimmo et al., 1978a) and for toxicity of insecticide lindane (Schimmel et al., 1977). The American society and U.S Environmental Pollution Agency (USEPA) use this species as a key-testing organism for coastal and estuarine monitoring. Consequently some species of estuarine mysids are extremely useful as bioassay test organisms in studies of the potential impact of various pollutants particularly in life cycle toxicity experiments. Their omnivorous
feeding habits also make them potentially good species for food selection and prey switching over studies.

**In wood pulp effluent plants:** *Mysis stenolepis* was found to be able to utilize cellulose, probably through the presence of gut micro flora (Foulds and Mann, 1978). It assimilated sterile raw cellulose, with efficiencies of 30-50% efficiencies that are surprisingly high and could be of interest in the context of studies on effluents from wood pulp mills.

**Nutrient recycling:** Most of the coastal and estuarine species utilize organic detritus to a considerable extent. They are responsible for the remineralization of substantial portion of the detritus (Fockedey and Mees, 1999). Mysids can be largely omnivorous, with demonstrated capabilities to digest cellulose and diets spanning macrophyte detritus, large microalgae, and smaller animals and heterotrophic protists. They are abundant and significantly play an active role in the transport of sediment.

**1.4. GENERAL MORPHOLOGY** (Figs. 1.1 and 1.2)

**Size** - The mysids are shrimp-like forms ranging in length from 3 mm to 25 mm, the size of the species increase from the tropics to the poles and from shallow water to deep water.

**General form** - The body is divided into cephalon, thorax and abdomen. There are five cephalic, eight thoracic and six abdominal somites, each somite with a pair of appendages.

**Integument** - This is usually thin, soft and poorly calcified. In some species the integument is covered with minute up turned scales giving a hispid appearance while in some the body is armed with spines.
**Carapace** - In the majority of species it covers the thorax laterally but leaves the last one or two thoracic somites, dorsally exposed. There is a well marked groove, the cervical sulcus, running across the dorsal surface above the region of the mandibles. The anterior margin of the carapace is usually produced forward into a more or less well developed rostral plate, may be evenly acute with no trace of rostrum, or produced into very long pointed process; the posterior margin may be emarginate or straight. Both anterior and posterior margins may be furnished with outgrowths in the form of spines or upturned lappets or fine flexible prolongations but in the great majority of species the margins are entire and unadorned.

![Diagram of mysid anatomy](image1)

**Figure 1.** The general morphology of mysids (A typical form). (Modified from Stuck et al., 1979) A, Lateral view; B, Dorsal view.

**Telson** - The telson is not a true somite but represents the posterior unsegmented portion of the body. It does not bear appendages and varies in form and its characters form a valuable clue to the identification of species.
**Eyes** - The head bears a pair of well developed usually stalked movable eyes. The eyes may be semiglobular, dorso ventrally flattened or plate like. The cornea occupies the distal portion of the eyestalk and in some the cornea is divided into two parts and in some the cornea may be completely absent.

**Labrum** - Immediately anterior to the mouth there is an unpaired flat plate, which form the upper lip. This is somewhat broader than long and the anterior margin may be convexly rounded or produced into short or long spine.

**Appendages**

**Antennules** - These appendages consist of a three segmented peduncle and two flagella. The outer flagellum longer and larger than the inner, bearing near its base a number of sensory hairs. In the male it is much more robust than in female. In the Sub Order Mysida, there is a ventral conical lobe on the third segment of the peduncle of the male, which is densely covered with sensory hairs.

**Antennae** - This pair of appendages consist of a sympod and a well developed exopod and endopod. The sympod is made up of three parts which are closely fused and usually with a prominent spine on the outer distal corner. The exopod or scale is plate like, may be setose all round, or the outer margin may be entire or serrated ending in a strong spine. In some genera the scale is vestigial. The size and shape of the scale afford useful generic characters. The endopod is in the form of a many-segmented flagellum, the proximal three segments are much larger and stronger than the succeeding segments and is called the antennal peduncle.

