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There is a steady increase in MPAs in India starting from one in 1970 to about forty now. Majority of the key marine animals are brought under Schedule I through amendments in Wild life Protection Act 1972, but not their habitats. True conservation is possible only when the biodiversity is protected in their natural habitats. This thought gave rise to the Protected Area concept. This concept is very young and MPAs have been recognised as important for marine conservation and management since the early 1960s only. Still there is lot of fallacy surrounding the definition, objectives categorisation, designing, and management of Marine Protected Areas. Almost all the Protected Areas including the Marine Protected Areas facing various management pressures due to serious inadequacies.

A thorough understanding of Marine Protected Areas in general is very much necessary before looking at the issues in the Marine Protected Areas. This book is an attempt to provide such an understanding about the marine environment of India. Marine Ecosystems are dealt in detail along with their biodiversity. A chapter is exclusively prepared for their conservation. Exhaustive checklists of Marine biodiversity are also appended for holistic understanding. Above all, Prospective MPAs are listed, all the MPAs, including the prospective MPAs are dealt individually in the chapters dealing with MPAs and their Characterisation. Finally Recommendations are also given to effectively fill the brim.

We cannot live on this earth without other living organisms and they cannot survive, if their habitats are destroyed. Marine resources are probably in "used by all and owned by none" status. To put an end to this we must change our 'everybody's property' attitude towards the marine environment.

To be precise, MPAs are made for sustainably protecting the hunted and the hunters alike. There is no existence without co-existence.



K. VENKATARAMAN, RAJKUMAR RAJAN  
SATYANARAYANA CH, RAGHUNATHAN C.  
AND VENKATRAMAN C.

MARINE ECOSYSTEMS  
AND  
MARINE PROTECTED AREAS OF INDIA

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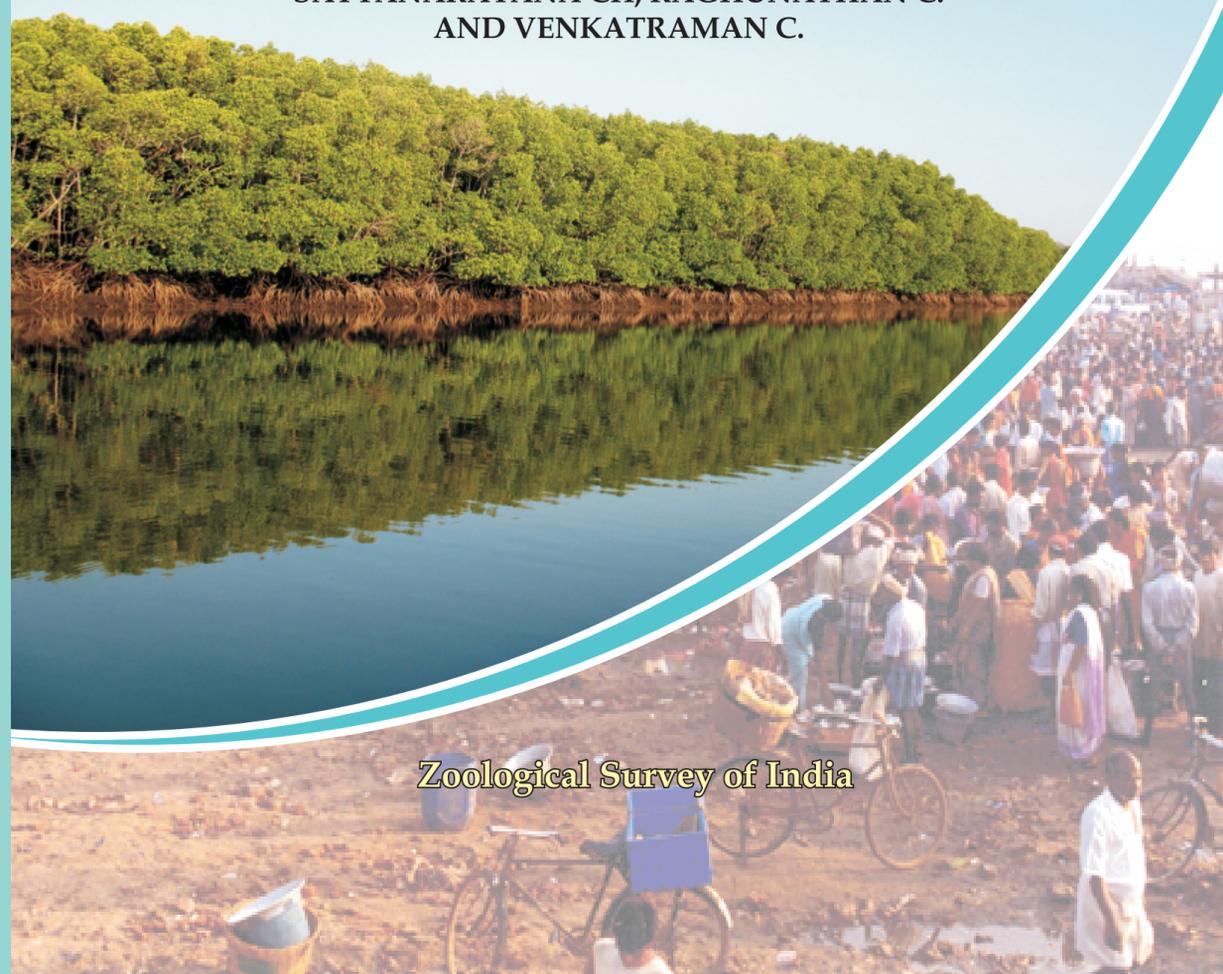


22 May 2012  
INTERNATIONAL DAY  
FOR BIOLOGICAL DIVERSITY  
Marine Biodiversity



## MARINE ECOSYSTEMS AND MARINE PROTECTED AREAS OF INDIA

K. VENKATARAMAN, RAJKUMAR RAJAN  
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Zoological Survey of India

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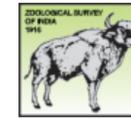
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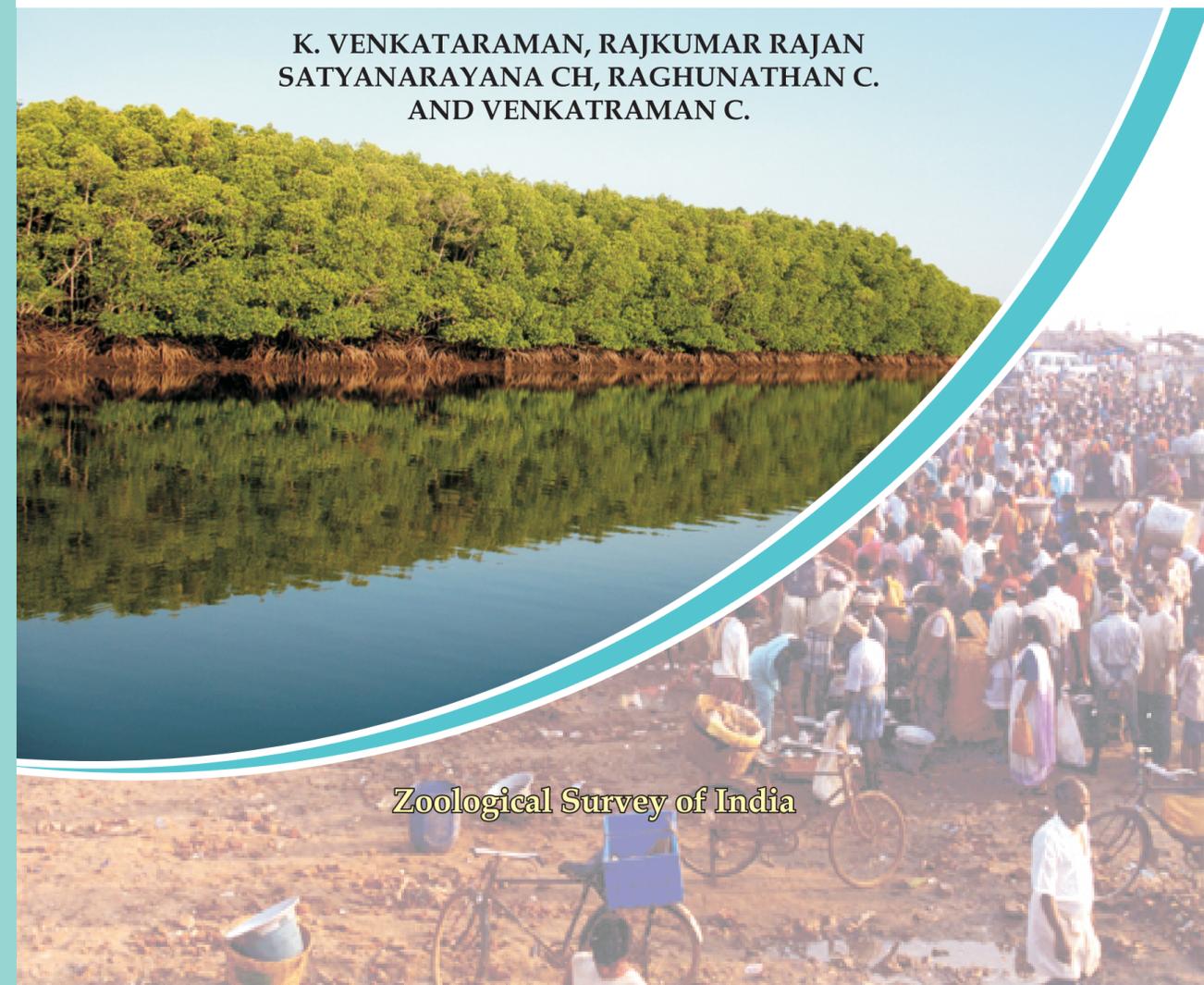


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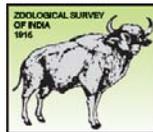
# MARINE ECOSYSTEMS AND MARINE PROTECTED AREAS OF INDIA

**K. VENKATARAMAN, RAJKUMAR RAJAN\*  
SATYANARAYANA CH, RAGHUNATHAN C.\*\*  
AND VENKATRAMAN C.\***

*Zoological Survey of India, M-Block, New Alipore, Kolkata - 700 053*

*\*Zoological Survey of India, Marine Biological Centre, Chennai - 600 028*

*\*\*Zoological Survey of India, Andaman and Nicobar Regional Centre, Port Blair - 744 101*



**Zoological Survey of India  
Kolkata**

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## राष्ट्रीय जैव विविधता प्राधिकरण NATIONAL BIODIVERSITY AUTHORITY

भारत सरकार  
Govt. of India

डॉ. बालकृष्ण पिसुपाटी

अध्यक्ष

*Dr. Balakrishna Pishupati*  
Chairman

### FOREWORD

The theme for the International Day for Biological Diversity (IDB) 2012 has been decided as 'Marine Biodiversity'. Oceans and marine ecosystem occupy a significant amount of Earth's surface and possess enormous diversity that is still to be properly documented. Management of marine biodiversity is thus critical since the biodiversity occurring there has enormous biological as well as economic potential.

Conservation and sustainable management of marine environments have received substantial attention from the Convention on Biological Diversity (CBD) which decided that "By 2010, terrestrially and 2012 in the marine area, a global network of comprehensive, representative and effectively managed national and regional protected area systems is established" (Decision VII/28). Further, the tenth Conference of parties to the CBD "Urges Parties and other Governments to achieve long-term conservation, management and sustainable use of marine resources and coastal habitats, and to effectively manage marine protected areas, in accordance with international law, including the United Nations Convention on the Law of the Sea, in order to safeguard marine and coastal biodiversity and marine ecosystem services, and sustainable livelihoods, and to adapt to climate change, through appropriate application of the precautionary approach and ecosystem approaches, including the use of available tools such as integrated river basin and integrated coastal zone management, marine spatial planning, and impact assessments" (Decision X/29).

With India gearing up to assume the Presidency for CBD COP 11 meeting, focusing on national actions related to marine and coastal biodiversity as well as issues related to management of marine protected areas are critically important.

This book prepared by the scientists of Zoological Survey of India not only deals with the declared Marine Protected Areas but also gives a detailed account of all the marine areas which have the potentiality to be declared as the protected areas with a discussion justifying it. Description of the present status and biodiversity of different marine ecosystems in India, the list of fauna in coastal and marine areas of different states and the strategies for their conservation and management is additional useful information presented in this publication. I am sure that this document kindles a useful debate on the status of marine environment in general and also acts as a guide for providing protection to the much deserved biodiversity rich areas in the marine realm.

(Balakrishna Pishupati)  
Chairman

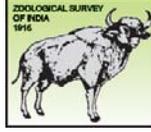
National Biodiversity Authority

May 11, 2012





**Dr. K. VENKATARAMAN**  
Director



**Government of India**  
Ministry of Environment and Forests  
**ZOOLOGICAL SURVEY OF INDIA**  
M-Block, New Alipore, Kolkata – 700 053

## PREFACE

The concept of protecting ecosystems of importance may have evolved to achieving conservation sustainability of resources when many such systems were challenged with the effects of pollution and degradation of ecosystems started crossing the resilience limits. Ecosystems/Biological communities have a degree of resilience or self repair potentiality to survive, regenerate or recolonise after periodic stresses like fluctuating salinity, temperature ranges, storms, cyclones, tectonic activities etc. Fisheries are the prime resource from the marine environment provides the clue: declining fish catch per unit effort, reduction in the size of the fish caught, disappearance of some species acted as the direct indicators to the marine resource degradation.

MPAs have been recognised as important for marine conservation and management since the early 1960s. In 1975 Ray was the first to provide a set of objectives for MPAs. Most countries were not interested to accept the recommendations at that time. But, increasing pressures on the marine environment at all scales compelled them to accept and prompted the IUCN to conduct a series of international workshops, which culminated in the production of international guidelines for the declaration of marine and coastal protected areas. The resultant sets of guidelines form the basis for much MPA planning at international and national levels today. The concept of Marine Protected Area is gaining momentum in India and so far 31 Marine and Protected Areas (MCPAs) of which 18 are primarily under the marine environment and 13 are partly terrestrial are declared.

Several marine regions which are providing valuable services are not covered under MPAs and are not adequately explored. And, there is a paucity of information on the composition and diversity of the biota, and the extent of coverage of each ecosystem. Through this book, it is hoped to present an over view of the several marine ecosystems of India. Habitats of many of the protected animals occurring outside the PAs need to be given some protection status for posterity.

(K. Venkataraman)

May, 2012



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# 1. INTRODUCTION

Much of the world's wealth of biodiversity is found in highly diverse marine and coastal habitats. These habitats range from the coastal estuaries, saline wetlands, mangrove forests, shallow coral reefs, mesophotic reefs to soft sediments of ocean floor thousands of meters below the surface. The Indian coastline encompasses almost all types of intertidal habitats, which include, hypersaline and brackish lagoons, seagrass and mangrove ecosystems, estuaries, coastal marsh and mudflats, sandy and rocky shores with every degree of exposure and widely varying profile. It also has coral reefs of fringing and patchy type on the west as well as the east coasts. Besides, the near-shore and oceanic islands of India also bring in lot of natural wealth by means of the associated habitats.

While the total number of described, marine species is smaller than that found on land, scientists are continually discovering new concentrations of diversity. Regardless of species counts, marine animals are more diverse than land animals at the higher, phyletic levels of evolutionary and taxonomic differentiation. Major branches on the tree of life of animals are found in the sea. In comparison, only about half of all phyla occur on land. Marine animals also exhibit greater range of body forms and structures than the terrestrial species. For example, the filter feeders sieve plankton and other floating material for food, range from microscopic zooplankton to barnacles to sea anemones to baleen Whales. Till today, marine biodiversity is lesser known than terrestrial biodiversity,

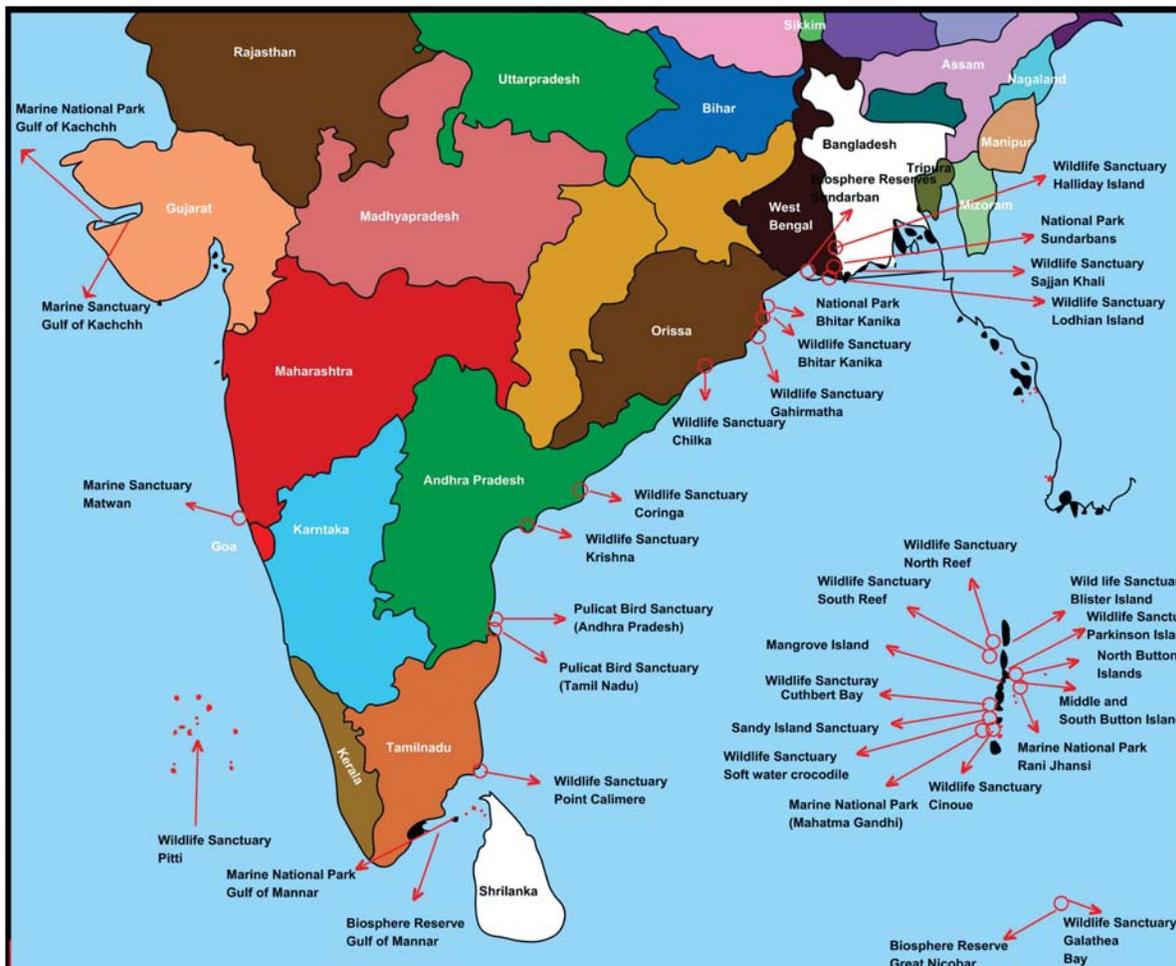


Fig. 1.1. Map showing the Marine Protected Areas of India

due to the practical difficulties of exploring the marine environment. What is known today about the marine life is astonishingly little, even in the most familiar seascapes. For instance, scientists have identified twenty-two phyla of meiofauna, two of which were identified only in the past two decades. These animals, barely visible to the naked eye, live on grains of coastal and ocean-bottom sands. Up to 10,000 such animals can be found in a single handful of wet sands. And yet only recently have scientists begun to identify the important role they play in marine ecosystems.

To provide protection from indiscriminate usage and conserving biodiversity, several marine habitats in India are brought under Protected Areas (PAs). Declared Marine Protected Areas (MPAs) – PAs designated with purpose of protecting marine areas and the biota in it – are only five: Gulf of Mannar National Park (GOMNP), Gulf of Kachchh Marine National Park, Gulf of Kachchh Marine Sanctuary, Mahatma Gandhi Marine National Park Rani Jhansi Marine National Park and the Gahirmatha Sanctuary (Fig. 1.1). However, there are several PAs due to having associated marine ecosystems have been

categorized into MPAs - the numbers and characterization of which varied with authors (Singh, 2002; Rodger *et al.*, 2002; WII, 2002). While Singh's (2002) report is in conformity with India's Third National Report to the CBD, which noted 31 Marine Coastal Protected Areas (MCPAs) of which 18 are primarily under the marine environment and 13 are partly terrestrial (SCBD, 2006), WII report claims only 26 PAs as Marine Coastal Protected Areas. Nonetheless, there are several marine ecosystems left out, in spite of the recognition for their ecological services. And, there is little information on the composition and diversity of the biota, and the actual area coverage of each ecosystem.

Through this volume, it is intended to present an over view of the several marine ecosystems of India to bring about the significance of conservation. A habitat-wise characterization for MPAs and PAs having substantial marine component is proposed, and an updated MPA list is produced after adequate reassessment. Analyses of representation of MPAs in India with recommendations are also presented. Marine biodiversity and conservation strategies are dealt with in the last two chapters.

## 2. MARINE ECOSYSTEMS OF INDIA

### OCEANIC ECOSYSTEM - INDIAN OCEAN

Many of the marine ecosystems of concern to India are in coastal zones. Little has been known of the potential oceanic zones of biological and economic significance. This section deals with the Indian Ocean, and a review of scientific studies and pointing to the ecological significance.

The major bio-geographic divisions of Indian Ocean are:

**Western Indian Ocean along the Indian Coastline:** Southwest coast of India, Central west coast of India and Northwest coast of India.

**Eastern Indian Ocean:** Southeast coast of India including Palk Bay and Gulf of Mannar extending up to the Krishna delta, Northeast coast of India off Andhra Pradesh and Orissa extending upto the border of West Bengal and Northern Bay of Bengal covering the coast of West Bengal.

The Indian subcontinent is blessed with tremendous marine wealth that comes mostly from the Indian Ocean. Though smallest of the three 'great' oceans, the Indian Ocean covers 28,000,000 square miles, and 14% of the earth surface (Snider, 1960). It is also geologically much younger. Following the International Hydrographic Bureau, its boundaries are as follows:

**Western limits:** The meridian of Cape Agulhas to Antarctica.

**Eastern limits:** South of Australia, Bass Strait, Cape Grim, Tasmania to Antarctica; north of Australia - Torres Strait.

Marginal seas of the Indian Ocean include the Red Sea, Gulf of Aden, Persian Gulf, Gulf of Oman, Arabian Sea, Laccadive Sea, Bay of Bengal, Andaman Sea, Malacca Straits and Singapore Straits. The two additional seas are the Mozambique Channel and the Great Australian Bight. The area covered by the Indian Ocean (excluding Arafura Sea) is

74,917,000 km<sup>2</sup>, with a mean depth of 387 m. The maximum depth recorded is 7,437 m (24,444 feet).

### History of Indian Ocean Expedition

The evolution of marine biological research in the Indian Ocean region is partially linked to the colonial past of many countries, the International Indian Ocean Expedition, and modern-day programs. In most of the countries during pre-independence era, as in India and Sri Lanka and some island nations, collection and cataloguing was done almost exclusively by European scientists, with the specimens and data archived in museums abroad. The importance of their work cannot be minimized nonetheless. The two-volume publication in 1878 on the fishes of India by Francis Day, among others, is a classic example that is still referred to today. To this should be added the numerous memoirs and monographs and expedition reports, such as those of *Challenger* (1872-76), *Investigator* (1801-03), and *Dana* (1928-30).

While coastal and marine biodiversity studies in the Indian Ocean region during the nineteenth century and early part of the twentieth century were mostly on those specimens from neritic waters and physically accessible habitats, the International Indian Ocean Expedition (IIOE, 1960-1965) enabled sampling of the full extent of the Indian Ocean by 40 research ships, with logistic support and participation from 20 countries, including some outside the region. Besides considerably enhancing taxonomic knowledge of the open ocean species, mainly zooplankton, the IIOE is also distinguished in two other respects. First, it enabled collection and use of oceanographic parameters to explain the abundance and distribution of planktonic species and their productivity in the IO region. Secondly, it laid the foundation for modern-day research on marine biological diversity in most of the regional countries, both institutionally and in manpower generation, especially in India.

Research on marine biological diversity in the current phase (last 5-6 decades) in India is distinguishable by three traits. The first is the desire to develop national capacity in terms of manpower and institutional strength, a process aided by international, regional and bilateral training, and collaborative programs. The second is the awareness of the need to address biodiversity changes in response to human effects (and to some extent natural forces) prevailing locally. The third, and perhaps the more serious, is the vast imbalance in capacity to manage the resources among the neighboring nations. For example, among the Indian Ocean countries, India is notable for the large number of ocean-going research vessels, large scientific and technical manpower, capability for using advanced technologies (for example, remote sensing, DNA fingerprints), and the capacity for exploring deep seas and the southern part of the Indian Ocean, extending up to the Antarctic continent. This imbalance, even among countries other than India, has a telling effect on our understanding and conservation of the biological diversity in the region.

### Oceanography of Indian Ocean

**Ocean circulation:** The Indian landmass forms a major physical division between the Arabian Sea and the Bay of Bengal. Oceanographically, the Bay of Bengal differs from the Arabian Sea in maintaining clockwise circulation of major currents during both the northeast and southwest monsoons; The circulation in the Arabian Sea reverses, with surface water masses circulating counter clockwise during the northeast monsoon and clockwise during the southwest monsoon. There is also a major difference in salinity: In the Arabian Sea, evaporation exceeds precipitation and runoff, leading to the formation of highly saline water masses that flow south; the Bay of Bengal has comparatively low salinity due to high runoff and precipitation *i.e.*, during the southwest monsoon, maximum salinity is found at depths of about 500 meters, as highly saline water moves into the Bay from the Indian

Ocean (Pernetta, 1993). The Bay is over 2 million km<sup>2</sup> in extent and acts as the recipient of two mighty rivers, the Ganges and Brahmaputra, in addition to Mahanadhi, Godavari, Krishna and Kaveri. Four states, West Bengal (157 km), Orissa (476 km), Andhra Pradesh (974 km) and Tamil Nadu and Pondicherry (938 km) share the eastern coastline. The total area of the exclusive economic zone (EEZ) of India, in the Bay of Bengal, is 515,500 km<sup>2</sup>. All the rivers discharge an estimated 71,650 km<sup>3</sup> of water into the Bay, mainly causing diluting effects and covering the salinity between 30 and 34 ppt.

**Sea Surface Temperature:** Sea surface temperature (SST) around the Indian coast varies considerably throughout the year. In general, temperature varies from a minimum 10<sup>0</sup> C in the southern part to a maximum of 27<sup>0</sup> C or even higher (>28<sup>0</sup> C) towards central and northern regions. During the northeast monsoon, water temperature is relatively less (24-26<sup>0</sup> C) in the Arabian Sea and Bay of Bengal than during other times. Similarly, beyond 30<sup>0</sup> S latitude, the temperature is very low (10-20<sup>0</sup> C) evidently due to the influence of the Antarctic Ocean. During the winter months the surface temperature gradient for the whole region tends roughly north south. In the northeastern Bay of Bengal Sea, along the West Bengal and Bangladesh coast, the mean winter surface temperature is typically less than 25 degree centigrade. And in the summer the temperature gradient runs approximately North-south on both sides of the Indian coasts, with highest values of 32<sup>0</sup> C and upwards obtained along the south-east coast of the Bay of Bengal Sea, and a summer mean increase from 28-32<sup>0</sup> C onwards along eastern India. The surface layer of the Andaman Sea is generally well mixed to a depth of 100 m, but a sharp decrease in temperature may occur in the eastern side of the Andaman and Nicobar Islands at depths of 25 to 50 m.

**Salinity:** Throughout the Indian coastal area the total concentration of dissolved salts falls in low range of about 35-40 ppt.

However, over much of the Indian coastal region, seasonal variation in both surface and bottom salinity is related to the penetration of oceanic water, having a salt concentration in excess of 35 ppt. There is a wide fluctuation in surface salinity in the Andaman and Nicobar Islands, low salinity occurring during May to November, a recovery period in December and January, and high salinity from February through April. This factor has high influence on the fauna of this area.

**Rainfall:** The rain rate measured in mm/h shows highest values in June over the Bay of Bengal, the Arabian Sea and the Indian Ocean in the range of 0.4-0.5 mm/h and lowest values in March, in the range 0-0.2mm/h. It has been observed that the averaged monthly variations of rain rate over the Indian oceanic region are totally controlled by monsoon (Hartmann and Michelsen, 1989). The main reason for the strong development of monsoon is the vast size of the Indian subcontinent and adjacent sea, and the presence of the high and extensive Himalayan mountain system in the extreme north of the subcontinent. During May and June, the predominant southwest monsoon hits the south western part of India with heavy precipitation. During July-September, the monsoon advances over the Indian land, producing heavy rain, whereas low rain rate is observed over the Indian Ocean region. During October-December, the monsoon retreats after hitting the Himalayan region producing medium to heavy rain fall over the Bay of Bengal, the Arabian Sea and the Indian Ocean. During January and February, at the time of the northeast monsoon, high rain rate is seen over the Bay of Bengal. During the summer season (March and April), almost no or little rainfall is seen over the ocean. In general, the rain rate is found to be low in the Arabian Sea compared to those of the Bay of Bengal and the Indian Ocean (Mishra *et al.*, 2002). Generally, the rain rate over the Bay of Bengal, Arabian Sea and Indian Ocean is found to be higher during May and June due to the onset of SW monsoon compared to other months, followed by another increase

during winter due to winter (NE) monsoon. Low rainfall is found over the ocean during March and April due to hot and dry weather (Mishra *et al.*, 2002).

**Nutrients:** The sampling of the Indian Ocean for nutrients (phosphates, nitrate and silicate) was conducted on a widespread basis during the International Indian Ocean Expedition (IIOE) from 1st September 1959 to 31st December 1965. Altogether, 9,536 stations were sampled, of which 2,982 stations noted with depths exceeding 1,950 m. In general, the concentration of inorganic phosphate in surface waters varied from a minimum of 0.2 mg at l<sup>-1</sup> (most part of the west, central and East Indian Ocean) to a maximum 1.0 mg at l<sup>-1</sup> (east Somalia, Arabian Coast; South Indian Ocean below 40° S latitude). However, exceptionally high values (4 mg at l<sup>-1</sup>, 4000 m South Indian Ocean; 12 mg.at.l<sup>-1</sup>, Andaman-Myanmar Coast, above coral banks) were noticed. The concentration of nitrate varied from a minimum of (0.5 mg at l<sup>-1</sup>) at most parts of the Ocean to a maximum of 10 mg at l<sup>-1</sup>) below 40°S latitude and in one region close to Persian Gulf. The exception was in deep water where the levels were about 40 mg at l<sup>-1</sup>. Silicate ranged from a minimum of 3 g at l<sup>-1</sup> to a maximum of 10 mg at l<sup>-1</sup>. In Bay of Bengal very high silicate (130-140) was noticed close to river mouths. In all these cases, nutrient levels were appreciably higher during South West monsoon period (March-October) than at other times. The nutrient in the Indian Ocean are determined to a great extent by the control over circulation exerted in the northern Indian Ocean by monsoon winds, which directly transport surface waters away from offshore Africa, with a resulting replacement of deep nutrient rich waters. The high values of inorganic phosphate (0.6-1.0 mg at l<sup>-1</sup>) off Somalia and Arabia coasts during May-October (South West monsoon) were caused by near shore upwelling at these places. The relatively high (>5 mg at l<sup>-1</sup>) silicate values at the Ganges Head (Bay of Bengal) and off Malaysia are attributable to river runoff during the same period. In

general, the concentration of inorganic phosphate, nitrate and silicate increased in the direction of Antarctic Sea particularly around 40° S latitude, in the proximity of sub-tropical convergence. In comparison to other two oceans namely Atlantic and Pacific, the concentration of nutrients in the Indian Ocean are about twice of which found there.

**Dissolved Oxygen:** Data collected during IIOE revealed appreciable variations in the dissolved oxygen concentration. Overall, the levels remained between 2 and 4 ml l<sup>-1</sup>. However, in the Arabian Sea (0.25 ml l<sup>-1</sup>; 200 m) and central equatorial region (0.3-1.25 ml l<sup>-1</sup>; 1200m) the observed values were very low. In contrast, in surface waters in Gulf of Aden and in the south (Mozambique channel and Antarctic bottom water, 4000 m) the values were at the maximum (>5 ml.l<sup>-1</sup>). The presence of O<sub>2</sub> minimum layer in the Arabian Sea (100-1250 m) is yet another notable feature of the Indian Ocean. In the upper part of this layer (down to 600 m) free hydrogen sulfide was discovered. A quantitative minimum of plankton was recorded in the whole thickness of the oxygen minimum in this area.

**Ocean Tides:** Tides are a significant factor in the ecology of marine organisms, as well as an important consideration for marine biologists. All coastlines are subjected to regular vertical changes in sea level although in some parts of the world these are so small at times as to be scarcely discernible. Around the Indian coast tidal ranges are variable, sometimes complexly so, and some coastlines experience often spectacular tidal amplitudes.

**Productivity:** The Indian Ocean extending up to Antarctica has an area of about 75 million km<sup>2</sup>, which is roughly one fifth of the world oceans. But the fish production from this ocean is only about 5 million tons, i.e. about one fourth of the world annual catch. In terms of organic production and yield ratio Indian Ocean presents a miserably low percentage as compared to that of Pacific and Atlantic Oceans. That means the yield ratio, as percentage of carbon is roughly one third of the Pacific and one fourth of the Atlantic

Oceans. This clearly indicates the wide gap in the potential harvestable stock especially in view of the fact that the average carbon fixation is almost similar for the Pacific, Atlantic and Indian Oceans with the western Indian Ocean indicating even slightly higher rate of fixation. The average annual gross production for all seas is estimated to be about 55-70 g C m<sup>2</sup>. Assuming a 40% loss through respiration and an area of 361 million a square kilometers for all the oceans, the total net production per year for all the seas is estimated at about 1.2-1.5 X 10<sup>10</sup> tons of carbon. Ryther (1963) has subsequently modified this value to 2 X 10<sup>10</sup> tons. This value is practically the same as that estimated for the production on land. Of the 74,917 km<sup>2</sup> which is conventionally taken as the Indian Ocean region, 3.1 million km<sup>2</sup> is considered as coastal and near shore regions which sustain the major part of the fishery and have an annual net production of 560 X 10<sup>6</sup> tons. During the Galathea Expedition it was found that the rate of organic production was practically high anywhere in the tropics in shallow waters, which was at variance with the observations of the earlier expeditions, which indicated a comparatively low productivity in the tropical seas. But with intensive exploration during the International Indian Ocean Expedition (1961-65) it was revealed that some of the world's highest values of primary production are in the upwelling regions of Somalia and South of Arabia. Based on the measurements made by several vessels during different seasons Qasim (1977) estimated the production of the Indian Ocean at about 4 x 10<sup>9</sup> tones. But there is quite a large variation in organic production values both in space and time in the Indian Ocean in general and coastal areas in particular. The reasons for these seasonal and spatial variations can be attributed to various factors.

**Distribution of biodiversity:** No marine species is truly ubiquitous, and even the commonest and most widely distributed species do not occur at constant frequency or density over the whole of their geographical range. Hence, the fauna of Indian Ocean is

not evenly distributed. About 1925 pelagic copepods have been described from marine waters of India. Also there is generally a gradual decline in phytoplankton abundance from coastal to oceanic water. Pelagic life also includes nekton represented by shrimpfish, squid, cuttle fish, reptiles, whales and sea cows. Pelagic life thus has a tremendous diversity in form and function. Dominant taxa in the nekton are fish represented by about 4000 species in the Indian Ocean, of which about 50% occur in Indian seas. Majorities of these species occur in coastal waters supporting valuable fisheries. Among reptiles, sea snakes and turtles are important and represented by 50 and seven species in the world respectively. These are generally oceanic forms but majorities of these often swim near to the shore and visit the shore at some part of their life. About 26 species of snakes belonging to one family Hydrophiidae and five species of sea turtles were reported from seas around India. Till recently deep sea, which constitute a major part of the ocean, was perceived as species poor environment. But now the estimates of the numbers of species in the deep seas range from 5 - 10 million. This staggering range reflects our attempt to fill up the gap that hitherto exists in our knowledge of marine biodiversity. It is now well established that the oceans are rich in supraspecific categories, especially at the phyletic level.

#### COASTAL ECOSYSTEMS OF INDIA

Coastal zone represents 18% of the earth's surface, providing space for 60% of the human population, since about 70% of the world cities with population more than 1.6 million are located in the coastal zone. 90% of the world fish catch is obtained from this zone. Interestingly, the hydrosphere of the coastal zone is only about 8% but represents about 18 to 33% of total primary production. This zone is biogeochemically more important as it buries and mineralises 80-90% of organic matter and the approximate carbonate deposition is estimated to be 50%. This area also receives discharges of suspended matter associated with elevated levels of pollutants

from major rivers and this accounts for 75 to 90 %. This zone has high biological potential as it serves as feeding, nursery and spawning grounds with rich biodiversity and as an intermediary biotope between marine and freshwater environments. Some coastal systems such as marshes, mangrove forests and sea grass beds are characterized by high biological production rather than high diversity of species. They are important to other marine ecosystems such as coral reefs and larger ocean ecosystems, and to human development because of the fisheries and other resources and services they provide (De Fontaubert *et al.*, 1996).

India has a coastline of 7,516 km, of which the mainland accounts for 5,422 km, Lakshadweep coast extends 132 km and Andaman and Nicobar Islands have coastline of 1,962 km. The marine jurisdictional area (the Exclusive Economic Zone; EEZ) is extensive, spanning 2.02 million km<sup>2</sup>, which are 38% of the total (5.30 million km<sup>2</sup>) marine, freshwater and land areas of the country. The coastal ecosystems play a vital role in India's economy by virtue of their resources, productive habitats and rich biodiversity. Traditionally, coastal areas are highly populated and developed because they are the places where trade, transport, communication and civilization are well developed. Nearly 250 million people live within a distance of 50 km from the coast. Out of the three mega cities with population more than 10 million - Delhi (13.2 million), Mumbai 16 million and Kolkata 16.5 million - two of which are coastal cities i. e. Mumbai and Kolkata. The population density is also much more in coastal areas than the national average. In parts of coastal metros like Mumbai, Kolkata and Chennai the population density ranged from 20,000 to 50,000 per sq. km. For example, in the state of Tamil Nadu, the population density in coastal areas is 528 sq. km against 372 sq. km, which is the state average.

The coastal area is assuming greater importance in recent years, owing to increasing human population, urbanization and accelerated developmental activities. The

increased population pressure led to resource depletion and environmental degradation due to coastal pollution, disposal of domestic and industrial wastes. As in most of the developing nations, the coastal environmental problems and issues in India are also concerned with the following three main conditions: environmental degradation, resources reduction and user conflicts. Current approaches to the management of coastal resources are not capable of sustainable development and the coastal environments and resources are being rapidly degraded and eroded in India. The Integrated Coastal Zone Management (ICZM) plan has been recognised as a tool for addressing options that ensure livelihood security and environmental stability in coastal zones.

The Indian coast is characterized by several promontories (e.g., near Beypore in Kerala State), sand spits (at Karnataka and Andhra Pradesh), barrier beaches (along Kerala coast), embayment (Mirya bay in Maharashtra), estuaries and offshore islands. Geomorphologically the east and west coast of India are markedly different. The West Coast is generally exposed with heavy surf and rocky shores and headlands. The west coast of India is predominantly rocky consisting of silt covered rocky flats or lime stone rocks, often with overhanging cliffs formed of green to black basalt. Sandy areas, rivers, creeks interrupt the rocky coast, and back waters. The East Coast is generally shelving with beaches, lagoons, deltas and marshes. It is also relatively low lying with extensive alluvial plains and deltas. Further, the coastal zone of India is also endowed with a very wide range of coastal ecosystems such as estuaries, lagoons, mangroves, backwaters, salt marshes, rocky coasts, sandy stretches and coral reefs which are characterized by unique biotic and abiotic properties and processes. More than half of the Indian coastline is sandy. On the East Coast, small stretches of rocky formations occur along Tamil Nadu and Andhra Pradesh. Major coastal ecosystems of India have been adequately mapped for demarcating the boundaries (Table. 2.1), however, with little knowledge of the

**Table 2. 1:** Area (sq km) of major ecosystem/habitat of the coast of India

Mudflats	2961
Beaches/Spits	1465
Shoal/Bar	93
Coral reefs	1270
Mangroves	3979
Marsh vegetation	370
Mudflat with vegetation	6125
Beach vegetation	290
Lagoon/Backwaters	2132
Flood prone areas	3,437
Coastal dunes	2509
Reclaimed areas	1212
Paleo Beach Ridges	434
Paleo Mudflats	6821
Strand plains	1378
Salt affected areas	697
Salt pans	1617

(Source: Space Application Center 1992)

resources and their ecological status. Major coastal ecosystems of India are discussed here, for their economic use, conservation status, and the viability of offering environmental protection.

### **Economic and Ecological Importance**

Marine and coastal ecosystems, and the diversity of species that compose their structure, provide a wide range of important resources and services (Table 2.2). Food from the sea, in particular fish, crustaceans and molluscs, is a major component in human consumption, accounting for about 16 per cent of the average individual's intake of animal protein worldwide (FAO, 1993), and the proportion is higher in many developing countries (WRI, 1996). Marine fish provided about 84 million tons of human food and livestock supplements in 1993 (FAO, 1995). The fisheries producing this catch are a major

source of employment for many of the world's coastal States and small-scale fisheries harvests form a large proportion of the catch.

India with a strong fisheries interest, the marine fisheries constitute a highly productive sector, a source of valuable food and employment. The largest fish production comes from the coastal capture fisheries, which contribute on an average, 62% of the total fish production (including freshwater fish production). Over 3651 fishing villages situated along the 8129 km coastline, about 1 million people are employed full time in marine capture fisheries. The fishing sector, which is dominated by small scale and semi-industrial operators, supports several ancillary industries such as boat building yards, processing plants etc. Of the marine products export of 385,818 tons valued at 1.1 billion US \$ during 1997-1998, about 310,000 t (80%) was from the capture fisheries. Marine fisheries production from inshore waters (<50 m depth), which was only 0.5 million tons in 1950, increased through the time scale and peaked to 2.7 million tons in 1997 – the maximum harvest potential in these waters thus pointing to the fact that further increase in production is limited.

Marine species provide many other products as well, including edible seaweed, ingredients for food and cosmetics, industrial chemicals and dyes and a host of other products. Medical researchers have already identified a number of marine organisms that produce previously unknown bioactive compounds, including antiviral and anti tumor agents, which may soon have medical applications. One compound derived from a sea sponge to treat herpes, for example, is worth US \$50 to \$100 million annually (Norse, 1993).

While we tend to measure the ocean's value in terms of harvests of particular species used for food or other purposes, marine and coastal ecosystems provide important ecological services that are rarely perceived until they are lost, which include: a) storing and cycling nutrients, b) regulating water balances, c)

buffering land and protecting it against erosion from storms and waves, d) filtering pollutants, e) play an essential role in regulating planetary balances in hydrology and climate, and f) through the ocean's photosynthetic pump, removing the primary greenhouse gas, carbon dioxide from the atmosphere and producing one third to one half of the global oxygen supply. Coral reefs, estuaries, lagoons and shallow coastal waters are particularly valuable for human populations because of the goods and services they provide. They are among the most biologically productive systems on the earth. Reefs and mangroves provide sea defenses and buffer the impacts of tropical storms, mitigating the erosive effects of waves and storm surges. All of these systems provide nurseries and feeding grounds for many coastal and pelagic species of fish including many of the most important sources of fish for human consumption.

Species do not live in isolation, but are part of, and dependent upon, vast ecological communities and systems. Thus exploitation of living marine resources even of single stocks is a biodiversity issue. The conservation of biodiversity is therefore an important part of managing economically valuable living resources.

### MARINE BIODIVERSITY

Out of the total 32 animal phyla, 15 are represented by the taxa in the marine ecosystem. They may constitute either migratory or resident species. The former includes pelagic crustaceans, coelentrates (medusae), Cephalopod molluscs, fishes, reptiles, birds and mammals. The benthic macro fauna comprises resident species of polychaetes, molluscs, sipunculas and mud-burrowing fishes. Free swimmers or nekton are important components of marine biodiversity and constitute important fisheries of the world. The dominant taxa in the nekton are fish, others being crustaceans, molluscs, reptiles and mammals. Out of a total 22,000 species, it has estimated that about 4,000 species occur in the Indian Ocean of which

Table 2.2. Some of the coral reef representatives and their major utility

ANIMAL GROUP	Food	Ornaments	Curios	Medicinal	Aquarium	Culture	Building material
Sponges			++	++	++		
<b>CNIDARIA</b>							
Sea fan		++	++	++	++	++	
Stony corals		++	++	++	++	++	++
Black coral		++					
Red coral (Not available in India)		++					
Sea anemone					++		
Coral or mushroom anemones					++		
Tube anemones					++		
Colonial anemones					++		
Blue coral			++		++		
Pipe organ coral			++	++	++		
Soft corals				++	++		
Fire coral			++		++		
Lace coral			++		++		
Jelly fish	++						
<b>POLYCHAETA</b>							
Sabellid worms (fan worms and feather duster worms)					++		
<b>MOLLUSCA</b>							
Snails	++	++	++		++	++	++
Nudibranchs				++	++		
Scallops, Mussels, Oyster, Giant clams	++	++	++		++	++	++
Squid, Octopus, Cuttlefish	++				++	++	
<b>CRUSTACEA</b>							
Crabs	++		++		++	++	
Lobsters	++		++		++	++	
Shrimps	++		++		++	++	
<b>ECHINODERMATA</b>							
Sea stars			++	++	++		
Feather stars					++		
Brittle stars					++		
Sea urchins	++				++		
Sea cucumbers	Beche-de-mer				++		
<b>PISCES</b>							
Sharks	++						
Sting Rays	++						
Sea Horse	++			++	++	++	
Anemone fishes					++	++	
<b>REPTILIA</b>							
Turtles	++		++		++		
<b>MAMMALIA</b>							
Sea Cow	++						

1,800 species are from the Indian seas. Majority of the nektonic species is found in the coastal waters. It is estimated that 40 species of sharks and 250 species of bony species represented the oceanic fishes. The biota of marine habitat also exhibits a diversity of survival strategies not found on land. The numerous planktonic life forms of the ocean drift passively in the water, relying on ocean currents to transport them to new nutritional sources and new habitats.

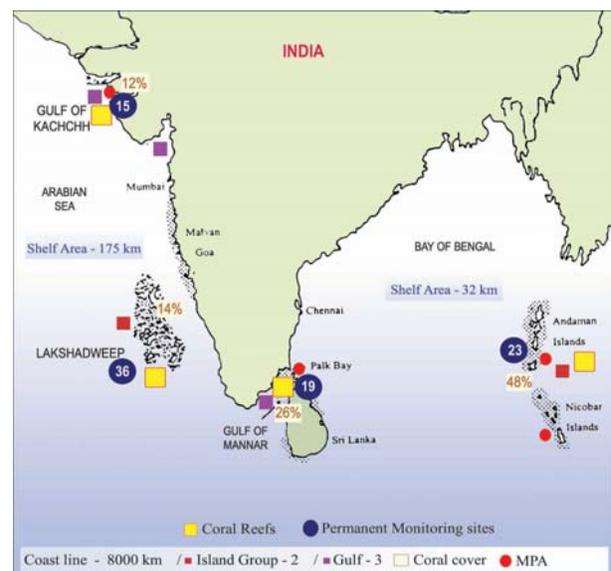
The Indian subcontinent is blessed with tremendous marine wealth that comes mostly from the Indian Ocean. The marine fauna of India is rich and varied (Table 2. 3). Each local habitat reflects prevailing environmental factors and is further characterized by its biota. Among coastal wetlands, estuaries, mangroves and coastal lagoons are biodiversity-rich areas, whereas other brackish habitats have only a few specialized species. It is generally commented that there is a reduction in the species number in estuaries compared to adjacent seas and in-flowing River system. However, as far as Indian estuaries are concerned the statement is partly true. There is lesser number of species than in the adjacent seas, but the upper riverine ecosystem does not harbour as many species as its estuary. It has been observed that as the distance increases from the sea the number of species decrease.

Accelerated loss of coastal and marine biodiversity components in the last few decades has been of great concern. Environmental changes, overexploitation and habitat loss are among the major causes of species loss that, according to certain estimates, is of the order of a species per day. It is not known what fraction of this loss is from marine environments, a situation that owes to a lack of systematic coverage of all faunal and floral classes, with the accent having been placed often on economically important groups, or of habitats like deep-sea where one out of two species collected could be new to science.

Probable estimates of species diversity have been variously arrived at, by extrapolation of

known number of species from a section of the habitat to others. With microbes, such estimates are even less certain. It is likely that more than 99% of the potentially existing microbes are not amenable for detection with the conventional methods and even the number of the known ones has been on the increase. In all probability, the number of species from all groups and all habitats of seas could be of the order of several million but we know only a fraction of that for certain. Even the most recent and most global inventory, the Ocean Biogeographical Information System (OBIS), has no more than 40,000 species listed. What is unknown of the diversity, thus, far exceeds what is known. A fraction of the former, from extreme habitats like polar seas, hydrothermal vents and deep-sea mounts, thanks to logistic and technical constraints, would remain unknowable for quite some time to come.

India is one among 17 mega-biodiversity countries and 32 hotspots of the richest and highly endangered eco-regions of the world. Among the Asian countries, India is perhaps the only one that has a long record of inventories of coastal and marine biodiversity dating back to at least two centuries. However, these are so diverse in space, time and taxon that it is almost impossible to review all records and reports. The synthesis



**Fig. 2.1.** Map of India showing information on the coastal and marine ecosystem.

of what is known of coastal and marine biodiversity in India attempted in this paper relies mainly on systematic accounts, records and reports of two major institutions concerned with surveys and inventories of fauna and flora – the Zoological Survey of India and the Botanical Survey of India as well as other research organizations such as Central Marine Fisheries Research Institute and National Institute of Oceanography.

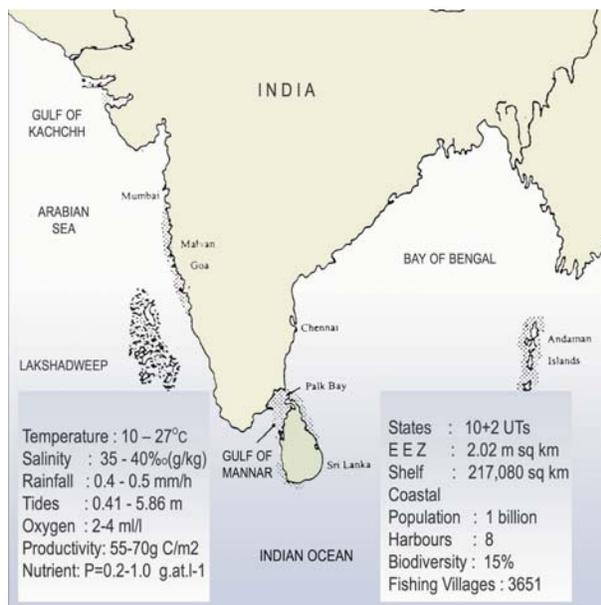
In terms of marine environment, India has a coastline of about 8000 km, an Exclusive Economic Zone of 2.02 million km<sup>2</sup> adjoining the continental regions and the offshore islands and a very wide range of coastal ecosystems such as estuaries, lagoons, mangroves, backwaters, salt marshes, rocky coasts, sandy stretches and coral reefs, which are characterized by unique biotic and abiotic properties and processes (Fig. 2.1 and Fig 2.2). A network of 14 major, 44 medium and numerous minor rivers together with their tributaries cover practically the entire country except for the western arid region of Rajasthan Desert. The total length of the rivers is estimated at over 40,000 km.

The dissimilarities between the west and east coasts are remarkable. The west coast is generally exposed with heavy surf and rocky shores and headlands whereas the east coast

is generally shelving with beaches, lagoons, deltas and marshes. The west coast is a region of intense upwelling associated with southwest monsoon (May – Sep) whereas the east coast experiences only a weak upwelling associated with the northeast monsoon (Oct-Jan), resulting in marked differences in hydrographic regimes, productivity patterns and qualitative and quantitative composition of fisheries. All islands on the east coast are continental islands whereas the major island formations in the west coast are oceanic atolls.

### Diatoms

Diatoms are the dominant component of phytoplankton in all the Indian estuaries and the coastal waters from where detailed inventories of floristic composition and seasonal changes are available. Among the estuaries of the east coast, phytoplankton composition has been studied in detail only from Hooghly, Rushikulya, Godavari, Couum, Ennore, Adyar and Vellar. A total of 102 species of diatoms belonging to 17 families are known from the east coast, with the largest diversity pertaining to Naviculaceae (21 spp) and Chaetoceraceae and Coscinodiscaceae (11 species each). Several other families like Biddulphiaceae, Lithodesmiaceae, Nitzchiaceae, Thalassionemataceae and Thalassiosiraceae are represented by fewer species. The diatom diversity along the west coast is relatively higher, with 148 species under 22 families. Naviculaceae among them is the dominant with 22 species, followed by Biddulphiaceae (16 spp), Lithodesmiaceae (15 spp) and Thalassiosiraceae (12 spp). Five families – Hemidiscaceae, Stellarimaceae, Stephanodisceae, Streptothecaceae and Heliopeltaceae – with one to three species are known so far only from the west coast. The families Bacillariaceae, Biddulphiaceae, Chaetoceraceae, Naviculaceae, Thalassiosiraceae, Thalassionemataceae and Rhizosoleniaceae are the most cosmopolitan in distribution. Of the few groups of marine organisms, planktonic algae appear to have been more completely catalogued. Their compilation suggests that the number of pennate diatoms in the world oceans could



**Fig. 2.2. Information on the marine ecosystems of India**

range from 500 to 784 and that of centric diatoms, from 865 to 999. Compared with these, not more than 25% of diatoms species is recorded in Indian waters.

### Dinoflagellates

The dinoflagellate species diversity in the east coast estuaries is relatively small (15 species in 7 families) compared to the west coast estuaries (76 species from 10 families). The family Dinophyceae is the dominant with 18 species followed by Peridiniaceae and Ceratiaceae with 13 and 10 species each, respectively. Unlike the diatoms, the number of estimated dinoflagellate species in the marine environment varies from 1000 to 2000. Compared to these, the current inventory of dinoflagellates in the Indian waters appears too small. Such inventories, however, do not distinguish between truly tropical species and others that are cosmopolitan.

### Marine Algae

Marine algae from Indian coasts have been fairly well surveyed since several decades. The latest systematic account lists 844 species (including forma and varieties) distributed among 217 genera (Table 2.3). The most abundant among them are rhodophytes (434 species), followed by chlorophytes (216 species), phaeophytes (191 species) and xanthophytes (3 species). Among these, the

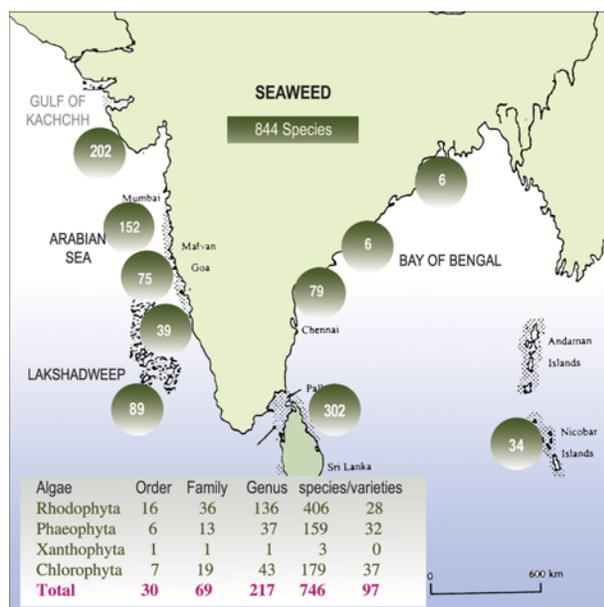


Fig. 2.3. Seaweed diversity of India

maximum number of species has been recorded from Tamil Nadu (302), followed by Gujarat (202), Maharashtra (152), Lakshadweep (89), Andhra Pradesh (79) and Goa (75) (Fig.2.3). The scanty records in other maritime states, especially the Andaman and Nicobar Islands, may not necessarily mean a paucity of algal species but may rather reflect a lack of intensive surveys.

The seaweeds are harvested mainly for use as raw materials for the production of agar, alginates and seaweed liquid fertilizer. The red algae (*Gelidiella acerosa*, *Gracilaria edulis*, *G. crassa*, *G. foliifera* and *G. verrucosa*) are used for manufacture of agar and the brown algae (*Sargassum* spp., *Turbinaria* spp. and *Cystoseira trinodis*), for alginates and seaweed liquid fertilizers. Bulk of the harvest is from the natural seaweed beds of Gulf of Mannar Islands. Recently, *Euchema cottonii* has been introduced in the Gulf of Mannar for commercial farming. Its effect on native species, not known so far, remains a matter of great concern.

### Sea Grasses

Fourteen species of seagrasses under 6 genera are known from Indian seas (Table 2.4). They are often found in association with coral reef areas. Eleven species are known from the Palk Bay, which include *Cymodocea*

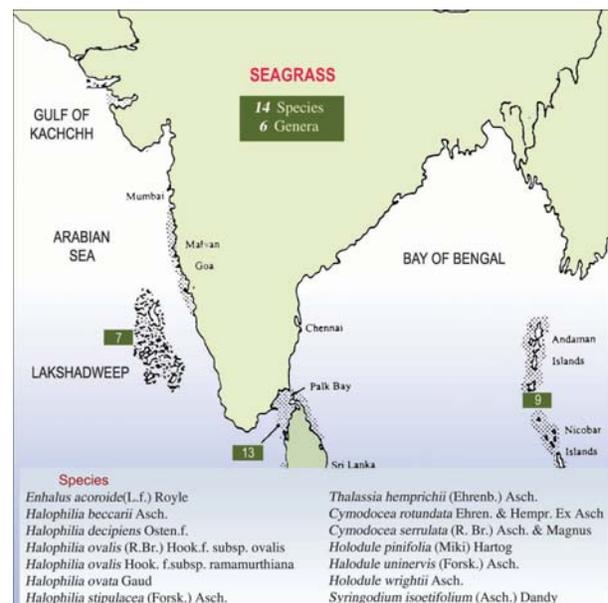


Fig. 2.4. Map showing the diversity seagrass species in India

*serrulata*, *Halophila ovalis* sub sp. *ovalis*, *Halodule pinifolia* and *Syringodium isoetifolium*. Thirteen species occur in the Gulf of Mannar Biosphere Reserve, with *Halophila*, *Halodule*, *Enhalus* and *Cymodocea* being common among them. *Thalassia* and *Syringodium* are dominant in coral reef areas and coral rubbles whereas others are distributed in muddy and fine sandy soils. Along the west coast, only *Halophila* and *Halodule* species are cosmopolitan in distribution and *Cymodocea* sp. and *Syringodium isoetifolium* occur as very small patches at the southern most end of Thiruvananthapuram. Nine species, among which *Thalassia hemprichii* and *Cymodocea rotundata* are dominant, occur in the Andaman and Nicobar Islands. From Lakshadweep Islands, 7 species are known, among which *Thalassia hemprichi* is dominant.

### Mangroves

The Indian mangroves cover about 4827 km<sup>2</sup>, with about 57% of them along the east coast, 23% along the west coast and the remaining 20% in Andaman and Nicobar Islands. The mangrove formations are of three types - deltaic, backwater-estuarine and insular. The deltaic mangroves occur mainly along the east coast, the backwater-estuarine type along the west coast and the insular in Andaman and Nicobar Islands. A total of

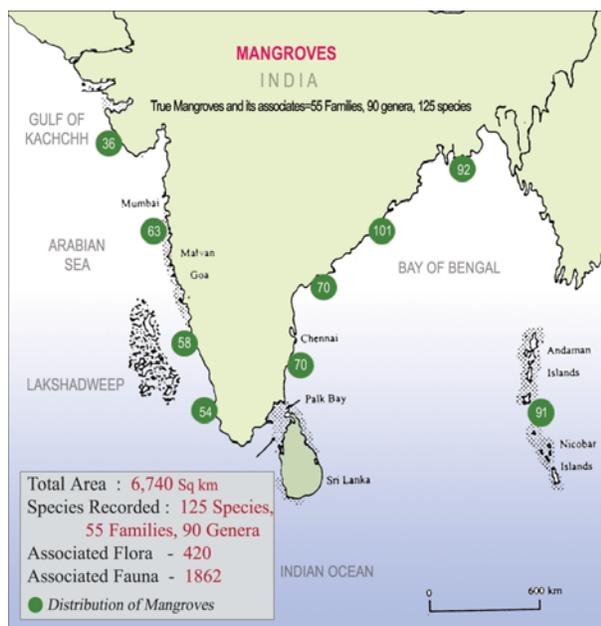


Fig. 2.5. Diversity of mangroves in India

Table 2.3. The diversity of marine flora and fauna of India (+ estimated to be more).

Taxon	India
<b>PLANTAE (2398)</b>	
Diatoms	200+
Dinoflagellates	90+
Macroalgae	844
Seagrasses	14
Mangroves	1250
<b>PROTISTA (1064)</b>	
Protozoa	532+
Foraminifera	500+
Tintinnids	32+
<b>ANIMALIA (12,798)</b>	
Porifera	486+
Cnidaria	842+
Ctenophora	12+
Platyhelmintha	350
Annelida	338
Chaetognatha	30+
Sipuncula	35
Echiura	33
Gastrotrocha	75
Kinorhyncha	10
Tardigrada	10+
Crustacea	3498
Mollusca	3370
Bryozoa	200+
Echinodermata	765
Hemichordata	12
Protochordata	119+
Pisces	2546
Amphibia (estuarine)	3
Reptilia	35
Mammalia	29

125 mangrove species are known from India (Fig. 2.5). While several of them are cosmopolitan in distribution, five of them - *Aegialitis rotundifolia*, *Heritiera fomes*, *H. kanikensis*, *Rhizophora annamalayana* and *R. stylosa* - are restricted to the east coast and one, *Lumnitzera littorea*, is present only in the Andaman and Nicobar Islands.

### Protozoa

The known number of protozoan species from India is 2577, equivalent to about 8% of

the total world protozoan fauna. Among them, 1064 species are marine, and the remaining are free-living and parasitic species. Out of seven protozoan phyla only one *viz.* Labyrinthomorpha has not yet been reported from India.

### Foraminifera

The most important phase of documentation of foraminiferan fauna began with the Challenger Expedition (1873-1876), giving rise to detailed descriptions of deep and shallow water Foraminifera. Contemporary studies began with International Geophysical Year in 1958 and the International Indian Ocean Expedition (1962-1965). The major part of the work on this group was along the east coast of India. Comparatively less work has been done on the west coast of India and the Arabian Sea. Mention may be made on the description and distribution of 164 species from Kerala coast, 12 species of benthic foraminifera from Kochi backwaters, description of 277 species from bottom samples near Lakshadweep Islands, 12 species from Juhu Beach, Bombay and a series of papers describing 84 species from shallow waters of Gulf of Cambay. The study on the distribution and ecology of benthonic and planktonic forms in the sediments of the Andaman Sea appears to be the only one from the Andaman and Nicobar Islands (Venkataraman and Wafar, 2005).

### Tintinnid

The order Tintinnida comprises of more than 1000 species of marine ciliates that form an important component of the microzooplankton. A total of 32 species belonging to 12 genera are known from Indian waters. The degree of abundance of tintinnid populations seems to coincide with diatom and dinoflagellate blooms, however, the persistence of such "swarms" appear to be controlled by the larger zooplankton grazers, such as copepods, chaetognaths, bivalve and gastropod veligers. More studies on diversity, biology and other ecological aspects of the tintinnids are needed.

### Sponges

This group has an evolutionary history of about 570 million years and so far, 486 species have been described in India. The sponge

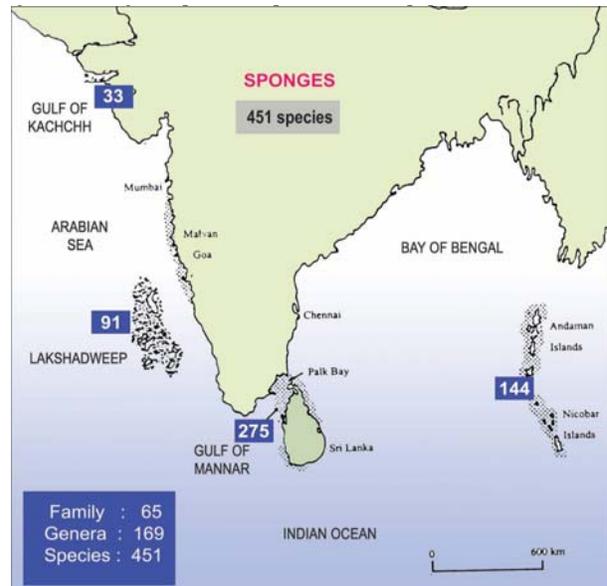


Fig. 2.6. Diversity of Sponges in India.

Desmospongia followed by those of Hyalospongiae and Calciospongiae. Also 34 species of coral boring sponges (20 from Gulf of Mannar and Palk Bay, 5 from Andaman and Nicobar Islands and 18 from Lakshadweep reefs) have been recorded. The Gulf of Mannar and Palk Bay region has the highest diversity (319 species) followed by Andaman and Nicobar Islands (95 species), Lakshadweep (82 species and Gulf of Kachchh (25 species) (Fig. 2.6).

### Cnidaria

The global estimates of cnidarian diversity vary between 9000 and 12,000 species. In India 212 species of Hydrozoa, 25 species of Scyphozoa, 5 species of Cubozoa and 600 species of Anthozoa have been reported till now. Since all groups of Cnidarians have not received adequate attention of Indian taxonomists, the above figures cannot be taken as final.

### Hydrozoa

The first description of hydrozoans in India was by Annandale from Chilka Lagoon and subsequently 35 species under 28 genera and 116 species belonging to 13 families were reported from India. Among these forms,

species of the orders Milliporina, Stylasterina and Trachylina have received only scant attention so far.

### Siphonophora

Siphonophora are abundant in the Indian seas and constitute an important part of the marine plankton. The siphonophores from the Indian Ocean have been studied by several workers from the West and East Coasts of India and those collected by R. V. 'Vityaz' along 90-110° E longitude down 35° S latitude. A comprehensive account of Siphonophora of India shows 116 valid, one variety and 3 doubtful species known from the Indian Ocean of which 89 occur in the Indian Seas.

### Anthozoa: Scleractinia

Studies on taxonomy of Indian coral reef started in India as early as 1847 by Rink in Nicobar Islands and later in 1988 by Thurston at Gulf of Mannar region. Brook recognized 8 species of *Acropora* from Rameswaram, South East coast of India, out of which *A. multicaulia*, *A. thurstoni* and *A. indica* were described as new. Contemporary studies on corals, which list a total of 218 species under 60 genera and 15 families (Venkataraman *et al.*, 2003). The recent studies on the hard corals in Andaman and Nicobar islands by Zoological Survey of India revealed 301 species. Among the four major reef areas of

India, Andaman and Nicobar Islands are rich in coral species diversity whereas those of Gulf of Kachchh is poorer. Lakshadweep Islands have more number of species than those of the Gulf of Mannar (Fig. 2.7). Among the deepwater (ahermatypic) corals so far 686 species belonging to 110 genera and 12 families have been reported from the world of which 227 species belonging to 71 genera and 12 families have been reported from the Indian Ocean region. However, meager attention has been paid so far to inventorise the deepwater corals and as a result, only 44 species are known until now from Indian Seas.

### Scyphozoa: Scyphomedusae

The earliest records of Scyphozoa in Indian Seas were made from Lakshadweep, Maldives, Sri Lanka and Okhamandal Coast of Kattiawar. In the Indian seas several cruises of the R.I.M.S. 'Investigator' and coastal surveys by the Officers of the Zoological Survey of India have yielded a collection of 24 species, which form the Indian National Collections in the Zoological Survey of India, Kolkata. In addition, several cruises of the R. V. 'Chota Investigator' along the Madras Coast from 1972 to 1983 revealed the occurrence of 19 species of which 11 were already known from the Indian seas. Thus, out of the 200 species of Scyphomedusae known from the World Oceans, 34 are known from the Indian Seas.

### Ctenophora

Only 12 species of Ctenophores, among the 100-150 species known from the world ocean, occur in the Indian seas. This inventory is derived from sporadic studies carried out several decades ago. Since then there has been no studies on Ctenophores in India so far.

### Annelida: Archiannelida

Pioneering studies on archiannelids of India were made along Madras coast from which 2 species of *Polygordius*, 2 species of *Protodrilus* and 4 species of *Saccocirrus* were described as new to science. Thus, compared

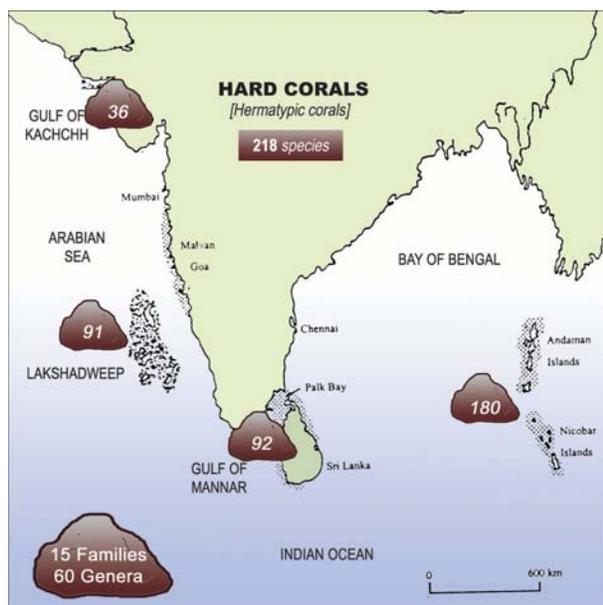


Fig.2.7. Diversity of Hard Corals in India

to the vast stretch of Indian coast, the investigations hitherto carried out on Archiannelida are quite limited and any further intensive surveys of the fauna in other areas are quite likely to yield interesting results. The world records of Archiannelida hitherto made fall under 5 families, 18 genera and over 90 species, of which about 20 species are reported from Indian coasts.

### Polychaeta

In the phylum Annelida, the Polychaeta have received considerable attention from 1909. Survey of this group actually started with "Polychaeta of Chilka Lake" followed by the littoral fauna of Krusadai Island in the Gulf of Mannar (nearly 36 species under 11 families and 119 species under 22 families). Perusal of literature shows that most of the records pertaining to this group are either from the Madras Coast or the Gulf of Mannar. Central Marine Fisheries Research Institute (CMFRI) has listed 200 species under 46 families in the catalogue of types and reference collections. From the collections of Zoological Survey of India and the Indian Museum 450 species have been described. The catalogue of the polychaetous annelids from India lists 883 species.

### Oligochaeta

Marine Oligochaete fauna is poorly known in India, and most of the species are recorded from littoral zones of small freshwater bodies like ponds, tanks, pools, ditches, etc., all over the country. The Enchytraeidae (pot-worms) occur in terrestrial, littoral and marine habitats, being abundant in acidic soils with high organic matter. As compared to the world fauna, only 3% of enchytraeid species have so far been reported from this region, mainly from Orissa.

### Sipuncula

The pioneering work on the Indian Sipuncula dates back to early 20<sup>th</sup> century. Of the 145 species under 17 genera known from the world oceans, 35 species under 10 genera and 5 families occur in the Indian coasts. So far as the distributional pattern of the

sipunculan fauna is concerned the major areas of species concentration are Andaman and Nicobar Islands, Lakshadweep Islands, Gulf of Mannar and Gulf of Kachchh.

### Echiura

The phylum Echiura comprises of 127 species under 32 genera and 5 families. Studies on Indian echiuran fauna began only in the early 20<sup>th</sup> Century. Subsequent studies had enriched knowledge on Indian echiuroids so much so that the current inventory of 33 species under 11 genera is fairly rich in comparison with what is known (43 species under 14 genera) from the Indian Ocean. Maximum abundance of echiurans is in Gulf of Kachchh, Gulf of Kambath, Lakshadweep, Andaman and Nicobar Islands and Gulf of Mannar. Mud-dwelling forms are few in numbers and are found in Kerala, West Bengal and Orissa.

### Chaetognatha

Chaetognaths (arrow worms or glass worms) rank second in terms of abundance after copepods in marine zooplankton and are cosmopolitan in distribution. They are mostly marine, but a few species are estuarine. Among the 120 species known from the world oceans, about 30 are reported from the Indian Seas. Chaetognaths have been extensively studied in Indian waters and from various coastal and oceanic sites: Mumbai, Chennai Coast, Kurusadai Island, Mandapam area, Trivandrum coast, Malabar Coast, Lawson's Bay, Waltair, Ennore estuary, Andaman Sea and coastal and offshore waters. In contrast with this numerous studies, chaetognaths of the deeper waters of the seas around India and those of Andaman and Nicobar Islands and central and northern parts of the Bay of Bengal are not well known.

### Tardigrada

Tardigrades occur as meiofauna in the sandy beaches up to 2 or 3 m from water's edge of seacoast. Among the three orders of the Phylum Tardigrada, the Heterotardigrada is found in marine, freshwater and high altitude mountains. So far 214 species are

reported from the world under five families and 20 genera. However in India only 10 species under two families and three genera have been reported as meiofauna of marine region<sup>154</sup>.

### Arthropoda: Crustacea

Global estimates of Crustacean species diversity are 150,000 of which 40,000 have been described so far. Of the 2934 species of Crustacea that have been reported (Venkataraman and wafar, 2005) so far, marine species (94.85%) contribute maximum to this diversity. In India as many as 139 species of stomatopods (4 families and 26 genera), 26 species of lobsters (4 families, 11 genera), 162 species of hermit crabs (3 families, 40 genera), 705 brachyuran crabs (28 families, 270 genera), 84 species of shrimps and prawns (7 families, 19 genera) and 159 species of Caridea (15 families, 56 genera) have been recorded so far. Other than these, 540 species of copepods, 104 species of cirripeds, 120 species of ostrocods have also been recorded (Fig.2.8).

### Copepoda

Copepods are the most widely studied group among the marine zooplankton. There are approximately 210 described families, 2,280 genera and over 14,000 species in the world. Largely as a result of these studies as well as several others since then it is now known that there are 540+ number of copepod species in Indian waters. Among these, the most dominant group is Calanoida, with the Cyclopoida and Harpacticoida being relatively less important. Only very few papers dealing with marine Harpacticoida of India and neighboring seas have been published so far. A total of 106 species belonging to 23 families are known from the east coast estuaries (Fig. 2.8). Among them the calanoids are the dominant, distributed in 16 families, followed by harpacticoids (5 families and cyclopoids (2 families). The diversity in the west coast estuaries is relatively higher, with 179 species in 31 families. Calanoids are dominant with 20 families. Though the number of families of harpacticoids and

cyclopoids are the same (6 families), the latter is more diverse, with 22 species compared with 7 species of harpacticoids.

### Ostracoda

The Ostracoda are one of the most successful aquatic crustacean groups with approximately 8000 living species. The six extant and extinct orders are ubiquitous and diverse, with over 50,000 named species and genera and more awaiting study. Only 60+ species of ostracods are known from the Indian coast of which 38 species are known from the east coast and 28 species from the west coast.

### Branchiura

Our knowledge of this group from the Indian region is rather scanty. It is not until 1951, when Ramakrishna contributed to our knowledge of the Indian species of argulids found parasitic on fishes, that the group received adequate attention. He described five species of the genus *Argulus* of which three were described as new to science.

### Cirripedes

Information on the diversity of Cirripedia of Indian coast is far from complete, with only 36 species having been recorded so far. Even these records are rather sketchy and have low geographical coverage.

### Malacostraca: Mysidacea

The foundation of our knowledge on the Indian mysids was from the published work on the 'Mysidacea of the Indian Ocean' based on materials collected from epipelagic waters down to 200 m during the International Indian Ocean Expedition (IIOE). There are about 160 species are more or less restricted to the littoral environment. About 300 species are confined to the neritic region, 30 are epipelagic and over 200 live in the meso and bathypelagic regions and in India there are about 75 species have been reported so far.

### Cumacea

Cumacean species are little known from Indian seas. So far, studies on Indian

cumaceans revealed 69 species belonging to 3 families and 8 genera.

### Tanaidacea

Our knowledge of Tanaidacea is rather poor from the Indian region. Chilon contributed a paper dealing with a species of the group from the Chilka Lake.

### Isopoda

Very little is known about the marine isopods when compared to terrestrial isopods of India. Chopra contributed a monumental monograph on the Bopyrid isopods of Indian Macrura wherein 33 species pertaining to 13 genera were described from Andaman Islands, Delta of Ganges and Madras and other areas. Chopra contributed another paper on the Bopyrid isopods on Indian Macrura. The collection included 12 species pertaining to 7 genera collected mostly from the Andaman and Nicobar Islands, Delta Ganges, Gulf of Mannar and Bombay. The contributions on the marine woodborers from 1963 to 1968 by various Indian authors revealed six species of the genus *Sphaeroma* and nine species of *Limnoria* from the Indian waters.

### Amphipoda

Studies on the amphipods of the Indian and the neighboring waters received the

attention of Zoologists only as late as 1885. Sixteen species amphipods were reported from Krusadai Island, Gulf of Mannar and the neighbouring waters. Many amphipod species were reported from the collection made from Travancore, Cochin and Bengal coasts by the Zoological Survey of India. Apart from the record of the three species of amphipods off the coast of Mahabalipuram, a brief note about the occurrence of three species of amphipods at Adyar in Madras. Scientists of Zoological Survey of India compiled a detailed account of the intertidal Gammarid amphipods from the Indian coasts and listed 132 species pertaining to 54 genera.

### Euphausiacea

The earliest account on Indian euphasids is known through the work of Wood-Mason and Alcock. Among the Indian coasts 23 species of euphasids from the Laccadive and Maldive as well as from adjoining regions two species from South West Coast of India have been recorded so far.

### Stomatopoda

Kemp published a monograph on Indo-Pacific stomatopods comprising of 139 species and varieties known till then. Kemp and Chopra published papers on the stomatopods form collection of the John Murry Expedition (1933 –34) made by Sewell. After a gap of two decades a series of papers were published highlighting the present knowledge of Stomatopoda in the Indian waters. The study of Stomatopoda of India is, however, far from complete.

### Decapoda: Macrura

Decapoda as a whole has received a good attention from scientific workers compared to other groups. The earliest to contribute was de Man who, in a series of papers, referred to the Decapod collection from the brackish water ponds of Lower Bengal. The contributions of Kemp to the study of Indian Crustacea are among the most noteworthy of the group. His contributions on decapod crustaceans of the Indian Museum published in 24 parts in the *Records of the Indian Museum*

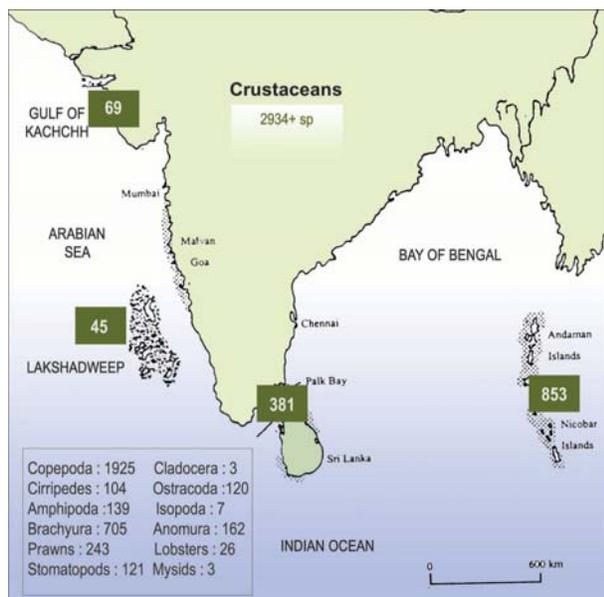


Fig. 2.8. Diversity of Crustaceans in India

contains systematic account of various marine and brackish water forms belonging to the families Hippolytidae, Carangonidae, Disciadidae, Palaemonidae, Pasiphasidae, Stylodactylidae, Rhynchocinetidae, Pacdalidae and Anchistodidae in which, species from most varied habitats have been reported. Alcock contributed a comprehensive catalogue on the penaeid prawns of India. Since then several Indian researchers have contributed to inventories of this group. Although large number of species of prawns and lobsters are known to occur in and along the Indian coast, work on this group of species is very limited. World over 17 families, 67 genera and 383 species have been recorded as commercially important. A total of 55 species of commercial shrimps and prawns have been recorded in India. The east coast of India contributes to about 24.5% and the west coast contributes 75.3% of countries shrimp production.

### Brachyura

The earliest works on the crabs of Indian Seas were those of Milne Edwards, Henderson and de man. The first comprehensive study of the crabs of west coast was that of Borradalile. Alcock gave a detailed account of marine and brackish water crabs. Kemp dealt with 38 species under six families collected from the Chilka Lake and in 1923 accounted for crabs collected from the mouth of Hooghly River. Chopra in a series of contributions entitled "Further Notes on Crustacea Decapoda in the Indian Museum" published in seven parts dealt with Hymenosomatid, Dromiacea, Oxystomata, Oxyrhyncha, Brachyrhyncha and Potamonid crabs. These series were in continuation of Kemp's series entitled "Notes on Crustacea Decapoda in the Indian Museum". Many other Indian authors added to the earlier works raising the total carcinological fauna to above 250 species. There are about 254 species of crabs belonging to 120 genera under 24 families recorded along the west coast of India (Fig. 2.8). Among these, the names of 100 species have been revised. 22 families and 37 subfamilies represent brachyuran crabs.

Family Leucosiidae represented the higher number with 20 species followed by subfamily Thalamitae of family Portunidae (19 species). Family Xanthidae alone is represented by 10 subfamilies of which the subfamily Zosiminae is represented by 14 species.

### Anomura

Sarojini and Nagabhushanam gave a detailed account on the Porcellanids from the Waltair Coast. Scientists of Zoological Survey of India listed twenty species pertaining to the families Paguridae and Coenobitidae. The study on the Anomuran crabs is far from complete and more studies are needed in this group.

### Mollusca

The history of malacological study in India is immense and interesting. Studies on Indian molluscs were initiated by the Asiatic Society of Bengal (1784) and the Indian Museum, Calcutta (1814). Benson in 1830 was perhaps the first author to publish a scientific paper on Mollusca. Between the years 1830 and 1865 he published a total of about 90 papers dealing with the land and freshwater molluscs of the Indian subcontinent. The beginning of the 20<sup>th</sup> century is the most productive and significant period in the history of Indian Malacology, with the Zoological Survey of India, Central Marine Fisheries Research Institute and several maritime universities contributing immensely to the knowledge of the molluscan fauna. In India, till today, 5070 species of Mollusca have been recorded of which, 3370 species are from marine habitats. From the available data, it is possible to identify certain areas having rich molluscan diversity. Andaman and Nicobar Islands have a rich molluscan diversity, which include over 1000 species from the marine region Gulf of Mannar and Lakshadweep have 428 and 424 species respectively (Fig. 2.9). Eight species of Oysters, two species of mussels, 17 species of clams, six species of pearl oysters, four species of giant clams, one species of window-pane oyster and other gastropods such as Sacred chank, *Trochus*, *Turbo* as well as 15 species of

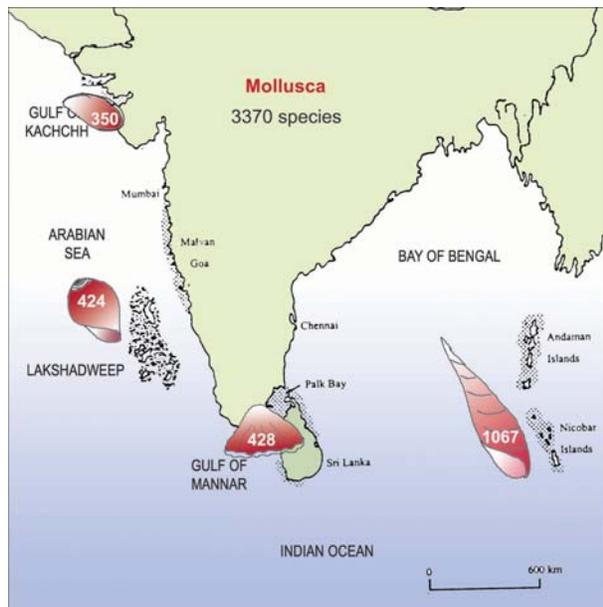


Fig. 2.9. Diversity of Mollusca in India

cephalopods are exploited from the Indian marine region.

### Bryozoans

Although regarded traditionally as a minor phylum, the group contains as many as 20,000 described species actually occupying an intermediate position in the hierarchy of animal phylum in respect of species representation. Of these, approximately 4,000 species are living. At least 200 valid species occur in India. The bryozoa are grouped under three classes i.e. Phylactolaemata (freshwater species), Stnolaemata and Gynolaemata. A total of 126 families are recognized – 100 from Gymnolaemata (15 from the order Ctenostomata and 85 from Cheilostomata), 21 from Stenolaemata and five from Phylactolaemata. In India, as in other parts of the world, only a few species of bryozoans inhabit freshwater lakes and rivers (Phylactolaemata) and most others are marine or estuarine. It is however to be noted that vast stretches of the long Indian coastline still remain unexplored and biology and ecology of several species still remain uninvestigated.

### Entoprocta

The Entoprocta are predominantly marine having about 60 species known from the world with the exception of one genus in

freshwater. Reports of Entoprocta from India are scanty except for the brackish and marine water species reported by Annandale and Harmer. The diversity in Entoprocta is limited and restricted basically to the following three families viz., Loxosomatidae, Pedicellinidae and Urnatellidae. Family Loxosomatidae is commonly represented in India by two genera (*Loxosoma* and *Loxocalyx*). The family Pedicellinidae is represented by the genera *Pedicellina*, *Myosoma*, *Chitaspis*, *Loxosomatoides*, *Pedicellinopsis*, *Barentsia*, *Gonypodaria* and *Arthropodaris*.

### Echinodermata

Plancus and Gualtire made the first report on Indian echinoderms from Goa in 1743 and the next one in 1830 was by Collier on the *beche-de-mer*. Subsequently, other studies accounted a few new species from the Bay of Bengal. Most of what we know of the echinoderm fauna is from examination of the collections from expeditions such as *Investigator*, *Challenger*, *Valdivia* and *John Murray*. India has 765 species (Crinoidea: 13 families, 43 genera 95 species; Asterozoidea: 20 families, 81 genera and 180 species; Ophiurozoidea: 15 families, 67 genera 150 species; Echinozoidea: 28 families, 79 genera 150 species; Holothurozoidea 14 families, 62 genera 160 species) recorded until today and about 257 species are known from Andaman and

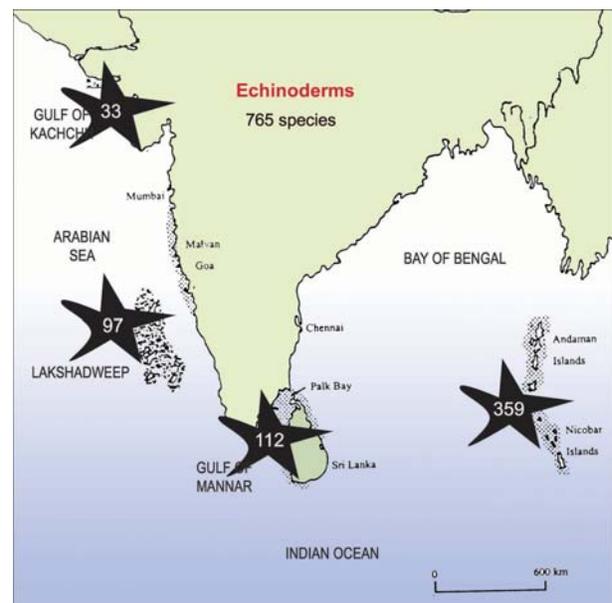


Fig. 2.10. Diversity of echinoderms in India

Nicobar Islands. Lakshadweep has 77 species and the Gulf of Mannar, 112 species (Fig.2.10). Economically, only Holothuroidea are exploited on a commercial scale for export. Twelve species of Holothurians belonging to the genera *Actinopyga*, *Bohadschia*, *Holothuria*, *Stichopus* and *Thelenota* are known to be of commercial importance in India. However, only three species *Bohadschia marmorata*, *Holothuria scabra* and *H. spinifera* are being exploited to a large extent in the Gulf of Mannar. All holothurians are now included under Schedule 1 of the Wildlife Protection Act, 1972.

### Hemichordata

Phylum Hemichordata is divided into three classes, *i.e.* Enteropneusta, Pterobranchia and Planctosphaeroidea. Of the four families known from the world only three families are recorded from India. So far, 102 species are recorded from the world of which 12 are known from India. Genera such as *Ptychodera*, *Glossobalanus*, *Glandiceps* have been collected from the Gulf of Mannar, Gulf of Kachchh, Andaman Islands, Lakshadweep and Maldive Seas, the Tamil Nadu coast up to Cape Comerin and the *Saccoglossus* has been recorded from the high saline marshy areas of Sunderbans in West Bengal. The only commonly available enteropneust worm in India is *Ptychodera flauva*.

### Protochordata

This phylum includes two subphylum Cephalochordata and Urochordata. Worldwide the diversity of cephalochordates includes 2 families, 2 genera and 24 species and in India 6 species are reported under 2 families and 2 genera. The subphylum Urochordata is divided into class Ascidiacea (sea squirts) that are sessile or benthos attached to substratum on the coral reef, Class Thaliacea (= salps) and Class Larvacea that are planktonic. About 2000 species of ascidians are reported from all over the world of which 47 are reported in India (9 families, 21 genera). Out of 57 species of Thaliacea reported from the world, 48 species (four families and 19 genera) occur in India and out

of 25 species of Larvacea reported from the world 18 (two families 14 genera) are reported from India.

### Fishes

The history of ichthyology in India is colossal and interesting. Brief histories of Indian Ichthyology may be found in Day and Whitehead and Talwar<sup>245</sup>. Among the books published on Indian fishes, Francis Day's (1875-1878) treatise "The fishes of India" is of greatest importance. The publications on "Commercial sea fishes of India" by Talwar and Kacker is noteworthy in our knowledge of fish faunal resources of India besides many other research publications by other scientists. Fishes comprise about half the total number of vertebrates. The number of estimated living fish species might be close to 28,000 in the world. Day has described 1418 species of fish under 342 genera from the British India. Talwar has described 2546 species of fish belonging to 969 genera, 254 families and 40 orders (Fig. 2.11). The distribution of marine fishes is rather wide and some genera are common to the Indo-Pacific and the Atlantic regions. 57 percent of the Indian marine fish genera are common to the Indian Ocean and to the Atlantic and Mediterranean.

The exact number of species associated with coral reefs of India is still to be found,

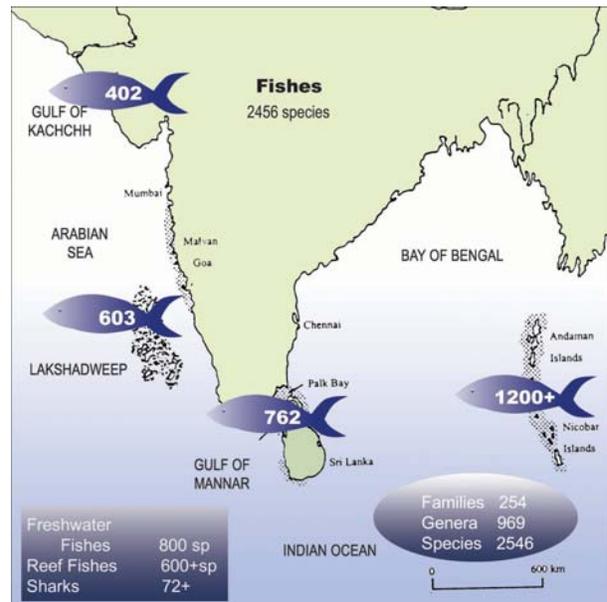
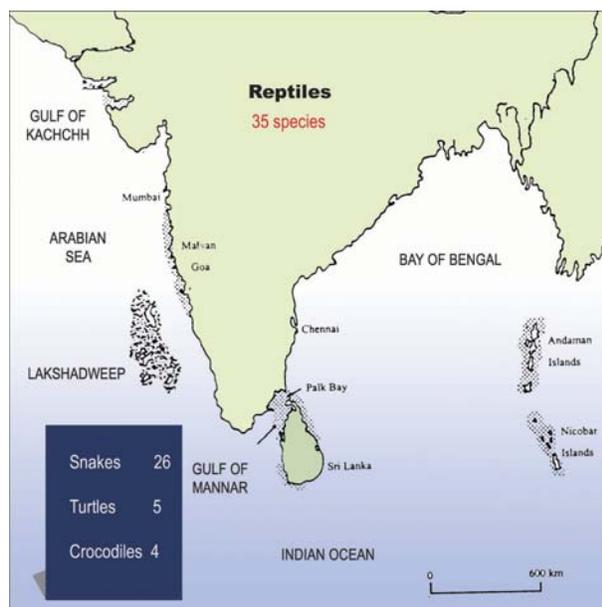


Fig. 2.11. Diversity of marine Fishes of India.

however the number of fishes in Indian Ocean is 1367 species. The Lakshadweep Islands have a total of 603 species of fishes. Over 1000 species are found in the Andaman and Nicobar Islands and about 538 in the Gulf of Mannar Biosphere Reserve. The categories of fishes occurring in coral reef ecosystem of India includes groups such as the damselfishes (52 species), butterfly fishes (32 species), sweat lips (16 species), angelfishes (16 species), parrot fishes (14 species), snappers (42 species) and most of the wrasses (53 species), groupers (43 species) and surgeonfish (18 species). Another 20% are composed of cryptic and nocturnal species that are confined primarily to caverns and reef crevices during daylight periods.

### Reptiles

About 26 species of sea snakes belonging to the family Hydrophiidae and five species of sea turtles have been reported from seas around India. All the sea snakes and four species of turtles in their marine environment are known from islands of Andaman and Nicobar. Studies on sea turtles occurring in the



**Fig. 2.12. Diversity of marine reptiles of India.**

coastal waters of India and their nesting grounds were neglected till Smith focused our attention on these giants among the sea reptiles. Seven species of sea turtles are found in the world's warm oceans of which five species are reported in India. Of these Leatherback sea turtle, *Dermochelys coriacea* is the sole representative of the family Dermochelyidae and is a rare species. The remaining four species namely the Green turtle (*Chelonia mydas*), the Olive Ridley (*Lepidochelys olivacea*), the Hawksbill (*Eretmochelys imbricata*), and the Loggerhead (*Caretta caretta*) are contained in a single family, Cheloniidae.

### Marine Mammals

Marine mammals belong to three orders Cetacea, Carnivora and Sirenia. A little over 120 species are estimated to occur world over and of these 40 are reported from Indian Ocean and 29 species of marine mammals belonging to the order Cetacea and Sirenia are reported from Indian waters. However, a majority of these are oceanic forms and occasionally a few individuals may get stranded on the shore. Sea cow, *Dugong dugon* occurs in near shore waters of Gulf of Mannar, Gulf of Kachchh and Andaman and Nicobar Islands. Dolphins and some of the whales that live or breed in tropical waters, such as humpbacks, are occasionally seen near shore areas. The Government of India has so far listed three species of cetaceans (Irrawady dolphin, Ganges River dolphin and sperm whale) and the dugong in Schedule I of Wildlife Act, 1972 (amended in 1991).

The current inventory of coastal and marine biodiversity of India (Table 2.3) shows that many groups that are commercially and trophically important are the ones that have been extensively inventorised, leaving several groups, notably the minor phyla grossly understudied.

### 3. MARINE PROTECTED AREA CHARACTERIZATION IN INDIA

The coastal zone of India is endowed with a very wide range of coastal ecosystems such as estuaries, lagoons, mangroves, backwaters, salt marshes, rocky coasts, sandy stretches and coral reefs which are characterized by unique biotic and abiotic properties and processes.

Major coastal ecosystems of India are discussed here, for their economic use, conservation status, and the viability of offering environmental protection.

#### 1. CORAL REEFS

Coral reefs are among the planet's largest and oldest structures created by living organisms. Few genera of corals are supposed to be older than prairies. This unique ecosystem is most productive because of its symbiotic association with an alga called Zooxanthellae (Fig. 3.1). They are the protectors of the coastlines of the maritime states, however are very fragile and

vulnerable to natural disturbances, and human activities. Many maritime states and the coastal populations mostly depend upon the coral reef ecosystems for their day-to-day life.

Reefs are home to more species than any other ecosystem in the sea for they provide shelter and nourishment to thousands of marine flora and fauna with a complex web of inter-specific interactions. The total number of reef species in the world is still unknown, but up to 3,000 species can be found together on a single reef in Southeast Asia and over 1,000 on a single Caribbean reef. Only tropical rainforests estimated by some to be home to a staggering 30 million insects, have a greater number of species, although due to the vast number of fish that inhabit them, reefs contain a larger number of vertebrates than rainforests. Reefs also contain many more



Fig.3.1. Photograph showing a typical underwater coral reef ecosystem

major animal groups (Phyla) than any other ecosystem on land or in the sea. The richest reefs, with the greatest diversity of plants and animals are in the region bounded by Indonesia, Malaysia, the Philippines and southern Japan. Of the 700 or so reef coral species that are known in the world, 600 are found in this region; over 400 are found in the Philippines and Japan, and about 350 in Indonesia, and upto 200 corals may occur on a single reef in this region. This high diversity extends equally to other reef associates and is partly because of the greatest area of reefs found here and partly because of its geological history. The variety of species on a reef decreases eastwards across the Pacific.

mainland coast of India has two widely separated areas containing fringing reefs: the Gulf of Kutch in the northwest, which has some of the most northerly reefs in the world, and Palk Bay and Gulf of Mannar in the southeast. There are patches of reef growth on the West Coast, for example coral reefs at Malvan. The Andaman and Nicobars also have fringing reefs around many islands, and a long barrier reef (329 km) on the west coast. The reefs of Andaman may prove to be the most diverse in India and those in the best condition. The Lakshadweep has extensive atoll reefs.