**Mandibles** - This pair of appendages consist of a palp and a masticatory process. The palp of the mandible is three segmented, first segment short and
inconspicuous; second and third segments with row of setae and bristles. The masticatory margin of mandibles is strong and chitinised and consist of an anterior serrated sharp incisor process, a movable lappet, the *lacinia mobilis*, and a posterior rounded finely ridged margin, the molar process. Between the *lacinia mobilis* and the molar part there is a concave part armed with row of short stiff spines, known as the spine row.

**Maxillulae** - These appendages are normally three segmented, with well marked lobes from the first and third segments. The lobe from the first segment is furnished with long and short plumose setae. The second segment is difficult to make out and without lobes. The lobe from the third segment is distally armed with two rows of short strong spines.

**Maxillae** - This pair of appendages consists of a three segmented sympod, and a well developed exopod and endopod. All the parts are flattened and fringed all round with close row of plumose setae.

**Thoracic appendages** - There are eight thoracic somites each with a pair of biramous appendages. The first two pairs are usually modified to assist in feeding and the remaining form the swimming legs. The endopod consists of six segments, pre ischium, ischium, merus, carpus, propodus (carpopropodus) and dactylus with or without nail. The exopod is natatory with a broad basal plate and many segmented flagellar part.

**Marsupium** - The Mysidacea have been called the 'Opossum shrimps' from the habit of females carrying the young in a brood pouch. The brood pouch or marsupium is formed of two to three pairs of lamellae, which are borne on the posterior pairs of the thoracic appendages on the ventral side of the body.
Figure 1. 2. A, Labrum; fp, frontal process. B, Mandible with three segmented palp; ip, incisor process; l.m, lacinia mobilis; sp.r, spine row; m.p, molar process. C. Maxillule composed of three segments 1, 2, 3, 1', lobes from first segment. D, Maxilla with three segments in sympod 1.2.3; e^3 endite from second segment; e^3 bifid endite from third segment; en, two segmented endopod or palp, ex, exopodite. E, Thoracic limb; 2, coax; 3, basis with its endite; end, endites from ischium and merus respectively; ca, carpus; pr, propodus da, dactylus; n, nail; ex, exopodite. F, Eight thoracic limb; 1, precoxa; 2, coax; 3, basis; 4, preischium; is, ishium; me, merus; ca, carpus; pr, propodus; da, dactylus; n, nail; g.o, genital organ. G, A typical male pleopod; sy, sympod; en, endopod; ps.pr, Pseudobrachial process. H, A typical reduced female pleopod. I, Telson showing base and cleft; a.l, apical lobe ending in a strong apical spine.

Pleopods - The abdomen is composed of six segments with a pair of appendages - the pleopods, on the first five segments. The pleopods of the female are reduced to simple unjointed setose plates. In the male the pleopods
are well developed and natatory. In some one or two pleopods will be rudimentary as in the female and two pairs may become modified for sexual purposes. Near the base of the endopod of each pleopod of the male is an outgrowth of varying forms, the pseudobranchiae, which are supposed to have a respiratory function.

Uropods - These are the last pair of abdominal appendages and differ from pleopods. They are formed of large flattened lamellar exopod and endopod with or without spines and fringed with close set of regular plumose setae. At the proximal end of the endopod there is a large sense organ, the statocyst, or gravity receptors. The statocyst comprises a vesicle, inside which is a lith suspended on sensory hairs. It is an organ controlling the orientation of the animal in space and for detecting depth and pressure. The uropods with the telson form a powerful swimming organ.

Individual species are identified through differences in their external morphology especially the structure of thoracic legs, antennal scale, telson and uropods.

1.5. CLASSIFICATION

Class - Crustacea
Sub class - Malacostraca
Series - Eumalacostraca
Division - Peracarida
Order - Mysidacea

Sub-class MALACOSTRACA

Definition: Crustacea in which the carapace has a varied form. The trunk is typically composed of fourteen somites each of which bears a pair of
appendages. The head region bears five pairs of appendages namely antennules, antennae, mandibles, maxillulae and maxillae. The trunk appendages are differentiated into thoracic consisting of eight and the abdominal of six pairs. Paired eyes are usually present and well developed, but they may be reduced or vestigial.