The absence of reef in Bay of Bengal (North East Coast) is attributed to the immense quantity of freshwater and silt brought by the rivers such as Ganga, Krishna and Godavari. Satellite imagery (SAC, Ahmedabad) shows scattered patches of corals in the intertidal areas and occasionally at subtidal depths along the West Coast of India notably at Ratnagiri, Malwan and Rede Port.

A total of 478 species of corals divided among 89 genera are recorded from India, including Lakshadweep, the Gulf of Kachchh, Palk Bay and the Gulf of Mannar and Andaman and Nicobar Islands, which is about 60% of the total known hermatypic genera from the world. A comprehensive list of species from the Indian Ocean is not yet available. Based on the present checklist, the following numerical list of species under each family is drawn up (Tables 3.1 and 3.2). Among the four major reef areas of India, Andaman and Nicobar Islands are found to be very rich and Gulf of Kachchh the poorest in species diversity. Lakshadweep Islands have more number of species than the Gulf of Mannar. About 97% of Indian genera recorded from Andaman and Nicobar Islands,



**Fig. 3.2. Map showing the four major coral reef areas of India**

In India, all the three major reef types such as atolls, fringing reefs and barrier reefs occur, and the region includes some of the most diverse, extensive and least disturbed reef areas of the Indian Ocean, many of which are among the least scientifically known. The

**Table 3.1: Diversity of scleractinian corals in the major reefs of India**

	Gulf of Kachchh	Lakshadweep	Palk bay and Gulf of Mannar	A & NIslands	Total
Families	10	13	14	19	19
Genera	25	37	40	86	89
Species	49	104	117	424	478

Table 3.2: Coral families recorded from A and N islands in comparison with Indian corals.

No. Family	India		A&N Islands	
	Genus	Species	Genus	Species
1 ACROPORIDAE Verrill, 1902	4	143	4	126
2 ASTROCOENIIDAE Koby, 1890	2	4	2	3
3 POCILLOPORIDAE Gray, 1842	3	15	3	15
4 EUPHYLLIDAE Veron, 2000	3	7	3	7
5 OCULINIDAE Grey, 1847	1	4	1	3
6 MEANDRINIDAE Gray, 1847*	1	1	1	1
7 SIDERASTREIDAE Vaughan & Wells, 1943	4	14	4	13
8 AGARICIIDAE Grey, 1847	6	32	6	29
9 FUNGIIDAE Dana, 1846	11	48	11	43
10 PECTINIIDAE Vaughan and Wells, 1943	5	13	5	13
11 MERULINIDAE Verrill, 1866	3	8	3	8
12 DENDROPHYLLIDAE Grey, 1847	7	26	7	19
13 CARYOPHYLLIIDAE Gray, 1847	6	11	5	9
14 FLABELLIDAE Bourne, 1905	2	2	1	1
15 RHIZANGIIDAE Orbingny, 1851	2	2	1	1
16 MUSSIDAE Ortmann, 1890	7	23	7	20
17 FAVIIDAE Gregory, 1900	18	81	18	76
18 TRACHYPHYLLIIDAE Milne Edwards & Haime, 1848	1	1	1	1
19 PORITIDAE Grey, 1842	3	43	3	36
<b>Total</b>	<b>89</b>	<b>478</b>	<b>86</b>	<b>424</b>

\*Doubtfull identification

Table 3.3. Major coral reef areas and areas under protection

Areas harbouring coral reefs in India	Total reef area (km <sup>2</sup> )	Name of the Protected (Coral reef) Area	Total Protected area (including islands, reef etc.) (km <sup>2</sup> )	Reef area under protection (km <sup>2</sup> )
<b>Lakshadweep Islands</b>	933.70*	Pitti Wild life Sanctuary	0.01	Data not available
<b>Andaman Nicobar Islands</b>	1021.46*	1. Mahatma Gandhi Marine National Park	281.50	42.60*
		2. Rani Jhansi Marine National Park	256.14	14.80*
		3. North Button National Park	0.44	0.40*
		4. Middle Button National Park	0.44	Data not available.
		5. South Button National Park	0.03	Data not available.
		6. North Reef Island, Sanctuary	3.48	9.30*
<b>Gulf of Mannar</b>	69.03*	1. Gulf of Mannar Marine National Park	560.00	69.03*
		2. Gulf of Mannar Marine Biosphere reserve		
<b>Gulf of Kachchh</b>	352.5*	1. Gulf of Kachchh Marine National Park	295.03	Data not available.
		2. Gulf of Kachchh Marine Sanctuary		
<b>Palk Bay</b>	6.9*	—	—	—
<b>Malvan</b>	0.28*	3. Malvan Marine Sanctuary	29.22	0.28

\* Source: SAC, 2010

where as other reefs constitute merely 40%. This indicates the high degree of coral diversity in Andaman and Nicobar Islands. Interestingly Andaman and Nicobar Islands has all the families (100%) which are recorded from other major reefs of India.

The total area of coral reefs in India is estimated to be 2383.87 km<sup>2</sup> (SAC, 2010). All reef areas in India are not effectively brought under PA net work, however, it is significant to note that 3 out of 5 designated MPAs are meant for the conservation of coral reefs. As pointed out in Table 3. 3., the reef areas in Lakhadweep and Palk Bay do not have any protection. Only 6.61% of the reef area in Andaman Nicobar is under the coverage of Marine Protected Area. For Gulf of Kachchh, the entire reef area is not covered under the MPA jurisdiction, and the total reef extent exceeds the total area under MPA. Data on the actual reef area under protection is not available for this region.

## 2. MANGROVES

Mangrove forests form one of the most extraordinary ecological formations occurring almost exclusively in the tropics. These are salt-tolerant ecosystems of tropical and subtropical intertidal coastal regions near river mouths. Between latitudes 30°N and 30°S, the shoreline marsh vegetation is replaced by mangals (a community of mangroves is termed as mangal). They form highly productive ecosystems since the inorganic nutrients, brought in by the incoming freshwater from land run-off, are trapped to form the source of energy for many organisms. Through the export of decomposable organic matter into adjacent coastal waters, the mangroves provide an important nutrient input and primary energy source for many tropical estuaries. A mangrove ecosystem constitutes a reservoir, refuge, feeding ground and nursery for many useful and unique plants and animals confined to this region. Hence, they have great ecological, social and economic significance. These areas are important for the marine fisheries, serving as

they do as nurseries for many species of finfish and shellfish. They also provide a wide variety of goods and services including wood production, aquaculture, salt production and shoreline protection from cyclones and tropical storms and coastal erosion control. The multiple uses of the coastal zone, in general, and the mangroves in particular, like recreation, tourism, forestry, agriculture, aquaculture, housing and commercial fishing are all well known, as also the fact that this zone is very highly productive and also thickly populated. A major concern with the increasing use of this zone and its resources relates to coastal pollution by domestic industrial, municipal and agricultural wastes and of late due to oil exploration.

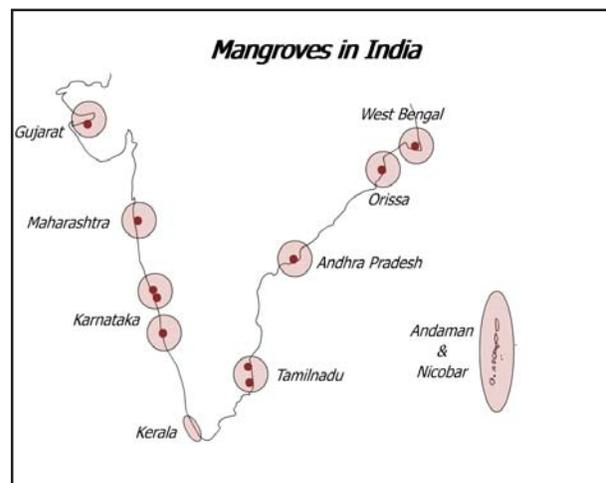


Fig. 3.4. Major mangrove regions of India

India has only 2.66% of the world's mangroves, 6.42% of mangroves exist in the South and Southeast Asia, 9.83% in America, 17.29% in West Africa, 25.69% in Australia and 46.65% of mangroves in East Africa and Middle East. Three types of mangroves occur in India viz., deltaic, backwater-estuarine and insular categories. The deltaic mangroves occur on the east coast (Bay of Bengal) where the mighty rivers make the deltas (e.g. World's largest mangrove forest, the Gangetic Sunderbans in West Bengal). The Sunderbans mangroves are of the deltaic type. The backwater-estuarine type of mangroves that exists in the west coast (Arabian Sea) is characterized by typical funnel-shaped

Table 3.4. Mangrove areas in India and Areas under protection

State/UT	Total (km <sup>2</sup> )* Mangrove area	Name of the protected (Mangrove) area	Total Area covered under protection (including land area, islands, mudflats, reef, etc.), (km <sup>2</sup> )
<b>West Bengal</b>	2155	1. Sunderbans National Park and Tiger Reserve	1330.0***
		2. Halliday Sanctuary	5.95***
		3. Lothian Island Sanctuary	38.0***
		4. Sajnakali Sanctuary	362.40***
<b>Orissa</b>	222	1. Bhitarkanika National Park and Marine Sanctuary	672.0***
		2. Gahirmatha Marine Sanctuary	1435.0
<b>Andhra Pradesh</b>	352	1. Coringa Wildlife Sanctuary	235.7
		2. Krishna Wildlife Sanctuary	194.81
		3. Pulicat Lake Bird Sanctuary	500.00
<b>Tamil Nadu</b>	39	1. Pulicat Lake Bird Sanctuary	153.67
		2. Point Calimere Willife and Bird Sanctuary	17.26
<b>Puducherry</b>	1	—	—
<b>Andaman and Nicobar Islands</b>	617	1. Mahatma Gandhi Marine NP, Wandoor	281.40
		2. Rani Jhansi Marine National Park	256.14
		3. Lohabarrack Sanctuary	21.57
		4. North Button National Park	0.44
		5. Middle Button National Park	0.44
		6. South Button National Park	0.03
		7. North Reef Island, Sanctuary	3.48
		8. Galathea Bay Sanctuary	11.44
		9. Parkinson Island Sanctuary	0.34
		10. Mangrove Island Sanctuary	0.39
		11. Blister Island Sanctuary	0.26
<b>Kerala</b>	6	—	—
<b>Karnataka</b>	3	—	—
<b>Goa</b>	22	1. Chora Reserve Forest and Bird Sanctuary	1.78**
<b>Maharashtra</b>	186	1. Malvan Marine Sanctuary	29.12
<b>Daman &amp; Diu</b>	1.56	—	—
<b>Gujarat</b>	1058	1. Gulf of Kachchh Marine National Park and Sanctuary	295.03

\* FSI, 2011

\*\* Kumar, 2000

\*\*\* Singh, 2002

estuaries of major rivers (Indus, Narmada, Tapti) or backwaters, creeks, and neritic inlets. The insular mangroves are present in Andaman and Nicobar Islands, where many tidal estuaries, small rivers, neritic islets, and lagoons support a rich mangrove flora.

The total area of mangroves estimated as per data of 2009 is 4,662 km<sup>2</sup> (FSI, 2011). The Sunderbans has 30 of the 50 species of the true mangroves in the world. The mangrove area in Orissa is nearly 222 km<sup>2</sup> in extent and its degradation is placed at 20 km<sup>2</sup> over ten years, as per recent estimates (Fig.3.4). Andhra Pradesh has 352 km<sup>2</sup> of mangrove area. The area under mangrove ecosystem in Tamil Nadu is 39 km<sup>2</sup>. Out of India's total area under the mangroves, about 57% are found on the East Coast, 23% on the West Coast and remaining 20% on the Bay Islands (Andaman and Nicobar). No data is available on the actual extent of mangroves in the Marine Protected Areas of India. For some of mangrove states it could be said that the entire extent of mangrove is not covered under the protected area, where total mangrove area (Table 3. 4) is less than the total area covered under protection. This applies to the states like West Bengal, Orissa, Andhra Pradesh, Tamil Nadu and Andaman and Nicobar Islands. On the contrary, Maharashtra, Gujarat, Daman and Diu, Goa, Karnataka, Kerala and Puducherry have additional mangrove extent outside the protected area.



Seagrasses

### 3. SEAGRASS AND SEAWEED ECOSYSTEMS

Seagrasses occur in the infratidal and midtidal zones of shallow and sheltered localities of sea, gulf, bays, backwaters and lagoons. They are submerged monocotyledonous plants and adapted to the marine environment for completion of their life cycle under water. They form a dense meadow on sandy and coral rubble bottoms and sometime in the crevices under water.

In India they occur along the east and West Coast and Andaman and Nicobar and Lakshadweep Islands. Earlier studies revealed that about 14 species are found along the Indian coast. The dominant species are *Cymodium rotundata*, *Enhalus acorodies*, *Halodule pinifolia pinifolia*, *H. uninervis*, *H. wightii*, *Halophila beccarii*, *H. deecapiens*, *H. ovalis*, *H. ovta*, *H. stipulacea*, *Syringodium isoetifolium*, *Thalassia hemprichii* and others. About 9 species of seagrass are extensively found in Andaman and Nicobar Islands. The unique ecological importance of the seagrasses for the conservation of rare and endangered animal like marine turtles, dugongs, some common echinoderms, juvenile prawns and fishes is very well known.

The seaweed communities prefer somewhat flat and rocky coastal wetlands that gradually slope towards the sea with marked tidal effect of complete submergence during high tide and successive exposure



Seaweeds

during low tide. Its distribution extends from open shore formation to intertidal lagoons, bays, rockpools, and puddles or in creeks and inlets beyond the low tide mark along the infralittoral region of the coast. Different species are abundant along the West Coast, Andaman and Nicobar Islands, and Lakshadweep. Except the places like Chilka, Pamban, Gulf of Mannar and Cape Comorin, its occurrence along the East Coast is very scanty.

About 120 species of seaweeds have so far been recorded from the coastal wetlands in India. Some of the important seaweeds are *Enteromorpha compressa*, *Ulva lactuca*, *Acetabularia crenulata*, *Dictyosphaeria cavernosa*, *Chaetomorpha media*, *Caulerpa corynephora*, *C. paltata*, *odium iyengarii*, *C. tomentosum*, *Halimeda macroloba*, *Dictyota atomarica*, *Ectocarpus breviarticulatus*, *P. olysiphonia vaariegata*, *Grateloupia indica*, *Sargassum duplicatum* and others. These plant communities serve as sustainable life support in the field of food, shelter, fertilizer, production of iodine, potash, glue, agar, algin, vitamin, antibiotic and others. The detailed studies on Indian seaweed, their survey, quantitative assessment and different problems for extracting valuable products for commercial export are to be given more emphasis in the future.

Despite their ecological and economic significance the area estimates of seagrass and seaweed dominated ecosystems have not been carried out for the Indian coastal systems, with the exception for Palk Bay and Gulf of Mannar (Manikandan *et al.*, 2011, Umamaheswari *et al.*, 2009) These ecosystems outside the MPAs in India are to be mapped to be identified for offering any MPA status. Several of the seagrass ecosystems are designated forage places for dugongs and turtles have also not been notified. These lapses have to be urgently met with for the conservation of these ecosystems and associated fauna.

#### 4. ESTUARINE ECOSYSTEM

Estuaries are integral parts of coastal environment. They are the outfall regions of

the river, making the transitional zone between the fluvial and marine environs. They are also effective nutrient traps and provide a vital source of natural resources to man and are used for commercial, industrial and recreational purposes. Historically the term estuary has been applied to the lower tidal reaches of a river. They may be also semi-enclosed and sheltered coastal bodies of water. As they are semi-enclosed they provide natural harbour for trade and commerce. Most of the great cities of the world have developed around the estuaries. Of the ten largest metropolitan areas in the world, seven – namely, New York, Tokyo, London, Shanghai, Buenos Aires, Osaka and Los Angeles - border the estuarine areas. In India, cities like Bombay, Kolkata and Chennai are developed around estuaries and the coastal population density has been quite high since many centuries. Even at the time of Harappan civilization, exploitation of estuarine and riverine resources was intensive; for instance an active Greek-Roman sea trade flourished at the Indus delta (Mohan-jo-daro), the Ganga-Brahmaputra delta and the harbours in Bengal and South India.

Ecosystem diversity is reflected in the formation of estuaries at the mouth of 14 major rivers, which together account for 83% of the total catchment area and 85% of the annual runoff into seas around India (Qasim and Sengupta, 1984). These estuaries harbour lush mangrove vegetation which add subsequently to the organic production. In some locations along the coast, backwaters stretch over vast areas and have a few specialized faunal groups. The total estimated area under the estuaries is approximately 2 million hectares and the backwater is 1.9 million hectares. Two lagoons, namely Chilka and Pulicat on the East Coast, are the important wetlands as far as biodiversity is concerned.

Biodiversity in this ecosystem is very impressive. They are the best settling places for clams and oysters. They also act as nursery ground for a variety of shrimps and some finfishes. In India there are 113 major

and minor rivers. The health status and the biological diversity of the Indian estuarine ecosystem are deteriorating day by day due to man-made activities and dumping of enormous quantities of sewage into the estuaries, which has drastically reduced the population of the mature fishes. It has also caused considerable ecological imbalance and resulted in large-scale disappearance of their flora and fauna.

### 5. LAGOON ECOSYSTEM

Coastal lagoon is a shallow coastal water body separated from the ocean by a barrier, connected at least intermittently to the ocean by one or more restricted inlets and usually oriented parallel to shore. The ocean entrance(s) can at times be closed off by sediment deposition as a result of wave action and littoral drift. Coastal lagoons are usually found on low-lying coasts and are normally aligned with their largest diameter parallel to the seashore. A number of lagoons are present on the east and West Coast of India. There are 17 noteworthy lagoons (8 on the east and 9 on the west) along the Indian coasts.

**East Coast of India:** The East Coast of India, extending from the international border of India and Bangladesh in the northeast, to Kanyakumari in the south is 2,545 km long. It covers the states of West Bengal, Orissa, Andhra Pradesh, and Tamil Nadu. It is over 2 million km<sup>2</sup> in extent and acts as the recipient of mighty rivers of the subcontinent viz. the Ganga and Brahmaputra. The lagoons of east coast of India are Chilka, Pulicat, Pennar, Bendi, Nizampatnam, Muttukadu, Muthupet and Gulf of Mannar.

**West Coast of India:** Along the West Coast of India, there are nine important coastal lagoons. With their connecting canals they stretch from north of Calicut to Trivandrum on the south. Typical examples are the Ashtamudi lagoon near Quilon and the Vembanad lagoon near Alleppey among others. Other lagoons in the west coast of India are Paravur, Ettikulam, Veli, Murukumpuzha, and Talapady.

### 6. PELAGIC AND BENTHIC ECOSYSTEMS

The fauna of the marine ecosystem is not evenly distributed throughout the oceans. It is estimated that 90 percent of marine species live in about 50 million sq. km of the total 352 million sq. km. The patterns of biodiversity are determined by the availability of light in the sea. The pelagic ecosystem is dominated by plankton, which is classified on the basis of size as picoplankton (0.2-2 mm), nanoplankton (2 - 20 mm) microplankton (20-200 mm) and mesoplankton (>200mm). Mesoplankton includes copepods, rotifers etc. Larvae of many benthic invertebrates represent mesoplankton. Sponges, coelentrates, molluscs and echinoderms have planktonic larvae. Copepods, cladocerans, mysids, rotifers, chaetognaths, hemichordates and protochordates have planktonic adults. Copepods are important primary grazers. About 1925 pelagic copepods have been described from marine waters of India. It is estimated that there are 3500 to 4500 species of marine phytoplankton in the world but we do not have any such data for Indian seas. Plankton occurs everywhere in the sea and they differ only in the species composition and relative abundance.

The rich nutrient present in the coastal waters forms the basis for the presence of many species of diatoms whereas the nutrient deficient oceanic waters contain dinoflagellates. Also there is generally a gradual decline in phytoplankton abundance from coastal to oceanic water. Plankton plays important role in the primary productivity. It also produces half of the world's oxygen and fixes 27 giga tons of carbon each year. Pelagic life also includes nekton represented by shrimpfish, squid, cuttle fish, reptiles, whales and sea cows. Pelagic life thus has a tremendous diversity in form and function. Dominant taxa in the nekton are fish represented by about 4000 species in the Indian Ocean, of which about 50% occur in Indian seas. Majorities of these species occur in coastal water supporting valuable fisheries.

Among reptiles, sea snakes and turtles are important and represented by 50 and seven species in the world respectively. These are generally oceanic forms but majorities of these often swim near to the shore and visit the shore at some part of their life. About 26 species of snakes belonging to one family Hydrophiidae and five species of sea turtles were reported from seas around India. The seashore offers a veritable feeding and breeding ground for a number of birds. From the available data it has been inferred that there are 12 families, 38 genera and 145 species of seabirds, which occur, in the coastal ecosystem.

Till recently deep sea, which constitute a major part of the ocean, was perceived as species poor environment. But now the

estimates of the numbers of species in the deep seas range from 5 - 10 million. This staggering range reflects our attempt to fill up the gap that hitherto exists in our knowledge of marine biodiversity. It is now well established that the oceans are rich in supraspecific categories, especially at the phyletic level. Out of the 32 animal phyla recorded so far from the world, 15 are endemic to the sea, five have predominantly marine occurrence. The taxonomic status of the groups representing the evolutionary branches off Protista is in a fluid state. The kingdom is divided into about 70 phyla. As many as 1000 new species are discovered every year. From the recent studies it is found that the number of benthic invertebrates includes millions of species instead of 60,000.

## 4. REASSESSMENT OF MARINE PROTECTED AREAS IN INDIA

### Types of protected areas

In general, protected areas are classified under eight categories as recognized by IUCN, 1984.

#### 1. Scientific Reserve

Its objective is to protect nature and maintain natural processes in an undisturbed state in order to have ecologically representative examples of the natural environment available for scientific study, environmental monitoring, education and for the maintenance of genetic resources in a dynamic and evolutionary state.

#### 2. National Park

It is aimed to protect large natural and scenic areas of natural or international significance for scientific, educational and recreational use under management by the highest competent authority of the nation.

#### 3. Natural Monument

It is to protect and preserve nationally significant natural features because of their special interest or unique characteristics.

#### 4. Wildlife Sanctuary

It is to ensure the natural conditions necessary to protect nationally significant species, biotic communities or physical features of the environment requiring human intervention for their perpetuation.

#### 5. Protected Landscape

To maintain nationally significant natural landscapes characteristic of the harmonious interaction of people and land while providing opportunities for public enjoyment through recreation and tourism within the normal life style and economic activity of these areas.

#### 6. Resource Reserve

To protect the natural resources of the area for further use and curb development that could affect the resource pending the establishment of objectives.

#### 7. Anthropological Reserve

To allow societies live in harmony with the environment to continue their way of life, undisturbed by modern technology.

#### 8. Managed Resource Area

To provide for the sustained production of water, timber, wildlife, pasture and outdoor recreation; the conservation of nature is primarily oriented to the support of economic activities.

### History of Protected Areas

The practice of protecting outstanding natural areas for their scenic beauty and for recreation and enjoyment by the general public is scarcely more than a century old. The first "national park", Yellow stone was proclaimed in the United States in 1872. The growth of the national park movement continued slowly until World War II. After the end of the war, however, the number of parks around the world began to increase sharply (Dixon and Sherman, 1990). Since the mid-1970s, most of the new national parks have been located in developing countries (Malik, 1984). In 1985 the international Union for the Conservation of Nature and Natural Resources (IUCN) updated its list of protected areas. This list contains more than 3,500 sites in 136 countries and territories. The establishment and management of parks and protected areas are receiving increasing attention worldwide. The establishment of protected areas is on constant increase worldwide.

Since 1986, the IUCN Commission on National Parks and Protected Areas (CNPPA) has been promoting the establishment and management of a global representative system of Marine Protected Areas (MPAs). According to IUCN (1998) "Marine Protected Area" means: Any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or the entire enclosed environment.

According to Singh (2002) and the SCBD report (2006) there are 31 MPAs in India, which also include PAs which have territories confined to land (under categories II and III), such as island sanctuaries though have marine ecosystems adjacent to their boundaries. These ecosystems are generally, mangroves, coral reefs, and seagrass beds which need equal protection from a different perspective. For example in Andaman Nicobar Islands, there are only three Marine Protected Areas with territories marked in the marine areas. The several island sanctuaries which constitute the number arrived at by the above mentioned reports have no marine areas marked within their territories and hence designated MPAs cover only 1.2% of the total area of the PAs in Andaman Nicobar Islands (Mathur and Padalia, 2010). However, the PAs declared as containing marine habitats encompass all the constituent ecosystems including terrestrial zones. This discrepancy has been observed in the assessment by Wells *et al.* (1995), Dwivedi *et al.* (1994) and Pernata (1993) who showed that for the number of marine and terrestrial PAs in Central Indian Ocean Marine Region, the boundaries in the seaward side are not clear, which include habitats important in terms of Marine Biodiversity.

Hence it is required to suggest demarcation boundaries of existing PAs in India, incorporating adequate ecosystem representation, niches, biological richness of species, etc. It is also required to establish new MPAs of areas which also so far received lesser representation of above said features.

Identification based on information by Dwivedi *et al.* (1994) in to PAs which have marine focus and which are primarily coastal land suggested that there are 10 marine sites and 19 coastal sites (Wells *et al.*, 1995)

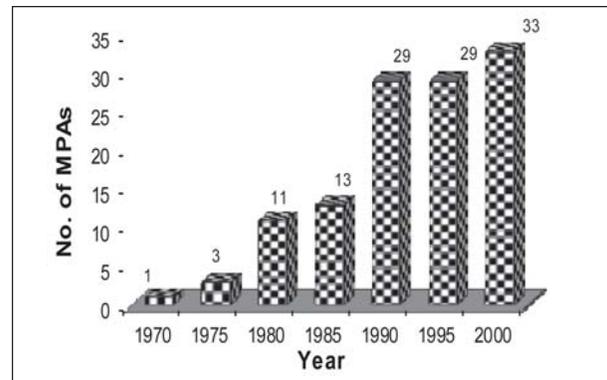


Fig. 4.1. Number of Marine Protected Areas in India

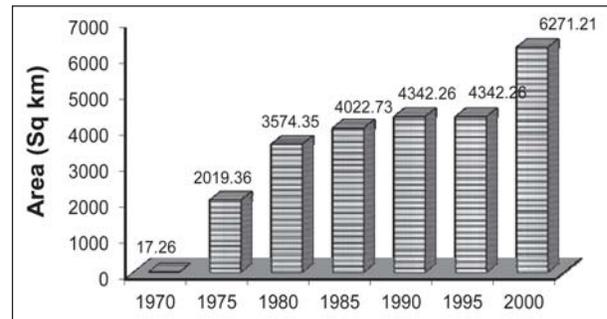


Fig. 4.2. Total area (sq km) of Marine Protected Areas in India

Drawing from Singh (2002), Wells *et al.* (1995) the categories are re-defined as below:

**Category I:** MPAs as per IUCN criterion, and where marine areas are in focus with boundaries marked in the seaward side or intertidal/subtidal areas, include, coral reefs, seagrass beds, mangroves, mangrove creeks / backwaters, lagoons, swamps, marshy/saline lands estuaries, turtle nesting sites/beaches (where trawling or fishing regulations are required in the sea) etc.

**Category II:** PAs where the current area of focus is terrestrial, including islands - and boundaries confined to land - however have important marine biodiversity areas adjoining their territories which require marking boundaries in the seaward side, and substantial in size to the PA in focus. (This category PAs have the potential to be brought

under Category I, if amalgamated into clusters and the seaward boundaries notified).

**Category III:** PAs where areas in focus are primarily terrestrial, however these are coastal sites and islands and have important marine areas in the fringes (usually smaller in size to

the area of PA). e.g., Great Nicobar Biosphere Reserve.

In the following list (Table 4.1) the PAs in India are reassessed as per the above categories and presented.

Table 4.1. Marine Protected Areas in India

<b>CATEGORY - I</b>	
1	Mahatma Gandhi Marine National Park (MNP), Wandoor, South Andaman
2	Lohabarrack (Salt water Crocodile) Sanctuary, Wandoor, South Andaman
3	Rani Jhansi MNP (Richies Archipelago), South Andaman
4	Gulf of Kachchh MNP, Jamnagar, Gujarat Marine Sanctuary (MS), Gulf of Kachchh, Jamnagar, Gujarat
5	Gulf of Mannar MNP, Ramanathapuram, Tuticorin, Tamil Nadu
6	Malvan Marine Sanctuary, Sindhudurg, Maharashtra
7	Gahirmatha Marine Sanctuary MS, Kendrapara, Orissa
8	Coringa WLS, East Godavary, Andhra Pradesh
9	Sundarbans National Park and Tiger Reserve, North & South 24-Pargana, West Bengal
10	Chilka (Nalaband) Wildlife Sanctuary (WLS), Kundra, Puri, Ganjam, Orissa
11	Pulicat Lake (Bird) Sanctuary, Tiruvellore, Tamil Nadu
12	Sajnakhali Sanctuary, South 24-Pargana, West Bengal
<b>CATEGORY - II</b>	
<b>Group 1 (North Andaman)</b>	
13	Chanel Island Sanctuary,
14	Landfall Island Sanctuary
15	East Island Sanctuary ,
<b>Group 2 (North Andaman)</b>	
16	West Island Sanctuary
17	White Cliff Island Sanctuary,
18	Reef Island Sanctuary,
<b>Group 3 (North Andaman)</b>	
19	Mayo Island Sanctuary,
20	Paget Island Sanctuary,
21	Point Island Sanctuary
22	Shearme Island Sanctuary
<b>Group 4 (North Andaman)</b>	
23	Tree Island Sanctuary,
24	Trilby Island Sanctuary,
25	Table (Delgarno) Island Sanctuary, North Table (Excelsior) Island Sanctuary, North Andman
26	Temple Island Sanctuary,
27	Turtle Island Sanctuary,
<b>Group 5 (North Andaman)</b>	
28	Jungle Island Sanctuary,
29	North Island Sanctuary,
30	Wharf Island Sanctuary,
31	Ox Island Sanctuary,
32	Ross Island Sanctuary,
33	Brush Island Sanctuary

<b>Group 6 (North Andaman)</b>
34 Shark Island Sanctuary,
35 Kwangtung Island Sanctuary,
36 Lattouche Island Sanctuary
37 North Reef Island Sanctuary,
<b>Group 7 (North Andaman)</b>
38 Bamboo Island Sanctuary
39 Blister Island Sanctuary
40 Curlew Island Sanctuary, Middle
41 Dot Island Sanctuary
42 Oliver Island Sanctuary
43 Goose Island Sanctuary
44 Gander Island Sanctuary
45 Oyster Island - I Sanctuary
46 Orchid Island Sanctuary
47 Egg Island Sanctuary
48 Curlew B. P. Island Sanctuary
49 Dottrel Island Sanctuary
50 Girjan Island Sanctuary
51 Swamp Island Sanctuary
<b>Group 8 (Middle Andaman)</b>
52 Sea serpent Island Sanctuary
53 Snake Island - 1 Sanctuary
54 Buchanan Island Sanctuary
55 Bondoville Island Sanctuary
56 Entrance Island Sanctuary
57 Surat Island Sanctuary
58 Spike Island-1 Sanctuary
59 Bennet Island sanctuary
60 Ranger Island Sanctuary
61 Roper Island Sanctuary
62 Interview Island Sanctuary

<b>Group 9 (Middle Andaman)</b>
63 South Reef Island Sanctuary
64 Elat Island Sanctuary
65 Mask Island Sanctuary
66 Tuft Island Sanctuary
67 Hump Island Sanctuary
<b>Group 10 (Middle Andaman)</b>
68 Oyster Island - II Sanctuary
69 Parkinson Island Sanctuary
70 Cone Island Sanctuary
<b>Group 11 (South Andaman)</b>
71 North Button Island National Park
71A Middle Button Island National Park
72 South Button National Park
73 East or Inglis Island Sanctuary
74 Sir Hugh Rose Island Sanctuary
<b>Group 12 (South Andaman)</b>
75 Stoat Island Sanctuary
76 Talabaicha Island Sanctuary
77 Mangroves Island Sanctuary
78 Bingham Island sanctuary
79 Bluff Island sanctuary
80 Spike Island sanctuary
<b>Group 13 (South Andaman)</b>
81 Duncan Island sanctuary
82 Pitman Island sanctuary
83 Potanma Island sanctuary
84 Kyd Island sanctuary
85 James Island sanctuary
<b>Group 14 (South Andaman)</b>
86 Patric Island sanctuary
87 Defence Island sanctuary

88 Montogemery Island sanctuary	103 Pitti Island sanctuary, Lakshadweep
89 Clyde Island sanctuary	104 Halliday Island sanctuary, Sunderbans, West Bengal
<b>Group 15 (South Andaman)</b>	<b>Protected areas under MPAs CATEGORY - III</b>
90 Cinque Island sanctuary	105 Narcondam Island sanctuary, North East of Andaman Islands
91 Passage Island sanctuary	106 Barren Island sanctuary, East of Middle Andaman Islands
92 Sisters Island sanctuary	107 Saddle Peak National Park, North Andaman
93 South Sentinel Island sanctuary	108 Cuthbert Bay Island sanctuary, Middle Andaman
94 North Brother Island sanctuary	109 Mount Harriet National Park, South Andaman
95 South Brother Island sanctuary	110 Great Nicobar Biosphere Reserve, Nicobar
<b>CATEGORY - II MPAs, [outside the clusters] in India</b>	111 Megapode Island sanctuary, Nicobar
96 Peacock Island sanctuary, North Andaman	112 Tillongchang Island sanctuary, Nicobar
97 Rowe Island sanctuary, North Andaman	113 Bhitarkanika Wild Life Sanctuary, Orissa
98 Arial Island sanctuary, South Andaman	114 Point Calimere Sanctuary, Tamilnadu
99 Belle Island sanctuary, South Andaman	115 Lothian Island Sanctuary, Sunderbans, West Bengal
100 Sandy Island sanctuary, South Andaman	
101 Snake Island II sanctuary, South Andaman	
102 Baltimalv Island sanctuary, Nicobar	

A brief characterization of each the Protected Areas in the above list, with recommendations and proposals are given below:

#### Protected areas under MPA Category - I

##### 1. Mahatma Gandhi MNP, Wandoor, South Andaman

**Area:** 281.50 km<sup>2</sup> (Total area of islands and the territorial waters are 61.0 and 220.5 km<sup>2</sup> respectively)

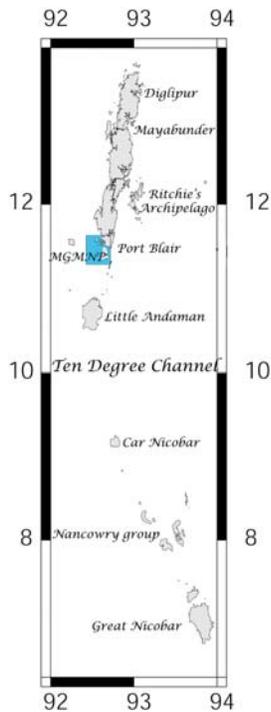
**Year of Declaration:** 1983

**Major Habitats:** Created for the purpose of conserving the biodiversity rich reefs

fringing the islands and the patch reefs, the islands also have dense mangrove forests at the island fringes and several hectares of sea grass beds.

**Other Habitats:** The 15 islands and several islets, which fall within the boundaries of the Marine National Park, are covered with tropical evergreen forests. There are also creeks which do not support coral growth.

**Key species:** Corals and associates (fishes, sea cucumber, sea anemones etc.), dolphins, saltwater crocodile, sea turtles (Green & Olive Ridley), Dugong, Manta Ray and Common Dolphin, ~300 species of birds, Spotted deer, wild boar, Himalayan palm civet and flying fox.



In terms of species diversity, the coral reefs and associated marine fauna of the park, is richest amongst all marine national parks in the country. Also their association with rich tropical evergreen and mangrove forests is unique.

#### Conservation Needs:

- Measures to control sedimentation and pollution due to coastal developments are necessary.

- Mangrove deforestation in the coastal zone needs to be checked.
- Guidelines under CZRA notification (2011) have to be implemented.
- Fishing in the park area needs to be halted.



View of Jolly Buoy Island in MGMNP

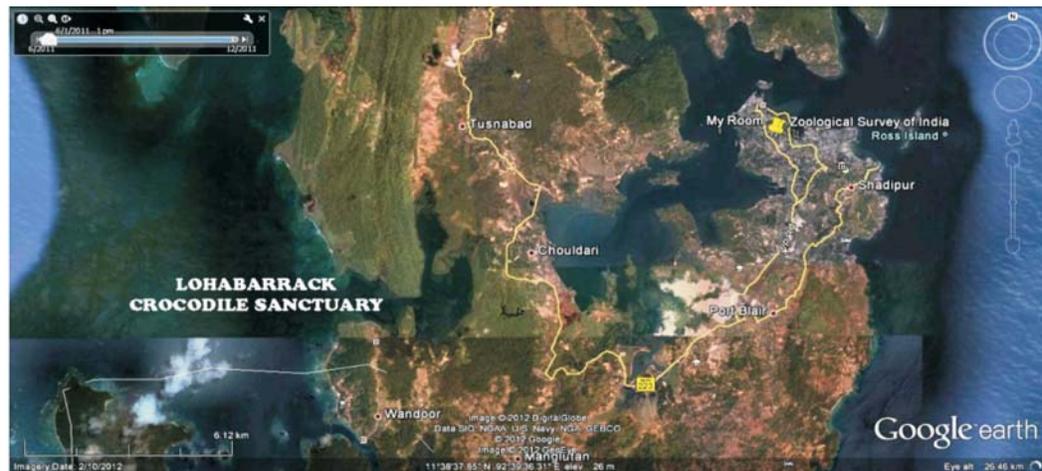
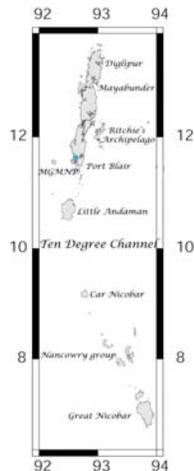


View of Grub Island in MGMNP

## 2. Lohabarrack (Salt water Crocodile) Sanctuary, Wandoor and South Andaman

**Area:** 100.00 km<sup>2</sup>

**Year of declaration:** 1983



**Major habitats:** The Lohabarrack (Saltwater Crocodile) sanctuary lies between the geo-coordinates: Latitude: 11° 35' 38" to 11° 40' 08", Longitude 92° 35' 02" to 92° 39' 00". The sanctuary was established in 1983 mainly to conserve the salt water crocodile and its habitat. Lohabarrack Sanctuary has got the distinction of being one of the very few salt water crocodile sanctuaries created in India in the early eighties. The mangrove fringed creeks along the sanctuary from suitable habitats for the salt water crocodiles in this sanctuary.

**Other habitats:** Mangroves and patchy reefs with stress tolerant species.

**Key species:** Reptiles - Salt water crocodile, sea turtle (Hawksbill, Leather backed, Olive Ridley, Green), water monitor; mammals - dolphin, wild boar, spotted deer, Indian elephant, Himalayan palm civet; birds- Andaman dark serpent eagle, crested serpent eagle, white bellied sea eagle and harriers. Apart from this, the Sanctuary also hosts variety of marine life such as corals, fishes, dolphins, turtles etc.

### Conservation Needs:

- The total population of the villages around

the sanctuary is approximately 1000. As per the report by the Range Officer Lohabarrack Sanctuary, there are 50 families living in the border areas of Sanctuary. Substantial percentage of the population depends on marine resources and hence monitoring of the resource uses necessary.

- Crocodile population census needs to be conducted.
- Monitoring surveys for the effectiveness of the purpose of Sanctuary.
- Mangrove deforestation in the coastal zone needs to be checked.
- Guidelines under Coastal Zones Regulation Act Notification (2011) have to be implemented.

## 3. Rani Jhansi Marine National Park (Ritchie's Archipelago) South Andaman

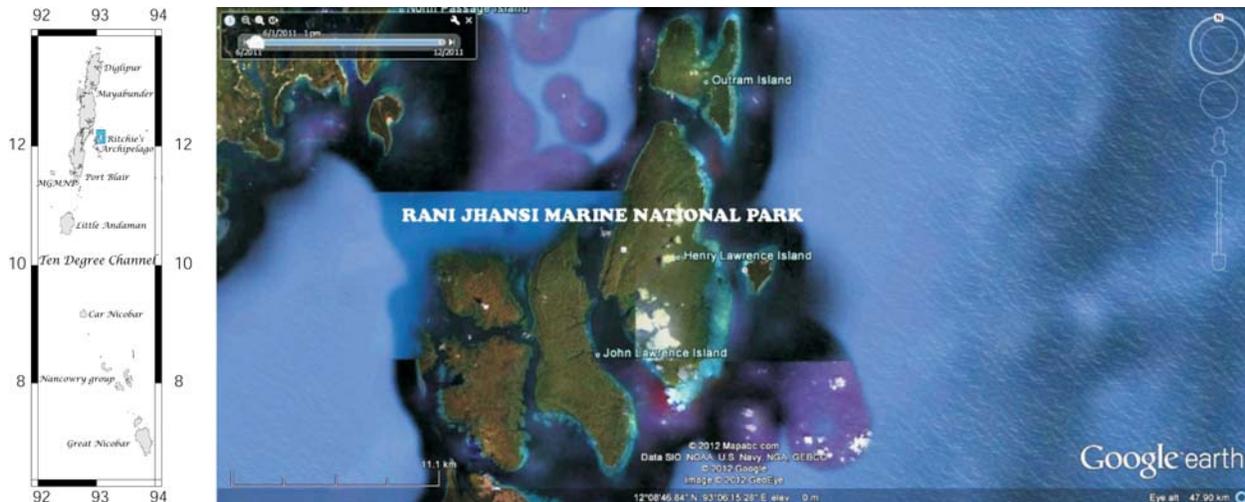
**Area:** 256.14 km<sup>2</sup>

**Year of Declaration:** 1996

**Location:** Rani Jhansi Marine National Park (RJMNP) is comprised of three islands viz. Henry Lawrence Island (Lat. 12° 12.598' N, Long. 93° 03.883' E), John Lawrence Island (Lat. 12° 04. 075' N, Long. 93° 00.398' E) and Outram Island (Lat. 12°12.346' N, Long. 93° 05.753' E).

**Major Habitats:** Coral reefs are the habitat of focus in this MNP. The islands have fringing reefs with a maximum extent up to 500 m from the shore.

**Key Species:** Corals and associated marine



life, salt water crocodile, dugong, dolphin, sea turtle and birds.

### Conservation Needs:

- Effect of sedimentation is obvious in some reefs, where erosion is also prevalent.
- Felling of mangroves needs to be curbed.
- Extensive poaching (for sea cucumbers) is reported in the RJMNP, where ~500 poachers apprehended in the year 2011 - 12. Further strengthening of coastal security as well as holding bilateral dialogue with the neighbouring countries could be an only solution to addressing this issue.

## 4. Gulf of Kachchh Marine National Park & Sanctuary

### i). Gulf of Kachchh Marine National Park (Jamnagar) Gujarat

**Area:** 162.89 km<sup>2</sup>

**Year of Declaration:** 1982.

### ii). Gulf of Kachchh Marine Sanctuary, (Jamnagar) Gujarat

**Area:** 295.03 km<sup>2</sup>

**Year of Declaration:** 1980

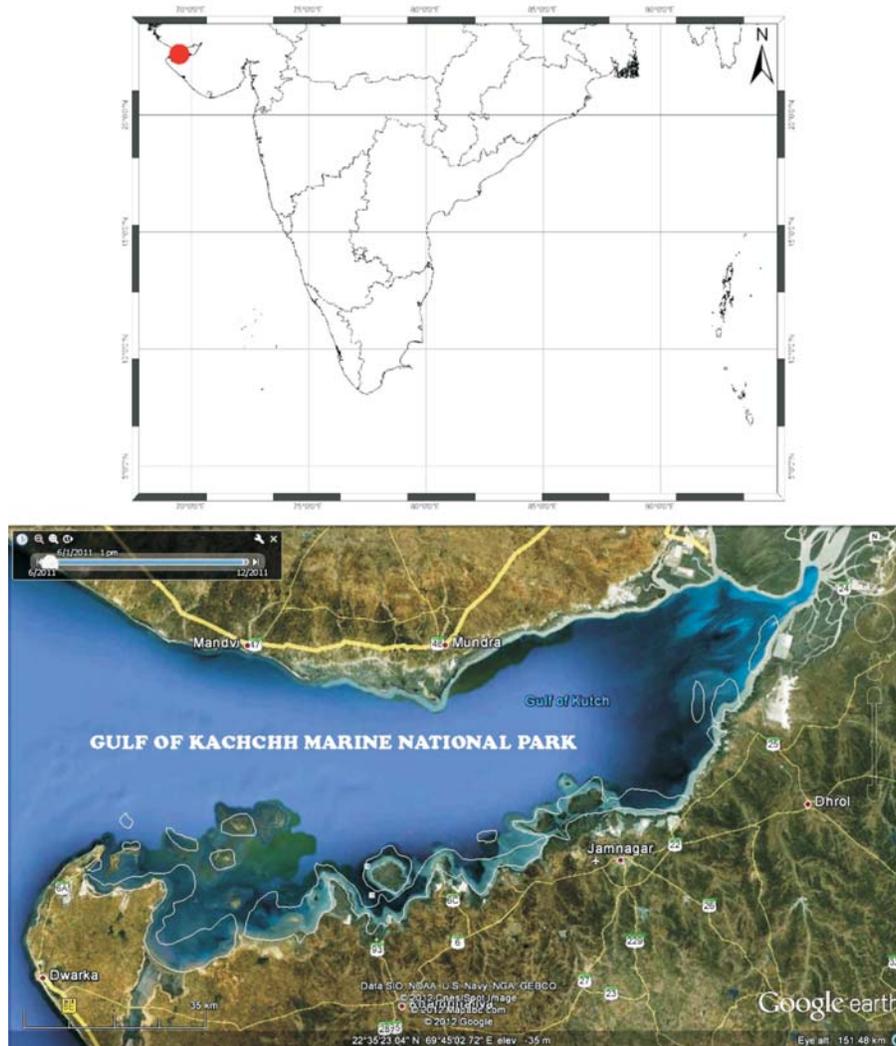
The Marine National Park covers 37 islands, which include: They are: Samiani Island, Chandri Reef, Bet Shankhodhar (Bet Island or Bet Dwaraka), Kyu Island, Paga Reef, Boria Reef, Asab Island, Lefa Bet, Dabdaba Island, Devdi island, Merodi Bet, Nora Tapu (Bural or Chank Reef), Bhaidar

Tapu (Bural or Chank Reef), Kara Chusna Island (Bural or Chank Reef), Mitha Chusna Island (Bural or Chank Reef), Chank Tapu (Bural or Chank Reef), Ajad Tapu, Khimra Khat Tapu, Shiyardi Bet, Sanbeliya Bet, Garu Bet, Vudda Kudda Reefs, Panero Tapu, Roji Bet, Gandhiya Kado Tapu, Dhani Bet, Kalubhar Tapu, Narara Bet, Goos Reef, Mundeka Bet, Dideka Bet, Bhains Bid, Pirotan Island, Chhad, Jindra Bet, Rozi Island, Balachadi Rocks and Mungra Reef. An additional 5 islands are covered under the Marine Sanctuary: Badia, Mangunda, Dona, Pashu, Guda Kudda, Mangunda and Pashu, where the latter two have good growth of corals.

**Major Habitats:** Coral reefs, mangroves, 5 islands (Badia, Mangunda, Dona, Pashu, Guda Kudda) have scrub forests. Mangunda and Pashu have good growth of corals.

**Other Habitats:** Intertidal mudflats, creeks and beaches.

**Key Species:** Corals and associated marine life, dugong, fishes, crabs, prawns, shark, mammals - dolphin, porpoise, jackal; reptiles - sea turtle, sea snakes, and 208 species of birds. Gulf of Kachchh and the adjoining coast of Gujarat have some significant fauna that do not occur elsewhere in India. The neretid mollusc *Nerita textilis* is one such species that has restricted distribution in Arabian Sea and occurs only along the Gujarat coast. A scleractinian coral *Acanthastrea hillae* is also known only from Kachchh and recently 3 species of



scleractinians are added to the hard coral fauna of India, namely *Barabattoia amicum*, *Favia lacuna* and *Turbinaria frondens* among which genus *Barabattoia* is reported for the first time from the Indian region.