**Division PERACARIDA**

**Definition:** First thoracic somite always fused with the head region. Carapace when present fused with the head and anterior thoracic somites, leaving last four posterior thoracic somites free and distinct. Eggs and young carried by the female in a marsupium composed of brood lamellae or oostergites attached to the thoracic limbs. Development takes place in a marsupium, young liberated at a later stage and not as nauplii.

**Order MYSIDACEA**

**Definition:** Peracarida in which though the carapace covering most of the thorax, it does not coalesce dorsally with more than the first three segments. Eyes when present, movably pedunculate, antennules biramous, antennae have scale like exopodite or squama. Thoracic limbs with many segmented exopods; first and some times second pairs modified as maxillipeds. Uropod with lamellar exopod and endopod forming a tail fan with the telson, a statocyst usually present on the endopod.

The order Mysidacea falls into two clearly distinct groups, which differ so profoundly from one another that, they have been given the status of suborders under the names Lophogastrida and Mysida.

**Sub Order Lophogastrida**

The Lophogastrida shows some primitive characters, which are absent in nearly all the Mysida. Large foliaceous gills present on the thoracic
appendages. No statocyst on the endopod of the uropod. Pleopods of both sexes biamous, multiarticulate, natatory and unmodified. Marsupinium composed of seven pairs of imbricating brood lamella. Well developed pleural plates present on the abdominal somites. A more or less well marked transverse groove encircling the last abdominal somite and marking the incomplete fusion of the sixth and seventh abdominal somites of the embryo. A pair of lateral teeth immediately in front of this groove marks the posteroverentral angle of the sixth abdominal somite of the fossil forms and of the embryo.

Many species in the Lophogastridae live in the deep oceanic environment and are large in body size ranging from 17-350 mm. The largest mysid known as Gnathophausia ingens has 351 mm length. Only very few Lophogastrids are recorded from the Indian waters and almost all of them are well known species having a very wide distribution.

As the present study deals exclusively with the sub order Mysida, Lophogastrids are omitted from the list.

**Sub Order Mysida**

*Definition:* Branchiae absent; carpopropodus of the endopods of the third to eighth thoracic limbs usually divided into a number of subsegments; marsupium generally of two or three and rarely seven pairs of lamellae; pleopods of the females rudimentary, rarely biramous, generally in the form of small unsegmented plates; pleopods of the male either well developed, biramous; natatory appendages or one or more pairs reduced as in the female and one or more pairs secondarily modified as accessory sexual appendages; statocyst usually present on the endopods of the uropods.

The sub order Mysida is divided into four families Lepidomysidae, Stigiomysidae, Petalophthalmidae and Mysidae. Species of Lepidomysidae and Stigiomysidae inhabit caves and wells, and that of Petalophthalmidae are
mainly distributed in deep waters and all these species have no statocyst in the uropods and the marsupium consists of seven pairs of lamellae.

The family Mysidae is the most extensive group with seven sub families; Boreomysinae, Thalassomysinae, Siriellinae, Rhopalophthalminae, Gastrosaccinae, Mysinae and Mysidellinae.

1.6. HISTORICAL RESUME

The first published description of a mysid was given by Muller (1776) who described Cancer flexuosus, now known as Praunus flexuosus, a species abundant in the shores of British Isles. The first illustration of a mysid was published by Slabber (1775) in which a short description and a recognisable figure of what he called ‘a shrimp like animal with trumpet like eyes’ was given and later it was identified with Podopsis slabberi (Beneden, 1861) now known as Mesopodopsis slabberi, another species common in British waters. In 1780, Fabricius described two species from Greenland, Cancer pedatus and Cancer oculatus (Mysis oculata). Latriella (1802) instituted the first type genus of the order, Mysis to include the Cancer sp. He associated the Mysidacea with the Stomatopoda. In 1817, Latriella put forward a new classification and separated Mysida from the Stomatopoda and placed them in a separate group the Schizopoda, by which the group was known for nearly a century. Again in 1825, Latriella divided the Schizopoda into two groups, (1) with a tail fan and (2) with a caudal furca. In 1830 Milne-Edwarde described the first representative of euphausiid Thysanopoda tricuspidata and until 1904 euphasiids were included with the mysids in the Schizopoda. In 1831 Latriella drew up another classification in which he associated Schizopoda with the Stomatopoda and the term Schizopoda was abandoned. This classification was accepted as the standard by other writers till 1850 when Dana reintroduced the name Schizopoda in a synopsis of the genera of Mysidacea. Sars (1872-1927) published two monographs, (1) Mysidae of
Norway (2) Mysidae of the Mediterranean, which was an important landmark in the history of Mysidacea. The monograph of Mysidacea, published by Czerniavsky (1882 - 1883) added considerably to the knowledge of Mysidacea Fauna of the Black and Caspian seas, of the sea of Azor and of the eastern Mediterranean. Boas (1883) separated euphausiids and mysids into two distinct order of Malacostraca and the order Mysidacea was further divided into two sub orders the Lophogastrida and the Mysida. Hansen (1893) adopted the suggestion made by Boas to abolish Schizopoda and considered that Euphausiacea were allied to the Decapoda and the Mysidacea to the Cumacea, Amphipoda, Isopoda and Tannidacea. In 1904 Calman formulated a new classification of the Malacostraca based on the scheme suggested by Hansen. The euphausiids and decapods were grouped together in one division called Eucarida and Mysidacea, Cumacea, Amphipoda, Isopoda and Tannidacea in another division named Peracarida. Thus the group Schizopoda ceased to exist and Calman’s classification was generally adopted. The final form of classification as accepted today was drawn up by Hansen (1910).

Zimmer’s two comprehensive works on the fauna of Northern waters ‘The Fauna Arctica’ (1904) and the ‘Nordisches Plankton’ (1909) form an invaluable guide to the study of the Mysidacea found in those regions. The celebrated work of Hansen (1910), a landmark in the study of Mysidacea, contains fully illustrated descriptions of Mysidacea collected during the Siboga Expedition.

In 1951, Tattersall and Tattersall published their monograph on British Mysidacea, which includes an excellent historical account and an accurate and clearly illustrated guide to the study of British species. Gordon (1957) published a bibliography of the order listing over 1100 references up to the end of 1955 and this detailed classification of the literature is extremely valuable to the workers in this field. The monograph by Li (1964) is an invaluable guide to the Mysidacea of the Japanese waters.
The most valuable works on the taxonomy of Mysids for different geographical region are those of Tattersall and Tattersall (1951) for British and North Atlantic species; Tattersall (1951) for American species; Li (1964) and Murano (1966-2006) for Japanese and Western Pacific species; Pillai (1957-1976) for Indian species and papers of Bacescu (1934-1997), Nouvel (1937-1978), O.S. Tattersall (1952-1969), W.M. Tattersall (1906-1951) Brattegard (1969-1988) and Panampunnayil (1977-2002) for species in regions specified in the titles of the papers. Access to many relevant literatures can be obtained through the references quoted by Mauchline and Murano (1977), which list broad geographical region of occurrence of all species.