#### Conservation Needs:

- Rejuvenation of denuded mangroves at the fore reef intertidal expanses to effectively curb sedimentation to reef areas.
- Monitoring and controlling industrial and sewage pollution into the reef areas.

### 5. Gulf of Mannar Marine National Park and Biosphere Reserve (Ramanathapuram/ Tuticorin), Tamilnadu

#### i) Gulf of Mannar Marine National Park

Area: 6.23 km<sup>2</sup>

Year of declaration: 1980

#### ii) Gulf of Mannar Marine Biosphere Reserve

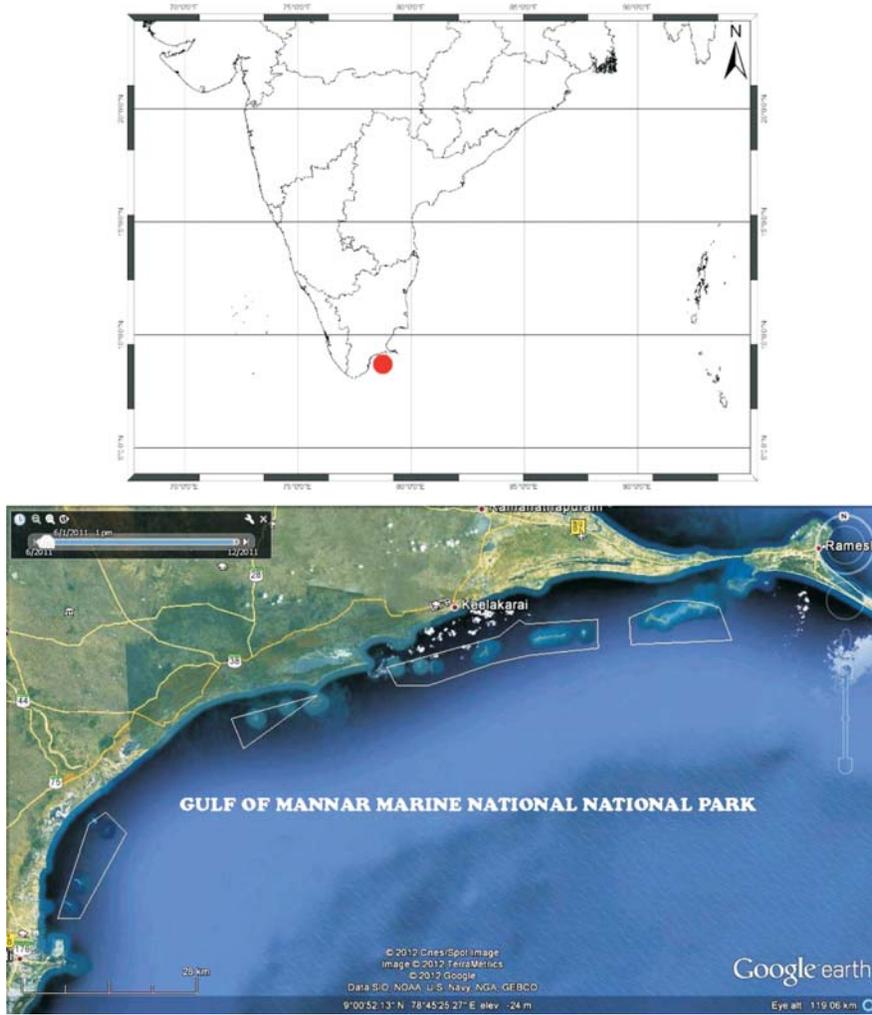
Area: 560 km<sup>2</sup>

Year of Declaration: 1989

**Major Habitats:** Corals reefs are the dominant ecosystem in the park. Mangroves dominate the intertidal zones of the park islands. They consist of species belonging to the *Rhizophora*, *Avicennia*, *Bruguiera*, *Ceriops* and *Lumnitzera* genus. The vast area of intertidal zone offers habitat for huge number of cryptic fauna, molluscs, echinoderms and others.

**Other Habitats:** The 21 islands ranging in size from 0.25 ha to 130 ha have scrub forests.

**Key Species:** Corals, marine life, sea anemones, fishes, sharks; mammals-dugong, dolphin; reptiles-sea turtle, sea snakes, water



birds, sacredchank, pearl oysters and 10 species of sea grasses.

Abundance of sea-weeds and sea-grasses in grazing ground attract Sea cow (Dugong dugong) – the flagship species of the protected area. Other marine creatures like Dolphins, Sea-horse, Sea-cucumber, and Sea-anemone are common here. 117 species of corals found in the reef and they harbour 3600 species of plants and animals. A 'living fossil' *Balanoglosses*, linking invertebrates and vertebrates, is endemic to this park. Sandy shores of islands is feeding ground for five endangered marine turtles – Green, Olive ridley, Hawksbill, Leatherback turtle and Loggerhead, and the first two are known to breed in this waters..

The islands form a good habitat and a stopover between ChilkaLake, Point Calimere and Sri Lanka for migratory birds. Nearly 180 birds are reported where waders and sea-birds

being most common. Lesser sandpiper, Curlew sandpiper and Little stint are abundant; Rare birds like Red knot, Eastern knot, Crab plovers Bar tailed Godwit, Broad billed Sandpiper, Dunlin, Long toed stint, Red necked phalarope are regulars and Little tern, Kentish plover, Stone plover, Stone curlew, Lesser crested sterna breed here. Thousands of larger flamingos winter here before returning towards Rann of Kachchh.

#### Conservation Needs:

- Strict implementation of the ban on trawlers in the buffer zone of the Biosphere Reserve and in lieu promoting artisanal fishing,
- Closing down fishing and other resources harvesting in the core zone, and
- Identifying sources of pollution in to the reefs and advising for treatment before disposal

## 6. Malvan Marine Sanctuary (Sindhudurg) Maharashtra (1987)

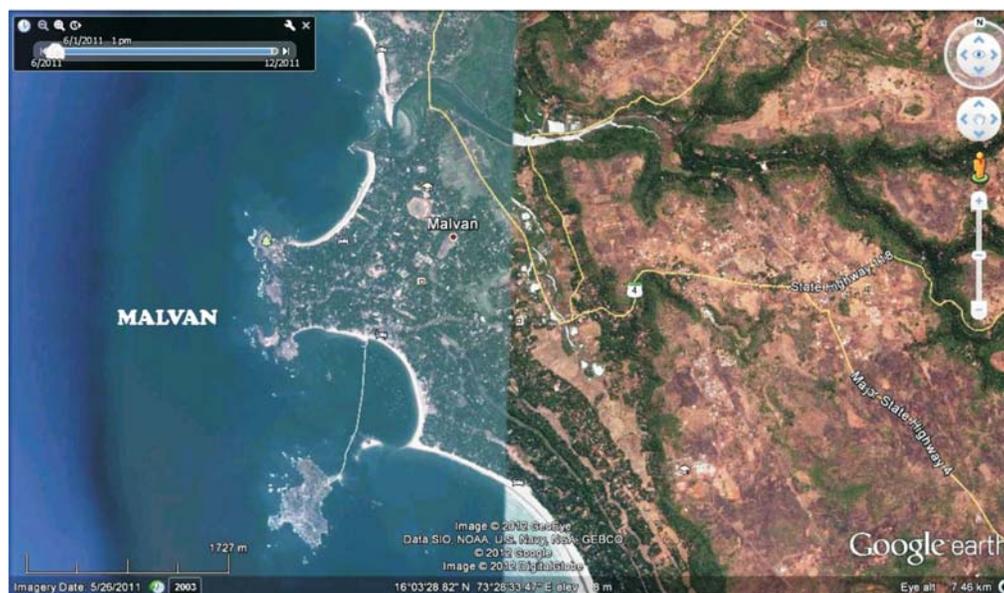
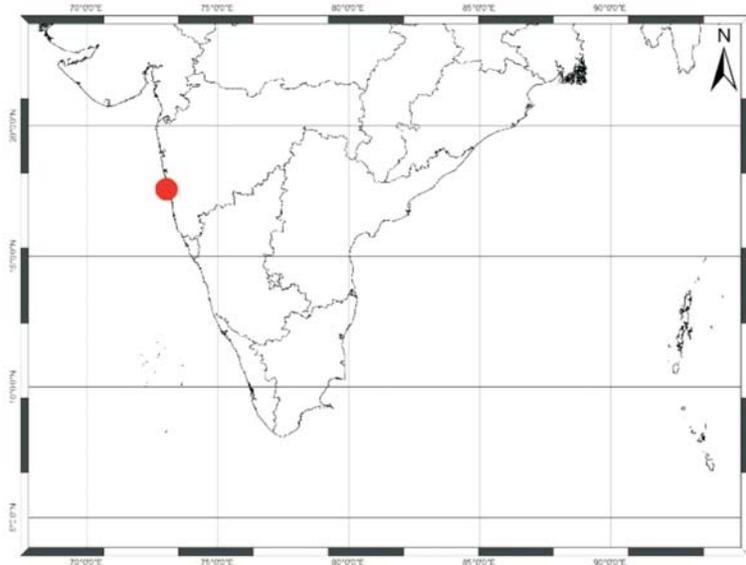
**Area:** 29.12 km<sup>2</sup>

**Year of declaration:** 1987

**Major Habitats:** The Malvan (Marine) Wildlife Sanctuary has a core zone of 3.18 sq km and the rest (25.94 km<sup>2</sup>) as the buffer zone. The core zone includes the Sindhudurg fort, Padamged Island and other submerged rocky structures. The rocky structures provide ideal substratum for marine lifemaking it one of the biologically richest coastal regions in Maharashtra. The sanctuary also covers some patch reefs.

**Other Habitats:** Intertidal area and sandy beaches.

**Key Species:** The marine fauna here pertains to corals, and associated marine life (sea anemones, mollusks, polychaetes, pearl oyster, seaweed and mangroves). Over 220 species of bird belonging to 54 families have been sighted over the waters and the fringing mud-banks-these include black-headed gulls, plovers, terns, ducks, water-fowl and egrets. The land portion of the sanctuary has barking deer, sambar, wild borars, nilgai, leopards and claw-less others. Twenty-seven species and sub-species of fish belonging to six families have been recorded in the Sagar's waters. Some of the important commercial varieties are - Labeodero (Gid), Labeorohita, LabeoCalbasu, Tor putitora (Mahsir), and Mystusseenghala (Singhara).



### Conservation Needs:

- Only the coral reef area has been mapped.
- Mangroves and other marine habitats need to be mapped.

## 7. Gahirmatha Marine Sanctuary

**Area:** 1435 km<sup>2</sup> including 27 km<sup>2</sup> of land area

**Date of Declaration:** 22<sup>nd</sup> September 1997

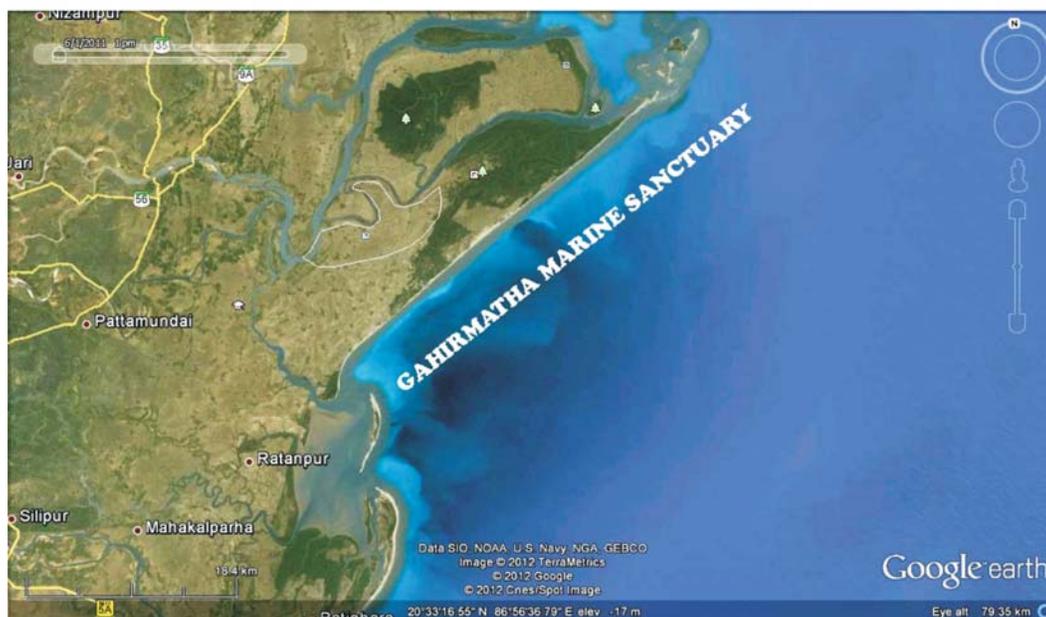
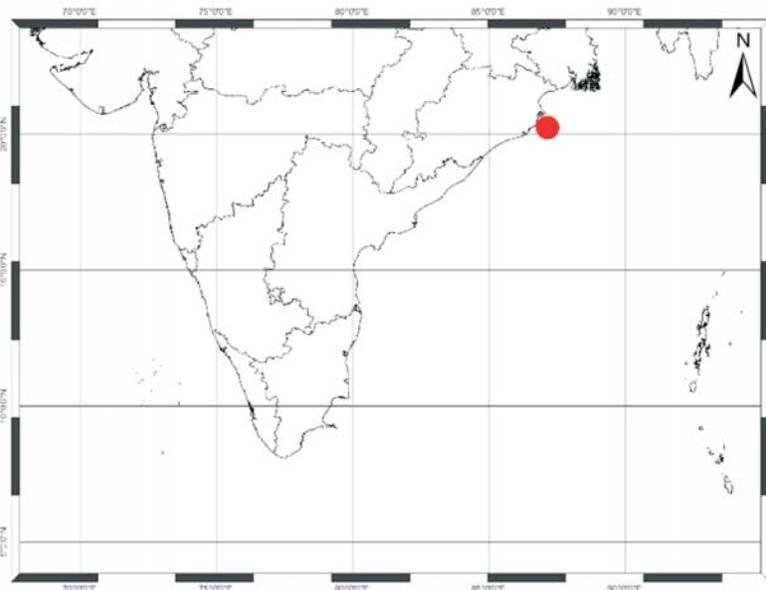
**Major habitats:** Estuarine habitat with offshore marine waters upto a distance of 20 km from high tide level.

**Other habitats:** Intertidal beach with sandy and muddy bottoms

**Key Species:** Olive ridley, hawksbill, green and leatherback turtles, Batagur turtle, Irrawady dolphins, Humpback porpoise, whale shark, sperm whale, Sea snakes, and horseshoe crab. The sanctuary is one the main nesting sites for Olive ridleyturtle, which migrate in huge numbers from the beginning of November, every year, for mating and nesting along the coast of Orissa.

### Conservation Needs:

- There are incidental capture of sea turtles and other fauna including dolphins and whales in the offshore waters of Gahirmatha due to intensive fishing. The



area need to be demarcated properly and proper patrolling is required to check illegal fishing.

### 8. Koringa wildlife Sanctuary, East Godavary, Andhra Pradesh

**Area:** 235.70 km<sup>2</sup>

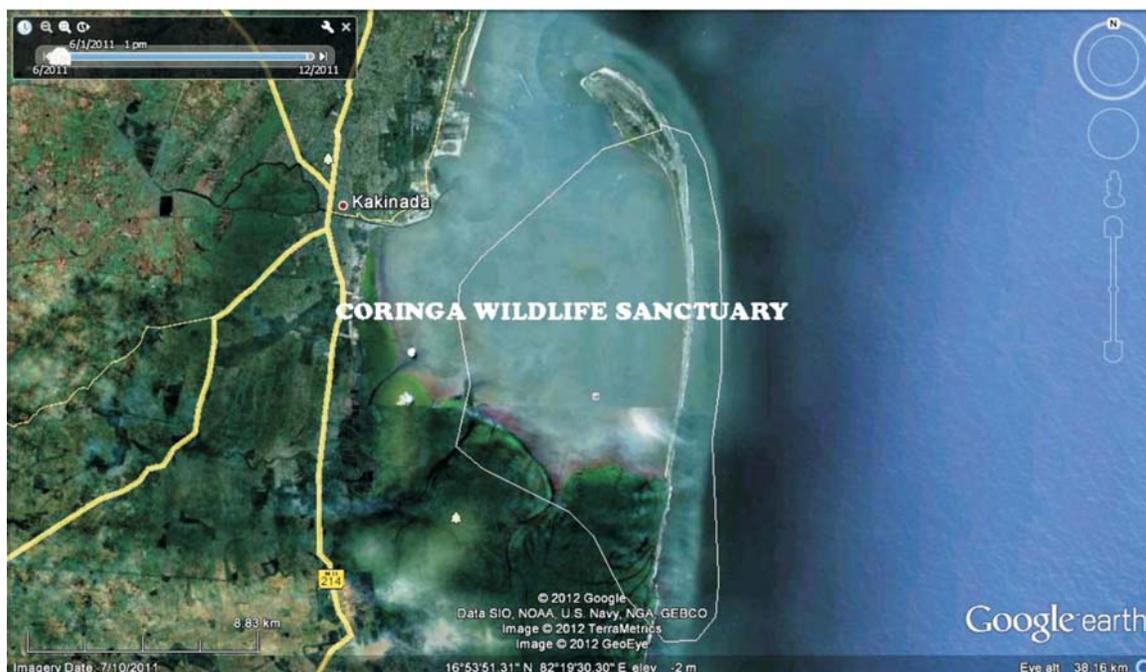
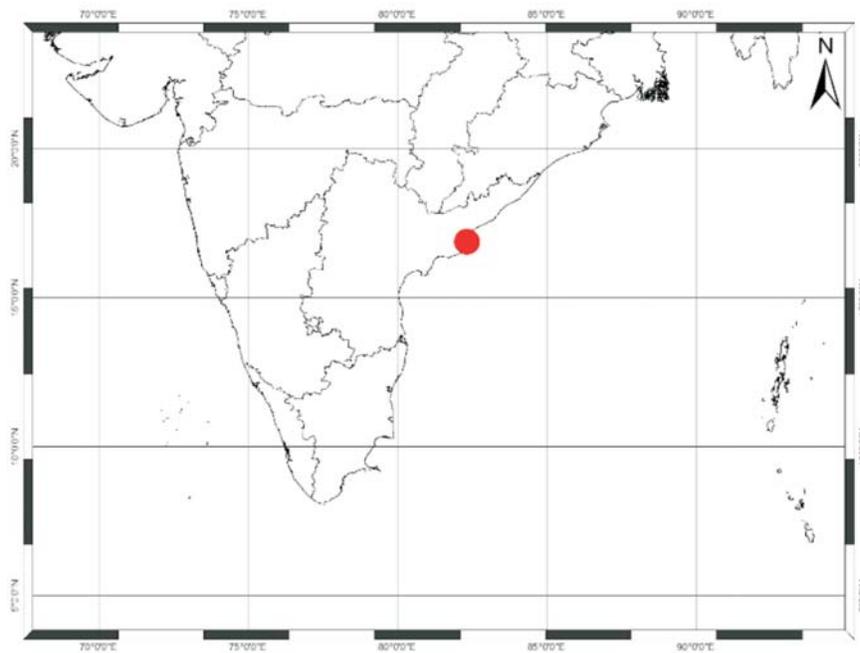
**Year of Declaration:** July 1978

**Major habitats:** Predominantly mangrove forest with mudflats and muddy shores

**Key Species:** Mudskippers, Crabs and Molluscs, Smooth Indian Otters, Fishing Cat, Olive Ridley turtle, More than 125 species of birds including Crested Serpant Eagle, Scarlet Minivet, Indian Roller, Black capped Kingfisher, Oriental Dwarf Kingfisher, White bellied Woodpecker etc.

#### Conservation Needs:

- Management required to minimize the increasing pressure on the mangrove forests due to urbanization, industrialization and intense aquaculture practices.



## 9. Sundarbans National Park, North & South 24-Pargana, West Bengal

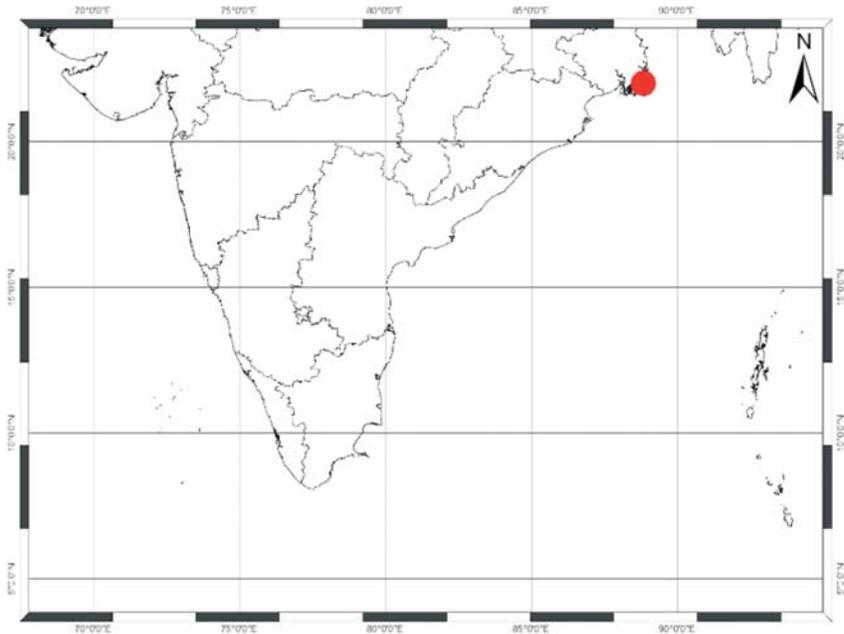
**Area:** 1330.10 km<sup>2</sup>

**Year of Declaration:** The present Sundarbans National Park was declared as the core area of Sundarbans Tiger Reserve in 1973 and a wildlife sanctuary in 1977. On May 4, 1984 it was declared a National Park.

**Major habitats:** This region is densely covered with mangrove forests. There are seven main rivers and innumerable watercourses forming a network of channels

at this estuarine delta. The Sundarbans mudflats are found at the estuary and on the deltaic islands where low velocity of river and tidal current occurs. The mudflats are exposed in low tides and submerged in high tides, thus being changed morphologically even in one tidal cycle. The interior parts of the mudflats are the best suited environment for mangroves.

**Key Species:** The Sundarbans forest is home to more than 400 tigers, which have adapted to living in the saline waters. Apart from Tiger, Fishing Cats, Leopard Cats,



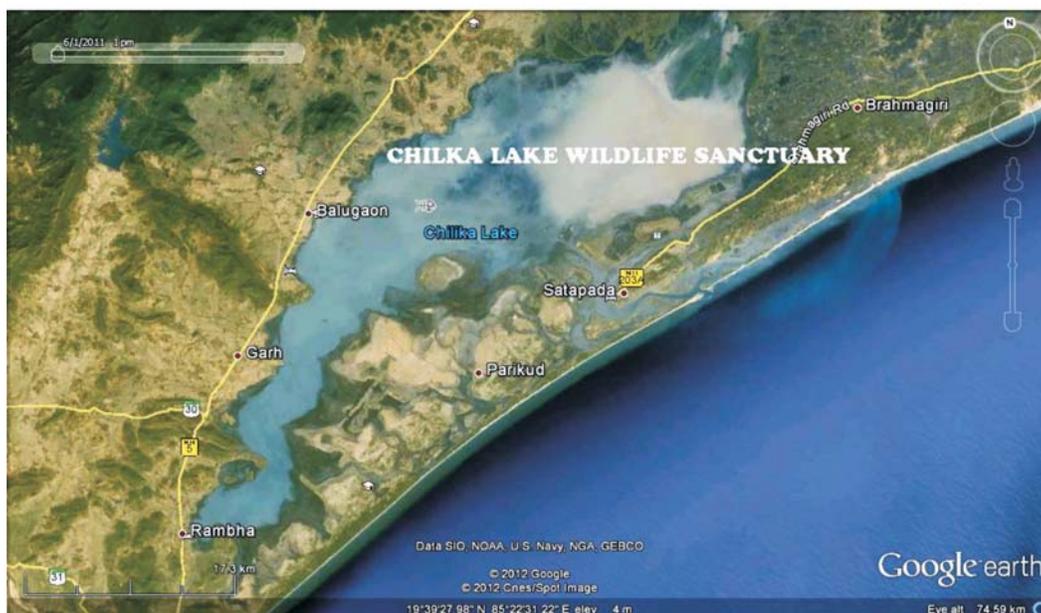
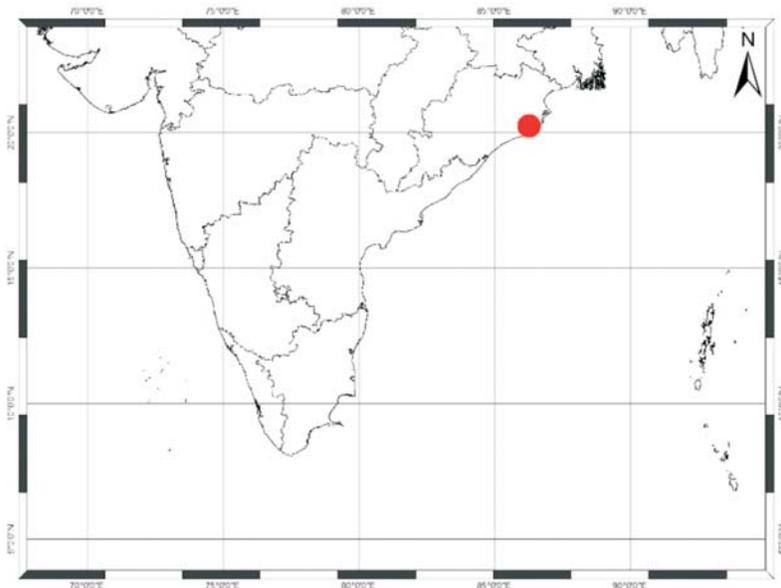
Macaques, Wild Boar, Indian Grey Mongoose, Fox, Jungle Cat, Flying Fox, Pangolin, Chital, are also important species in the Sunderbans. Some of the fishes and amphibians found in the park are Sawfish, Butter Fish, Electric rays, Silver carp, Star Fish, Common Carp, King Crabs, Prawn, Shrimps, Gangetic Dolphins, Skipping Frogs, Common Toads and Tree Frogs. The Sunderbans National Park houses an excellent number of reptiles as well, including estuarine crocodiles, chameleons, monitor lizards turtles, including Olive Ridley, hawksbill, and green turtles; and snakes including pythons, king cobras, rat snakes, Russell's vipers, Dog faced water snakes, Chequered Kill backs and Common Kraits.

### Conservation Needs:

- Developing guidelines for regulating resource usage
- Adherence Coastal Zone Regulation Act 2011 to curb the extension activities in the mangrove forests.
- Awareness to the fishermen regarding conservation and sustainable use of resources.

### 10. Chilka (Nalaban) Wildlife Sanctuary (WLS), Kundra, Puri, Ganjam, Orissa

Area: 15.53 km<sup>2</sup>



**Date of Declaration:** 17<sup>th</sup> December 1987

**Major Habitats:** Submerged Island with weed vegetation.

**Other habitats:** There are submergible islands surrounding Nalaban, in the Chilika Lake. The lake has numerous islands. The larger islands, separated by shallow channels, lie between the barrier and the main body of the lake. The eastern side has a long barrier beach formed by the northerly currents of Bay of Bengal. There is abundant availability of aquatic fauna, micro and macro forms on the island, some of which are preferred food materials for the visiting waterfowl.

**Key Species:** The core area of about 9 sq. km attracts around 400,000 waterfowls of different species. The most prominent bird is the Greater Flamingo, which migrate from the Rann of Kachchh in Gujarat. Besides, Gull billed tern, River tern and Little tern which are also known to nest in a few selected places of Nalaban. The surrounding islands are also wintering grounds for white bellied sea eagles, ospreys, golden plovers, sand pipers, flamingos, pelicans, shovellers, gulls, include migratory ones. Large flocks of Greater flamingos from Iran and the Rann of Kachchh in Gujarat, feed in the shallow waters of the lake. Other-long legged waders seen around Nalbana Island are the Lesser Flamingos, Goliath heron, Grey herons and Purple herons, Egrets, Spoonbills, Storks and Black-headed Ibis. Rare birds reported in the lake are Asiatic Dowitchers, Dalmatian Pelican, Pallas's Fish-eagles, the very rare migrant Spoon-billed Sandpiper and Spot-billed pelican. The White-bellied Sea Eagle, Pariah Kite, Brahminy Kites, Kestrel, Marsh harriers, and the world's most widespread bird of prey, peregrine falcon, are among the raptors seen here. Many short-legged shorebirds are seen in a narrow band along the shifting shores of the lake and islands. These include Plovers, Collared Pratincole, Ruff, Dunlin, Snipes and Sandpipers. Larks, Wagtails and Lapwings are also found on the mudflats. Feeding in deeper water are the longer-legged Avocets, Stilts and Godwits.

As per the Chilka Development Authority's (CDA) updated data (2002), 323 aquatic species, which includes 261 fish species, 28 prawns and 34 crabs are reported out of which sixty five species breed in the lake. 27 species are freshwater fishes and two genera of prawns. The remaining species migrate to the sea to breed. 21 species of herrings and sardines of the family Clupeidae are reported. Between the year 1998 and 2002, 40 fish species were recorded here for the first time and following the reopening of the lake mouth in 2000, six threatened species have reappeared, including: Milk fish, Indo-Pacific tarpon, Ten pounder, Bream, Hilsa and Mullet.

The Irrawaddy Dolphin (*Orcaella brevirostris*) is the flagship species of Chilka Lake. Chilka is home to the only known population of Irrawaddy dolphins in India and one of only two lagoons in the world that are home to this species. It is classified as Critically Endangered, in five of the six other places it is known to live. A small population of Bottlenose dolphins also migrate into the lagoon from the sea, when Irrawaddy Dolphins and Bottlenose Dolphins meet in the outer channel, the former get frightened and are forced to return toward the lake.

#### Conservation Needs:

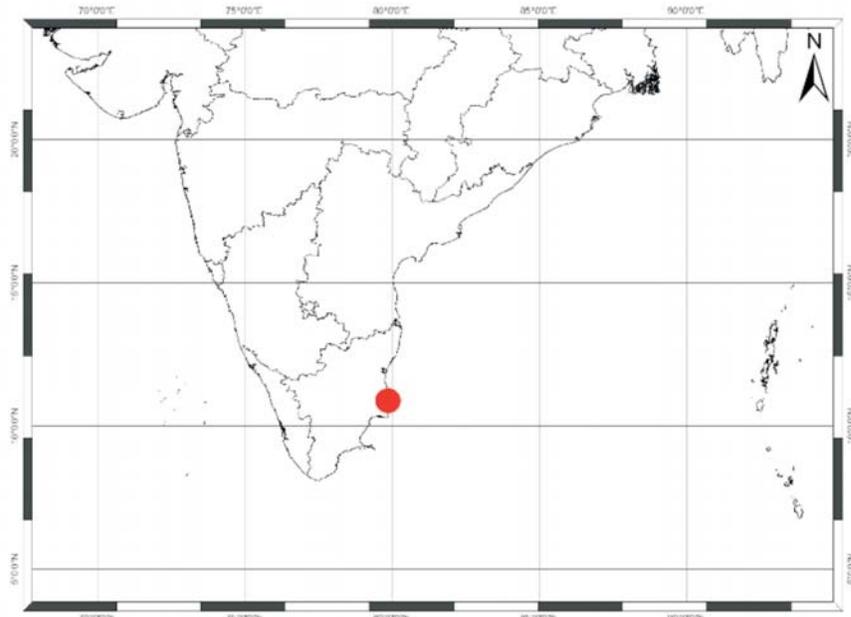
- The resultant change after the opening of the new mouth in Chilka Lake has led to new challenges. The bird congregation which was largely confined to Nalaban has now dispersed to peripheral areas. This has posed a serious concern for protection of the bird populations thereby requiring protection status to the adjacent areas of the PA.

### 11. Pulicat Lake (Bird) Sanctuary, Tiruvellore, Tamil Nadu

**Area:** 153.67 km<sup>2</sup>

**Year of Declaration:** 1980

**Major habitats:** Pulicat lake bird sanctuary is a saline backwater lake lying along the Tamil Nadu and Andhra Pradesh



coast. The lake is drained by Arni River while the Buckingham canal brings in the drainage water. At the southern end is an opening on to Bay of Bengal through a shallow mouth of 200 m in width. The rest of the lakes' eastern boundary is closed by a sand bar (Sriharikota Island) running parallel to the Bay of Bengal.

**Key Species:** The sanctuary is notable for the many Greater Flamingos. Large-billed grey pelican, ducks, sea gulls are commonly seen. Besides, there are a number of waterside birds and waders such as curlews, stilts, plovers, sand pipers, lapwings, red shank. Egrets,

herons, kites etc. are some other birds found here. The water body by virtue of the mixing of fresh water with sea water is found to be an ideal habitat for diverse life-forms. 160 species of fish, 25 species of polychaete worms, 12 species of prawn, 19 species of molluscs and 100 species of birds are well documented apart from a number of other aquatic flora and fauna.

#### Conservation Needs:

- Rapid siltation is an issue of serious concern and quick action is need in this front.

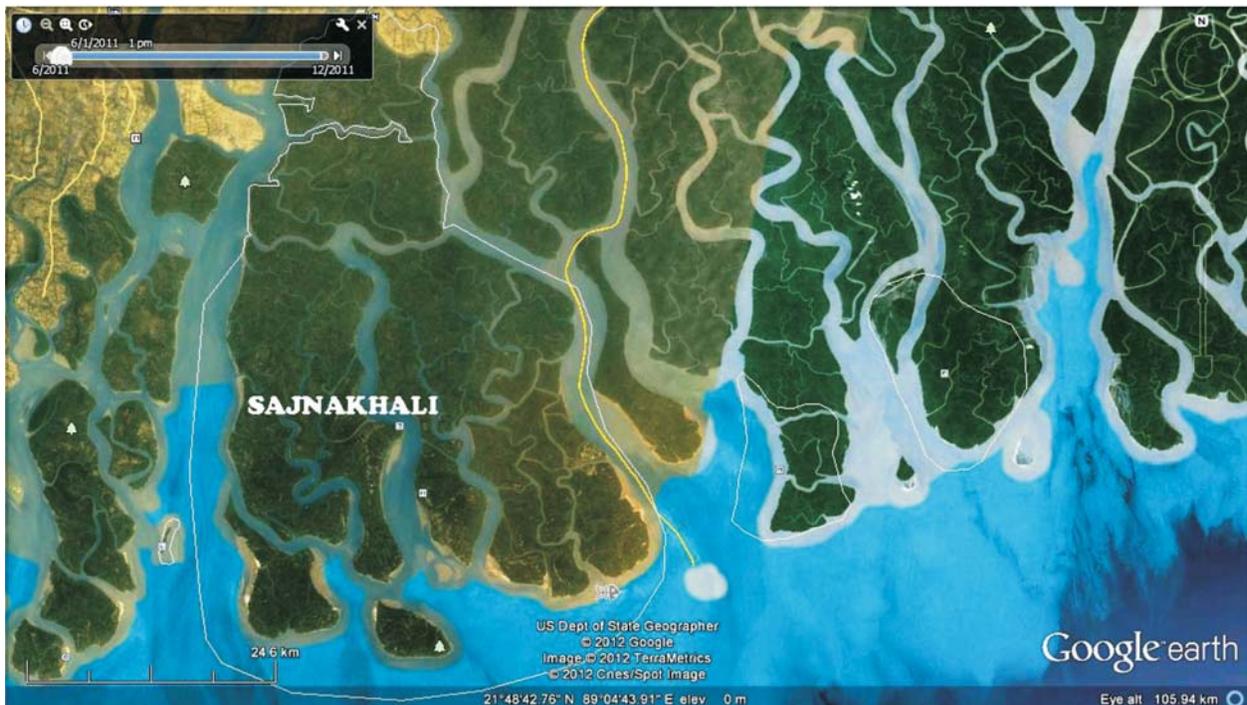
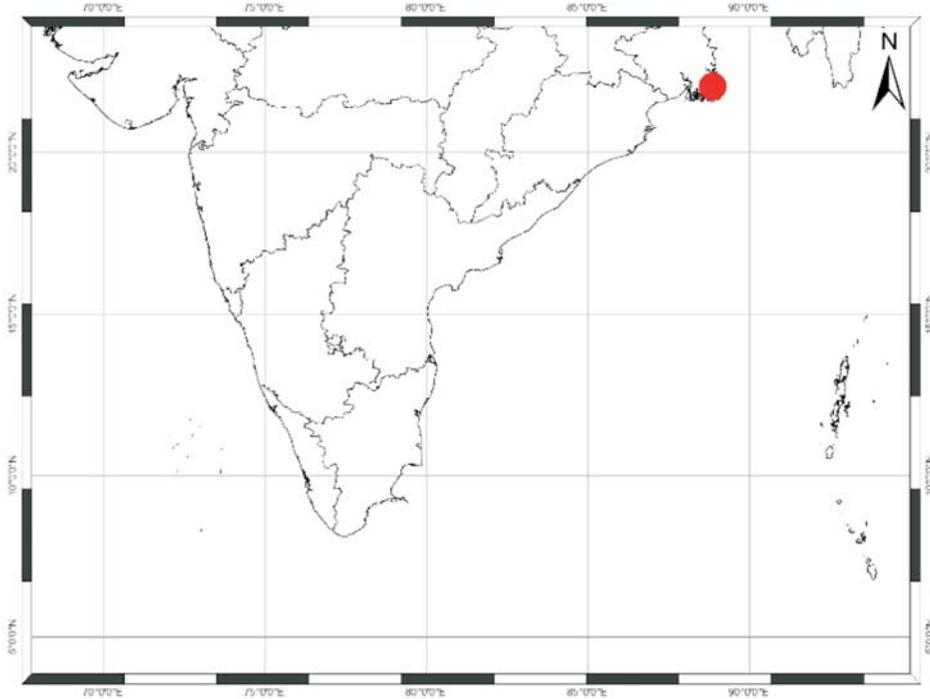
## 12. Sajnakhali Wildlife Sanctuary

**Area:** 36.24 km<sup>2</sup>

**Year of Declaration:** 1976

**Major Habitat:** The Sajnakhali sanctuary is regarded as a part of the Sunderbans National Park and dense mangrove forest covers the sanctuary.

**Key species:** Renowned for its rich avian population, is a breeding site for many migratory and resident birds. The sanctuary is also rich in population of different species of wildlife. Common wildlife include Spotted deer, Rhesus macaque, Wild Boar, Tiger, Water Monitor Lizard, Fishing cat, Otter, Crocodile, Batagur Terrapin and other migratory birds.



**Protected areas under MPA Category – II from Andaman Nicobar Islands, Proposed Groups 1- 15**



**Group I**

The island sanctuaries 1.Chanel Island Sanctuary 2.East Island Sanctuary and 3. Landfall island Sanctuary, are recommended for upgrading into a National Park under

group 1 cluster, Owing to the lack of dependency of the local population on the resources. This if implemented which also would serve this area to function as the reserve (marine area) for replenishment of resources at the reef areas on the south.

**13. Chanel Island Sanctuary, North Andaman**

**Area:** 0.13 km<sup>2</sup>

**Year of Declaration:** 1987

**Major Habitat:** Littoral and semi evergreen forests.

**Other Habitats:** Coral reefs

**Key Species:** No information is available on the terrestrial fauna of this island.

**Conservation Needs:**

- The subtidal habitats need to be assessed for the benthic fauna.
- Recommended for upgradation to Land fall National Park / Group 1 cluster.



## 14. & 15. Landfall & East Island Sanctuaries, North Andaman

### i) Landfall Island Sanctuary

**Area:** 29.48 km<sup>2</sup>

**Year of Declaration:** 1987

**Major Habitats:** Ever green Forests

**Other Habitats:** Coral reefs, mangroves (tidal swamp) and beaches.

**Key Species:** Corals and associated marine life. No reports are available on the terrestrial fauna from this island.

#### Conservation Needs:

- Extensive coral reef areas were exposed due to the seismic uplift in the north side of the island during the earthquake in December 2004, and heavy damages incurred.
- The intertidal areas in the west side of the island have good coral cover.
- Data are available on coral status and diversity for this area.
- Studies on the Northern side for coral status assessment are necessary.

- The marine areas need to be included under the sanctuary for protection.
- Recommended for upgradation to Land fall National Park / Group 1 cluster.

### ii) East Island Sanctuary

**Area:** 6.11 km<sup>2</sup>

**Year of declaration:** 1987

**Major Habitats:** Evergreen forests, beaches.

**Other Habitats:** Beautiful reefs surround the western part of the Island. Despite the damages caused by the seismic up-lift in Dec 2004, the reef is in a very healthy state. Data on status and diversity available.

**Key Species:** Corals and associated marine life. No reports are available on the terrestrial fauna from this island.

#### Conservation Needs:

- Coral reef zones should be mapped.
- The inclusion of reef areas in the protected area territory and recommended for upgradation to Land fall National Park / Group 1 cluster.



**Group 2**

The island sanctuaries in this group (Group -2), 1. West Island Sanctuary, 2. Whitecliff Island Sanctuary, and 3. Reef Island Sanctuary, are recommended for upgrading into a National Park under the Group - 2 cluster.



**16. West Island Sanctuary, North Andaman**

**Area:** 6.40 km<sup>2</sup>

**Year of Declaration:** 1987

**Major Habitat:** Littoral and Mangrove Forests

**Other Habitats:** Extensive beaches and coral reefs.

**Key Species:** Intertidal fauna, Coral and associated marine life. No information available on the terrestrial fauna.

**Conservation Needs:**

- Coral reef zones should be mapped.



- The inclusion of reef areas in the protected area and upgradation of this sanctuary to a National Park (Group- 2 cluster) is proposed.

**17. White Cliff Island Sanctuary, North Andaman**

**Area:** 0.47 km<sup>2</sup>

**Year of declaration:** 1987

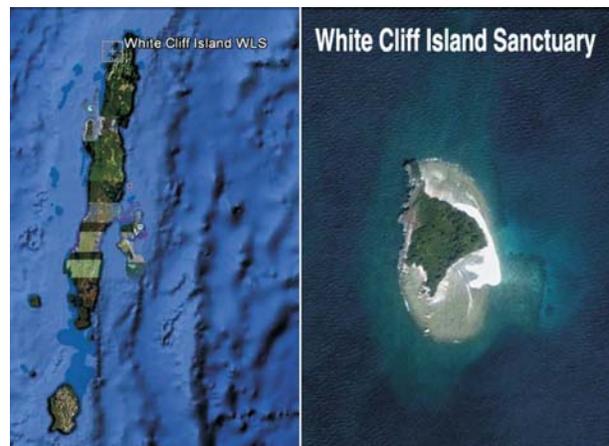
**Major Habitats:** Littoral forests

**Other Habitats:** Coral reefs, sandy lagoons, beaches

**Key Species:** Coral reefs and associated marine life.

**Conservation Needs:**

- Coral reef zones should be mapped.
- The inclusion of reef areas in the protected area and upgradation of this sanctuary to a National Park (Group- 2 cluster) is proposed.



**18. Reef Island Sanctuary, North Andaman**

**Area:** 1.74 km<sup>2</sup>

**Year of Declaration:** 1987

**Major Habitat:** Littoral Forests

**Other Habitats:** Coral reefs, sandy lagoons, beaches

**Key Species:** Coral reefs and associated marine life.

**Conservation Needs:**

- Coral reef zones should be mapped.



- The inclusion of reef areas in the protected area and upgradation of this sanctuary to a National Park (Group- 2 cluster) is proposed.

### Group 3

The island sanctuaries in this group 1. Mayo Island Sanctuary, 2. Paget Island Sanctuary, 3. Point Island Sanctuary and 4. Shearme Island Sanctuary which are recommended for clustering into a Sanctuary under Group – 3 Cluster.



### 19. Mayo Island Sanctuary, North Andaman

**Area:** 0.10 km<sup>2</sup>

**Year of declaration:** 1987

**Major Habitats:** Sandy bars and beaches

**Other Habitats:** Coral reefs on the seaward side of the island.



**Key Species:** No reports are available on the fauna of this island.

#### Conservation Needs:

- The extent of coral reefs on the seaward side of the island need to be assessed
- The beach as a potential turtle nesting site need to be assessed.
- The inclusion of reef areas in the protected area and clustering of this sanctuary into Group 3 sanctuary is proposed.

### 20. Paget Island Sanctuary, North Andaman

**Area:** 7.36 km<sup>2</sup>

**Year of Declaration:** 1987

**Major Habitat:** Littoral and evergreen forests



**Other Habitats:** Coral reefs

**Key Species:** No information is available on the terrestrial fauna of this island. Corals and associated marine life.

**Conservation Needs:**

- Coral reef zones should be mapped.
- The inclusion of reef areas in the protected area is recommended
- The inclusion of reef areas in the protected area and clustering of this sanctuary into Group 3 sanctuary is proposed.

**21. Point Island Sanctuary, North Andaman**

**Area:** 3.07 km<sup>2</sup>

**Year of declaration:** 1987

**Major Habitats:** Evergreen and littoral forests

**Other Habitats:** Coral reefs - this island has exposed sandy and coral reef terrace almost ¾<sup>th</sup> of the island's size. A well developed coral reef is present on the north east of the Island. Brief fringing reefs occur all around the island.



**Key Species:** Coral and associated marine life. No reports are available on the fauna of this island.

**Conservation Needs:**

- Inclusion of coral reefs within the territorial limits of the sanctuary.
- The inclusion of reef areas in the protected area and clustering of this sanctuary into Group 3 sanctuary is proposed.

**22. Shearme Island Sanctuary, North Andaman**

**Area:** 7.86 Km<sup>2</sup>

**Year of declaration:** 1987



**Major Habitats:** Evergreen forests

**Other Habitats:** Surrounded by mangroves and wide beaches.

**Key Species:** Mangrove associated and other marine life. No reports are available on the terrestrial fauna from this island.

**Conservation Needs:**

- The mangrove area in the island needs to be mapped.
- This island falls under category III MPA and clustering it with group 3 sanctuary to notify as buffer zone is recommended.

**Group 4**

The island sanctuaries in this group 1. Tree Island Sanctuary, 2. Trilby Island Sanctuary, 3. Table (Delgarno) Island Sanctuary, 4. Table (Excelsior) Island Sanctuary, 5. Temple Island Sanctuary, and 6. Turtle Island Sanctuary, are recommended for upgrading into a National Park under Group-4 Cluster.



### 23. Tree Island Sanctuary, North Andaman

**Area:** 0.03 km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitat:** Intertidal sandy stretches and Coral reefs

**Other Habitats:** A small patch of exposed land on the centre of the island

**Key Species:** Corals and associated marine life.

#### Conservation Needs:

- The extent of reef area needs to be assessed and notified.
- This island sanctuary is recommended to be upgraded and included in the Group 4 cluster National Park.

### 24. Trilby Island Sanctuary, North Andaman

**Area:** 0.96 km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitat:** Littoral and semi evergreen forests.

**Other Habitats:** Extensive beaches suitable habitat for turtle nesting, and coral reefs surrounding them.

**Key Species:** No reports are available on the terrestrial fauna of this Island. Corals and associated marine life.

#### Conservation Needs:

- The extent of reef area needs to be assessed and notified.
- This island sanctuary is recommended to be upgraded and included in the Group 4 cluster National Park.

### 25. Table (Delgarno) and Table (Excelsior) Island Sanctuaries

#### i) Table (Delgarno) Island Sanctuary

**Area:** 2.29 km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitats:** Evergreen Forests

**Other Habitats:** Coral reefs are found on the bay side and on the South and Eastern side of the Island.

**Key Species:** Corals and associated marine life.

#### Conservation Needs:

- No reports are available on the terrestrial fauna from this island
- Coral reef area need to be mapped and notified under the Sanctuary.
- This island sanctuary is recommended to be upgraded and included in the Group 4 cluster National Park.

#### ii) Table (Excelsior) Island Sanctuary

**Area:** 1.69 km<sup>2</sup>

**Year of Declaration:** 1987

**Major Habitats:** Evergreen Forests

**Other Habitats:** Coral reefs.

**Key Species:** Corals and associated marine life.

**Conservation Needs:**

- No reports are available on the terrestrial fauna from this island
- Coral reef area need to be mapped and notified under the Sanctuary.
- This island sanctuary is recommended to be upgraded and included in the Group 4 cluster National Park.

### 26. Temple Island Sanctuary, North Andaman

**Area:** 1.04 km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitat:** Littoral forests and semi evergreen forests

**Other Habitats:** Extensive sandy beaches and coral reefs.

**Key Species:** Corals and associated marine life. No information is available on the terrestrial fauna of this island.

**Conservation Needs:**

- The extent of reef area needs to be assessed and notified.
- This island sanctuary is recommended to be upgraded and included in the Group 4 cluster National Park.

### 27. Turtle Island Sanctuary, North Andaman

**Area:** 0.39 km<sup>2</sup>

**Year of Declaration:** 1987

**Major Habitat:** Evergreen and littoral forests

**Other Habitats:** Coral reefs are found on the north, north west and western sides of the islands.



**Key Species:** Information on terrestrial fauna is not available for this island. Corals and associated marine life.

**Conservation Needs:**

- The extent of reef area needs to be assessed and notified.
- This island sanctuary is recommended to be upgraded and included in the Group 4 cluster National Park.

### Group 5

The island sanctuaries in this group 1. Jungle Island Sanctuary, 2. Wharf Island Sanctuary, 3. North Island Sanctuary 3. Ox Island Sanctuary, 4. Ross Island Sanctuary and 5. Brush Island Sanctuary, are recommended for clustering into Group 5 Sanctuary.



### 28. Jungle Island Sanctuary, North Andaman

**Area:** 0.52 km<sup>2</sup>

**Year of declaration:** 1987



**Major Habitats:** Evergreen forests

**Other Habitats:** Mangrove

**Key Species:** Mangrove associated and other marine life. No reports are available on the terrestrial fauna from this island.

**Conservation Needs:**

- The faunal diversity is not known.
- The forest types need reassessment.
- Clustering of this sanctuary into group 5 Sanctuary is proposed.

**29. North Island Sanctuary, North Andaman**

**Area:** 0.49 km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitat:** Evergreen forests

**Other Habitats:** Coral reefs and shallow sandy stretches

**Key Species:** No information is available on the terrestrial fauna of this island. Coral associated fauna.

**Conservation Needs:**

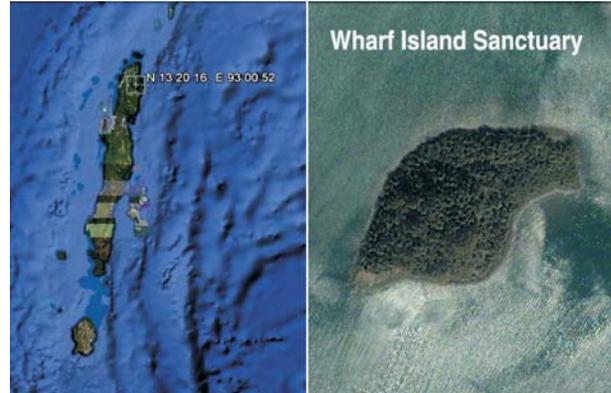
- The faunal diversity needs assessment.

- Coral reef extent to be mapped.
- Clustering of this sanctuary into group 5 Sanctuary is proposed.

**30. Wharf Island Sanctuary, North Andaman**

**Area:** 0.01 km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitat:** Ever green and littoral forests.

**Other Habitats:** Coral reefs and mangrove cover on the northeast of this island.

**Key Species:** Corals, mangrove associated marine life. No information is available on the terrestrial fauna of this island.

**Conservation Needs:**

- The forest types need reassessment.
- The mangrove and coral extent to be mapped
- Clustering of this sanctuary into group 5 Sanctuary is proposed.

**31. Ox Island Sanctuary, North Andaman**

**Area:** 0.13 km<sup>2</sup>

**Year of Declaration:** 1987

**Major Habitat:** Evergreen forests.

**Other Habitats:** Dense mangrove forests surround the island.

**Key Species:** Mangrove associated marine life

**Conservation Needs:**

- The forest types need reassessment, and the mangrove extent to be mapped
- Clustering of this sanctuary into group 5 Sanctuary is proposed.



**32. Ross Island Sanctuary, North Andaman**

**Area:** 0.01 km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitats:** Evergreen Forests

**Other Habitats:** Coral reefs are found on the lagoon side (facing Smith Island) and on the North.

**Key Species:** Corals and associated marine life,

**Conservation Needs:**

- Coral reef area need to be mapped and notified under the Sanctuary.
- Clustering of this sanctuary into group 5 Sanctuary is proposed.

**33. Brush Island Sanctuary**

**Area:** 0.23 km<sup>2</sup>

**Year of Declaration:** 1987

**Major Habitat:** sandy bars, littoral forests and rocky intertidal habitats

**Other Habitats:** coral reefs.

**Key Species:** No information is available on the terrestrial fauna of this island. Corals and other marine fauna

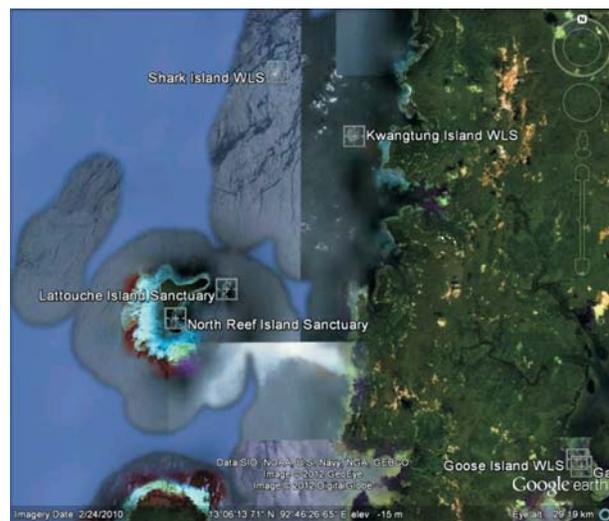


**Conservation Needs:**

- The shallow waters around this island and the coral reefs need to be assessed for benthic cover and notified in the PA territory.
- Clustering of this sanctuary into group 5 Sanctuary is proposed.

**Group 6**

The island sanctuaries in this group 1. Shark Island Sanctuary, 2. Kwangtung Island Sanctuary, 3. Lattouche Island Sanctuary, 4. North reef Island Sanctuary, 5. Temple Island Sanctuary, and 6. Turtle Island Sanctuary, are recommended for upgrading into a National Park under Group – 6 cluster.



**34. Shark Island Sanctuary, North Andaman**

**Area:** 0.60 km<sup>2</sup>

**Year of Declaration:** 1987

**Major Habitat:** Sandy beaches and coral reef.

**Other Habitats:** A small forest patch is available in the centre of the island



**Key Species:** Corals and associated Marine life.

**Conservation Needs:**

- Coral reef area for this island needs to be mapped.
- This island sanctuary is recommended to be upgraded and included in to the cluster -Group 6 Islands National Park.

**35. Kwangtung Island Sanctuary, North Andaman**

**Area:** 0.57 km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitat:** Littoral and semi-evergreen forests, beaches

**Other Habitats:** Extensive coral reefs are surrounding the island beyond the broad shallow lagoon.

**Key Species:** Information on terrestrial fauna is not available for this island. Other fauna include corals and associated fauna.

**Conservation Needs:**

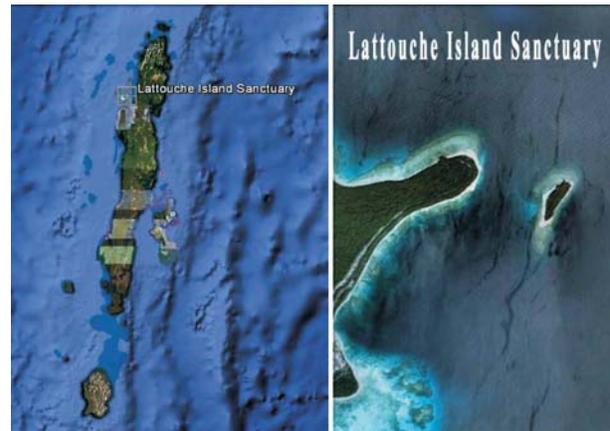
- The lagoon and coral reef area need to be mapped and notified under the PA territory.

- This island sanctuary is recommended to be upgraded and included in to the cluster -Group 6 Islands National Park.

**36. Lattouche Island Sanctuary**

**Area:** 0.96 km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitat:** Semi evergreen forests

**Other Habitats:** Coral reefs around the island

**Key Species:** Corals and associated marine life, No information available on the fauna of this Island.

**Conservation Needs:**

- The coral reef area need to be mapped and notified under the PA territory.
- This island sanctuary is recommended to be upgraded and included in to the cluster -Group 6 Islands National Park.

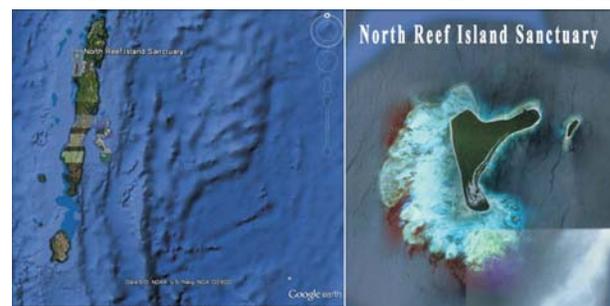
**37. North Reef Island Sanctuary, North Andaman**

**Area:** 3.48 km<sup>2</sup>

**Year of Declaration:** 1977

**Major Habitats:** Island – ever green forests, dried-up swamps, long shores.

**Other Habitats:** Wide stretches of coral



reef occur in the south, southwest and north west of the island.

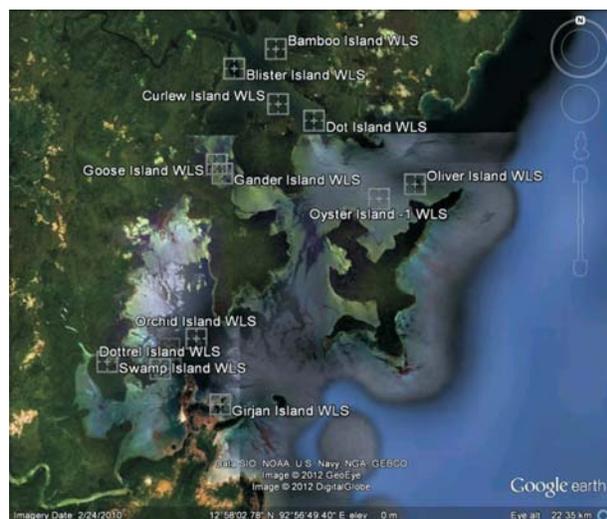
**Key Species:** Marine fauna including corals and associates, sea snakes, turtles, etc.,

**Conservation Needs:**

- Marine Environment is not included within the territory.
- A detailed survey is required to map the actual coral area cover.
- The teal habitat has dried up due to the landmass uplift.
- This island sanctuary is recommended to be upgraded and included in to the cluster -Group 6 Islands National Park.

**Group 7**

The island sanctuaries in this group, 1. Bamboo Island Sanctuary, 2. Blister Island Sanctuary, 3. Curlew Island Sanctuary 3. Dot Island Sanctuary, 4. Oliver Island Sanctuary, 5. Goose Island Sanctuary, 6. Gander Island Sanctuary, 7. Oyster Island Sanctuary, 8. Orchid Island Sanctuary, 9. Egg Island Sanctuary, 10. Curlew B. P Island Sanctuary, 11. Dottrel Island Sanctuary, 12. Girijan Island Sanctuary, and 13. Swamp Island Sanctuary, are recommended for clustering into Group 7 Sanctuary.



**38. Bamboo Island Sanctuary,**

**Area:** 0.05 km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitat:** Littorel forests

**Other Habitats:** Mangrove habitats on the fringes

**Key Species:** Information on terrestrial fauna of this island is not available. Marine life associated with Mangrove and intertidal zone.

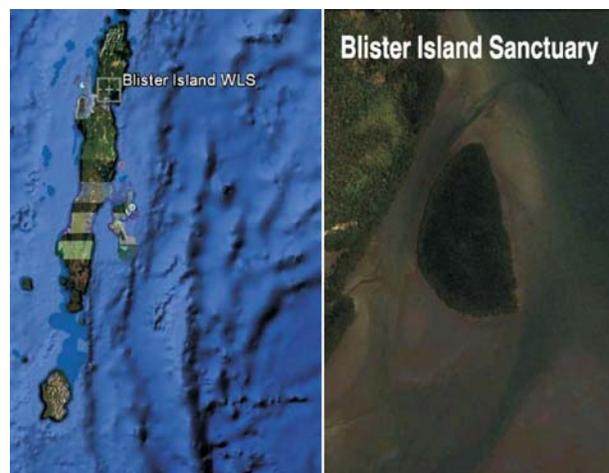
**Conservation Needs:**

- Mapping of forest types necessary.
- This island sanctuary is recommended for clustering under Group 7 Sanctuary

**39. Blister Island Sanctuary (North Andaman) Andaman**

**Area:** 0.26 km<sup>2</sup>

**Year of declaration:** 1987



**Major Habitats:** Mangroves.

**Other Habitats:** Mangroves cover the entire island

**Key Species:** Mangrove associated marine life - crabs, fishes etc.,

**Conservation Needs:**

- Mangrove Area mapping necessary.

- This island sanctuary is recommended to be clustered under Group 7 sanctuary

#### 40. Curlew Island Sanctuary, Middle Andaman

**Area:** 0.03 km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitats:** Ever green Forests

**Other Habitats:** Coral reefs

**Key Species:** Corals and associated marine life, No reports are available on the terrestrial fauna from this island.

#### Conservation Needs:

- Coral reefs fringing these islands have to be mapped and considered for inclusion in the sanctuary
- This island sanctuary is recommended to be clustered under Group 7 sanctuary

#### 41. Dot Island Sanctuary, North Andaman

**Area:** 0.13km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitat:** Mangroves and littoral forests

**Other Habitats:** The island lies in the creek benthic characterization is mostly muddy.

**Key Species:** Mangrove associated marine life.

#### Conservation Needs:

- Mangrove Area mapping necessary.
- This island sanctuary is recommended to be clustered under Group 7 sanctuary.

#### 42. Oliver Island Sanctuary, North Andaman

**Area:** 0.16 km<sup>2</sup>

**Year of Declaration:** 1987

**Major Habitat:** Mangroves and littoral forests



**Other Habitats:** The island lies in the creek benthic characterization is mostly muddy.

**Key Species:** Mangrove associated marine life

#### Conservation Needs:

- Mangrove Area mapping necessary.
- This island sanctuary is recommended to be clustered under Group 7 sanctuary

#### 43. Goose Island Sanctuary, North Andaman

**Area:** 0.01 km<sup>2</sup>

**Year of Declaration:** 1987

**Major Habitat:** Littoral forests

**Other Habitats:** shallow intertidal habitats

**Key Species:** Marine intertidal fauna. Information on terrestrial fauna of this island is not available.



**Conservation Needs:**

- The intertidal waters need to be assessed for benthic characterization.
- This island sanctuary is recommended to be clustered under Group 7 sanctuary

**44. Gander Island Sanctuary, Middle Andaman**

Area: 0.05 km<sup>2</sup>

Year of declaration: 1987



**Major Habitats:** Evergreen forests

**Other Habitats:** Mangroves

**Key Species:** Mangrove associated and other marine life. No reports are available on the terrestrial fauna from this island.

**Conservation Needs:**

- The mangrove area in the island needs to be mapped.
- This island sanctuary is recommended to be clustered under Group 7 sanctuary

**45. Oyster Island - I Sanctuary, Middle Andaman**

Area: 0.08 km<sup>2</sup>



**Year of Declaration:** 1987

**Major Habitat:** Mangroves and littoral forests

**Other Habitats:** The island lies in the creek benthic characterization is mostly muddy.

**Key Species:** Mangroves and littoral forests

**Conservation Needs:**

- Mangrove Area mapping necessary.
- This island sanctuary is recommended to be clustered under Group 7 sanctuary

**46. Orchid Island Sanctuary,**

Area: 0.10 km<sup>2</sup>

Year of Declaration: 1987



**Major Habitat:** Mangroves and littoral forests

**Other Habitats:** The subtidal waters may have corals and associated fauna

**Key Species:** Mangrove and associated marine life.

**Conservation Needs:**

- Benthic characterisation necessary for the marine area surrounding the island.

- This island sanctuary is recommended to be clustered under Group 7 sanctuary

#### 47. Egg Island Sanctuary

**Area:** 0.05 km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitat:** Littoral forests and sand bars

**Other Habitats:** Coral reefs

**Key Species:** Information on terrestrial fauna of this island is not available. Other faunal components include corals and associated marine life.

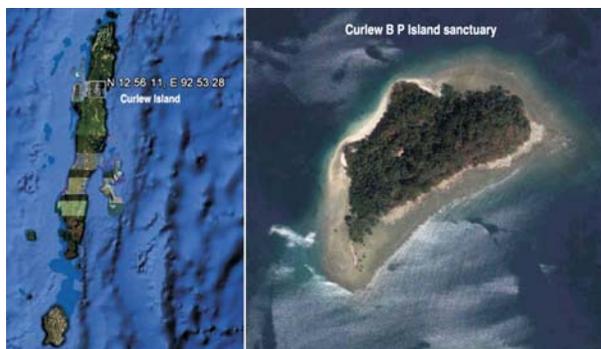
#### Conservation Needs:

- The shallow waters around this island and the coral reefs need to be assessed for benthic cover and notified in the PA territory.
- This island sanctuary is recommended to be clustered under Group 7 sanctuary

#### 48. Curlew B. P. Island Sanctuary

**Area:** 0.16 km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitat:** Littoral forests, and beaches

**Other Habitats:** Coral reefs

**Key Species:** Information on terrestrial fauna is not available for this island. Coral and associate fauna.

#### Conservation Needs:

- The subtidal waters need to be assessed for benthic characterization.
- The coral reef areas should be marked under the PA territory.
- This island sanctuary is recommended to be clustered under Group 7 sanctuary

#### 49. Dottrel Island Sanctuary

**Area:** 0.13 km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitat:** Littoral forests and beaches

**Other Habitats:** Coral reefs

**Key Species:** Information on terrestrial fauna of this island is not available. Coral and associated fauna.

#### Conservation Needs:

- The subtidal waters need to be assessed for benthic characterization.
- The coral reef areas should be marked under the PA territory.
- This island sanctuary is recommended to be clustered under Group 7 sanctuary

#### 50. Girjan Island Sanctuary, North Andaman

**Area:** 0.16 km<sup>2</sup>

**Year of Declaration:** 1987

**Major Habitat:** Mangrove, littoral forests and beaches

**Other Habitats:** Shallow intertidal habitats and coral reefs at subtidal depths

**Key Species:** Mangrove associated marine life and coral reef fauna



**Conservation Needs:**

- The extent of mangrove cover needs to be assessed.
- The subtidal waters need to be assessed for benthic characterization.
- The coral reef areas should be marked under the PA territory.
- This island sanctuary is recommended to be clustered under Group 7 sanctuary.

**51. Swamp Island Sanctuary, Middle Andaman**

Area: 4.09 km<sup>2</sup>

Year of declaration: 1987



**Major Habitats:** Mangrove island,

**Other Habitats:**—

**Key Species:** Mangrove associated marine life.

**Conservation Needs:**

- Extensive and major cover of mangrove and mud flats require mapping.
- This island sanctuary is recommended to be clustered under Group 7 sanctuary.

**Group 8**

The island sanctuaries 1. Sea serpent Island Sanctuary, 2. Snake Island Sanctuary, 3. Buchanan Island Sanctuary, 3. Bondoville Island Sanctuary, 4. Entrance Island Sanctuary, 5. Surat Island Sanctuary, 6. Spike I Island Sanctuary, 7. Bennet Island Sanctuary, 8. Ranger Island Sanctuary, 9. Roper Island Sanctuary, and 10. Interview Island Sanctuary are recommended for clustering into Group 8 Sanctuary.



**52. Sea serpent Island Sanctuary, Middle Andaman**

Area: 0.78 km<sup>2</sup>

Year of declaration: 1987



**Major Habitats:** Ever green Forests and Littoral Forests

**Other Habitats:** Mangrove stretches are found on the eastern side of the Island covering almost half of the island.

**Key Species:** Marine life including sea snakes

**Conservation Needs:**

- The marine area needs to be investigated for its inclusion.
- Mapping of mangrove, coral reef and other marine areas is necessary.
- This island sanctuary is recommended to be clustered under Group 8 Island sanctuary.

**53. Snake Island - 1 Sanctuary, Middle Andaman**

**Area:** 0.73 km<sup>2</sup>

**Year of declaration:** 1987



**Major Habitats:** About ¾ of the island contains mangroves and marshy lands.

**Other Habitats:** A small exclusively terrestrial patch is found on the west of the island.

**Key Species:** Mangrove associated marine life - crabs, fishes etc., and sea snakes

**Conservation Needs:**

- Mangrove cover in this island needs to be mapped.
- This island sanctuary is recommended to be clustered under Group 8 Island sanctuary.

**54. Buchanan Island Sanctuary, Middle Andaman**

**Area:** 9.33 km<sup>2</sup>

**Year of declaration:** 1987

**Major Habitats:** ~80% is of the island is mangrove or marshy area

**Other Habitats:** Littoral forests



**Key Species:** Mangrove associated marine life.

**Conservation Needs:**

- The extensive cover of Mangrove cover in this island needs to be mapped.
- This island sanctuary is recommended to be clustered under Group 8 Island sanctuary.

**55. Bondoville Sanctuary**

**Area:** 0.23 km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitat:** Mangroves and littoral forests.

**Other Habitats:** Beaches on the eastern side of the island

**Key Species:** Mangrove associated fauna. The terrestrial fauna is not known

**Conservation Needs:**

- The extent of mangrove cover needs to be mapped.
- Monitoring turtle nesting in the beaches of this island and the area to be notified as potential turtle nesting sites.
- This island sanctuary is recommended to be clustered under Group 8 Island sanctuary.

### 56. Entrance Island Sanctuary, Middle Andaman

**Area:** 0.96 km<sup>2</sup>

**Year of declaration:** 1987



**Major Habitats:** Evergreen forests

**Other Habitats:** The island is surrounded by mangroves, and sand bars.

**Key Species:** Mangrove associated and other marine life. No reports are available on the terrestrial fauna from this island.

#### Conservation Needs:

- Mangrove forests cover needs to be mapped.
- The intertidal zone has to be investigated for the marine fauna.
- The sand banks/ sand bars adjacent to the island need be considered for inclusion in the MPA.
- This island sanctuary is recommended to be clustered under Group 8 Island sanctuary.

### 57. Surat Island Sanctuary, North Andaman

**Area:** 0.31 km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitat:** Littoral forests

**Other Habitats:** Extensive marshy intertidal area surrounds island

**Key Species:** Mangrove associated and other marine life. No reports are available on the terrestrial fauna from this island.

#### Conservation Needs:

- Mangrove forests cover needs to be mapped.
- The marshy intertidal area covering the island to be investigated for the marine fauna and to be included in the proposed MPA cluster
- This island sanctuary is recommended to be clustered under Group 8 Island sanctuary.

### 58. Spike Island-1 Sanctuary, Middle Andaman

**Area:** 0.42 km<sup>2</sup>

**Year of declaration:** 1987



**Major Habitats:** Extensive mangrove and swampy areas cover the island on the east and south.

**Other Habitats:** The north side has marshy intertidal expanse.

**Key Species:** Mangrove associated marine life - crabs, fishes etc.,

#### Conservation Needs:

- Mangrove cover in this island needs to be mapped.
- The extensive and major cover of mangrove and mud flats to be investigated for the marine fauna and to be included in the proposed MPA cluster
- This island sanctuary is recommended to be clustered under Group 8 Island sanctuary.

### 59. Bennet Island sanctuary, middle Andaman

Area: 3.46 km<sup>2</sup>

Year of declaration: 1987



**Major Habitats:** ~50% of the sanctuary area is covered with mangroves.

**Other Habitats:** Littoral forests

**Key Species:** Mangrove associated marine life.

#### Conservation Needs:

- The mangrove area needs to be mapped.
- The intertidal zone has to be investigated for the marine fauna.
- The marshy intertidal area covering the island to be investigated for the marine fauna and to be included in the proposed MPA cluster
- This island sanctuary is recommended to be clustered under Group 8 Island sanctuary.

### 60. Ranger Island Sanctuary, Middle Andaman

Area: 4.26 km<sup>2</sup>

Year of declaration: 1987



**Major Habitats:** Mangroves and littoral forests.

**Other Habitats:** This sanctuary is a cluster of 2-3 islands, which are surrounded by extensive mangroves. Exclusively terrestrial land is very little.

**Key Species:** Mangrove associated marine life - crabs, fishes etc.,

#### Conservation Needs:

- Mangrove cover in this island needs to be mapped.
- This island sanctuary is recommended to be clustered under Group 8 Island sanctuary.

### 61. Roper Island Sanctuary, Middle Andaman

Area: 1.46 km<sup>2</sup>

Year of declaration: 1987



**Major Habitats:** Evergreen forests

**Other Habitats:** Extensive mangroves surrounding the land part of the Island.

**Key Species:** Mangrove associated marine life - crabs, fishes etc. No reports are available on the terrestrial fauna from this island.

#### Conservation Needs:

- Mangrove forests cover needs to be mapped.
- This island sanctuary is recommended to be clustered under Group 8 Island sanctuary.

### 62. Interview Island Sanctuary, Middle Andaman

Area: 133.00 km<sup>2</sup>

Year of declaration: 1985

**Major Habitats:** Evergreen forests



**Other Habitats:** Coral reefs and Mangroves

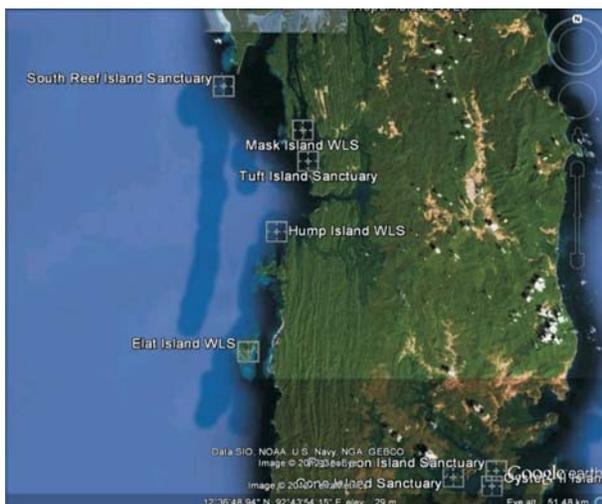
**Key Species:** Mammals – Indian elephant (feral), wild boar, spotted deer, Dog (domestic/feral); Reptiles - Salt water crocodile, sea turtle (Hawksbill), Water monitor; Chestnut headed bee-eater. Fairy blue bird, Red vented Bulbul, Indian Lorikeet, Hill Myna, etc.,

**Conservation Needs:**

- Due to up-lift of landmass considerable amount of coral mortality occurred.
- The species wise mortality and loss of % cover data are available.
- Information available on the marine fauna and reef in the interview islands could be used for marking the marine zones under the sanctuary.
- The mangrove patches on the south east and coral reefs on the east west of the also need to be mapped and to be notified in the proposed MPA cluster
- This island sanctuary is recommended to be clustered under Group 8 Island sanctuary.

**Group 9**

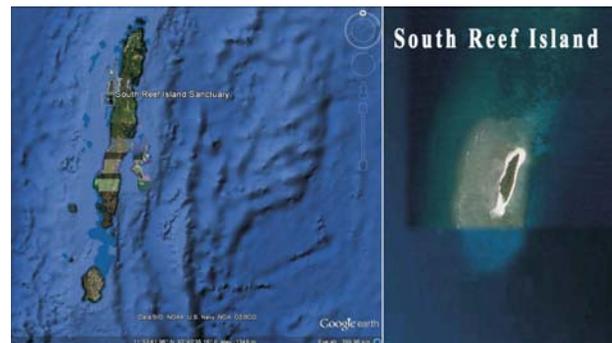
The island sanctuaries in this group which



are recommended for clustering into Group 9 MPA Sanctuary are 1. South reef Island Sanctuary, 2. Elat Island Sanctuary 3. Mask Island Sanctuary 4. Tuft Island Sanctuary, and 5. Hump Island Sanctuary, where Elat and South reef are recommended to be upgraded as National Parks forming the core area of the Sanctuary.

**63. South Reef Island Sanctuary (Middle Andaman) Andaman**

**Area:** 1.17 km<sup>2</sup>



**Year of declaration:**1987

**Major Habitats:** Beaches

**Other Habitats:** Luxuriant coral cover may be found in the North - area between the two islands. And rather deep reefs in the south.

**Key Species:** Marine fauna including corals and associates, sea snakes, turtles, etc.,

**Conservation Needs:**

- To not to interfere with the livelihood of the fishermen who might use this area as fishing zones, it is proposed that the reefs surrounding the Island may be declared as a sanctuary where guidelines could be issued regarding any resource extraction.
- Extension in the boundary require including marine area by a new notification.
- This island sanctuary is recommended to be upgraded into a National Park forming one of the core areas under the cluster Group 9 Island sanctuary.

**64. Elat Island Sanctuary**

**Area:** 9.36 km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitat:** Mangroves and littoral forests

**Other Habitats:** Shallow intertidal habitats and coral reefs at subtidal depths

**Key Species:** Mangrove associated marine life and coral reef fauna

**Conservation Needs:**

- The extent of mangrove cover needs to be assessed.
- The subtidal waters need to be assessed for benthic characterization.
- The coral reef areas should be marked under the PA territory.
- This island sanctuary is recommended to be upgraded into a National Park forming one of the core areas under the cluster Group 9 Island sanctuary.

**65. Mask Island Sanctuary, North Andaman**

**Area:** 0.78 km<sup>2</sup>

**Year of Declaration:** 1987

**Major Habitat:** Evergreen forests and Mangroves



**Other Habitats:** Beaches

**Key Species:** Mangrove associated fauna. Information on the terrestrial fauna is not available.

**Conservation Needs:**

- Mangrove cover needs to be mapped.
- The beaches to be monitored for turtle nesting activities.
- This island sanctuary is recommended to be clustered under Group 9 Island sanctuary.

**66. Tuft Island Sanctuary, Middle Andaman**

**Area:** 0.29km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitat:** Littoral Forests

**Other Habitats:** Coral reefs, beaches and with a vast shallow intertidal lagoon.

**Key Species:** Corals and other associated marine life. No information is available on the fauna of this island.

**Conservation Needs:**

- The coral reef extent needs to be mapped.
- The beaches to be monitored for turtle nesting activities.
- The marine habitats to be included in the island sanctuary and the proposed MPA cluster.
- This island sanctuary is recommended to be clustered under Group 9 Island sanctuary.

**67. Hump Island Sanctuary, Andaman**

**Area:** 0.47 km<sup>2</sup>

**Year of declaration:** 1987



**Major Habitats:** Evergreen Forests.

**Other Habitats:** Surrounded by beaches and shallow lagoons.

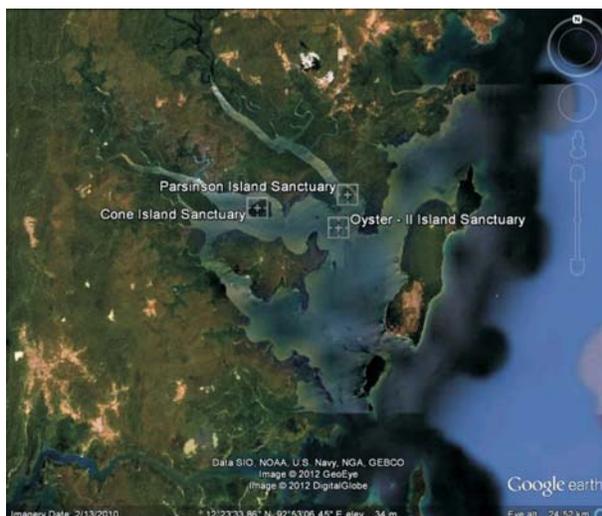
**Key Species:** Marine life, crabs and birds. No reports are available on the terrestrial fauna from this island. The existence of coral reef has to be verified.

**Conservation Needs:**

- The significance of the beaches as the turtle nesting sites needs to be investigated.
- The coral reef extent needs to be mapped.
- The marine habitats to be included in the island sanctuary and the proposed MPA cluster.
- This island sanctuary is recommended to be clustered under Group 9 Island sanctuary

**Group 10**

The island sanctuaries in this group 1. Oyster Island - II Sanctuary, 2. Parkinson Island Sanctuary, and 3. Cone Island



Sanctuaries are recommended for clustering into Group 10 MPA Sanctuary.

**68. Oyster Island – II Sanctuary, Middle Andaman**

**Area:** 0.21 km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitat:** Semi evergreen forests and mangrove forests

**Other Habitats:** The marine area is not known for significant benthic characteristics given the location of this island in the enclosed bay.

**Key Species:** Mangrove associated fauna.

**Conservation Needs:**

- The mangrove forests in the island need to be mapped.
- This island sanctuary is recommended to be clustered under Group 10 Island sanctuary

**69. Parkinson Island Sanctuary, Middle Andaman**

**Area:** 0.34 km<sup>2</sup>

**Year of declaration:** 1987

**Major Habitats:** Evergreen Forests, Littoral Forests and Mangroves.



**Other Habitats:** Mangroves cover almost all the islands except a small patch of other flora in the centre.

**Key Species:**

Mangrove associated marine life - crabs, fishes etc., No reports are available on the terrestrial fauna from this island

**Conservation Needs:**

- This creek in middle Andaman on its either side has mangrove forests which need to be mapped.
- This island sanctuary is recommended to be clustered under Group 10 Island sanctuary.

**70. Cone Island Sanctuary, Andaman**

**Area:** 0.65 km<sup>2</sup>

**Year of declaration:** 1987

**Major Habitats:** Evergreen forests and Mangroves



**Other Habitats:** Extensive mangrove patches on the western side cover 1/2th of the Island.

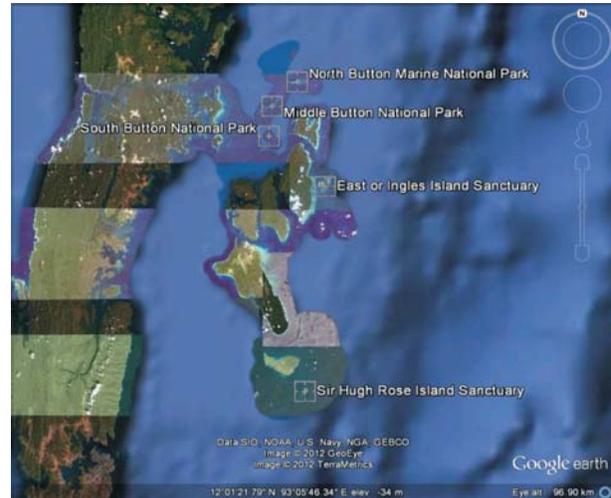
**Key Species:** Mangrove associated marine life – crabs, fishes etc., No reports are available on the terrestrial fauna from this island

**Conservation Needs:**

- The mangrove coverage needs to be mapped.
- This island sanctuary is recommended to be clustered under Group 10 Island sanctuary

**Group 11**

The island sanctuaries in Group 11 which are recommended for clustering into a



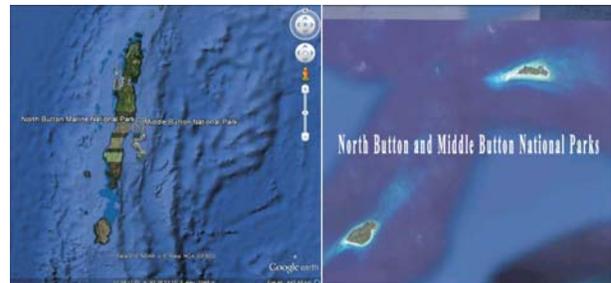
Biosphere Reserve are 1. North Button National Park, 2. Middle Button National Park, 3. South Button National Park, 4. East or Inglis Island Sanctuary, 5. Sir Hugh Rose Island Sanctuary. The Amalgamation requires the Ritchie's Archipelago Islands, and the Button National Parks and Rani Jhansi Marine National Park areas to be notified as the core area of the Biosphere Reserve.

**71. North Button and Middle Button Island National Parks, Andaman.**

**i) North Button Island National Park**

**Area:** 0.44 km<sup>2</sup>

**Year of Declaration:** 1979



**Major Habitats:** Island and shore

**Other Habitats:** Coral reefs

**Key Species:** Marine fauna including corals and associates, sea snakes, turtles, saltwater crocodiles etc.

**Conservation Needs:**

- The extent of coral reef equals the island area (SAC, 2010) and sport good coral cover.
- The reef areas need to be included in the jurisdiction of the NP and to be notified as the core area of the proposed Biosphere Reserve.

- This island National Park is proposed to be clustered under Group 11 Islands Biosphere Reserve.

#### ii) Middle Button National Park, Andaman.

**Area:** 0.44 km<sup>2</sup>

**Year of Declaration:** 1979

**Major Habitats:** Island and shore

**Other Habitats:** Coral reefs

**Key Species:** Marine fauna including corals and associates, sea snakes, turtles, saltwater crocodiles etc.,

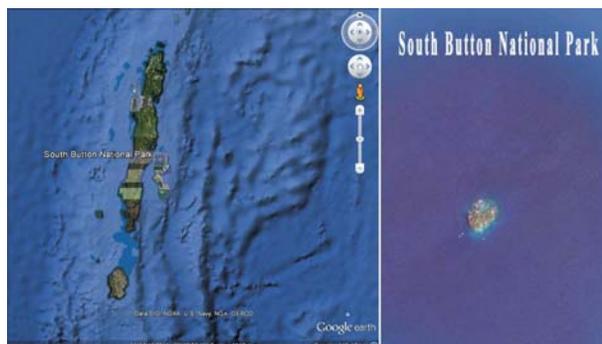
#### Conservation Needs:

- The coral reefs sport good coral cover.
- The reef areas need to be included in the jurisdiction of the NP and to be notified as the core area of the proposed Biosphere Reserve.
- This island National Park is proposed to be clustered under Group 11 Islands Biosphere Reserve.

#### 72. South Button National Park, Andaman

**Area:** 0.03 km<sup>2</sup>

**Year of Declaration:** 1979



**Major Habitats:** Island and shore

**Other Habitats:** Coral reefs

**Key Species:** Marine fauna including corals and associates, sea snakes, turtles, saltwater crocodiles etc.,

#### Conservation Needs:

- The coral reefs sport good coral cover.
- The reef areas need to be included in the jurisdiction of the NP and to be notified as the core area of the proposed Biosphere Reserve.

- This island National Park is proposed to be clustered under Group 11 Islands Biosphere Reserve.

#### 73. East or Inglis Island Sanctuary, South Andaman

**Area:** 3.55 km<sup>2</sup>

**Year of declaration:** 1987

**Major Habitats:** Evergreen and littoral forests



**Other Habitats:** Extensive reefs are found surrounding the island. The reef flat in the east is at a distance of 0.25 km. The shallower water body comprising coral reefs extends to a maximum of 0.77 km from the shore. No reports are available on the fauna of this island.

**Key Species:** Corals and associated marine life

#### Conservation Needs:

- Information on diversity and coverage of corals and other associated fauna are not available except a few one-time observations of fishes.
- Inclusion of coral reefs within the territorial limits of the PA is required.
- This sanctuary is proposed to be upgraded to National Park and to be notified as the core area of the proposed Biosphere Reserve.
- This island sanctuary is proposed to be clustered into Group 11 Islands Biosphere Reserve.

#### 74. Sir Hugh Rose Island Sanctuary, South Andaman

**Area:** 1.06 km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitat:** littoral and semi evergreen forests

**Other Habitats:** Extensive reefs are found surrounding the island.

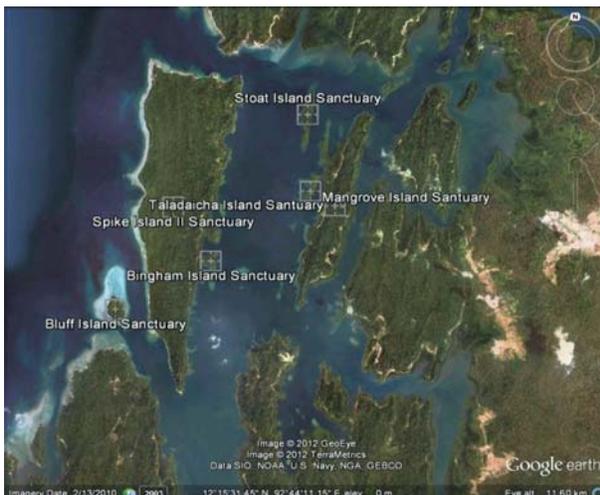
**Key Species:** Corals and associated marine life

**Conservation Needs:**

- Information on diversity and coverage of corals and other associated fauna are not available
- The reef areas need to be mapped.
- The Island sanctuary is proposed to be upgraded in to a NP by including the coral reef extent surrounding the island, and to be notified as the core area of the proposed Biosphere Reserve.
- This island sanctuary is proposed to be clustered under Group 11 Islands Biosphere Reserve.

**Group 12**

The islands in this group 1. Stoa Island Sanctuary, 2. Mangrove Island Sanctuary,



3. Talabaicha Island Sanctuary, 4. Spike Island II Sanctuary, 5. Bingham Island Sanctuary and 6. Bluff Island Sanctuary are recommended to be clustered into Group 12 MPA Sanctuary. Bluff Island Sanctuary is recommended to be upgraded to National Park and the core area of the sanctuary in order to offer protection to the extensive coral reefs fringing this island, which could serve as a reserve to replenish the resources at the sanctuary.

**75. Stoa Island Sanctuary, Andaman**

**Area:** 0.44 km<sup>2</sup>

**Year of declaration:** 1987



**Major Habitats:** Evergreen forests and Littoral forests

**Other Habitats:** Corals may be available given the room for oceanic or open water circulation in the north.

**Key Species:** No reports are available on the terrestrial fauna from this island

**Conservation Needs:**

- The coral reef area in the north of this PA need to be investigated.
- The mangrove extent needs to be mapped.
- The Island sanctuary is proposed to be clustered under Group 12 Marine Sanctuary.

**76. Talabaicha Island Sanctuary, Middle Andaman**

**Area:** 3.21 km<sup>2</sup>

**Year of Declaration:** 1987

**Major Habitat:** Evergreen forests and Mangroves



**Other Habitats:** Intertidal marine habitats to be assessed for benthos characterization

**Key Species:** Mangrove associated species. No reports are available on the terrestrial fauna of this island

**Conservation Needs:**

- The mangrove extent in the sanctuary needs to be mapped.
- The Island sanctuary is proposed to be clustered under Group 12 Marine Sanctuary.

**77. Mangroves Island Sanctuary (Middle Andaman) Andaman**

**Area:** 0.39 km<sup>2</sup>

**Year of declaration:** 1987



**Major Habitats:** Mangroves.

**Other Habitats:** There is coral growth fringing on the south and west sides of the island.

**Key Species:** Mangrove associated marine life - crabs, fishes etc.,

**Conservation Needs:**

- Extension of the protected area to include the reefs is proposed.

- The status of coral reefs needs to be assessed.
- The Island sanctuary is proposed to be clustered under Group 12 Marine Sanctuary.

**78. Bingham Island sanctuary, South Andaman**

**Area:** 0.08 km<sup>2</sup>

**Year of declaration:** 1987



**Major Habitats:** Evergreen Forests and Mangroves

**Other Habitats:** The Island has mangrove zones in the fringes.

**Key Species:** Mangrove associated fauna. No information is available on the fauna of this island.

**Conservation Needs:**

- No information is available on the Fauna and flora of this island sanctuary. Biodiversity inventorisation should be carried out for this island and surrounding subtidal habitats.
- The intertidal area that stretches up to 0.4 - 0.8 km surrounding the island need to be studied for marine ecosystem and faunal characterization.
- The Island sanctuary is proposed to be clustered under Group 12 Marine Sanctuary.

**79. Bluff Island Sanctuary, Andaman**

**Area:** 1.14 km<sup>2</sup>

**Year of declaration:** 1987

**Major Habitats:** Evergreen forests and Littoral forests.

**Other Habitats:** Surrounded by extensive coral reefs, Sandy patches / bars, reef lagoons etc.



**Key Species:** Corals and associated marine life. No reports are available on the terrestrial fauna from this island

**Conservation Needs:**

- The coral reef status needs to be assessed. The reef area should be included under PA and re-notified.
- The Island sanctuary is recommended to be upgraded to National Park and notified as core area of the cluster Group 12 Marine Sanctuary.

**80. Spike Island -2 Sanctuary, South Andaman**

**Area:** 11.70 km<sup>2</sup>

**Year of declaration:** 1987



**Major Habitats:** Evergreen forests

**Other Habitats:** A small strip of mangrove is found along the east side of the island. The western side has beaches.

**Key Species:** Mangrove associated and other marine life. No reports are available on the terrestrial fauna from this island.

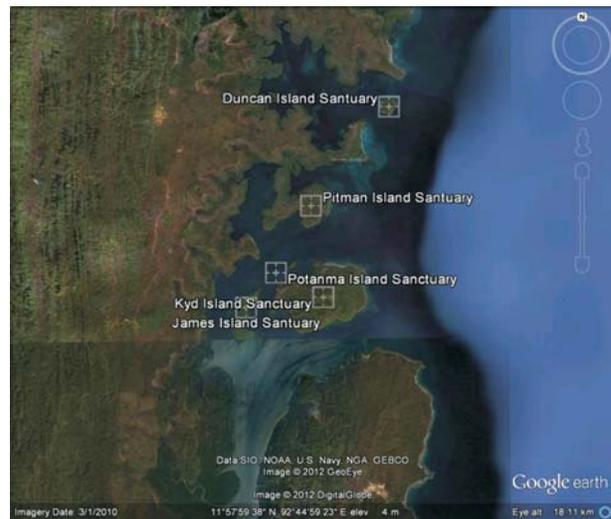
**Conservation Needs:**

- Mangrove forests cover needs to be mapped.

- There may be coral reefs at the intertidal regions which need to be investigated.
- The Island sanctuary is proposed to be clustered under Group 12 Marine Sanctuary.

**Group 13**

The island sanctuaries in this group, 1. Duncan Island Sanctuary, 2. Pitman Island Sanctuary, 3. Potanma Island Sanctuary, 4. Kyd Island Sanctuary, and 5. James Island Sanctuary are recommended for clustering into Group 13 Marine Sanctuary.



**81. Duncan Island sanctuary, South Andaman**

**Area:** 0.73 km<sup>2</sup>

**Year of declaration:** 1987



**Major Habitats:** Ever green forests, swamps

**Other Habitats:** Coral reefs. The shallow water body in this island extends to a maximum width of 0.24 kms from the shore.

**Key Species:** Corals and associated marine life. No information is available on the Fauna and flora of this island sanctuary.

- The presence of corals or fringing reefs in this area need to be investigated.
- The Island sanctuary is proposed to be clustered under Group 13 Marine Sanctuary.

### 82. Pitman Island Sanctuary, Andaman

**Area:** 1.37 km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitat:** Littoral Forests and Mangrove forests

**Other Habitats:** There are healthy coral reefs in the eastern side of the island. Pachy reefs are found at the adjoining waters.

**Key Species:** Mangrove associated fauna, Corals and marine life.

#### Conservation Needs:

- The extent of mangroves and coral reefs need to be mapped and notified within the boundary of the proposed MPA sanctuary.
- This island is proposed to be clustered under the Group-13 Marine Sanctuary.

### 83. Potanma Island Sanctuary, Andaman

**Area:** 0.16 km<sup>2</sup>

**Year of Declaration:** 1987

**Major Habitat:** A small least vegetated Island.

**Other Habitats:** The marine area surrounding islands need to be investigated for benthic characteristics.



**Key Species:** Fauna information is not available for this island

#### Conservation Needs:

- Faunal assessment of this island required including the benthic characterization of the surrounding marine area.
- This island sanctuary is proposed to be clustered under Group-13 Marine Sanctuary.

### 84. Kyd Island Sanctuary, Andaman

**Area:** 8.00 km<sup>2</sup>

**Year of declaration:** 1987



**Major Habitats:** Evergreen forests and Littoral forests.

**Other Habitats:** The leeward side has mangroves and the seaward side has corals

**Key Species:** Coral reef and Mangrove associated marine life. No reports are available on the terrestrial fauna from this island

#### Conservation Needs:

- The mangrove extent and coral cover need to be mapped.

- The reef area to be considered for inclusion in the proposed MPA sanctuary.
- This island sanctuary is proposed to be clustered under the Group-13 Marine Sanctuary

### 85. James Island Sanctuary, Andaman

Area: 2.10 km<sup>2</sup>

Year of declaration: 1987



**Major Habitats:** Evergreen forests and Littoral forests.

**Other Habitats:** Mangroves

**Key Species:** Mangrove associated marine life - crabs, fishes etc., No reports are available on the terrestrial fauna from this island

#### Conservation Needs:

- It needs to be verified that the mangrove stretch has been included in the notification of the Sanctuary
- This island is proposed to be clustered under the Group-13 Marine Sanctuary.

### Group 14



The islands proposed for Group 14 Marine sanctuary include 1. Patric Island Sanctuary, 2. Defence Island Sanctuary, 3. Montgomery Island Sanctuary, and 4. Clyde Island sanctuary, where the Patric and Motogemery Islands are recommended to be upgraded to National Park status and also to be notified as the core area of the sanctuary.