1.7. REVIEW OF LITERATURE ON INDIAN MYSIDACEA

The earliest works on the Mysidacea of Indian waters are those of Woodmason and Alcock (1891), Alcock and Anderson (1894, 1899) and Anderson (1897). Their works dealt exclusively with the Lophogastrida dredged by the ‘Investigator’ from deep waters in the Bay of Bengal and the Arabian Sea. Tattersall recorded the first Mysida Siriella paulsoni in 1906 from Ceylon and between 1908-1914 he described six other species of mysids from the brackish water of the Indian coast. Hansen (1910) recorded seven species collected from the Bay of Bengal during the Siboga Expedition. In 1915, Zimmer described the Mysidacea collected by Dr. Dunker during a voyage from Ceylon to New Guinea, but no exact locations were given. In 1922 Tattersall published a report on Mysidacea collected by S.W. Kemp from Kilakarai and Pamban in the Gulf of Mannar and Port Blair in the Andaman Islands and the total numbers of species were brought up to 53. Later in 1939 he described the Mysidacea of the John Murray Expedition in the Arabian Sea. Isolated records of Indian species were made by Colosi (1920), Nouvel (1954a) and O.S. Tattersall (1957). The next advance in the history of Indian Mysidacea took place from 1957 onwards with a series of
publications by Pillai (1957, 1961, 1963a,b, 1964, 1965) who recorded the littoral mysids of the Kerala coast and the planktonic mysids from the west coast and the Maldives - Laccadive Islands in the Arabian Sea. The first comprehensive collection of zooplankton from Indian Ocean was that made by the International Indian Ocean Expedition (IIOE) during 1960-65. The first major account of the quantitative distribution of Mysidacea of the Indian Ocean was given in the plankton atlas (IOBC, 1972) based on the zooplankton collections of the IIOE. The real basis of our knowledge on the Indian Mysidacea was for the first time laid by Pillai (1973), when he published the Mysidacea of the Indian Ocean based on materials collected during IIOE that sampled the surface and subsurface waters down to 200 m. Taxonomy and distribution of 38 species had been dealt with, out of which 6 were recorded as new. Subsequently, Panampunnayil (1977-1999) made valuable additions to the Mysidacea of the Indian Ocean and recorded 20 new species from the south west coast of Australia between latitude 22°14'-34°16'S and longitude 114°28'-110°29'E and 10 new species from the east and west coasts of India. About 140 species of Mysidacea are now known from Indian waters. Other contributions on Mysidacea from the Indian waters include the works of Balasubramanyan (1964) Shyamasundari (1973), Taniguchi (1974) and Chandramohan (1983). Information on the distribution and abundance of mysids in general of the EEZ of India has been presented by Mathew et al., (1989). Fifteen species of mysids were reported from the shallow waters of Andaman Sea (Panampunnayil, 2002). Mysidacea of the south eastern Andaman Sea was incorporated in the proceeding of workshop on Andaman Sea (Fukuoka and Murano, 2002). Biju et al., (2006) studied mysids on the Minicoy lagoon (Lakshadweep) with description of a new species of Anisomysis. Panampunnayil and Biju (2006) reported four new species belonging to genus Rhopalophralmus from northwest coast of India. In addition to these there are several other important studies dealing with
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reproduction, anatomy, distribution, ecology and economic aspects which include the works of Nair (1939); Nath (1972-74); Nath and Pillai (1971, 1972, 1976); Devasundaram and Roy (1954); Dutta et al. (1954); George (1958); Goswami et al. (1979); Gajbhiye et al. (1980); Varghese (1981); Goswami (1983); Gupta and Gupta (1984); Sarkar and Chowdhury (1986); Gowda et al., (1988); Nair et al. (1989); Patil and Sankolli (1991); Achuthankutty et al. (1992); Shirgur and Deshmukh (1994, 95) and Neelam et al. (1996).

1.8 SCOPE AND PURPOSE OF STUDY: Mysids are omnivores and, they utilize diverse of food during their life cycle, which spans from few months to two years (Mauchline, 1980) and some species can switch from one feeding mode to another when food availability changes (Viitasalo and Rautio, 1998). Mysids are prey for many larger predators globally, such as for invertebrates, various fishes (Thiel, 1996; Hostens and Mees, 1999) birds and seals (Mauchline, 1980a), there by linking primary and secondary production to higher trophical level. They are responsible for the remineralization of a substantial proportion of the detritus and hence are important constituents of food webs from particulate matter to macroplankton. The works of Tattersall (1906-1939), Hansen (1910) and Pillai (1957-1973) provide much information on the taxonomy of mysids from the Indian Ocean. In addition to these, Panampunnayil studied the mysids from the shallow coastal waters of Maharashtra, Gujarat, Andaman Sea and eastern Indian Ocean (1977- 2000). The distribution and abundance of mysids in general from the selected areas of the EEZ of India have been presented by Mathew et al. (1989). Apart from these at present there is no information on the taxonomy and species diversity of this group from this area.
Considering the significant role of mysids in the productivity of tropical and coastal ecosystems, the present study has been undertaken to extend our knowledge on the systematics, species composition, distribution, abundance and ecology of mysid fauna of the Indian EEZ and adjoining areas. The present study therefore will undoubtedly furnish valuable information on Mysidacea of the Indian waters.