### 86. Patric Island Sanctuary, South Andaman

Area: 0.13 km<sup>2</sup>

Year of Declaration: 1987



**Major Habitat:** Littoral forests and extensive beaches

**Other Habitats:** Extensive coral reefs are found fringing the island and in patches at sub-tidal depths.

**Key Species:** Corals and associated fauna. No information is available on the terrestrial fauna from this island.

#### Conservation Needs:

- The coral reef area need to be mapped and status assessed.
- The reef extent needs to be notified under the Protected Area.
- This island sanctuary is proposed to be upgraded to a National Park clustered under the Group-14 Marine Sanctuary

### 87. Defence Island Sanctuary, Andaman

Area: 10.49 km<sup>2</sup>

Year of declaration: 1987

**Major Habitats:** Evergreen forests and Littoral forests.



**Other Habitats:** On the east and south east side of the island has mangrove forests. The Northern side seems to be devoid of mangroves but with sandy beaches and coral reefs.

**Key Species:** Coral reef and Mangrove associated marine life. No reports are available on the terrestrial fauna from this island

#### Conservation Needs:

- The extent of coverage of coral reefs and health status need to be assessed.
- This island sanctuary is proposed to be clustered under the Group-14 Marine Sanctuary

### 88. Montgomery Island Sanctuary, South Andaman

**Area:** 0.21 km<sup>2</sup>

**Year of declaration:** 1987



**Major Habitats:** Littoral forests.

**Other Habitats:** Shallow reef extending to 0.8 km in the North East of this island and the continuation of it towards south of this island.

**Key Species:** No reports are available on

the terrestrial fauna from this island. Corals and associated marine life.

#### Conservation Needs:

- Inclusion of coral reefs within the territorial limits of the sanctuary and the area needs to be investigated for diversity and status.
- This island sanctuary is proposed to be upgraded to a National Park clustered under the Group-14 Marine Sanctuary

### 89. Clyde Island Sanctuary, Andaman

**Area:** 0.54 km<sup>2</sup>

**Year of declaration:** 1987



**Major Habitats:** Littoral forests and Evergreen forests

**Other Habitats:** Extensive mangrove growths around the island.

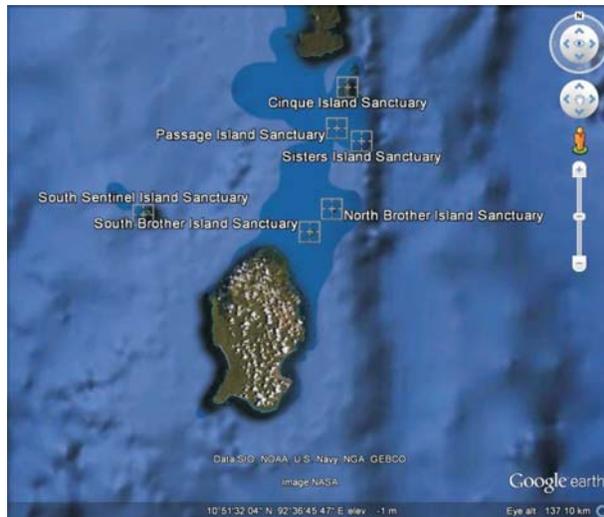
**Key Species:** Mangrove associated marine life - crabs, fishes etc., No reports are available on the terrestrial fauna from this island

#### Conservation Needs:

- The mangrove flora and associated fauna need to be studied.
- The mangrove cover is included in the PA territory need to be verified.
- The mangrove cover needs to be mapped.
- This island sanctuary is proposed to be clustered under the Group-14 Marine Sanctuary

### Group 15

The islandsantuanries proposed for Group 15 MPA and proposed for upgradatation to



National Park include 1. Cinque Island Sanctuary, 2. Passage Island Sanctuary, 3. Sisters Island Sanctuary, 4. South Sentinel Island Sanctuary, 5. North Brother Island Sanctuary, and 6. South Brother Island Sanctuary.

#### 90. Cinque Islands Sanctuary (South Andaman) Andaman

**Area:** 9.51km<sup>2</sup>

**Year of declaration:** 1987



**Major Habitats:** Evergreen forests, and beaches.

**Other Habitats:** The two islands notified under this sanctuary have extensive coral reef patches especially at the eastern side of the sand bar at the North Cinque Island. Reefs are also present in patches at the south of south Cinque Island

**Key Species:** Marine fauna including corals and associates, sea snakes, turtles, etc.,

#### Conservation Needs:

- No status report available on the health of the reefs.

- The extent of coral reefs needs to be mapped and notified under the proposed MNP.
- This island sanctuary is recommended to be upgraded under the cluster Group-15 Marine National Park.

#### 91. Passage Island Sanctuary, South Andaman

**Area:** 0.62 km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitat:** Evergreen forests.

**Other Habitats:** Information on the adjoining marine habitat is not available.

**Key Species:** Fauna information is not available for this island PA.

#### Conservation Needs:

- Assessment of marine ecosystem adjoining this island sanctuary necessary.
- The extent of coral reefs need to be notified under the proposed MNP.
- This island sanctuary is recommended to be upgraded under the cluster Group-14 Marine National Park.

#### 92. Sisters Island Sanctuary, South Andaman

**Area:** 0.36 km<sup>2</sup>

**Year of Declaration:** 1987

**Major Habitat:** Littoral Forests.

**Other Habitats:** The marine habitats surrounding the island need to be assessed for benthic characterization.

**Key Species:** Fauna information on the marine and terrestrial environment is not available for this island sanctuary.



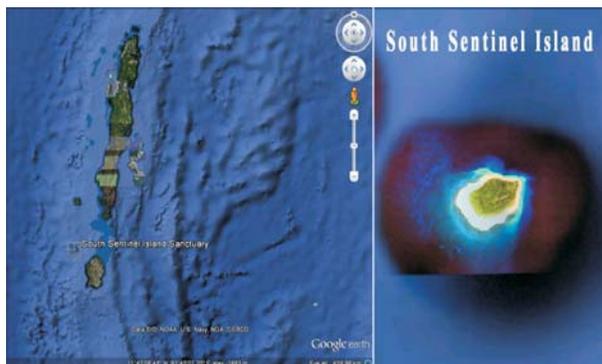
**Conservation Needs:**

- Inventory on the terrestrial fauna required.
- The marine habitats need to be mapped for extent and assessed for faunal characterization.
- The extent of coral reefs needs to be notified under the proposed MNP.
- This island sanctuary is recommended to be upgraded under the cluster Group-14 Marine National Park.

**93. South Sentinel Island Sanctuary, South Andaman**

**Area:** 1.61 km<sup>2</sup>

**Year of Declaration:** 1977



**Location:** 103 km from Port Blair.

**Major Habitat:** Tropical evergreen, littoral forests, mangroves (tidal swamp) and sandy beach.

**Other Habitats:** Coral reefs.

**Key Species:** Water monitor, flying fox, Nicobar pigeon, saltwater crocodile, sea turtles.

**Conservation Needs:**

- The extent of coral reefs need to be mapped and notified under the proposed MNP.

- This island sanctuary is recommended to be upgraded under the cluster Group-14 Marine National Park.

**94. North Brother Island Sanctuary, Andaman**

**Area:** 0.75 km<sup>2</sup>

**Year of declaration:** 1987



**Major Habitats:** Littoral forests and Evergreen forests

**Other Habitats:** Whether has coral reefs, mangroves, seagrass ecosystems is not known.

**Key Species:** No reports are available on the terrestrial fauna from this island

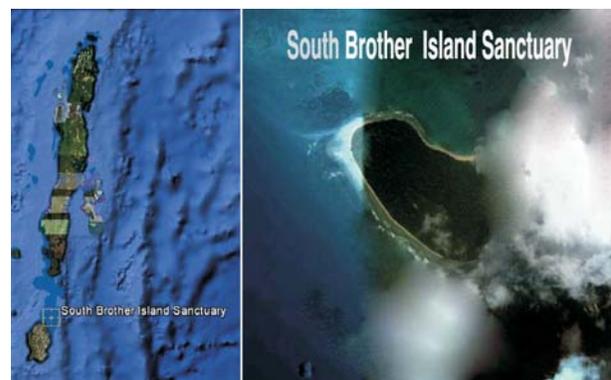
**Conservation Needs:**

- Mapping of habitats is required.
- The extent of coral reefs need to be mapped and notified under the proposed MNP.
- This island sanctuary is recommended to be upgraded under the cluster Group-14 Marine National Park.

**95. South Brother Island Sanctuary, South Andaman**

**Area:** 1.24 km<sup>2</sup>

**Year of declaration:** 1987



**Major Habitats:** Littoral forests and Evergreen forests

**Other Habitats:** Surrounded by beautiful beaches and marked by a shallow water body, which indicate the presence of coral reefs.

**Key Species:** Corals and associated marine life. No reports are available on the terrestrial fauna from this island

**Conservation Needs:**

- The status of the reefs in this island need to be assessed.
- The extent of coral reefs need to be mapped and notified under the proposed MNP.
- This island sanctuary is recommended to be upgraded under the cluster Group-14 Marine National Park.

**Category – II MPAs,  
[outside the clusters] in India**

**96. Peacock Island Sanctuary**

**Area:** 0.42 km<sup>2</sup>

**Year of declaration:** 1987



**Major habitats:** Littoral forests.

**Other habitats:** Mangrove forests are available in the east of the island. The intertidal area surrounding the island need benthic characterization,

**Key Species:** No information is available on the Fauna and flora of this island sanctuary, and the marine area.

**Conservation needs:**

- The intertidal stretch is covered within the sanctuary area of 5 ha needs to be verified for benthic characteristics and the fauna need to be assessed.
- The coral reef extent surrounding the island need to be mapped and notified under the boundary of PA

**97. Rowe Island Sanctuary,  
North Andaman**

**Area:** 0.01 km<sup>2</sup>

**Year of Declaration:** 1987



**Major Habitat:** Littoral forests

**Other Habitats:** sandy beaches

**Key Species:** No information is available on the fauna of this island

**Conservation Needs:**

- Faunal assessment required for this island.
- The marine area required to be assessed for the benthic habitat and notified under the PA

**98. Arial Island sanctuary,  
South Andaman**

**Area:** 0.05 km<sup>2</sup>

**Year of declaration:** 1987

**Major habitats:** Littoral forests.

**Other habitats:** An intertidal stretch (sandy or muddy) is connecting this island to a mangrove patch in South Andaman.



**Key Species:** No information is available on the Fauna and flora of this island sanctuary, and the marine area.

**Conservation needs:**

- The intertidal stretch is to be verified for benthic characteristics and the fauna need to be assessed.
- The marine area need to be notified under the PA.

**99. Belle Island sanctuary, South Andaman**

**Area:** 0.08 km<sup>2</sup>

**Year of declaration:** 1987

**Major Habitats:** Mangrove



**Other Habitats:** The islands being situated in the mangrove creeks may not have important benthic characterization.

**Key Species:** Mangrove associated marine life.

**Conservation Needs:**

- Faunal assessment is required for this islandsanctuary.

**100. Sandy Island Sanctuary (South Andaman) Andaman**

**Area:** 1.58 km<sup>2</sup>

**Year of declaration:** 1987

**Major Habitats:** Sandy island area.

**Other Habitats:** Sandy stretches, partly submerged,

**Key Species:** Marine life, crabs and birds.

**Conservation Needs:**

- Possibility of coral reefs around this sand bar needs to be investigated.



- The coral reef extent need to be mapped and notified under the PA.

**101. Snake Island – II Sanctuary**

**Area:** 0.03 km<sup>2</sup>

**Year of Declaration:** 1987

**Major Habitat:** Rocky terrain Island with little vegetation.



**Other Habitats:** The adjoining marine habitats have no significant benthic characteristics.

**Key Species:** Sea snakes.

**102. Baltimalv Island Sanctuary**

**Area:** 2.23 km<sup>2</sup>

**Year of Declaration:** 1985

**Major Habitat:** Ever green forests.

**Other Habitats:** Mangroves and Coral reefs

**Key Species:** Faunal information not available.

**Conservation Needs:**

- Faunal inventories required.



- Extent of marine habitats such as coral reefs require mapping and inclusion within the PA boundary.

### 103. Pitti Island Sanctuary, Lakshadweep

**Area:** 0.01 km<sup>2</sup>

**Year of Declaration:** 2000

**Major Habitat:** Sandy and coral Rubble Island forming a nesting habitat for at least two varieties of turns.

**Other Habitats:** Coral reefs surround the entire Island upto a depth of ~20 m.

**Key Species:** Sea birds (terns), crabs and coral and associated marine life.

#### Conservation Needs:

- The extent of coral reefs surrounding the Pitti Island needs to be notified under the PA territory.
- The island is recommended to be upgraded to National Park (see also chapter 5.)

### 104. Halliday Sanctuary

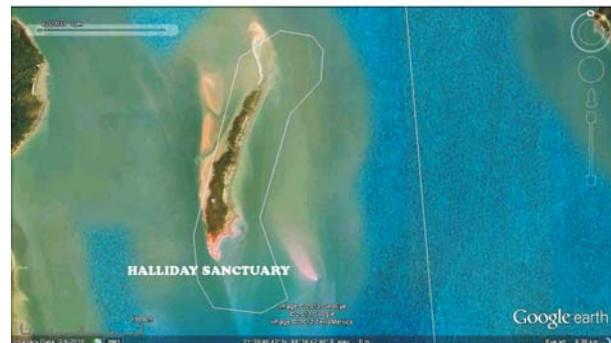
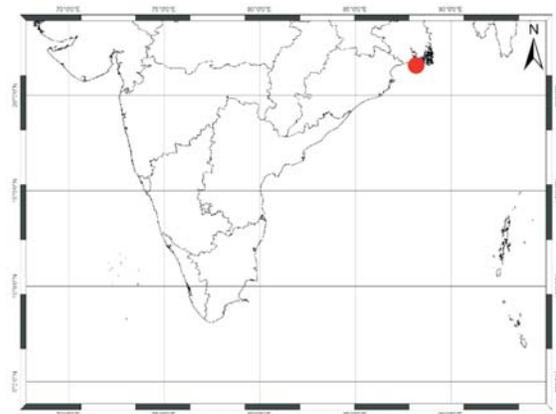
**Area:** 9.75 km<sup>2</sup>

**Year of Declaration:**

**Major Habitats:** Tropical evergreen forests and mangroves. Situated to the south of the Sunderbans Tiger Reserve, Halliday Island Wildlife Sanctuary provides ideal habitat for Barking Deer and birds.

**Other Habitats:** The intertidal Swamps surrounding the island sanctuary provide ideal habitat for the water fowls.

**Key species:** Spotted deer (*Axis axis*), wild boar (*Sus scrofa*) and rhesus macaque (*Macacamullata*) are common. The reptiles include, turtles (*Cheloniamydas*) and snakes such as pythons, king cobras, rat snakes,



Russell's vipers, Dog faced water snakes, and Common Kraits. The sanctuary is known for many species of fishes, which include Sawfish, Butter Fish, Electric rays, Silver carp, Star Fish, Common Carp, King Crabs, Prawn, Shrimps, Gangetic Dolphins, Skipping Frogs, Common Toads and Tree Frogs. Sanctuary harbours estuarine crocodiles, chameleons, monitor lizards turtles, including Olive Ridley, hawksbill, and green turtles;

#### Conservation needs:

- Marking of seaward boundaries to cover the intertidal swamps which offer habitat for water fowls is necessary.

### Protected areas under MPA Category – III

### 105. Narcondam Island Sanctuary, North East of Andaman Island

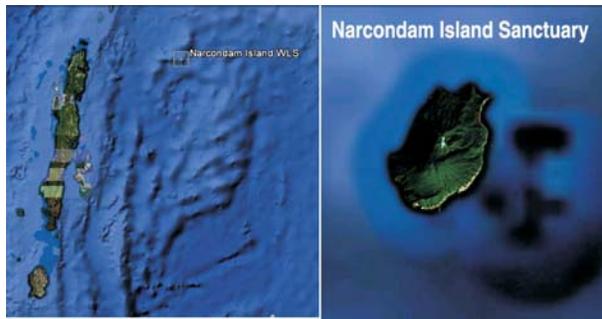
**Area:** 6.81 km<sup>2</sup>

**Year of declaration:** 1977

**Major Habitats:** Evergreen, Moist-deciduous, littoral and Mangrove forests and swamps

**Other Habitats:** Possible existence of coral reefs in the peripheries.

**Key Species:** Narcondum hornbill



(endemic to this island) and ~38 species of birds; Reptiles – Banded Gecko, Dwarf Gecko, Emerald Gecko, water monitor, Sea snake etc.,

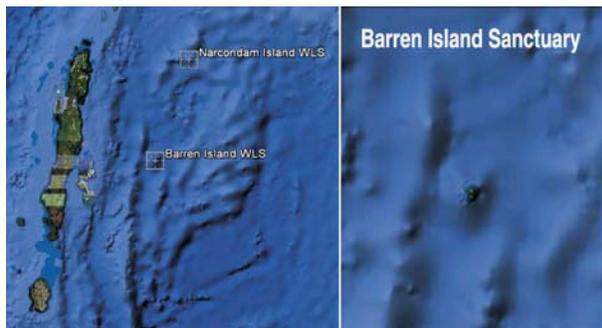
#### Conservation Needs:

- No information on fauna other than Birds available for this island.
- Marine ecosystems need assessment.
- This island sanctuary is recommend for upgrading to National Park status.

#### 106. Barren Island Sanctuary,

Area: 8.10 km<sup>2</sup>

Year of Declaration: 1977



**Major Habitat:** Contains the only active volcano in India. Sparse vegetation on the sides of the old volcano.

**Other Habitats:** Marine habitats have not been understood for their benthic characterisation which might hold some unique fauna.

**Key Species:** No records so far of the Island fauna except the feral goats.

#### Conservation Needs:

- Marine habitats need investigation.

#### 107. Saddle Peak National Park

Area: 32.54 km<sup>2</sup>

Year of Declaration: 1979

**Major Habitat:** Evergreen, Wet Bamboo, and littoral



**Other Habitats:** The marine area in the fringes.

**Key Species:** Andaman Horseshoe bat, Indian wild boar, Himalyan Palm civet, spotted Deer, Flying fox, Andaman shrew, and birds such as Heron, Kingfishers, Imperial pigeon etc.,

#### Conservation Needs:

- The marine area needs to be assessed.

#### 108. Cuthbert Bay Sanctuary (Middle Andaman) Andaman

Area: 5.82 Km<sup>2</sup>

Year of declaration: 1987



**Major Habitats:** Beaches and creek.

**Other Habitats:** Coral Reefs.

**Key Species:** Sea turtles, reticulated python, dugong, crab eating macaque and Nicobar megapode.

#### Conservation Needs:

- No reports are available on the terrestrial fauna from this island
- Coral reef area needs to be mapped and notified under the Sanctuary.

#### 109. Mount Harriet National Park, South Andaman

Area: 46.62 km<sup>2</sup>

Year of Declaration: 1979

**Major Habitat:** Dense Evergreen and Semi Evergreen forests.

**Other Habitats:** Mangroves on the coastal



belt and marine habitats such as coral reefs and sea grass beds.

**Key Species:** Mammals such as Horse Shoe bat, Wild boar, Himalayan Palm Civet, Barking deer, Spotted deer, Flying fox and Andaman Island Spiny Shrew. Bluebird Fairy, Andaman Drongo, Crested Serpent Eagle, Three toed King fisher, Indian Lorikeet, Large Brown throated Spinetail Swift, The Swift, Grey Teal Pale footed Bush

Warbler are some of the bird representatives.

**Conservation Needs:**

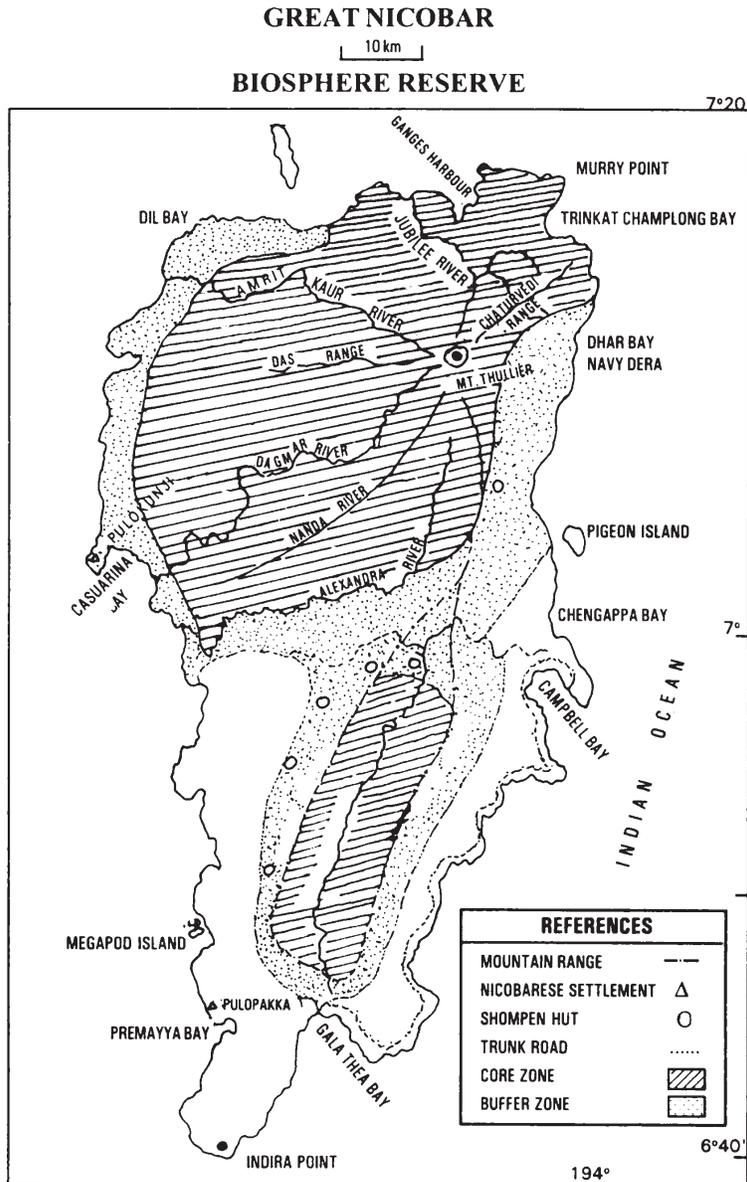
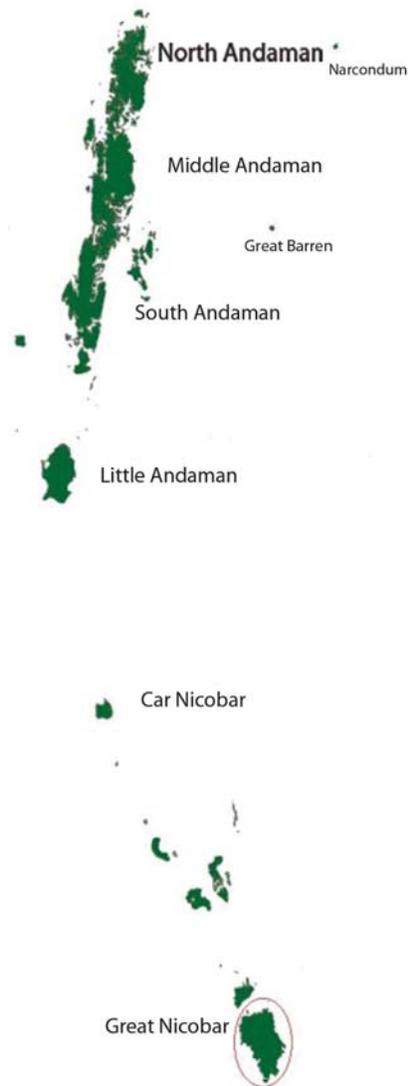
- Period monitoring of the faunal status.
- Assessment of feasibility of inclusion of marine areas into the PA.

**110. Great Nicobar Biosphere Reserve, Nicobar**

**Area:** 885 km<sup>2</sup> (Zone I – 610 km<sup>2</sup>; Zone II – 275 km<sup>2</sup>; Transition zone – 159 km<sup>2</sup>)

**Year of Declaration:** 6 January 1989

**Habitats:** Falling under Indo-Malayan Biogeographic zone (9B), the Great Nicobar Biosphere has a rugged topography with hilly ranges, valleys and flat plains in the coastal region. The forests are lowland swamp,



Evergreen hill forests and littoral ones. 5 perennial and small rain fed rivers constitute the major fresh water ecosystem in the island.

**Other habitats:** Coastal lagoon, Estuaries, Seagrass beds, Mangroves and Coral reefs.

**Key Species:** Great Nicobar is home to a number of endemic animals: A total of 12 mammals, 35 Birds, 7 Reptiles, 4 Amphibians and about 100 insects are endemic to this region. *Macacafascicularisumbrosa* (Nicobar Crab eating Macaque), *Tupaianicobaricasurda* (Nicobar Tree Shrew), *Susscrofanicobarica* (Nicobar Wild Pig), *Megapodiusfreycinetabbotti* (South Nicobar Megapode), *Spilornisklossi* (Great Nicobar Crested Serpent Eagle) and *Python reticulatus* (Reticulated python) are some of the unique endemic representatives.

#### Conservation Needs:

- The coastal plains, sea grass beds, mangroves and coral reefs required to be notified under PA territory.

### 111. Megapode Island Sanctuary,

**Area:** 0.12 km<sup>2</sup>

**Year of Declaration:** 1985



**Major Habitat:** Semi-evergreen, littoral mangroves (tidal swamp). **Keyspecies:** water monitor, Andaman wood pigeon, white bellied sea eagle.

**Other Habitats:** Coral reefs

**Key Species:** The Megapode Bird.

#### Conservation Needs:

- The coral reef area on the eastern side of the island need to mapped and notified in the PA.
- The island sanctuary is recommended to be upgraded into National Park status.

### 112. Tillongchang Island Sanctuary, Nicobar Islands

**Area:** 16.83 km<sup>2</sup>

**Year of Declaration:** 1985



**Major Habitat:** Tropical evergreen forest, semi-evergreen forest, littoral forest, mangroves (tidal swamp).

**Other Habitats:** Coral reefs

**Key Species:** Water monitor, salt water (estuarine) crocodile, Indian wild boar, spotted deer, megapode, Nicobar pigeon, Andaman wood pigeon, crested serpent eagle, whater bellied sea eagle.

#### Conservation Needs:

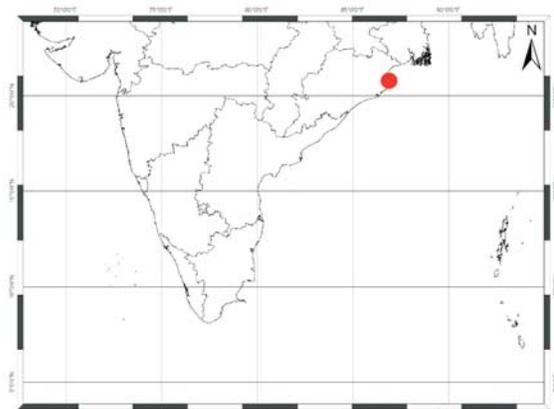
- The fringing reefs around the island are one of the undisturbed reefs in Andaman Nicobar Islands and the reef area need to be mapped and notified under the PA territory.
- This island sanctuary is recommended for upgrading to National Park status.

### 113. Bhitarkanika Wild Life Sanctuary

**Area of Bhitarkanika Sanctuary:** 672 km<sup>2</sup>

**Year of Declaration:** 1975

**Habitat:** The Sanctuary consists of dense



mangrove forest and patchy swamps, which lies in the river delta of the Brahmani, Baitarani, and Dhamara rivers. Eastern side lies the turtle nesting beach and Gahirmatha Marine Sanctuary. Bhitarkanika is declared as a Ramsar site of wetlands of International Importance in the year 2002 and proposed to be included in the list of World Heritage sites

**Fauna of particular importance:** The thick mangrove forests and the beach provide an ideal habitat for terrestrial and aquatic wildlife. Sambar, chital, and wild boar besides leopards, jackals, hyenas, porcupines, otters and fishing cats are some of the prominent animals found here.

The topography is ideal for amphibians and reptiles. Five species of amphibians, nine species of lizards, seven species of turtles and eighteen species of snakes including banded kraits are found in the sanctuary. The area harbours a large breeding and conservation program for salt water crocodiles. Mudskippers and the limulus crab are also the significant animals in the sanctuary.

More than 170 species of resident and migratory birds occur in the area and a large water bird rookery is situated here. The Bar-headed Goose, Grey Pelicans Bramhiny Duck and Lesser Whistling Teal are some of the birds in the area. Asian Open bills, six species of Kingfisher, five species of Egrets, the Black-headed Ibis White-bellied Sea Eagle. Kites, Common Snipes, Curlews, Sand Pipers and Darters are also inhabit the shores. Shovellers and Cormorants are observed in the shallow waters.

#### Conservation Needs:

- Management required to minimise anthropogenic pressures due to human habitation inside the sanctuary.
- Stringent actions to curb incidental hunting of wild animals from the sanctuary.

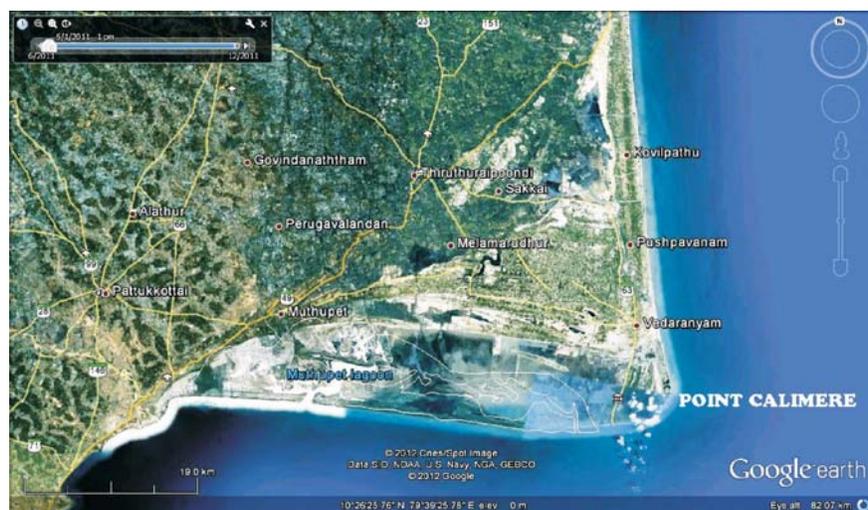
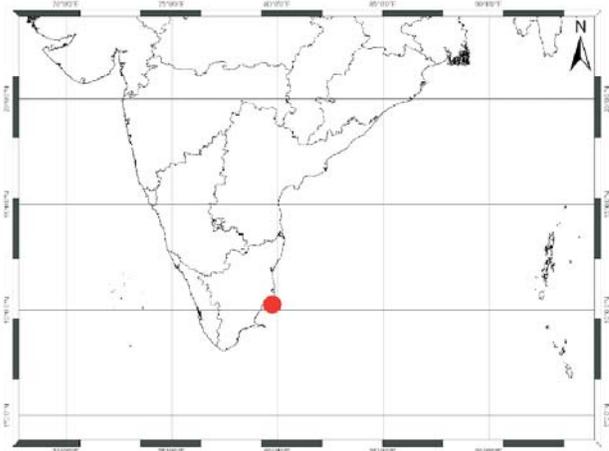
- Developmental activities (Ports and Jetties) proposed close to the sanctuary need to be evaluated for the environmental impacts.

### 114. Point Calimere Sanctuary, Tamil Nadu

**Location :** Located in the coastal district Nagapattinam in Tamil Nadu

**Background:** Point Calimere Wildlife and Bird Sanctuary (PCWBS) was created in 1967 with 21.47 km<sup>2</sup> of protected area along the Palk Strait, where it meets the Bay of Bengal at Point Calimere at the southeastern tip of Nagapattinam District. The 7 km<sup>2</sup> core area of this sanctuary has been proposed as a National Park.

**Habitat:** Sanctuary consists of Tidal swamps, Thorny scrub around the backwaters, Dry evergreen forests and Mangroves.



**Fauna of particular importance:** The sanctuary is famous for large congregations of water birds, especially Greater Flamingos and mainly created for protecting the near threatened Blackbuck Antelope, an endemic mammal in India. Other important animals of the sanctuary include spotted deer, Jackal, Civet, Wild boar, Jungle Cat, Bonnet Macaque, Black naped Hare and Common Indian Mongoose. A notable feature of the sanctuary is the presence of feral horses.

Olive Ridley turtles have been regularly nesting in the sanctuary beach during winter. Dolphin sighting is common along the sanctuary coast.

With the arrival of north east monsoons, migratory birds start congregating in and around the sanctuary. More than a hundred species of migratory birds visit the sanctuary. They include Flamingo, Painted Storks, Pelicans, Teals, Terns, Ducks and a variety of shore birds. About 20000 Flamingoes visit the Sanctuary every year. The rare Spoonbill Sandpiper has also been sighted in the sanctuary. White bellied Sea Eagle, Montagu's Harrier, White-eyed Buzzard, Peregrine Falcon, Common Kestrel, Osprey, Blue faced Malkoha, Pied Cuckoo, Blue tailed Bee eater, Yellow billed Babbler, Chestnut-tailed starling, Asian Paradise- flycatcher, Greater Flamingo, Lesser Flamingo, Spot billed Pelican, Great Cormorant, Grey Heron, Purple Heron, Western Reef Egret, Eurasian Spoonbill, Northern Shoveler, Red-crested Curlew, Spoon-billed Sandpiper, Black tailed Godwit, Asian Dowitcher, Pallas's Gull, Caspian Tern, Great Crested Tern, Black-capped Kingfisher are some of the other important species.

#### Present Status

Major threats to the natural biodiversity and ecological balance of the sanctuary are: loss of habitat for waterbirds, soil and water salinisation by adjacent salt pans, spread of

the invasive *Prosopis juliflora*, cattle grazing and scarcity of fresh water.

### 115. Lothian Island Sanctuary

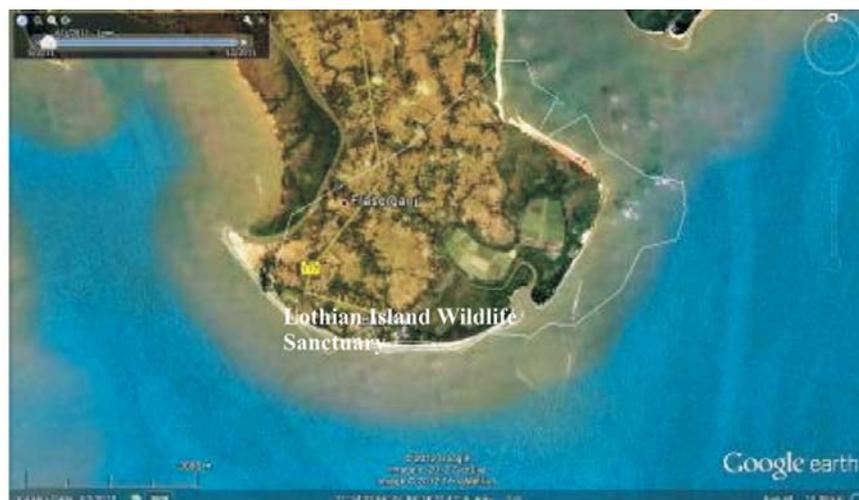
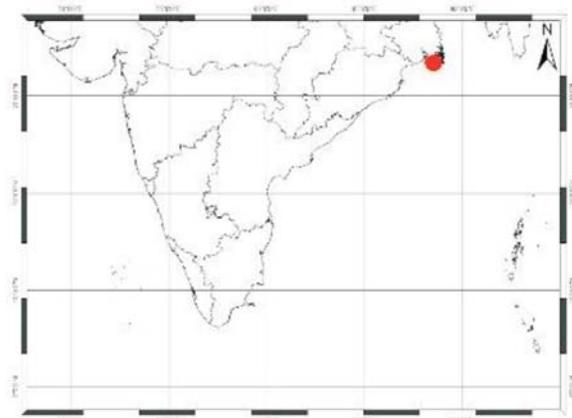
#### Lothian Island Wildlife Sanctuary

**Location:** It is situated in South 24 Parganas district of West Bengal.

**Background:** Lothian Island Wildlife Sanctuary is lying to the south of the Sunderbans Tiger Reserve. Total area of the sanctuary is 38 sq.km.

**Habitat:** Mangroves, Estuaries and Swamps

**Fauna of particular importance:** Gangetic Dolphins, Skipping Frogs, Common Toads and Tree Frogs. Sanctuary harbours estuarine crocodiles, chameleons, monitor lizards turtles, including Olive Ridley, hawksbill, and green turtles; and snakes including pythons, king cobras, rat snakes, Russell's vipers, Dog faced water snakes, and Common Kraits.



## 5. STATUS OF REPRESENTATION OF MPAs IN INDIA AND RECOMMENDATIONS

### INTERNATIONAL RECOGNITIONS

India is party to World Heritage and Ramsar conventions and two MPAs, Sunderbans National Park and Chilka Wild life Sanctuary have received inscriptions as World Heritage site (the only marine site in Asia) and Ramsar site respectively. India also has a National MAB Committee under UNESCO Man And Biosphere (MAB) Programme. Along with the proposal of several MPAs of India to be included under the category of Ramsar sites (Point Calimere Wildlife Sanctuary, Khijadia Bird Sanctuary and Gulf of Kachchh Marine National Park), many also have been proposed for inclusion under MAB net (Gulf of Kachchh, Gulf of Mannar Marine Biosphere Reserve, Chilka, the Sundarbans and Great Nicobar Biosphere Reserve). World Wide Fund For Nature (WWF), under Biodiversity Hotspot Conservation Programme (BHCP), in 1994, recognized Andaman Nicobar Islands as subsidiary hotspots to the two hotspots in India (Eastern Himalaya and Western Ghats) as among the 18 sites of the Globe and identified coral reefs of Andaman Nicobar Islands to be fragile ecosystems to develop action plan for coral reef conservation (Krishnakumar, 1997). The islands, along with Little Ran of Kutch (Wild Ass Sanctuary) also have been identified and included in the list of natural properties of World Heritage quality in an indicative survey by IUCN for the Indomalayan realm (IUCN, 1982). Nonetheless, recognitions from Andamans, Nicobars and the West Coast of India are still absent. And additions to the world' list of PAs are needed to completing the Indomalayan network of protected areas and for effective management of existing protected areas in the realm (Thorsell, 1985).

### REGIONAL REPRESENTATION AND NEW PROPOSALS

Assessment of regional priorities in the establishment and management of MPAs in

the Indian Ocean Region was made in the report prepared for IUCN-CNPPA by Dwivedi *et al.*, (1994), Wells *et al.*, (1995), and Thorsell, (1985), which observed that most MPAs are located in the Eastern Indian Ocean biogeographic zone (that includes 8 MPAs, 4 of these in Sri Lanka and 4 along east coast of India), 4 MPAs along the west coast of India in the Western Indian Ocean zone, 1\* in the Andaman Nicobar Islands in the East Bay of Bengal zone, and 2 MPAs (Sundarbans NP and Bhitarkanika Wildlife Sanctuary in India) in the Northern Bay of Bengal zone. The gaps identified in the representation of MPAs in effectively conserving the representative range of habitat and ecosystems types within each zone (and of relevance to India) are: 1. Bangladesh, Maldives, Myanmar and the Chagos Archipelago have no subtidal MPAs; 2. the atoll groups of the Laccadive-Chagos chain and the coast of Myanmar are not represented; more MPAs are required in the Andaman and Nicobar island group (Wells *et al.*, 1995).

### BIOGEOGRAPHIC AND NATIONAL REPRESENTATION OF MPAS

Rodgers (1985) provided a review of biogeographic classification for India for planning protected area networks country-wide, where the islands and coasts fall under the major biogeographic zone of Indo-Malayan realm with subdivision as Andaman Islands, Nicobar Islands, Lakshadweep Islands, Western coasts and Eastern Coasts. On analyses of the representation of PAs in these biogeographic zones, Rodgers and Panwar (2004) for Andaman Nicobar Islands observed that the current protected area cover is insufficient to protect all representative biogeographic zones, habitats and species, and corroborated with similar reports which recommended a much greater development of protected areas to cover the full range of biomes in each island division, including all

off-shore islands. The representative PAs and up-gradation of protection status proposed by Rodger and Panwar (2004) for Andaman and Nicobar are as below, which indicated a redesign of the PAs in Andaman Nicobar Islands.

1. North Andaman:

- i) Northern-most peninsula past Shyamnagar as WLS
- ii) the central ridge from Nischinatpur to Swarajgram as WLS
- iii) Mangrove areas in the South-West near Austin to Kishorinagar as WLS

2. Middle Andaman:

- i) The area around Mount Diavolo to the east of the Grand Trunk Road as a 200 sq km park and surrounding 200 sq km as sanctuary buffer

3. South Andaman:

- i) Extension of Mount Harriet NP to North to cover additional 70 sq km
- ii) West Rutland sanctuary from Mount Ford to act as buffer for Wandoor MNP

4. Ritchie Archipelago: To add Outram Island to existing Button National Parks

5. Little Andamans: 300 sq km of National park for the entire south-western half of the island.

6. Nicobars:

- i) To create a 50 sq km sanctuary on Kamorta Island
- ii) All Little Nicobar and surrounding Islets (Pulo Milo, Treis, Track, Menchel) as NP
- iii) The northern area of Great Nicobar, north of Casuarina Bay – Dogan River and Mount Thullier as WLS (200 sq km) with the core area around Mount Thullier and Laful (100 sq km) as NP.

7. The existing tiny individual island sanctuaries to be amalgamated into 10 logical groups

West coast:

- i) Shearme group of 11 islets as NP (also to be upgraded)
- ii) Interview Islet group of 10 Islets
- iii) Spike group of 6 Islets
- iv) Defense group of 4 islets

North East and South Coast:

- i) Landfall group of islets as NP (also to be upgraded)
- ii) Table – Brush group of 12 islets as NP (also to be upgraded)
- iii) Kyd group of 4 islets
- iv) Sound group of 12 islets
- v) Oyster group of 3 islets
- vi) Cinque Island group of 6 islets

8. Existing sanctuaries to be upgraded to NPs due to the international significance

- i) Narcondum Islands (7 sq km) – the only area for Norcondum hornbill
- ii) North Reef Island (3 sq km) – Andaman teal \*\* and salt water crocodile population
- iii) South Sentinel Island (2 sq km) – population of robber crabs and a large green turtle nesting beach
- iv) Barren Island (2 sq km)- an isolated volcano, with little closed forest cover, if the feral goats are removed islands ecological succession could be monitored.

\* Rani Jhansi MNP declared in 1993 and Lohabarrack (saltwater crocodile) sanctuary declared in 1987 were not covered in these reports

\*\* The Andaman teals moved to south Andaman due to loss of their habitat; the saline marshy land got uplifted and was dried-up after the seismic up-lift in December 2004 with no chance of inundation due to tidal influx.

## RECOMMENDATIONS

Actions needed to more effectively plan and manage PAs of the Indo-malayan realm were charted in the Corbett Action Plan for Protected Areas for the Indo-Malayan Realm (Thorsell, 1985). Though most of the national activities listed are under implementation in respect of 5 major goals set under the action plan, the first goal – aimed at having adequate representation of PAs within the Indo-Malayan realm is still is not addressed, especially for the island and coastal biogeographic zones of India. Activities which require immediate attention and with regard to scope of this book are: 1. Mapping the major habitats and their faunal communities, 2. identify where additional PAs are required and where conservation measures are required, 3. give priority for adequate conservation status to areas considered fragile and threatened, which include Andaman and Nicobar, Lakshadweep, Gulf of Mannar, and 4. providing particular attention to protecting coastal and marine areas, including identifying important marine areas.

Drawing from Rogers and Panwar (1985), Pernetta (1993) and Pande *et al.* (1991) the more important areas for biodiversity conservation are proposed by Wells *et al.* (1995). The list has been amended by the authors and is presented below.

### Proposed new MPAs:

1. Gulf of Khambhat Wildlife Sanctuary: Important for mangroves, shorebirds, green and olive Ridley turtle nesting beaches
2. Kundapar Wildlife Sanctuary and estuaries of Karnataka coast: Important for mangroves and shorebirds.
3. Palk Bay: Protection status to Sea grass habitats and coral reefs.
4. Kazhiveli Wildlife Sanctutary: Mangroves, waterfowl; lagoon and estuarine systems on the east coast of India; recommended as a Biosphere Reserve.

5. Little Andamans: 300 square kilometer National Park proposed for southwestern half of island to include turtle nesting beaches and coconut crabs.
6. Little Nicobar with surrounding islets: proposed as a National Park.
7. Great Nicobar: northern area (north of Casuarina Bay-Dogma River and Mt Thullier) to be a wildlife sanctuary.
8. Lakshadweep Archipelago (National Parks & Biosphere Reserve): Protection is urgently needed for the only coral atoll chains in India. Except the Pitti Island (Bird) Sanctuary, there are no PAs in this area. The entire Laccadive archipelago is recommend to be declared as a Biosphere reserve. The core areas in this case shall be the uninhabited islands such as Perumal Par and Pitti Islands and submerged reefs, Baliapani and Cheriapani, where, the seaward boundaries could be marked to cover the entire extent of coral reefs and notified as National Parks.

### Existing MPAs that require amendments:

9. Chilka Lake Wildlife Sanctuary Extension: Proposed extension to the existing Sanctuary to include Nanda Island and important turtle nesting beaches.
10. Point Calimere National Park: Existing coastal terrestrial Sanctuary is proposed to be upgraded to National Park, with the extension to include turtle nesting beaches and possible designation of adjacent marine areas.
11. Andaman and Nicobar Islands: Although there are more number of PAs, the marine area is not represented adequately. Marking of seaward boundaries encompassing coral reef extent and sea grass beds etc., is required for all the island sanctuaries. A group-wise amalgamation, and upgradation of many coastal and offshore islands are necessary (presented in Chapter IV) for improved management and effective protection.

The priorities include:

1. Upgrading of some Sanctuaries to Park status:
  - Narcondam Island
  - North Reef Island
  - South Sentinel Island
  - Barren Island
  - All islets in the Shearwater group, the northern Landfall group, and the east coast Table-Brush group.
2. Extension of Mount Harriet National Park to include a marine area.
3. Amalgamating the individual island sanctuaries into larger units for more efficient administration and for bringing a larger area of mangroves and coral reefs into the protected area network, which include creation of:
  - North Andaman Peninsula Wildlife Sanctuary.
  - West Rutland sanctuary to act as a buffer for the Mahatma Gandhi Marine National Park.
  - Button Islands National Park by including Outram Island and surrounding waters.

## 6. MARINE BIODIVERSITY CONSERVATION

Though human impacts on marine and coastal biodiversity are less understood and publicized than those on terrestrial systems, their potential effects are no less threatening. The major direct threats to marine and coastal biodiversity can be divided into five interrelated categories: pollution (from land based and other sources), over exploitation of marine living resources, introduction of alien species, habitat degradation caused by coastal development, and global climate change and ozone depletion. Some of the harmful human impacts on marine biodiversity stem from ignorance and lack of understanding of the importance of marine biodiversity and how it can be affected, which put marine resources on a lower priority level *vis-a-vis* land biodiversity. Unregulated use of resources, increase in demand for the resources and rapidly expanding coastal development put the marine resources at considerable risk. The belated realization of the need for action after the damage becomes apparent (and often when it is too late) perpetuates this destructive cycle. Communities that depend on marine resources face the long-term challenge of sustainability yet are often confronted with immediate economic hardship. For the developing country like India, action is hardly ever preventive, but is usually undertaken only after irreversible damage has occurred.

In the face of this increasing uncertainty, the adoption of a precautionary approach is a *sine qua non* to the conservation of marine and coastal biodiversity. The precautionary principle, which is now widely recognized as the emerging part of customary international environmental law, requires that no harmful action be undertaken until all the effects on marine and coastal biodiversity have been clearly identified and weighed against the expected benefits. Moreover, this precautionary approach should cover all the activities of past, present and future, bearing in mind the cumulative impact that these

activities combined will have on marine biodiversity.

The following are the important instruments with greatest potential for synergy with the Convention on Biological Diversity.

- United Nations Convention on the Law of the Sea, Montego Bay, (UNCLOS). Agenda 21, Rio de Janeiro, 1992.
- UN Agreement on Straddling and Highly Migratory Fish Stocks, New York, 1995, and FAO Code of Conduct for Responsible Fishers, Rome 1995.
- The UN General Assembly Drift-Net Resolution 46/15, 1991.
- UNEP Conference on Protection of the Marine Environment from Land Based activities, Washington, 1995.
- Protocol on Substances that Deplete the Ozone Layer, 1987 (Montreal Protocol).
- The Framework Convention on Climate Change, Rio de Janeiro, (FCCC).
- United Nations Conference on the Sustainable Development of Small Island Developing States, Bridgetown, 1994.
- Convention on International Trade in Endangered species, Washington, 1973 (CITES)
- International Convention for the Prevention of pollution from Ships (MARPOL), 1973-1978.
- The Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter, London, 1972 (London Convention).
- Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Ramsar, 1971 (Ramsar Convention).
- International Convention for the Regulation of Whaling, Washington, 1946 (ICRW).

**RELEVANT INTERNATIONAL  
AGREEMENTS (in place for conservation  
and management of marine and coastal  
ecosystems)**

The need to devise methods to manage and protect marine ecosystems and resources became widely recognized internationally during the course of the 1950s and early 1960s. Thus, the World Conference on National Parks (1962) considered the need for protection of coastal and marine areas, but the development of practical responses to this need required a legal framework for addressing the sovereignty and jurisdictional rights of nationals to the seabed, beyond the customary three-mile territorial sea. In 1958 three conventions, known collectively as the Geneva Conventions on the Law of the Sea were adopted: the Convention on the Continental Shelf; the Convention on the High Seas; the Convention on Conservation of the Living Resources of the High Seas. Increasing technical capability to exploit mineral resources on or beneath the seabed and to exploit fishery resources in deep waters led to the long-running Third United Nations Conference of the Law of the Sea, held between 1973 and 1982. During the 1970s there was increasing recognition and mounting concern regarding the regional nature of the environmental problems of the marine living resources of the world. In 1971, the Convention of Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention) was developed, defining wetlands to include many coastal marine habitats. In 1972, the Convention for the Protection of the World Cultural and Natural Heritage (known as the World Heritage Convention) was developed to give international recognition to areas 'of outstanding universal value'; these could include marine areas.

Also in 1972, the Governing Council of the United Nations Environmental Program (UNEP) was set up and given the task of ensuring that emerging environmental problems get adequate consideration by Governments. In 1975, IUCN conducted a

conference on Marine Protected Areas in Tokyo. The report of that conference noted increasing pressures upon marine environments and called for the establishment of a well-monitored system of Marine Protected Areas representative of the world's ecosystems. In 1981, a workshop was organized as part of the UNESCO Division of Marine Science COMAR (Coastal and Marine) Program to consider research and training priorities for coral reef management. An outcome of this workshop, which was held in conjunction with the IV International Coral Reef Symposium, was the publication of the UNESCO Coral Reef Management Handbook. In 1982, the IUCN Commission on National Parks and Protected Areas (CNPPA) organized a series of workshops on the creation and management of marine and coastal protected areas as part of the III Worlds Congress on National Parks held in Bali, Indonesia.

UNESCO organized the First World Biosphere Reserve Congress in Minsk, USSR in 1983. In that meeting it was recognized that the Biosphere Reserve concept is potentially applicable to the marine environment and that an integrated, multiple use Marine Protected Area can conform to all of the scientific, administrative and social principles that define a Biosphere Reserve under the UNESCO Man and Biosphere (MAB) Program.

In 1987, the World Commission on Environment and Development (WCED) published its report "Our Common Future", which highlighted the importance of marine conservation. In November of the same year, the General Assembly of the United Nations welcomed the WCED report. At the same time, it adopted the "Environmental Perspective to the year 2000 and Beyond", which was developed by UNEP in tandem with the WCED report. In 1988 UNEP AND IUCN published the three volumed "Coral Reefs of the world", a global directory of coral reefs prepared by then IUCN Conservation Monitoring Center. These and other publications have highlighted the serious threats, which confront marine areas around the world.

The Convention on Biological Diversity is a legally binding agreement opened for signature at the Earth Summit in Rio de Janeiro in 1992. Over 145 countries are Parties. The Convention's objectives are the conservation of biological diversity (biodiversity); the sustainable use of biodiversity's components; and the equitable sharing of benefits derived from genetic resources. The Convention defines biodiversity as 'the variability among living organisms from all sources, including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystem'. Under the Convention, each Party is required to protect components of coastal and marine biodiversity within its national jurisdiction. As defined by the law of the sea, embodied in the United Nations Convention on the Law of the Sea (UNCLOS), coastal States can exercise jurisdictional rights over vast areas of the marine realm, including inland waters, the terrestrial sea, the contiguous zone, the exclusive economic zone (EEZ), and parts of the continental shelf.

Action in the following eight general categories will be critically important in the application of the Biodiversity Convention to the marine and coastal realm. The first five areas are those identified in the Jakarta Mandate (see below). The last three actions aim to support implementation of the Mandate. While these eight areas of action are priorities in most marine and coastal ecosystems, each Party will select or develop its own means of implementation and priorities within these eight areas. The action items are the following:

1. Institute integrated coastal area management (ICAM)), including Community-based coastal resource management, and prevention and reduction of pollution from land-based sources;
2. Establish and maintain marine protected areas for conservation and sustainable use;
3. Use fisheries and other marine living resources sustainably;

4. Ensure that mariculture operations are sustainable;
5. Prevent introduction of and control or eradicate harmful alien species;
6. Identify priority components of biodiversity and monitor their status and threats to them;
7. Build capacity to study and share the benefits from marine genetic resources;
8. Take responsibility for transboundary harm and global threats to marine biodiversity.

Action Items 1 to 5 correspond to priorities identified in the Jakarta Mandate adopted by the second Conference of Parties (COP) in 1995. Action Items 6 through 8 are recommended, as actions needed to support the first five items. These ambitious set of actions reflects the Biodiversity Convention's comprehensive approach that seeks conservation and development in every sector that affects biodiversity. Implementing these actions will require major changes in policies and programs in all Parties to the Convention, both developed and developing. Many countries, however, have very limited resources to devote to reshaping policies and institutions for sustainable use and conservation; this is especially true for developing countries.

### **CONSERVATION ACTIONS, THREATS AND PROBLEMS**

India has signed and ratified several international conventions relating to oceans and related activities. The important ones are the following: MARPOL 1973/1978; London Dumping Convention 1972; Convention on Civil Liability for Oil Pollution Damages (CLC 1969) and its Protocol 1976; Fund 1971 and its Protocol 1979 and Convention on Biodiversity (1992). Besides, many acts and rules related to coastal and marine activities exist in the country. The following are the important ones. Indian Fisheries Act 1897 and its Amendments 1920 and 1980; Indian Ports Act 1902; Merchant Shipping Act 1974; Wildlife (Protection) Act 1972; Water (Prevention and Control of Pollution) Act

1974; Indian Coast Guard Act 1974; and Marine Zones of India (Regulation of Fishing by Foreign Vessels) Act 1981 and Environment Protection Act 1986.

As per the Coastal Regulation Zone (CRZ) notification, 1991 the coastal states must prepare a Coastal Zone Management Plan identifying and classifying the CRZ areas within 1 year from the date of CRZ notification (Ministry of Environment and Forests Notification, August, 1994). The CRZ notification also stated that during the interim period till the coastal zone management plans are prepared and approved, all developments and activities within CRZ should not violate the provisions of this notification. As per the CRZ notification and as per Environment Protection Act, 1986 the following activities are banned in the land part of the country.

1. Setting up and expansion of new industries, fish processing units except those, which require waterfront.
2. Manufacture or handling or storage of disposal of hazardous substances and discharge of untreated waste and effluents from industries, cities or towns and other human settlements.
3. Dumping of fly ash from thermal power stations and other solid waste dumping.
4. Land reclamation, bunding or disturbing the natural course of seawater.
5. Mining of sand, rocks and other substrate materials other than raw minerals.
6. Drawal of ground water within 200 m of high tide level.
7. Any construction activity between the low and high tide line, and
8. Altering of sand dunes and other natural features including landscape changes.
9. In the ecologically sensitive areas, construction of civil and other man-made structures like breakwaters for harbour, floating industries, laying of pipelines,

reclamation of sea and its bed, sea bed mining and ship breaking activities are prohibited. However, they can be permitted at a no-impact distance from the outer limit of Environmentally sensitive areas.

10. Discharge of untreated and treated domestic, industrial, aquaculture wastes, nuclear and thermal power plants, dredged materials and operational discharges are prohibited in environmentally sensitive areas.

Although marine ecosystems have a larger coverage than the other ecosystems these are poorly represented among world's protected areas. Only 100 of the 1162 National Parks of United Nation List include or adjoin reef ecosystems. In India, only seven out of the 504 protected areas (National Parks 86, Sanctuaries 448 and Biosphere Reserves 7) are with reference to marine ecosystems. These are Gulf of Mannar Marine National Park and Biosphere Reserve, Gulf of Kachchh Marine National Park and Sanctuary, Marine National Park of Andaman and Nicobar Island (Mahatma Gandhi Marine National Park) Rani Jhansi Marine National Park, Lohabarrack (salt water crocodile) sanctuary, Gahirmatha Marine Sancturay and Malvan Marine Sancturay. The protected areas (a total of about 102) of the Andaman and Nicobar Islands cover substantial areas of marine waters also.

Despite the above mentioned acts and regulations marine ecosystems in India are subjected to over-exploitation of their resources, besides pollution from land-based sources as population influx and increased tourism to some the coastal areas causing indiscriminate destruction of marine resources. Recent spurt in aquaculture activities increased the demographic pressure and the related environmental manipulation. All the above mentioned reasons leads to biodiversity conservation problems in India which may be reduced by taking examples from other regions of the world where the marine ecosystem representation at a larger scale is reflected in the protected area networks.

## 7. STRATEGIES FOR CONSERVATION OF MARINE ECOSYSTEMS OF INDIA

“The future historians of science may well find that a crisis that was upon us at the end of the 20<sup>th</sup> century was the extinction of the systematist, the extinction of the naturalist, the extinction of the biogeographer-those who would tell the tales of the potential demise of global marine diversity”.

*Carlton (1993, p.507)*

Thirst for understanding changes in marine biodiversity resulting from human activities, calls for ecological and oceanographic research spanning a broad range of spatial scales, from local to regional, and over approximately long time scales for capturing the dynamics of the system under study. This is now possible because of recent technological and conceptual advances within the ecological, molecular, and oceanographic sciences.

A well-defined set of biodiversity lessons learnt in other regions of the world is proposed for implementation in several different types of regional-scale marine ecosystems. These ideas will permit meaningful comparisons across different habitats of the causes and consequences of changes in biodiversity due to human activities. This lesson requires significant improvement in taxonomic expertise for identifying marine organisms and documenting their distributions, in knowledge of local and regional natural patterns of biodiversity, and in understanding of the processes that create and maintain these patterns in space and time.

Biodiversity Conservation in India can be best managed by the following guidelines:

- Clear understanding of what is valuable
- Application of anthropogenic objectives of maintaining biodiversity so that it is of actual or possible value to humankind.
- Local people priority recognized
- Biodiversity Conservation practiced with a

precise definition and with clear targets.

- Need for rapid expansion in taxonomy in order to interpret, manage, conserve and use biodiversity sustainably and need to pull together existing data from all sources by forming an information network of all agencies in the country.
- Knowledge about the extent and state of biodiversity is necessary to understand the measures of Biodiversity Conservation.
- Priorities for Biodiversity Conservation need to be identified based on what values are important, which genes/species/habitat, how much biodiversity should be conserved and how should biodiversity be conserved.

The pressure on natural habitats associated with increasing population and economic growth will continue to lead to the loss of biological diversity. Recognition of the scale of problem, the nature of the underlying causes, and the limited resources available to counteract powerful destructive trends will definitely lead to a best way of conserving the Biological Diversity of the Marine Ecosystems of India.

### **A. BETTER UNDERSTANDING OF INDIA'S COASTAL, CONTINENTAL SHELF AND ADJACENT OCEAN BASINS**

The coastal tract constituting the land-water interface represents the most fragile and changing lands on the earth. The natural processes active in the coastal region are altered often by human interventions, which in turn affect the marine biodiversity. In fact, the protective measures like break-waters, jetties, groins and sea walls change the natural character of the coastal processes. The studies on coastal dynamics rest on a) stratigraphic evidence, b) geomorphic evidence, c) geodetic evidence and d) historical evidence. Investigation of the coast, continental shelf

and adjacent ocean basin thus comprises a) determination of sea-bed configuration in the off-shore region, b) determination of stratification of sea floor materials, c) physical properties of the sea-bed and d) coastal materials including the sediment character. Coastal lands and sediments are in fact constantly in motion. Breaking waves transport the sand along the coast. They also transport the eroding sand from one area and deposit on another adjacent beach. Tidal cycles carry sand onto the beach and bring it back to the surf. Sediments are carried to the coast by rivers which results in building deltas into the open water. Storms cause deep erosion in one area and leave thick over wash in another. The coastal dynamics are also affected by natural processes, which change the water level. The knowledge of the dynamics and mineral and biological resources of the coastal, shelf and ocean basin throughout the Indian territory is highly variable with greatest knowledge in those areas that have not only been subject to exploration for oil and gas but also for the fishery and biodiversity point of view. It is estimated that there are likely to be substantial undiscovered mineral as well biological resources in coastal, continental shelf and deepwater areas beyond those currently economic for exploration. To develop the knowledge base and reduce risk in resource exploration, India needs to continue to explore its continental shelf.

### JUSTIFICATION

1. Practically the whole of the conventional fisheries lie in the shelf area
2. All exploitable placer deposits lie in this area. By implication, mining for these placer deposits will affect benthic and possibly neritic biodiversity
3. Critical ecosystems like coral reefs and islands are on the shelves
4. Shelf hydrography exemplified by upwelling and coastal currents condition the marine environment and by extension the biodiversity therein.

### STRATEGIES

- To develop and implement a programme of systematic research to investigate the framework of the entire continental margin, using appropriate vessels and a full range of geoscientific tools, in order to define its gross structure, crustal character and tectonic elements;
- To investigate the distribution, architecture and evolution and crustal dynamics of India's continental shelf sedimentary basins;
- Develop new models describing the evolution of the continental shelf and the adjacent ocean basin and their interaction with the biodiversity.

**Principal Organisations:** Geological Survey of India, National Institute of Oceanography, Department of Ocean Development and Zoological Survey of India.

### B. MAPPING INDIA'S SEABED

The information on the form and nature of the seabed and associated benthic ecosystems and an understanding of the processes operating and below the seabed are fundamental to the development of our offshore petroleum, fishing and aquaculture industries and are also needed for seabed minerals exploration, defense and conservation.

The form and nature of the seabed are not adequately known for the majority of the Indian coastal areas. The data are only available along profiles that are frequently some kilometers apart. There is a need for the coordinated and systematic collection, analysis and archiving of bathymetric data, seabed core samples, seabed habitat and biodiversity data from areas throughout the Indian waters, but more generally to generate the knowledge base that we need to understand, sustainably develop and manage our marine resources.

Most human exploitative activity is located on the shallow continental shelf (less than 300 m water depth), but this largely is uninformed by relevant seabed data. The

coverage of suitably detailed bathymetry and substratum data is inadequate, and the coverage of maps of biological habitat types amounts to less than 2% of the shelf area. Mapping seabed habitat poses many challenges. A few areas of India's coastline have been surveyed and mapped to show where different marine habitats are, while even less has been mapped to show the type, distribution and vulnerability of the life they support.

In addition, a large amount of shallow-water bathymetric seabed mapping information already exists which could, if integrated with biota, provide detailed information on the nature and structure of much of India's continental shelf. However, the data sets have been collected using different specifications, are stored in different forms and reside with various government agencies (Naval Hydrography and Geological Survey). If we are to plan adequately for the further exploration, coastal development and multiple use management of our offshore areas, a better understanding of the topography of those areas is basic. An initial step in this respect would be to collate, and digitize into a standard form, the offshore seabed data sets that are already available. The output of such an exercise, a digital mapping database, would facilitate much wider access to this information, and be a valuable national resource. The database should provide a whole view of maritime jurisdiction, focused on providing baseline information for sustainable resource development and utilisation, coastal and offshore planning and environmental management. It would contribute also to the avoidance of major mistakes.

There is an associated need to develop common standards and formats for recording data collected by different mapping techniques. Useful seabed mapping technologies include satellite imagery (for sea surface and seabed to depths of approximately 20 m), Laser Airborne Depth sounding (for bathymetry to a maximum of 50 m in clear water), multi-beam sonar swath

systems (for three-dimensional bathymetry mapping), acoustic signal processing systems (for classification of seabed type), and rapid deployment sampling devices such as videos, dredges and grabs (for recording biological habitats and representative specimens as indicators of biodiversity). Such work requires appropriate levels of research, search training and the training of skilled personnel for modern seabed mapping techniques. There is a critical need to continue to develop these techniques to allow rapid and cost-efficient seabed surveys throughout the Indian coast, for resource use and conservation planning.

The most important priorities are development of common standards and formats for the handling of bathymetric data, and the capture of existing bathymetric data sets into a national digital bathymetric database, implementation of a national swath mapping program and seabed data digitization program on a priority basis determined by the regional marine planning process and the continued development of cost-effective and rapid marine habitat assessment techniques. This study would further our knowledge of the geological history of India, of its current substrates, and of the potential nature and extent of seabed mineral and biological resources and their interactions.

### STRATEGIES

- To develop and implement a systematic national program to swath-map the seabed, and to sample the seabed substrate and benthic biota of the Indian coast. For deep-water surveys, the program should include planning to obtain or access the necessary equipment and infrastructure for its implementation. In addition to swath mapping equipment, consideration of portable equipment should include a mini Remotely Operated Vehicle (ROV) and a Portable Remotely Operated Drill (PROD), to acquire samples for both geo scientific and climate change research.
- To refine and implement techniques to assess seabed environments cost-effectively

and rapidly, with habitat descriptions that combine depth, topography, sediment type, geological nature of the substratum, biological productivity, present coverage of vegetation and seabed fauna density and the type and abundance of associated fish communities.

- To develop a digitized coastal seabed mapping database containing all existing bathymetric data in standard format and to agreed specifications. This database is to be readily accessible as part of the Indian Spatial Data Infrastructure.
- To develop a coordinated research program to examine the relationship between biology and the physical environment and develop surrogates for mapping biological habitat and biodiversity. As part of this programme implement studies in each of the Indian major biomes in which both biological and geographical attributes are sampled.
- To develop and provide comprehensive information, maps and databases on the topography substrate character and benthic biota in the Indian marine coast.
- To develop standards and formats for recording seabed data.
- To develop a repository for samples of the biota associated with the seabed.
- To upgrade the storage and curation of samples in National museums and research departments.

**Principal Organisations:** Geological Survey of India, National Institute of Oceanography, Department of Ocean Development and Zoological Survey of India

### C. MAINTENANCE OF MARINE ECOSYSTEMS THROUGH SUSTAINABLE MANAGEMENT PRACTICES

The extent, diversity and regional variation in the environmental, economic and social features associated with India's marine regions are vast. Accordingly management responses to the issue need to be designed

carefully to ensure that they are addressed at the right geographical scale and within the right time frame, recognizing the importance of ecosystems and the effect that direct and indirect human activities may have on these ecosystems.

Our knowledge and understanding of mechanisms that govern the behavior of the majority of Indian marine ecosystems are poor. This is especially true for ecosystems in the open ocean and coastal regions. To have confidence that use of resources is sustainable and that ecosystems maintain their health, productivity and functionality, it is necessary to develop national environmental indicators that distinguish 'natural' variability and trends in ecosystems from change caused by human activity. Knowledge of India's marine environment is currently insufficient to meet these challenges, and must be supplemented.

India's marine zones encompass most climatic types, different depth ranges, and include many different types of ecosystems. Human uses and subsequent direct and indirect impact on these ecosystems range in scale from minimal to significant. However, there is limited understanding of how human activities affect marine ecosystems and of how managing human activities in Marine Protected Areas (an important provision of "Agenda 21") may be used as an instrument to manage for sustainability.

Improved understanding of why marine ecosystems behave as they do, how human activity affects ecosystems and organism behavior, and the utility of marine protected areas as management instruments, is needed to underpin informed and robust management of the many uses we make of our maritime zones.

Proper mapping and monitoring is necessary to develop national resources for facilitating coastal planning decisions, reducing uncertainty for industry, and increasing certainty for conservation objectives. It is also important to improve our understanding of land-sea interactions and the role these play in ecosystem dynamics. In

this regard, there is a strong need to develop an integrated approach to land, freshwater and marine research, monitoring and management. A truly comprehensive monitoring and information system should integrate economic and social data to maximize its usefulness as a management tool.

In the Antarctic marine environment, the Schirmacher Oasis at the Princess Asterid Coast, is an area that India manages within an agreed international framework. The primary agreements are the Antarctic Treaty and associated international conventions such as the Convention on the Conservation of Antarctic Marine Living Resource (CCAMLR) and the Madrid Protocol Environment.

### PRIORITIES

1. Specific areas where improved knowledge is needed are:
2. Quantifying patterns of natural variability and change in marine ecosystems and elucidating the mechanisms that cause this variability.
3. Developing techniques for monitoring human impacts and controlling human activities affecting the marine environment, particularly in the more remote areas of the ocean;
4. Determining the effect on ecosystems of introduced marine species, loss of habitats, and harvesting of marine resources, and potential changes from other uses of the ocean;
5. Determining the effect of shipping on the marine environment, particularly in relation to the risk of introducing harmful marine organisms via ships' ballast water and on ships' hulls;
6. Understanding the effect of aquaculture and fishing activities on marine systems, and the means to minimize impacts;
7. Studying the movements and effect of pollutants, including oil and chemical dispersants, on ecosystems;
8. Determining the cycling of nutrients and toxicants between the water column, sediments and biota;
9. Identifying vulnerable species, habitats and biological communities, and their occurrence, distribution and conservation requirements; and
10. Determining the utility of Marine Protected Areas (MPAs), and zoning strategic such as 'no-take' areas within MPAs, in sustaining and restoring marine biodiversity, including fisheries.

### STRATEGIES

- To conduct integrated, multidisciplinary research programs in marine ecosystems;
- To increase knowledge and understanding of the structure and dynamics of Indian marine ecosystems on a regional scale;
- To provide a strategic and conceptual framework within which local research can be conducted;
- To provide a framework for assessment of ecological impacts;
- To standardize sampling schemes across ecosystems;
- To provide the knowledge base to implement integrated ecosystem management practices, including addressing the impact of land-based activities on the marine environment;
- To improve capacity to identify, monitor and assess the impacts of use on marine ecosystems, including multiple and sequential uses by existing and emerging industries;
- To develop, implement and evaluate appropriate indicators of ecosystem function to monitor the condition of ecosystems;
- To develop, implement and evaluate monitoring strategies to assess trends in ecosystem integrity and the effectiveness of management measures;
- To encourage development and use of new and cost-effective monitoring methods and technologies;
- To establish baseline data sets through existing and new monitoring programs, and commence new programs in areas of

highest human impact, such as coastal and near-shore waters;

- To develop methods of regional environmental assessment incorporating analysis of risks to regional environmental health from various uses or events;
- To maintain 'state of the marine environment reporting' linked to overall state of the environment reporting, involving mapping and monitoring of the major regions of our marine region, at the level of major physical processes (ocean climate, seabed geology), and major ecological communities;
- To assess the severity of existing threats to the structure and function of marine ecosystems, including mineral extraction, fishing pollution, containments, habitat alteration, terrestrial activities, and introduced marine species;
- To continue to utilize marine radio tracer technology in monitoring sediment movements in near-shore zones;
- To identify potentially threatening processes, threatened species and their habitats and direct further research toward critical problem groups;
- To identify unique or vulnerable habitats and communities, and those representative of typical marine habitats for biodiversity protection;
- To assist in the development of generic guidelines for the management of Marine Protected Areas, and evaluate the effectiveness of MPAs for resource sustainability; and
- To enhance socio-economic research to incorporate human-use information more effectively into evaluations of strategies for MPA management.

**Principal Organisations:** National Institute of Oceanography, CAS Marine Biology, Zoological Survey of India, Ministry of Environment, Zoological Survey of India, Botanical Survey of India, Coastal State Government Departments, Universities and NGOS

#### D. UNDERSTANDING THE IMPACT OF LAND-BASED HUMAN ACTIVITIES ON THE MARINE ENVIRONMENT

**The Dynamic Earth System:** Nature as whole is a finely balanced system. Each and every process that occurs on land, sea or atmosphere is interrelated and interdependent. Any change in one process has its impact on other processes, causing significant environmental changes. Continents and oceans are two parts of a continuous system, existing in equilibrium with each other. The two environments are intimately connected since they in fact interchange themselves during geological periods. Study of plate tectonics tells us that oceans are created, they grow in size and finally are consumed and so do continents. The evolutions of landforms in the continents are directly related to changes in oceanic regime, by way of transfer of material from land to sea, isostatic adjustments, shore-line processes etc. The various geological agents cause transfer of material - in solid, liquid or dissolved form - from land to sea. Such natural processes are an ongoing part of the earth's dynamic system.

**Interruption of the Natural Processes:** Any interruption of the natural processes leads to imbalances in the system is it on local, regional or global level. Man is the primary agent causing such imbalances through a variety of activities, on land, along the coast, or offshore. Some of the more important interruptive activities leading to environmental backlash are discussed in the following paragraphs.

**Impounding of Surface Water:** Construction of large dams lead to phenomenal growth in food production across the world and in the economy of many a country. In fact they form the backbone of the national economy of countries like India. However they do have a negative impact on the oceanic environment in the short run and possibly on the global environment (including on land) in the long run. The flow of water in rivers to the sea is a normal and natural

occurrence. It is also an essential part of the natural balance. The river water supplies sediments, fresh water and dissolved solids to the oceanic regime. This sediment load is instrumental in maintaining and prograding the coastal topography as well as in the development and maintenance of beaches.

Cessation of sediment supply seriously affects delta formation. This often causes seawater incursion inland through the river channels, causing salinity problems. Reduction in sediment supplies also affects the fertility of the alluvial soil in the flood plains served by the river system, due to reduction in organic material supply along with the reduced sediment supply.

Non-availability of sediments also significantly affects beach formation and growth. A normal supply of sediments helps maintain a beach because these sediments brought by the river are redistributed along the coast by the coastal currents; a well-formed beach is an excellent dissipater of wave energy, which is essential to avoid coastal erosion. Sea waves breaking on a hard compact shoreline (in the absence of sandy cover) will cause erosion because the energy will be used to loosen the rock material along the coast. Thus a well-formed beach acts as a buffer zone between the land and an ingressing sea and for this a continuous supply of sediment is essential.

Studies have shown that construction of dams across rivers has greatly reduced the sediment supply to sea. The beaches along coastal California have been seriously affected by the construction of dams and sediment supply declining by as much as 50%. Construction of the Akoso dam in Ghana has apparently induced faster coastal erosion to the extent of nearly 15m per year. The supply of fresh water is of considerable importance in maintaining a healthy coastal environment. Periodic inflow of fresh water helps maintain the quality of groundwater as well in the coastal belts. Fresh water debouching to the sea, often considered as a wasteful flow, is an important aspect of the coastal environment. A majority of life-sustaining nutrients, as well

as life-giving oxygen, is supplied to the coastal waters by this incoming fresh water. With a decline in this essential input, the biotic environment of the coastal seawater deteriorates, leading to drastic reduction in marine life. Studies have shown that the contraction of the Aswan high dam has resulted in significantly lower fish catch along coastal Mediterranean waters.

Addition of fresh water is also required to maintain optimum salinity conditions in the coastal waters. Impounding of river waters feeding the Caspian and Black Seas caused a significant increase in the salinity of these water bodies. It is estimated that commercial fishing has seen a decline of as much as 90 % in these two areas. Studies in the mouth and contiguous coastal belt of the Indus River have revealed that reduced input of fresh water (by as much as 80 %) has led to the mangroves in the areas being badly affected.

The reduction of marine life in oceanic water has an important bearing on climate change / global warming as well. The healthy water bodies are known to be effective sinks for atmospheric carbon, as the CO<sub>2</sub> in the air is fixed by the organisms. Decline in life activity due to non-availability of nutrients will lead to increased CO<sub>2</sub> content in the atmosphere, which is a harmful environmental condition.

Thus it is seen that the activity of man, particularly in altering natural processes and systems, has a definite and significant negative impact on the marine environment. This discussion, however, is not an argument against development but is only intended to highlight some aspects of environmental degradation.

To develop our capacity to minimize the impacts of land-based human activities, we must understand the linkages between terrestrial and marine ecosystems, how these links vary in space and time, and what environmental processes govern change.

India's population density is increasing rapidly and the coastal communities create pressures on the marine environment through

activities including coastal clearing and construction, recreation, domestic and industrial waste-water disposal, storm water and agricultural drainage, shipping, fishing and aquaculture. Land clearing for agriculture, especially in topical catchments, has accelerated erosion and the amount of sediment reaching the estuaries and ocean. In some places, this has caused reduced water quality and the smothering of marine plants and animals by mud.

The major human impact in coastal water is increased nutrients, introduced mainly by rural and urban runoff and sewage disposal, and exacerbated by reduced water flow caused by dammed rivers and breakwaters. High nutrient levels cause changes in the ecological balance and may lead to harmful algal blooms. Other major impacts are sediment runoffs and the introduction of toxicants, which may be damaging to both ecosystems and human health; and the physical destruction of habitats - for example, mangroves and seagrasses - through the construction of ports and other coastal facilities.

In the coastal environment, nutrients undergo complex chemical and biological cycling in both the water and sediments. Nutrients and toxicants are carried by water currents and may be stored in sediments. Toxicants may accumulate and magnified in fish.

Elimination of sources, particularly of nutrients, is impossible in the near future. Our major coastal cities all have sewerage systems focused on marine outfalls. Urban and rural runoff is difficult, and expensive, to control. The biological productivity of coastal waters is dependent on the delivery of nutrients by coastal rivers and subsequent removal or recycling by agrochemical and biological processes. These processes are strongly coupled to the physical oceanographic environment, which also plays an important role in determining the impacts and fates of land-based pollutants, including sediments and nutrients from agricultural land.

## PRIORITIES

At a national scale, the largest source of land-based inputs to the marine environment is from agricultural activities. At local scales, the inputs from coastal villages and towns are significant. At both scales, priority needs to be given to determining the sources of this input, assessing the relative importance of different inputs to different marine environments, designing cost-effective methods to minimise the most significant inputs, and evaluating the success of these measures. India's Ocean Policy should include a Government commitment to the development of national marine and estuarine water quality standards. The development of the scientific basis for such standards will be a high priority, recognizing that the appropriate standards will be different for different ecosystems and geographical areas.

## STRATEGIES

- To develop techniques to distinguish sources of nutrients, including diffuse (runoff) and point (outfall) sources;
- To identify land use practices, which generate pollutant runoff, and the soil and climatic conditions in which those practices occur, and combine terrestrial and coastal marine regional management in an integrated ecosystem management framework;
- To develop a strategic approach to assessing the impacts of coastal zone development on the marine environment;
- To study the responses of marine populations and ecological processes to the various land-based inputs, especially runoff of nutrients, sediments and containments from agricultural lands, and urban pollutants, including wastewater and sewage
- To conduct studies of the processes of nutrient cycling in both water and sediments, including the role of physical dynamics;
- To conduct algal bloom research;
- To further develop nutrient and

phytoplankton dynamic models to support scenario prediction and management decisions;

- To conduct ecotoxicological studies of the impacts of major toxicants on specific ecosystems, including the potential for chronic and bioaccumulative effects;
- To identify effective and efficient techniques for monitoring the dispersion patterns and impacts of the major sources of land-based pollution on coastal environments;
- To conduct further research on wastewater reuse options, and investigate and map opportunities for wastewater reuse at coastal discharge sites;
- To continue assessments of the potential geographic extent of acid sulfate soil runoff, and assist in identifying remedial strategies and rehabilitation projects and evaluating the success of such projects;
- To provide the scientific basis for water-quality standards for marine and estuarine waters in India, recognising that the appropriate standards will be different for different ecosystems and geographical areas; and
- To evaluate the cost-effectiveness of the various approaches used to reduce land-based inputs to the marine environment through biophysical, social and legal research.

**Principal Organisations:** National Institute of Oceanography, Central Marine Fisheries Research Institute, Fisheries Colleges, Agricultural Universities, Zoological Survey of India, Ministry of Environment and Forests, Town Planning Departments, Pollution Control Departments, Universities and NGOs.

**E. TO PROVIDE THE SCIENTIFIC BASIS FOR THE PLANNING AND IMPLEMENTATION OF SUSTAINABLE MULTIPLE-USE MANAGEMENT PRACTICES IN THE MARINE ENVIRONMENT**

Many competing activities take place in the varied regions that comprise our marine environment. They include shipping and

transport; resource use and development; aquaculture; effluent and waste disposal; the operation and laying of submarine cables and pipelines; tourism and recreation; and scientific research. These uses interact with one another and the ecosystems, but conventionally, management programs for our marine environment and its resources have been individually focused on each user sector.

India's Ocean Policy should recognize that managing our oceans on an industry-by-industry basis would not be sustainable in the long run. Activities such as tourism, shipping, aquaculture, coastal development and petroleum production must be collectively managed to be compatible to each other, and with the ecological health of the ocean. The government should be committed to each other based on planning and management for multiple uses of our oceans. This commitment will be implemented by linkages between different sectors and across jurisdictions.

Four fundamental principles *viz.* 1. Ecosystem integrity 2. Wealth generation and resource use 3. Equity and 4. Participatory decision-making underpins multiple use management. A key in multiple-use management is recognising, and considering in decision-making, the full range of uses and their impact on marine ecosystems. The successful implementation of multiple-use management will require stakeholders to meet objectives and performance measures which are based on these principles and which are related to ecologically meaningful units and regions. To be 'ecologically meaningful', these areas must be defined to recognise and accommodate the hierarchy of spatial and process and ecosystems linkages. Ecosystems have complex dynamics that are poorly understood, and scientific support for decision-making must include both explicit treatment of uncertainty, and the development of robust adaptive management strategies to link monitoring observations to the decision process.

- Successful multiple-use management relies on further strong scientific support

- Objective definition of ecologically meaningful regions for multiple-use management of the Indian marine regions;
- Objective identification of both the benefits and impacts of use;
- Predicting the propagation of impacts through the ecosystem;
- Objective evolution of the socio-economic and biophysical benefits and costs of proposed management initiatives;
- Other strategies to achieve sustainable wealth generation in a regional ecosystem context; and
- Protection of biodiversity and ecosystem integrity.

Adoption of multiple use and sequential-use resource management will require a regional capacity for resource assessment, which must involve integrated scientific research support. This identifies the need for a scientific framework to provide a basis for decision making that takes into account multiple-use objectives, utilises available knowledge of marine ecosystems, quantifies the uncertainty in impact prediction and identifies adaptive management strategies that can respond to future monitoring and research.

### PRIORITIES

Definition of the ecological units for multiple-use management;

- Understanding the interacting socio-economic and biophysical trade-offs associated with use;
- Development and application of scientific and socio-economic methodologies for evaluating alternative management strategies (including strategies based on Spatial zoning);
- Extension of the scientific methodology for visualizing information, assessing resource use and alternative management scenarios from single-sector to multiple-sector and ecosystems application; and
- Demonstration of practical scientific

support for multiple-use management through some selected case examples.

### STRATEGIES

- To survey and define the main regional ecosystems in India's oceans, including critical habitats
- To assess the economic, environmental, social and cultural values of ocean resources, and assess the impacts of proposed uses from both land-based and sea-based activities on those values.
- To establish a series of demonstration studies, in selected regional ecosystems, developing the scientific basis for multiple-use management, and make this available to regional industries and managers.
- To provide the infrastructure required responding to the research needs of multiple-use management.
- To develop a scientific methodology for visualising and evaluating the biophysical consequences and social benefits and impacts of prospective multiple use management strategies, including adaptive strategies and strategies that use spatial or temporal zoning for use and for conservation areas.
- To define and apply a series of ecosystem and industry sustainability indicators;
- To use Marine Protected Areas reference regions for biodiversity in developing and implementing sustainable multiple use regimes in the marine environment;
- To develop coupled biological-oceanographic models to assess the effect on regional ecosystem processes and ecosystem biodiversity and integrity, and to predict the propagation through ecosystems.
- To investigate the impacts of land-based and sea-based uses, and the interactions between uses; and to facilitate cross-sectional, cross-disciplinary interactions among the scientists; managers and stakeholders involved with marine

industries and conversations via the Regional Marine Steering Communities.

**Principal Organisations:** Ministry of Environment and Forests, Department of Ocean Development, Department of Biotechnology, Department of Science and Technology, Central Marine Fisheries Research Institute, National Institute of Oceanography, State Forest and Fishery Departments.

**F. REDUCING OFFSHORE  
PETROLEUM POLLUTION AND  
PROMOTING PERIODIC  
ENVIRONMENTAL MONITORING**

Offshore Oil Drilling in Indian Waters began in 1973 and the first oil strike was made in 1974 in the Bombay High structure in the Arabian Sea. Since then about 800 exploration wells and about 1000 development wells have been drilled. So far exploration has been undertaken up to water depths of 200 meters only, with a few extending upto 400 meters in recent days. But the emphasis is particularly moving towards deep-water exploration and seismic and other surveys are carried out upto 3000-meter water depths. In recent years the offshore petroleum industry has been seen picking up their activities as several successful explorations have resulted in oil / gas field developments with substantial successful production facilities. Also this has motivated oil companies to enhance more and more drilling activities offshore. In the process they can also lead to considerable environmental damage to the marine environment due to various pollutants discharged from these activities. Sometimes the effect of pollution could be too severe and irrecoverable unless they are periodically monitored and corrected in time.

In this, an attempt is made to discuss the following: 1. Various pollution-causing events to the marine environment by offshore petroleum operations. 2. Statutory requirements to monitor and control pollution levels and 3. Marine monitoring methods are generally adopted around offshore operations.

**IMPACT OF PETROLEUM  
OPERATIONS ON THE MARINE  
ENVIRONMENT**

Pollution of the marine environment by petroleum operations could be possible during drilling, production, storage and transportation operations. Low-level hydrocarbons from offshore operations have been recognized as having long ecological consequences even when there are no visible evidence of acute effect. However major oil spills on the sea will tend to accumulate in the proximity of the shallow regions and could confound issue resultant from rapid emulsification. There have been major research efforts focused for over two decades on determining the acute toxicity of drilling fluids / drilling cutting and water soluble fraction of crude oil from offshore operations and its biological effects in the sea.

However periodic monitoring by way of sampling and analysis of the water column and seabed will greatly help to track the effect of chronic impregnation of various pollutants from the ongoing operations.

**Pollution during Drilling**

The main pollutants during offshore drilling are the drilling fluids and the drilling cuttings. During drilling operations, drilling mud is used as drilling fluid, which is essential to cool and lubricate the drill bits and carries the cuttings generated to the surface. Also it forms a protective coating on the sides of the well and provides the primary means of controlling the pressure in the formations by balancing any pressures encountered in the well with the weight of the drilling fluid. The composition of this fluid depends on the geology of the well and may be adjusted as drilling progresses across different depths. There are two main types of drilling muds generally used: 1. Water Based Muds (WBM) and 2. Oil Based Muds (OBM).

Water-Based Muds contain 40 - 70 % water and other components such barite, bentonite, lignite and lingo sulphonate. The discharge of WBM cuttings may risk the

benthic fauna primarily through burial or smothering after deposition on the seabed. The extent of the area affected is dependent on the water depth and current speeds. In high-energy environments, there may be little to no area effected as the cuttings are rapidly dispersed during descent.

Recovery of the affected area begins soon after completion of drilling. Field data suggests that any elevated heavy metal concentrations associated with deposited mud will return to background within 6 months and recovery of the seabed take place within 2 - 6 months. Oil-Based Muds have been used in the past for their better performance against difficult drilling conditions compared to other mud systems. However, with increasing evidence of significant environmental effects, the use and discharge of oil-based muds has decreased and in some countries, including India strict controls introduced on the use and discharge of OBM.

Drill cuttings of water-based mud shall have to be thoroughly washed / cleaned before disposal. Drill cutting of oil-based muds /cuttings from hydrocarbon-bearing formations shall have to be washed to the extent of removing oil upto the allowable oil levels in the drill cuttings before disposal. Selection of more toxic muds (WBD or OBD) and inadequate washing methods before disposal of drilling fluids / drill cuttings can result in damaging the marine environment.

### Pollution during Production

Typically an offshore production facility will draw crude oil through sub sea lines from a number of wells and discharge the processed oil to a storage vessel moored to SBM. From a properly designed and engineered system there will not be any pollution to the sea during routine operations. However lack of inadequate operating controls and procedures may lead to pollution from discharge of produced water, beck washings, bilge water, ballast water and process leaks. Major oil pollution is possible during emergencies like sub-sea line failures, export oil failure, SBM failures, vessel accidents, etc.

### Pollution during Storage and Transportation

Normally crude oil produced for several days will be stored in a floating storage vessel limited by its capacity. When the storage reaches the capacity, an off take vessel will be mobilized to transfer oil from the storage vessel and transport it to an assigned port for delivering the oil to refineries. Spilling of oil into the sea is also possible during pumping of oil from the storage vessel to the off take vessel. If the oil field happens to be located close to the shoreline it is also possible to pump the oil to onshore storage tanks through sub-sea pipelines. Possible leaks en route through the pipelines might also be contributing towards marine pollution.

#### STATUTORY REQUIREMENTS ON MARINE MONITORING

The following statutory requirements are generally imposed on the offshore operators towards protection of the marine environment:

- Well-wise data on quantity of drilling fluids /muds and cuttings generated, slurry volume, slurry properties (practical size distribution, temperature, viscosity, solid content, weight, etc.,) are to be submitted periodically.
- Static sheen test or any other approved test for the drilling fluids and drill cuttings that are discharged to the sea are to be performed to ensure that there is no discharge of free oil into the sea. Strict compliance with a maximum discharge standard of 40 mg / 1 oil content should be ensured.
- An adequate number of monitoring stations within an area of 400 meters around each of the drilling rig / processing platforms, the point of discharge of drilling muds and drilling fluids are to be set up and the water column and the bottom sediments are to be monitored as per standards. Usually analysis of relevant parameters including chemicals, heavy metals, petroleum hydrocarbons, etc., in water, sediments and their concentration

level in sediments of fauna, flora and fish tissues etc., will be required.

- The produced water is to be regularly and periodically monitored before and during the discharge into sea. Oil spill control centres at vulnerable areas are to be established to mitigate high pollution damage potential. Adequate infrastructure facilities like booms, skimmers, chemical dispersants, etc., shall be provided. Efforts should be made to contain oil slicks within 500 meters of each of the installations.

Sometimes the authorities can also ask for a Marine Impacts Assessment to study the effect of particular operations on the marine environment. The study may cover upto a specified distance around the operations (say 5 to 10 km) and include the parameter such as water, sediments, sediments on marine biota / fish tissues, population of different marine species etc. Also, sampling and analysis of different parameters in sensitive ecosystems like mangroves, coral reefs, estuaries, etc., will also be asked for.

### MARINE MONITORING PROGRAMME

The overall objective of environmental marine monitoring is to assess the effect and extent of the spreading of oil, chemicals and other toxicants discharged from the offshore installation into the marine environment which could affect the marine organisms including the benthic communities.

Design of a monitoring programme should include:

- Study depending on the seasons
- Duration depending on the number of stations for sampling
- Various teams and facilities for sampling, analysis, data gathering, compilation and reporting
- Logistics arrangements
- Choice of analytical methods (chemical or biological etc)
- Quality control systems and procedures

- Documentation.

#### Baseline Study

Before commencing operations in the offshore field, a baseline marine monitoring study will be required to be carried out. The parameters obtained and the conclusions arrived in this study will be the basis for comparison of similar parameters obtained on subsequent monitoring of the same field. Quite often these baseline study reports will be part of the Environment Impact Assessment Report submitted to statutory bodies as part of the Environmental Clearance for commencing the operations in the field.

#### Frequency of Monitoring

The area in the vicinity of installations should be monitored as long as the operations are in progress. The frequency will be fixed by the statutory authorities depending on the type of field and operations carried out. It will normally vary from drilling to production operations and gas to oil among production operations. However the first survey should preferably take place during the first of the operations.

#### Restoration and Restitution Monitoring Study

If any adverse conditions on the marine environment are observed at the end of the operations, statutory agencies may direct the operator for carrying out post operation environmental monitoring programmes after a specified number of years to confirm restitution and restoration of the environment.

#### Setting up of Sampling Stations

The sampling stations are normally arranged in a grid system, which covers the installation at the centre of the axis system parallel to residual current direction. Another axis system of the grid will run perpendicular to this and form the grid. The number of sampling points and distance between them and the installation will be determined based on several variables such as depth, sea current velocities, type of sediments and type of fauna and flora at locations, etc.

The data on following parameters such as offshore Environmental Parameters, Marine Water Quality, Chemical Parameters, Heavy Metals, Biological Parameters, Marine Sediment Quality, Physico - Chemical Parameters are to be collected. A vessel cruise will have to be planned for collecting all samples from different sampling stations. Some of the analysis will be done on board and some samples will have to be preserved as per standards and procedures for analysis to be carried out onshore.

The sampling vessel should have the following facilities:

- Global Positioning System (GPS) for recording the latitude and longitude of each sampling location.
- Echo sounder for recording the depth of the water column.
- Winch for lowering and raising the sediment grab sampler.
- Anchor to hold position during the period of sampling.
- Cold storage facility for preservation of samples.

### Sampling of Water

Seawater samples will normally be collected from three depths of the water column at each sampling station. 1. Surface (within 1 meter from surface) 2. Mid depths (Approximate middle section) 3. Bottom (2-5 m above the bottom sediments). Different types of sampler are available for this purpose. Depth measurements will be made to the nearest 1 m using a digital counter attached to the pulley. Protected thermometers will be fixed on the sampler frame for measuring in situ temperatures at different depths.

### Sampling of Sediments

The sediment samples from the seabed will be collected by dropping a “grab” consisting of two buckets hinged together in an open position. On touching the bottom, the lowering rope will slacken and allow a release to operate the hinge and close the buckets together. In the process about 1.0 to 1.5 kg of sample will be hauled into the grab, which

will be pulled up and recovered for analysis.

### Sampling of Plankton

Plankton samples will be collected using plankton net of 50- $\mu$  mesh size for horizontal and surface hauls. The plankton net is towed horizontally from the cruise vessel for 10 minutes using three bridles connected to the ring of the net. While making the collection, the speed of the vessel will have to be maintained very low at 1 to 2 nautical miles per hour. After sampling, the net will be washed thoroughly. After careful removal of excess water, the plankton sample will be preserved in 5 % formaldehyde solution. For collecting plankton samples within a particular water column, different types of plankton net, such as the Heron Tranter Plankton net of 300  $\mu$  mesh size will be used.

It should be noted that during daytime when the water temperature is high and the sunlight is bright, the zooplankton migrate to subsurface water. For more realistic values on zooplankton, sampling during night hours is preferred.

### Interpretation of Results

The data collected during the study cruise and the results of the analysis of samples of seawater sediments, plankton, fishes and other biota will be tabulated under different heads. These results will be compared with the baseline study data and various sea data available from different national and international marine bodies and pollution control agencies. Interpretation will be made of different specific observations and deviations found in the results. A summary and recommendations will be made from these interpretations.

### Hydrographic Features

Parameters of seawater samples obtained such as temperatures at different locations and at different depths, salinity, pH, turbidity and suspended solids will help to find whether they are retaining the properties pertaining to that season of the sea and the homogeneity of water maintained.

### Chemical Characteristics

Nutrients such as nitrite, nitrate, phosphate and silicate are required for the growth of microscopic plants and phytoplankton. Their concentrations generally indicate the basis for the productivity of the region. Reduction in these nutrients due to pollutants discharged from the operations will require remedial actions.

The difference between dissolved oxygen content at the surface and at depth is compared. Relatively low value around the installation indicates the extent of impact of operations on water. The presence of toxicants like ammonia and hydrogen sulphides, petroleum hydrocarbons, and heavy metal concentrations will indicate the influence of operations on the seawater. Mixed surface plankton from the 60- $\mu$  plankton net will contain phytoplankton and zooplankton together with other floating impurities. In addition to quantifying the total plankton, the quality of phytoplankton and zooplankton will be also be evaluated. Constituents of zooplankton will be counted on a plankton counting chamber under a microscope. The quantity of phytoplankton is determined by the availability of biomass containing chlorophyll II - which is the plant pigment essential for photosynthesis. The quantity of total plankton and the type and quantity of phytoplankton and zooplankton should be comparable to the baseline data and earlier historical data available from marine biological institutions.

### Marine Sediment Quality

The result of sediment samples collected from different locations will give some idea on the type of seabed at the field locations and the impact of operations in the area under study. The constituents of soil such as sand, silt and clay are found out and the texture of the sample determined from the grain size analysis. Levels of petroleum hydrocarbon and heavy metal concentrations in the sediment samples in comparison to the

baseline data and the previous data available for the sea location will give indications on the influence of operations.

Microbenthos (of size above 45  $\mu$  and less than 500  $\mu$ ) will normally be available in capillaries and interstices of the bottom deposits. Macro benthos (of size above 500  $\mu$ ) includes both epifaunal and infaunal organisms. These benthos being bottom dwelling are more sedentary or slow movers and hence the worst sufferers of any type of environmental changes. Therefore they are recognised and widely used as positive accumulators and indicators of marine pollution. The quantity and type of these microbenthos and macro benthos evaluated at different locations will be compared with baseline data and earlier historical data available from marine biological institutions. However any variance in value could also be due to biological variability of the region and not necessarily due to the operations in the field. Only marine biologists could well study this.

**G. IMPROVING THE  
UNDERSTANDING OF THE  
RELATIONSHIP BETWEEN FISHED  
STOCKS AND THE ECOSYSTEMS  
THAT SUPPORT THEM**

Management of India's fisheries resources is a complex mix of central and state responsibility and, for some stocks, international conventions and treaties. India's marine fishing industries comprise wild harvest commercial operations, aquaculture, and indigenous and recreational fishing. Fisheries resources make a sustainable contribution to the Indian economy and have a high domestic and international political profile.

### PRIORITIES

There are well-established networks at the state and district levels for setting fisheries research priorities. There is a continuing need for research in support of industry and fisheries managers to promote the sustainable

use of resources, including increased knowledge of wild fish resources and fish habitats, environmental effects of fishing, stock enhancement, improved resource access and sharing mechanisms, and improved fisheries management.

In addition to these priorities there are national issues of R&D, such as the development and adoption of quality assurance for seafood products, both in terms of enhancing market value and assuring food safety. For fisheries decision to be accepted widely by the fisheries industry, it will be important to evaluate the economic and social impacts of alternative fishery management regimes. In collaboration with industry and conservationists, it will be important also to discuss and agree on co-management approaches to fisheries.

### STRATEGIES

Identify key fishery habitats and key ecosystem processes that sustain fisheries within the large marine bioregional domains;

- Evaluate natural fluctuations within fish stocks (which may occur over very long periods), and distinguish these effects from the effect of fishing, the effect of pollution, and other impacts;
- Assess the potential for and environmental impacts of stock enhancement of wild capture fisheries;
- Evaluate effects of fishing on the environment, including changes in ecosystem dynamics;
- Evaluate the effectiveness of Marine Protected Areas to enhance resource sustainability;
- Minimise the environmental impact of fishing practices such as dredging, trawling and long-lining by improving fishing techniques, developing new technology to reduce by catch, and developing new management strategies to reduce bycatch and minimise the physical impacts of trawling and dredging.
- Examine the commercial potential of some current marine bycatch species that are not the subject of conservation concerns;
- Develop new methods of post-harvest handling and storage that improve seafood quality and safety;
- Support improved fisheries management through;
- Improved fishery resource assessments of fish stocks and management strategies for important commercial, indigenous and newly emerging fisheries, including evaluation of impacts on associated and dependent species.
- Identifying causes of variability in fish stock size and recruitment;
- Identifying appropriate sustainability indicators and developing new methodologies for risk assessment and management decision rules;
- Recognizing the importance of, and accounting for, uncertainty in stock assessments;
- Evaluating various enforcement, surveillance and education strategies for competitive levels, and the cost-effectiveness of these strategies;
- Evaluating management strategy portion for resource sharing between competitive groups, the economic and social impacts of fishing industry restructuring programs and alternative fishery management regimes;
- Continue research into ways in which aquaculture can assist fisheries quality and stock enhancement;
- Continue research to minimise the impacts of waste disposal (e.g., bioaccumulation of toxins) on fisheries and the ecosystem;
- Continue research to counter the presence or further introduction of introduced marine organisms in Indian coastal wild harvest fisheries;
- Identify regional (international) presence with regard to shared straddling or highly migratory fish stocks and mechanisms to deal with them;
- Assess the relative impacts of commercial and recreational fishing on fish stocks and biodiversity;
- Support research to identify new fisheries and to establish sustainable management regimes;

- Develop recognised environmental standards for incorporation into fishery certification processes;
- Improve understanding of marine wildlife disease, parasites, pathogens and vectors and their roles in undistributed marine systems and in commercially important marine species; and
- Develop techniques for diagnosis, identification and treatment of aquatic diseases.

**Principal Organisations:** National Institute of Oceanography, Central Marine Fisheries Institute, Zoological Survey of India, Fisheries Survey of India, State Fisheries Department, NGOs and Universities.

**H. TO ENSURE THAT SHIPPING AND ALLIED TRANSPORT OPERATIONS ARE CARRIED OUT EFFICIENTLY, SAFELY AND WITH MINIMUM ADVERSE EFFECT ON THE MARINE ENVIRONMENT**

India relies heavily on shipping for the transport of goods between different States, as well as internationally, ranking as one of the largest users of shipping in the world. Because India

is one of the world's largest exporters, it is one of the world's largest importers of ballast water. Approximately 11,000+ vessels visit our shores each year, departing from approximately 650 overseas ports, and arriving at fewer than 70 ports in India. The vessels carry about 150 million tonnes of ballast water.

Major issues facing the shipping and transport industry relate to environmental concerns, such as minimizing or eliminating marine pest introductions through appropriate ballast water and hull fouling management, ports management, the prevention of oil pollution, and technical advances and greater efficiencies in ship operations and production.

Safety in shipping and transport is most important to safeguard lives, property and the marine environment. On-board

instrumentation systems such as Differential Global Positioning Systems (DGPS), Electronic Charting Display and Information Systems (ECDI) and better forecasting technologies, Automatic Identification of Shipping (AIS) and Traffic Management Systems are revolutionizing navigational efficiency, accident prevention and response. These efficiency gains are also assisting the protection of the marine environment and the marine biodiversity. Nevertheless, continuing technological improvement is needed, particularly in the context of managing and monitoring shipping through the Indian Marine Region in future years. This need will also be addressed through the continuing development of Global Navigation Satellite Systems (GNSS). In addition to meeting navigational requirements, further GNSS will provide for automatic position reporting, vessel and cargo tracking, voyage recording, interfaces with electronic chart and distress communication, docking and mooring and other vessel control functions. GNSS also has applications in hydrographic survey, channel design and dredging and search and rescue.

**PRIORITIES**

India's Oceans Policy should provide funds for comprehensive marine pest incursion management systems, to be implemented jointly with state and central governments. The Policy should also support the development, by the Indian Quarantine and Inspection Services, of a single national ballast water management regime. It also affirms a commitment to phase out the use of the highly toxic tributyltin in Indian anti-fouling paints. Research supporting these policy commitments should continue. Ballast water, anti-foulants and other maritime issues are international problems, and consequently it is very important that Indian research and development be coordinated effectively with overseas efforts.

**STRATEGIES**

- Work within relevant international and regional organizations and with relevant

countries to improve compliance with, and implementation of, international treaty instruments on maritime safety and marine pollution prevention;

- Monitor the effect of oil pollution, ships' wastes and anti-fouling chemicals on the health of the marine environment, and devise response strategies;
- Monitor India's ports to determine the presence or absence of introduced marine organisms and the factors that allow their establishment, to enable more effective risk minimization management procedures to be put in place;
- Facilitate international cooperation in research and development on preventing the introduction of exotic species by ships' ballast water and other vectors, and minimizing the impacts of marine pests that do become established in Indian waters;
- Develop a ready response capability to identify and combat new incursions of harmful aquatic organisms;
- Assist the shipping industry to deal with wastes and contamination by undertaking research into tin-free antifouling substances developing treatment and management processes for ship-borne liquid and solid wastes, and to kill harmful marine organisms in ship's ballast tanks or prevent their uptake or discharge;
- Improve port waste reception facilities and waste disposal facilities for recreational craft;
- Develop treatment processes for contaminated shipyard wastes.

**Principal Organisations:** National Environmental Research Institute, National Institute of Oceanography, National Quarantine Department, Ministry of Environment, Port Authority of India, Shipping Corporation of India, National Institute of Ocean Technology.

### I. TO PROMOTE THE POTENTIAL OF NEW AND EMERGING INDUSTRIES, SERVICES AND TECHNOLOGIES

It is very important to identify "A number of emerging marine industries that could be significant in the long term" by the scientific organizations of India. Similarly, leading-edge research needs linkage with and support from relevant industries, to improve commercialisation opportunities for emerging technology-based industries.

Our high technology instrumentation needs are currently met, overwhelmingly, through imports. Leading-edge expertise in scientific and marine instrumentation technology exists in India, in different research laboratories, but linkages between them and with industry are very weak. Strengthening these links would bring existing and emerging innovative technology that addressed pressing marine science needs to the market place, without having to import it. Indian marine biotechnology and chemicals research is currently a small but world-class effort. Significant opportunities exist to screen our unique marine living resources (e.g., microalgae, macro algae, marine fauna, microorganisms) for compounds useful in the production of pharmaceuticals, nutraceuticals (including oils) and agrochemicals.

Further research into environmentally benign antifouling substances also holds much promise. Fouling by marine plants, animals and microorganisms of marine structures cause problems not only for shipping but also for aquaculture (on cages and barriers), and for the oil and gas industry (rings and piping). It is also a problem for seawater intake and outlet pipes. Some of the coastal metros have recognised the potential for fresh water extraction from seawater as an emerging opportunity. The development of new affordable technologies applied to the extraction of fresh water could be of significant benefit to India.

More generally, the development and commercial application of new technologies

can have net socioeconomic benefits, both direct and indirect, through skills enhancement, income from leasing / licensing the development of new industries, and enhanced employment in regional areas in fields of the technology's application, be it tourism, aquaculture, or coastal engineering. India's Ocean Policy should commit the government to facilitate the development of new and emerging industries technologies and marine byproducts, to maximize commercialisation opportunities, and to improve industry's links with marine research institutions and with agencies involved in marine skills and technology development.

### PRIORITIES

The Government of India should examine means to improve links between emerging industries and the providers of R&D, encouraging research that will support the growth of these industries, services and technologies and that will enable them to be internationally competitive while addressing key environmental and social issues.

### STRATEGIES

- Establish a new marine biotechnology centre;
- Continue and expand collaborative public and private sector research to assist in the development of marine industries, including extraction of fresh water from the sea, anti-fouling technologies options for sequestering greenhouse gases, and marine instrumentation;
- Improve management of collection of marine biological specimens in herbaria, marine research institutes, museums and universities as a basis for marine biotechnology;
- Support the discovery and utilization of novel bioactive molecules and other natural products from marine biota;
- Promote the provision of marine scientific consulting services, for example marine engineering services and management, and environmental management and impacts assessment.

**Principal Organisations:** Department of Biotechnology, National Institute of Oceanography, Centre for Cellular and Molecular Biology, Regional Research Laboratories of the Council of Scientific and Industrial Research, Centre for Drug Research Institute and Universities, National Institute of Ocean Technology.

### J. TO SUPPORT ECOLOGICALLY SUSTAINABLE COASTAL AND MARINE TOURISM AND RECREATION

Coastal and marine tourism and recreational business are some of India's largest export earners, major employers, and hold excellent prospects for continued growth. Much of India's tourism and recreation is focused in the marine and coastal zone and has specific land and water requirements. The current broad distribution of tourism destinations - tropical islands, remote sites, and popular attractions in urbanized locations - poses a challenging range of management issues and environmental protection is closely linked with access to suitable sites, and the maintenance of those sites in attractive, sustainable and healthy states.

While India's marine and coastal tourism industry has the advantage of our extensive and diverse coastline, it relies heavily on access to high-quality marine sites and the biodiversity of India's marine environment. Coastal and marine tourism and recreation are sustainable and fast-growing industries that depend on the continued enjoyment of well-managed coastal and estuarine environments, and some unique flagship resources such as the Andaman and Nicobar Islands and Lakshadweep Islands. Coastal and marine tourism involves the direct interaction of large numbers of people with environmental resources, some of which are quite fragile. It also involves the development of shore-based infrastructure in coastal cities. Such infrastructure has its own environmental implications and impacts.

Integrated management and good industry coordination are therefore important to the

sustainable growth of this sector of the industry. However, the marine tourism industry is highly fragmented. Work is needed to define this important sector, including identifying the impediments or constraints to its further development. In due course further work will be required to implement systems that facilitate the sustainable growth of the sector, particularly in smaller regional communities where much of the further growth, resource and product opportunities are expected to be found.

More accurate information is required on the extent, definition, opportunities and effect of marine and coastal tourism, to enable integrated planning and to support the development of a sustainable tourism industry. Information on the impediments to sustainable growth is also required. In particular, there is a need for economic, social and cultural research and studies to support and inform sustainable management of marine tourism and recreation, particularly where effective management involves multiple use considerations. Underlying this is the need for improved basic information about marine environments, including biological and physical characteristics and the development, evaluation and application of planning tools to promote environmentally sustainable development of marine tourism and recreation. It is generally recognised that biological systems data, and associated data on the impact of tourism, are inadequate. Increased research effort is needed for categories of coastal and marine tourism activities. These include studies of vulnerable and fragile regions, analyses of high-use temperate, tropical and sub-tropical destinations, research into developments in cruise tourism and analysis of the sports fishing tourism sector.

Mainland coastal regions are the usual targets of such research, but the environmental effects of tourism on Andaman and Lakshadweep Islands also require assessment, and environmental best practice to minimise human impacts should be facilitated. Tourism in India has potential for

growth. A scientific basis for determining both the levels and type of tourism in the Andaman and Nicobar and Lakshadweep is required. Some research attention should be turned also to Andaman and Lakshadweep Islands, including its protected areas. Tourism is significant in islands close to the mainland.

A major issue confronting the tourism industry is how to integrate the many demands for developing a successful business in a context of maintaining long-term environmental health. A full understanding of the coastal and marine environments is critical in addressing problems such as erosion, habitat degradation and loss of water quality. Furthermore, the needs of India's growing marine wildlife watching industry, and the economic impacts of the industry, should be investigated. Biological research also has a role to play in enhancing the quality of the tourism product or experience. The intangible nature of the tourism product means that social and socioeconomic research needs to be part of a multi-disciplinary research approach. For example, the quality of the tourism product is measured in part by attitudinal surveys. It is also recognised that while the quality of the environment may be the ultimate determinant of long-term success, there are many other immediate issues, which determine the short-term success of tourism, at both a business and regional level. A research agenda that addresses these issues is needed.

The Oceans Policy reiterates the Government's commitment to the sustainable development of a marine tourism industry that maintains the environmental quality on which it depends.

### **PRIORITIES**

Investigate impediments to the sustainable development and diversification of the marine tourism industry, including investigation of the economic, social and environmental effects, and distribute findings to industry.

Adequately resource the collection of more accurate data on the marine tourism industry

and its effects on the marine environment, particularly in the context of developing the Regional Marine Plans as a priority for India's Ocean Policy. The Government of India should encourage the ecologically sustainable growth of the industry through targeted research in areas such as marine tourism infrastructure design, and waste disposal strategies.

### STRATEGIES

Develop partnerships with the tourism industry to identify more clearly the marine and coastal tourism sector and develop networks to obtain information and data to investigate the definition, extent and diversity of marine and coastal tourism;

- Initiate research into impediments to the sustainable growth and diversification of the marine tourism industry, including investigation of the economic, social and environmental effects, and distribute such findings to industry in an effective manner;
- Develop partnerships with the tourism industry to collect more accurate data on the value of the marine tourism industry, particularly in regional economies;
- Develop cost-effective, low-impact technologies and engineering techniques for construction, energy and water supplies, waste management, and provision of services to marine tourist sites and activities both offshore and in the coastal zone;
- Measure the environmental effect of known tourist activities on ecosystems, and determine the limits of acceptable change in protected and fragile environments;
- Develop and evaluate planning tools to promote the ecologically sustainable development of tourism;
- Utilise Marine Protected Areas in tourism strategies;
- Develop the research base of present and future patterns of recreation, tourism, and tourism development in marine environments;
- Facilitate the participation of local communities in the monitoring and management of marine tourism and recreation areas;
- Measure tourist satisfaction with marine tourism products in order to improve products;
- Investigate the potential contribution by the tourism industry to the introduction and spread of introduced marine organisms, and the possible effects of introduced marine organisms on India's key marine tourist ecosystems and recreational fishing;
- Model the ecological, economic and experiential interaction between tourist and marine habitats to determine sustainable development use;
- Work with tourism operators to enhance the quality of their product through the development of educational and cultural experiences;
- Encourage the expansion of tourism training programs to include information about environmental monitoring data collection, the use and effectiveness of environmentally friendly technologies, and the role of R&D in the ongoing development of the tourism industry; and
- Design and implement informed management and education strategies for different regional and encourage local government, in particular, to be involved in management.

**Principal Organisations:** Central and State Tourism Departments, Universities and NGOs.

### K. TO UNDERSTAND AND DOCUMENT THE IMPLICATIONS OF MARINE LAWS AND POLICIES FOR EFFECTIVE MANAGEMENT OF MARINE RESOURCES

The Government of India must study and manage its marine environment and resources not only because that is in the national interest, but also because it has agreed to discharge a number of marine-related international responsibilities through

its links to other nations, international organisations, and treaties. Particularly important is the UN Convention on the Law of the Sea (UNCLOS), which entered into force for India in November 1994. Part XIII of UNCLOS relates to Marine Scientific Research, Part XII relates to protection of the marine environment, and Part XIV to the Development and Transfer of Marine Technology. Significant articles are Article 239 which prescribe that States should promote and facilitate marine scientific research; Article 246 which indicates that, while coastal States have “the right to regulate, authorise and conduct marine scientific research in their exclusive economic zone and on their continental shelf, “they should normally consent to such research being carried out in these areas by other countries; and Article 275 which requires States to promote both the establishment of national marine scientific and technological research centres and the strengthening of existing national centers and Article – which requires states to protect the marine environment.

In additional to UNCLOS, India has commitments to:

- Agenda 21, Chapter 17, which requires (although it is not legally binding) that the national biodiversity be surveyed and protected by, inter alia, the establishment of marine protected areas;
- Regular State of the Environment Reporting (required as a member of the OECD); and
- The Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR, 1980).

The Government of India is committed to maintaining a permanent presence in Antarctica, and places a high priority on its activities in the Antarctic marine environment in support of its international obligations.

India is also a party to a number of other conventions and agreements that require scientific information on and understanding of marine systems, for example:

- Climate Change Convention (1992);

- Convention on Biological Diversity (1992);
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES, 1973);
- Convention for the Protection of World Cultural and Natural Heritage (1972);
- The Convention on Wetlands of International Importance Especially as Water Flow Habitats (the Ramsar Convention, 1971);
- Convention of the World Meteorological Organisation (1947);
- International Convention for the Prevention of Marine Pollution by Dumping of Wastes and other Matter (the London Convention, 1972);
- International Convention for the Regulation of Pollution from Ships and its Protocol of 1978 (MARPOL, 1973 / 78)

Domestically, international conventions are reflected in national law. The Quarantine and Inspection Services currently operate under the authority of the Quarantine Act (1980) in relation to ballast water management. The International Maritime Organisation (IMO) is considering the adoption of new ballast water standards, and the Government of India should implement these through the introduction of mandatory national arrangements for ballast water management. It is considered that the Quarantine Act is robust enough to authorise implementation, although some aspects of the proposed IMO regulatory framework may require administration, through the Government of India.

We need also to bring into law amendments to the Environment Protection (Sea Dumping) Act 1981, which is administered by the Ministry of Environment, Government of India. This Act implements the London Convention (1972) in India. The amendment, which has been introduced to Parliament, will implement the 1996 Protocol to the Convention, which India signed in 1998. The amendment will place beyond

doubt that the construction of artificial reefs is regulated in Indian waters, and will implement recent international developments relating to the protection of the sea - the Protocol does this by limiting the categories of substances for dumping or incineration at sea.

### PRIORITIES

The priorities are to apply marine science and technology to the protection and preservation of the marine environment; to demonstrate an ongoing commitment to the international conventions to which India is a party; and to participate effectively in international programs by gathering and disseminating relevant data.

### STRATEGIES

Improve understanding of international laws and conventions and their impact on management of the ocean, and conduct research to support India's obligations;

- Investigate the enforcement of regulatory controls of the marine environment;
- Investigate the efficacy of existing national law to meet the objective of sustainable use of the oceans, and make recommendations for change where necessary;
- Conduct research to assist the more effective management of Sanctuaries, Marine Protected Areas, Biosphere Reserves and World Heritage Areas;
- Improve understanding of the relationship between law and science,
- Improve understanding of ethical in marine science.

**Principal Organisations:** Department of Law, Ministry of External Affairs, Ministry of Environment and Forests, Department of Ocean Development, Department of Science and Technology, Department of Biotechnology, Council of Scientific and Industrial Research, National Institute of Oceanography, Zoological Survey of India, Botanical Survey of India, Universities and NGOs.

### L. TO ACHIEVE BETTER COORDINATION OF MARINE DATA MANAGEMENT

The need for a cross-sectoral, nationally coordinated approach to access, store and distribute marine data more effectively has been identified by numerous reviews of India's marine environment and its management. Marine scientific data are a vital underpinning to the understanding and sustainable utilization of our marine resources and environment.

Increasing larger volumes of marine science data are being collected, analysed and stored each year by the States / Union Territories and local government organisations and the private sector. The effectiveness of data management within these organisations is highly variable, as is the commitment of resources to this task. The volume and complexity of data now being collected, however, dictate that a distributed data management model must be pursued. Individual organisations can no longer expect to keep a comprehensive and up-to-date database, nor maintain the expertise to manage the wide variety of marine data types being captured. Nationally, we need to strengthen the data management capacity within the organisations collecting and managing marine data and to integrate data dispersed amongst these organisations in a seamless manner to create an accessible knowledge base. Current impediments to achieving this goal are:

The existing ad-hoc approach to data management has been within many individual organizations, lack of an effective national data management coordination mechanism; and lack of an agreed framework of standards and protocols to enable the development of a nationally distributed data network.

A number of organizations within the marine sector currently execute collection, analysis, data management and national archive responsibilities (e.g., Department of Ocean Development, Science and Technology, National Institute of Oceanography etc.).

There are also many states, local and private organisations with marine data management functions. Despite this, most of our data sets are not well coordinated or compiled, and the data are poorly integrated and not readily accessible.

Whilst the existing organisation's activity and voluntary initiatives form within the marine science community from a good base for further developments in marine data management, more needs to be done at both the agency level and nationally to develop a more coordinated approach to marine data management. Recognised benefits of such an outcome include:

Maximizing returns on expenditure on data collection, promoting increased opportunities for partnerships and for private sector development, avoidance of duplication, greater consistency and accessibility of data and information to facilities improved data manipulation, synthesis and cross-sectoral application, and a stronger and wider base of information for decision-making, policy development and resources management.

The Ocean Policy recognises that the provision of high-quality, accessible and timely information concerning the margins of the Indian Marine Region is essential for marine planning, and it supports the development of a nationally coordinated approach to marine data management.

### PRIORITIES

The main priority is to develop a more coordinated approach to marine data management by establishing a formally recognised National Marine Data group, serviced by a permanent secretariat and accountable to an appropriate Ministerial body.

Priority must also be given to strengthening the data management capacity within organisations that deal with marine data.

### STRATEGIES

- Establish a National Marine Data group,

serviced by permanent secretariat in India and reporting through the Department of Ocean Development to the Minister for Industry, Science and Technology and the Ministry of Environment and Forests.

- Consider including data management deliverable in funding contracts issued by government and incorporate funding agencies, as a means of assisting organisations to strengthen their data management capacity;
- Implement a process to develop a national policy for marine data exchange, access and distribution;
- Support the development of distributed data and metadata management software;
- Maintain relevant satellite reception facilities and access to domestic and international satellite data sets;
- Develop mechanisms to include private sector data in the national data archives

**Principal Organisations:** Department of Ocean Development, Department of Science and Technology, Ministry of Environment, Department of Biotechnology, Council of Scientific and Industrial Research, Central Drug Research Institute, National Institute of Oceanography, National Informatics Centre, Zoological and Botanical Survey of India, Universities and NGOs.

**M. TO BUILD PROFESSIONAL  
EXPERTISE AND KNOWLEDGE  
THROUGH INCREASED  
INVOLVEMENT IN REGIONAL AND  
GLOBAL MARINE SCIENCE AND  
TECHNOLOGY PROGRAMS**

The Indian marine science, engineering and technology community is well regarded internationally. This provides opportunities for research collaborations, consultancy work and transfer of technologies to other countries. The benefits of international collaboration and consultancy services flow back to India in a range of ways.

Such work provides personal development through international experience for Indian

Researchers, expanding their knowledge and experience of marine ecosystems beyond the Indian marine region; Builds understanding within India of the marine sectors of our regional neighbors, especially SAARC and SACEP/ SAS and the BOBLME, enabling India to manage its own resources more successfully; Enhance the capacity of regional neighbors to manage their marine resources, and, in the case of our near neighbors, this enhanced management is likely to result in reducing the potential for pressure on India's resources through illegal fishing and other incursions; promotes international awareness of India's marine industries, scientific capabilities and education services in the marine sector. Participation in regional and global marine science programs provides a strategic benefit to India through sharing in the development of new technology and access to global data sets.

**Principal Organisations:** National Institute of Oceanography, Department of Ocean Development, Zoological Survey of India, Fisheries Survey of India, Universities and other Research Institutes.

## CONCLUSION

Long-term environmental marine monitoring is a very useful tool for both the operator and the statutory authorities. The monitoring data provide the status of the quality of biotic and abiotic environment. The result of marine monitoring will reflect the operator's careful project planning, design, engineering and safe operations. To militate against unexpected emergencies and failures, progressive operators will put in place a comprehensive management system that includes regular audits, updates and review. In fact an offshore operator could very well verify the effect of its environment management systems from the outcome of the results of the marine monitoring. If the results are found to be undesirable, this knowledge will help the policy makers to review the operating practices and modify the directions as required. This also helps the regulatory bodies to review their guidelines and enactments. Environmental monitoring data are also useful for long-term assessment of the fate of pollutants, known and unknown.

## Annexure

### Checklist of fauna of Marine Protected Areas in different states of India

(AN= Andaman and Nicobar; TN=Tamil nadu; AP= Andhra Pradesh; OR=Odisha; WB= West Bengal; GO= Goa; MH=Maharashtra; GU= Gujarat; LK= Lakshadweep)

#### Sponges

SPECIES	AN	TN	AP	OR	WB	GO	MH	GU	LK
PHYLUM : PORIFERA CLASS : DEMOSPONGIAE SUB-CLASS : HOMOSCLEROMORPHA ORDER : HOMOSCLEROPHORIDA FAMILY : PLAKINIDAE									
<i>Corticium acanthastrum</i> Thomas, 1968		•							
<i>Corticium candelabrum</i> Schmidt, 1862		•						•	
<i>Plakina acantholopha</i> Thomas, 1970		•							
<i>Plakina monolopha</i> Schulze, 1889		•							
<i>Plakina trilopha</i> Schulze, 1889		•							
<i>Plakinastrella ceylonica</i> (Dendy, 1905)	•	•							
<i>Plakinastrella minor</i> (Dendy, 1916)		•							
SUB CLASS : TETRACTINOMORPHA ORDER : SPIROPHORIDA FAMILY : TETILLIDAE									
<i>Cinachrya arabica</i> (Carter, 1869)	•	•							
<i>Cinachrya australiensis</i> (Carter, 1886)	•								
<i>Cinachrya cavernosa</i> (Lamarck, 1814)		•			•				
<i>Cinachrya hirsuta</i> (Dendy, 1889)		•							
<i>Paratetilla bacca</i> (selenka, 1867)	•	•							•
<i>Samus anonyma</i> Gray, 1867		•						•	
<i>Tetilla barodensis</i> Dendy, 1916								•	
<i>Tetilla cranium</i> (Muller, 1879)	•								
<i>Tetilla dactyloidea</i> (Carter, 1869)	•	•	•	•	•			•	
<i>Tetilla hirsula</i> Dendy								•	
<i>Tetilla pilula</i> Dendy, 1916								•	
FAMILY: HAPLOSCLERIDAE									
<i>Auletta lyrata</i> var. <i>glomerata</i> Dendy								•	
<i>Auletta elongate</i> var. <i>fruticosa</i> Dov								•	
<i>Axinella virgultosa</i> Carter								•	
<i>Ciocalpyla dichotoma</i>								•	
<i>Desmacella tubulata</i> Dendy								•	
<i>Halichondria panacea</i> Baer								•	
<i>Halichondria reticulate</i> Dendy								•	
<i>Higginsia</i> sp.								•	
<i>Phakellia donnani</i> (Bowbank)								•	
<i>Gellius fibulatus</i> (Schmidt) var. <i>microsigma</i>								•	
<i>Gellius ridleyi</i> (Henstcel)								•	



<i>Jaspis investigatrix</i> (Annandale, 1915)		•						
<i>Jaspis penetrans</i> (Carter, 1880)		•						
<i>Jaspis reptans</i> (Dendy, 1905)		•						
<i>Zaplethea diagonoxea</i> sp. diastra Vacelet & Vasseur, 1965		•						
<b>FAMILY: GEODIIDAE</b>								
<i>Erylus carteri</i> Sollas, 1888		•						
<i>Erylus lendenfeldi</i> Sollas, 1888	•							
<i>Geodia areolata</i> Carter, 1880		•						
<i>Geodia globostellifera</i> Carter, 1880		•						
<i>Geodia inconspicua</i> (Bowerbank, 1873)		•					•	
<i>Geodia lindgreni</i> (Lendenfeld, 1903)		•		•				•
<i>Geodia perermata</i> Bowerband, 1873		•						
<i>Geodia picteti</i> (Topsent, 1897)		•						
<i>Geodia ramodigitata</i> Carter, 1880		•						
<i>Geodia varipiculosa</i> Thiele							•	
<b>FAMILY: DONTIIDAE</b>								
<i>Donatia sychellensis</i> (Wright)							•	
<i>Tuberella aaptos</i> (Schmidt)							•	
<b>FAMILY: PACHASTRELLIDAE</b>								
<i>Dercitus simplex</i> (Carter, 1880)	•		•					
<i>Halina extensa</i> (Dendy, 1905)		•						
<i>Halina plicata</i> (Schmidt, 1864)	•	•					•	
<i>pachamphilla dendyi</i> Hentschel, 1912		•						
<i>Pachastrella parasitica</i> Carter, 1880		•						
<i>Pachastrella nana</i> (Carter, 1880)		•						
<i>Poecillastra eccentrica</i> Dendy and Burton, 1926	•	•						
<i>Poecillastra tenuillaminaris</i> Sollas, 1888	•							
<i>Poecillastra schulzei</i> Solas, 1888		•						
<i>Sphinctrella annulata</i> (Carter, 1880)		•						
<b>FAMILY: THENEIDAE</b>								
<i>Thenia andamanensis</i> Dendy and Burton, 1926	•							
<b>ORDER: HADROMERIDA</b>								
<b>FAMILY: CHONDRILLIDAE</b>								
<i>Chondrilla australiensis</i> Carter, 1873		•	•				•	
<i>Chondrilla agglutinanus</i>							•	
<i>Chondrilla kilakaria</i> Kumar, 1925		•						
<i>Chondrilla sacciformis</i> Carter, 1873		•						
<i>Chondrilla agglutinanus</i> Dendy, 1916							•	
<i>Chondrosia reniformis</i> Nardo, 1847		•						
<b>FAMILY: CLIONIDAE</b>								
<i>Annandalea laeviaster</i> (Annandale, 1915)			•	•				
<i>Cliona anulifera</i> Annandale, 1915		•						
<i>Cliona kempfi</i> Annandale, 1915	•							
<i>Cliona carpentari</i> Hancock, 1867	•	•					•	
<i>Cliona celata</i> Grant, 1826		•					•	•
<i>Cliona coronaria</i> Carter, 1882							•	
<i>Cliona ensifera</i> Sollas, 1888	•	•						
<i>Cliona kempfi</i> Annandale, 1915	•							
<i>Cliona lobata</i> Hancock, 1849	•	•						
<i>Cliona margeritifera</i> Dendy, 1905	•	•					•	
<i>Cliona mucronata</i> Sollas, 1888	•	•						
<i>Cliona orientalis</i> Thiele, 1903		•						

<i>Cliona quadrata</i> Hancock,1849	•	•							
<i>Cliona vastifica</i> Hancock,1849	•	•	•	•	•				
<i>Cliona viridis</i> Schmidt,1870		•							
<i>Delectona higgini</i> (Carter, 1880)		•							
<i>Donotella acustella</i> (Annandale, 1915)				•					
<i>Dotona pulchella</i> Carter, 1880		•							
<i>Thooce socialis</i> (Carter, 1880)		•							
<i>Thoosa (cliothosa) armata</i> (Topsent, 1888)			•	•					
<i>Thoosa (cliothosa) fischeri</i> (Topsent, 1891)			•						
<i>Thoosa (cliothosa) hancocki</i> (Topsent, 1888)	•		•						
<i>Thoosa (cliothosa) investigatoris</i> (Annandale, 1915)		•							
<b>FAMILY: LATRUNCULIIDAE</b>									
<i>Latrunculia tenuinstella</i> (Dendy, 1905)		•							
<b>FAMILY: PLACOSPONGIIDAE</b>									
<i>Placospongia corinata</i> (Bowerbank,1858)		•					•	•	
<i>Placospongia melobesioides</i> Gray,1867		•							
<b>FAMILY: POLYMASTIDAE</b>									
<i>Polymastia gemmipara</i> Dendy, 1916							•		
<b>FAMILY : SPIRASTRELLIDAE</b>									
<i>Placospongia carinata</i> (Bowerbank)							•		
<i>Spirastrella coccinaea</i> (Duch and Mich, 1864)		•					•		
<i>Spirastrella aurivilli</i> Lindgren, 1898		•					•		
<i>Spirastrella cuspidifera</i> (Lamarck, 1814)		•						•	
<i>Spirastrella florida</i> Lendenfeld, 1885		•							
<i>Spirastrella inconstans</i> (Dendy 1887)	•	•							•
<i>Spirastrella pachyspira</i> Lavi,1963		•							
<i>Spirastrella punctulata</i> Ridley, 1884		•							
<i>Spirastrella andamanensis</i> Pattanayak, 1998	•								
<b>FAMILY: SUBERITIDAE</b>									
<i>Aptos aptos</i> (Schmidt, 1864)		•					•	•	
<i>Aptos unispiculus</i> (carter,1880)		•							
<i>Laxosuberites aquaedulcioris</i> (Annandale, 1914)			•	•	•				
<i>Laxosuberites conulosus</i> Burton, 1930		•							
<i>Laxosuberites cruciatus</i> (Dendy, 1905)		•	•				•	•	
<i>Laxosuberites lacustris</i> Annandale,1915		•	•	•					
<i>Laxosuberites proteus</i> (Hentschel,1909)		•							
<i>Polymastia gemmipara</i>							•		
<i>Pseudosuberites andrewi</i> Kirkpatrick,1900		•							
<i>Subrites carnosus</i> (Johnston,1842)		•					•	•	
<i>Subrites cruciatus</i> Dendy							•		
<i>Subrites suericus</i> Thiele, 1898	•		•	•					
<i>Subrites tylobtusa</i> Levi,1963		•							
<i>Subrites flabellatus</i> Carter, 1886							•		
<i>Terpios fugax</i> Duch. and Mich.,1864		•							
<b>FAMILY: TETHYIDAE</b>									
<i>Tethya diploderma</i> Schmidt,1870	•	•							
<i>Tethya japonica</i> Sollas,1888		•							•
<i>Tethya repens</i> (Schmidt, 1870)	•	•							•
<i>Tethya andamanensis</i> (Dendy and Burton, 1926)	•	•					•	•	
<i>Tethya robusta</i> Bowerbank, 1873	•	•					•	•	



FAMILY : MICROCIONIDAE									
<i>Antho (Antho) mannarensis</i> (Carter,1880)			•						
<i>Antho (Antho) tuberosa</i> (Hentschel,1909)				•	•				
<i>Artemisina indica</i> (Thomas,1974)			•						
<i>Clathria (Clathria)decumbens</i> (Ridley,1884)			•						
<i>Clathria (Clathria)indica</i> Dendy,1905			•						
<i>Clathria (Clathria)maeandrina</i> Ridley,1884			•						
<i>Clathria(Dendrocia) antyaja</i> Burton and Rao, 1932			•						
<i>Clathria (Microcionona) aceratoobtusa</i> Carter, 1880			•						
<i>Clathria (Microcionona) affinis</i> Carter, 1880			•						
<i>Clathria (Microcionona) atrasanguinea</i> Bowerbank, 1864	•		•	•	•				
<i>Clathria (Microcionona) fascispiculifera</i> (Carter,1880)			•						
<i>Clathria (Microcionona) rhopalophora</i> (Hentschel, 1909)			•						
<i>Clathria (Thalysias) amiranteiensis</i> Burton, 1937			•						
<i>Clathria (Thalysias) encrusta</i> Kumar, 1925				•	•				
<i>Clathria (Thalysias) lendenfeldi</i> Ridley and Dendy, 1886			•	•					
<i>Clathria (Thalysias) longitoxa</i> (Hentschel, 1912)			•						
<i>Clathria(Thalysias) micropunctata</i> Burton and rao1932			•						
<i>Clathria (Thalysias) procera</i> (Ridley, 1884)			•						
<i>Clathria (Thalysias) procera var tessellata</i> (Dendy, 1905)			•						
<i>Clathria (Thalysias) vulpina</i> (Lamarck,1814)	•		•						
<i>Echinocalina (Echinocalina) barba</i> (Lamarck,1814)	•								
<i>Echinoclathria rimosa</i> (Ridley, 1884)			•						
<i>Holopsamma crassa</i> Carter, 1885			•						
FAMILY : RASPAILIIDAE									
<i>Aulospongos sessilis</i> (Carter, 1880)			•						
<i>Aulospongos tubulatus</i> (Bowerbank,1873)			•						
<i>Cyamon quadriradiata</i> Carter,1880			•						
<i>Cyamon quinquerradiata</i> (Carter,1880)			•						
<i>Echinadictyum clathratum</i> Dendy,1905			•						
<i>Echinadictyum gogonoides</i> Dendy,1916			•						
<i>Echinadictyum longistylum</i> Thomas, 1968			•						
<i>Echinadictyum nervosum</i> Ridley,1881				•	•				
<i>Echinadictyum asperum</i> Ridley & Dendy,1887	•								
<i>Endectyon fruticoso</i> (Dendy,1905)			•						
<i>Endectyon lamellose</i> Thomas,1976			•						
<i>Endectyon thurstoni</i> (Dendy, 1887)			•						
<i>Eurypon clavatum</i> (Bowerbank,1864)				•	•				
<i>Raspailia (Raspailia) anastomosa</i> Kumar,1925			•						
<i>Raspailia (Raspailia) fruticoso</i> Dendy, 1887			•						
<i>Raspailia (Raspailia) hornelli</i> Dendy, 1905			•						
<i>Raspailia (Raspailia) viminalis</i> (schmidt, 1862)	•			•	•				
FAMILY : RHABDEREMIIDAE									
<i>Rhabderemia acanthostyla</i> Thomas, 1968			•						
<i>Rhabderemia indica</i> Dendy, 1905			•						

<i>Rhabderemia prolifera</i> Annadale, 1915	•	•			•				
<b>SUBORDER : MYXILINA</b>									
<b>FAMILY : ANCHINOIDAE</b>									
<i>Ectyobatzella enigmatica</i> Burton & Rao, 1932	•								
<i>Kirkpatrickia spiculaphila</i> Burton & Rao, 1932	•								
<i>Phorbis dubia</i> (Burton, 1928)		•							
<b>FAMILY : COELOSPHAERIDAE</b>									
<i>Coelosphaera encrustata</i> (Kumar, 1925)		•							
<i>Coelosphaera navicelligera</i> (Ridley and Dendy, 1886)		•							
<i>Ectyodoryx lissostyla</i> Thomas, 1970		•							
<i>Lissodendoryx balanophilus</i> Annandale, 1911		•							
<i>Lissodendoryx similis</i> Thiele, 1899		•							
<i>Lissodendoryx sinensis</i> Brondsted, 1929		•							
<i>Lissodendoryx ternatensis</i> (Thiele, 1899)		•							
<i>Waldoschmittia Schmidti</i> (Ridley, 1884)		•							
<b>FAMILY : CRAMBIDAE</b>									
<i>Psammochela fibrosa</i> (Ridley, 1884)		•							
<i>Psammochela elegans</i> Dendy, 1916	•								
<b>FAMILY : HYMEDESMIIDAE</b>									
<i>Hymedesmia dendyi</i> Burton, 1930		•							
<i>Hymedesmia mannarensis</i> Thomas, 1970		•							
<i>Hymedesmia mertoni</i> Hentschel, 1923		•							
<i>Hymedesmia stylophora</i> Thomas, 1970		•							
<i>Hymedesmia tenuissima</i> (Dendy, 1905)		•							
<b>FAMILY : MYXILLIDAE</b>									
<i>Damiriopsis bronstedti</i> Burton, 1928	•								
<i>Desmapsamma anchorata</i> (Carter, 1886)		•							
<i>Lotrochota baculifera</i> Redley, 1884	•	•							
<i>Myxilla (Myxilla) arenaria</i> Dendy, 1905		•							
<b>FAMILY : PHORIOSPONGIIDAE</b>									
<i>Strongylacidon Stelliderma</i> (Carter, 1874)		•							
<b>FAMILY : TEDANIIDAE</b>									
<i>Tedania (Tedania) anhelans</i> (Lieberkuhn, 1859)	•	•							
<b>SUBORDER : MYCALINA</b>									
<b>FAMILY : DESMACELLIDAE</b>									
<i>Biemna fistulosa</i> Topsent, 1897		•							
<i>Biemna fortis</i> (Topsent, 1897)		•	•	•					
<i>Biemna microstyla</i> Thomas, 1984						•			
<i>Biemna tubulata</i> (Dendy, 1905)	•	•							
<i>Biemna lipsosigma</i> Burton, 1928	•								
<b>FAMILY : MYCALIDAE</b>									
<i>Mycale (Carmia) madraspatana</i> Annandale, 1914		•							
<i>Mycale (Carmia) monanchorata</i> (Burton & Rao, 1932)		•							
<i>Mycale (carmia) sulevoidae</i> Sollas, 1902		•							
<i>Mycale (Aegagropila) aff. Contarenii</i> (Johnston, 1842)		•							
<i>Mycale (Aegagropila) militaris</i> (Annandale, 1914)		•							
<i>Mycale (Mycale) crassissima</i> (Dendy, 1926)	•	•							
<i>Mycale (Mycale) grandis</i> (Gray, 1867)		•							

<i>Mycale (Mycale) gravelyi</i> Burton, 1937		•							
<i>Mycale (Mycale) Indica</i> (Carter, 1887)	•	•							
<i>Mycale (Mycale) mannarensis</i> Thomas, 1968		•							
<i>Mycale (Mycale) mytilorum</i> Annandale, 1914		•							
<i>Mycale (Mycale) tenuispiculata</i> (Dendy, 1905)		•							
<i>Mycale (Mycale) trincomaliensis</i> Rao, 1941.		•							
<i>Mycale (Paresperella) bidentata</i> Dendy, 1905		•							
<i>Mycale (Paresperella) serratohamata</i> (Carter, 1880)		•							
<i>Mycale (Arenochalina) spongiosa</i> (Dendy, 1926)		•							
<i>Mycale (Zygomycale) parishii</i> (Bowerbank, 1863)		•							
<b>ORDER : HALICHONDRIDA</b>									
<b>FAMILY : AXINELLIDAE</b>									
<i>Acanthella cavernosa</i> Dendy, 1921		•			•				
<i>Acanthella megaspicula</i> Thomas, 1984					•				
<i>Acanthella ramosa</i> Kumar, 1925			•	•					
<i>Auletta elongata</i> Dendy, 1905		•							
<i>Auletta lyrata</i> (Erpor, 1806)		•							
<i>Auletta andamanensis</i> Pattanayak, 1998	•								
<i>Axinella agariciformis</i> (Dendy, 1905)		•							
<i>Axinella burbarinoides</i> Dendy, 1922		•							
<i>Axinella carteri</i> (Dendy, 1889)		•							
<i>Axinella ceylonensis</i> (Dendy, 1889)		•							
<i>Axinella conulosa</i> Dendy, 1922		•							
<i>Axinella crassistylifera</i> (Dendy, 1905)		•							
<i>Axinella donnani</i> (Bowerbank, 1873)		•							
<i>Axinella durissima</i> (Dendy, 1905)		•							
<i>Axinella halichondroides</i> Dendy, 1905		•							
<i>Axinella labyrinthica</i> Dendy, 1889		•							
<i>Axinella lamellata</i> (Dendy, 1905)		•							
<i>Axinella manus</i> Dendy, 1905		•							
<i>Axinella symmetrica</i> (Dendy, 1905)		•							
<i>Axinella tenuidigitata</i> Dendy 1905	•	•							
<i>Axinella acanthelloides</i> Pattanayak, 1998	•								
<i>Bubaris grogonoides</i> Thomas, 1984					•				
<i>Bubaris vermiculata</i> (Bowerbank, 1863)		•							
<i>Bubaris columnata</i> Burton, 1928	•								
<i>Monocrepidium eruca</i> (Carter, 1880)		•							
<i>Phakettia ridleyi</i> (Dendy, 1889)		•							
<i>Rhabdoploca cruvispiculifera</i> (Carter, 1880)		•							
<i>Higginsia higgini</i> Dendy, 1889		•							
<i>Higginsia mixta</i> (Hentschel, 1912)		•							
<i>Myrmekioderma granulata</i> (Esper, 1830)		•							
<b>FAMILY : DICTYONELLIDAE</b>									
<i>Liosina paradoxa</i> Thiele, 1899		•							
<b>FAMILY : HALICHONDRIIDAE</b>									
<i>Amorphinopsis arcotti</i> (Ali, 1956)		•							
<i>Amorphinopsis excavans</i> Carter, 1886		•							

<i>Amorphinopsis excavans</i> var. <i>digitifera</i> Annandale, 1915			•						
<i>Amorphinopsis foetida</i> (Dendy, 1889)	•	•							
<i>Amorphinopsis kempii</i> Kumar, 1925			•						
<i>Amorphinopsis oculata</i> (Kieschnick, 1869)			•						
<i>Axinyssa flabelliformis</i> (Keller, 1889)			•						
<i>Ciocalypta penicillus</i> Bowerbank, 1863			•						
<i>Collocalypta digitata</i> Dendy, 1905			•						
<i>Epipolasis topsenti</i> (Dendy, 1905).			•						
<i>Epipolasis lapidiformis</i> (Dendy, 1905)			•						
<i>Halicondria glabrata</i> Keller, 1891			•						
<i>Halicondria panicea</i> Johnston 1842			•						
<i>Hymeniacion petrosiodes</i> Dendy, 1905			•						
<i>Petromica massalis</i> Dendy, 1905	•	•							
<i>Spongosorites cavernosa</i> (Topsent, 1896)			•						
<i>Spongosorites halichondrioides</i> (Dendy, 1905)	•	•							
<i>Spongosorites solida</i> Topsent, 1896			•						
<i>Spongosorites andamanensis</i> Pattanayak, 1998	•								
<i>Topsentia nigrocutis</i> (Carter, 1886)			•						
<b>ORDER : HAPLOSCLERIDA</b>									
<b>FAMILY : CALLYSPONGIIDAE</b>									
<i>Callyspongia barodensis</i> Burton, 1930			•						
<i>Callyspongia ceylonica</i> (Dendy, 1905)			•						
<i>Callyspongia clathrata</i> (Dendy, 1905)			•						
<i>Callyspongia diffusa</i> (Ridley, 1884)			•						
<i>Callyspongia fibrosa</i> (Ridley and Dendy, 1886)			•						
<i>Callyspongia fistularis</i> (Topsent, 1892)			•						
<i>Callyspongia pambanensis</i> Rao, 1941			•						
<i>Callyspongia spinosissima</i> (Dendy, 1887)			•						
<b>FAMILY : CHALINIDAE</b>									
<i>Adocia carnosa</i> (Dendy, 1889)			•						
<i>Adocia semifibrosa</i> (Dendy, 1916)			•						
<i>Gellius flagellifer</i> Ridley & Dendy, 1886	•								
<i>Gellius fibulatus</i> (Schmidt, 1868)			•	•					
<i>Gellius megastoma</i> Burton, 1928	•								
<i>Gellius toxius</i> (Topsent, 1897)			•	•					
<i>Haliclona camerata</i> (Ridley, 1884)			•						
<i>Haliclona implexa</i> (Schmidt, 1868)			•						
<i>Haliclona madrepora</i> (Dendy, 1889)			•						
<i>Haliclona obstusispiculifera</i> (Dendy, 1905)			•						
<i>Haliclona occulata</i> Linnaeus, 1791			•						
<i>Haliclona pigmentifera</i> (Dendy, 1905)			•						
<i>Haliclona tenuiramosa</i> (Burton, 1930)			•						
<i>Haliclona viridis</i> (Duch & Mich, 1864)			•						
<i>Reniera delicatula</i> Ali, 1956			•	•	•				
<i>Reniera tuberosa</i> (Dendy, 1921)			•						
<i>Sigmatocia carnosa</i> (Dendy, 1889)			•						
<i>Sigmatocia fibulata</i> (Schmidt, 1862)			•						
<i>Sigmatocia petrosiodes</i> (Dendy, 1905)			•						
<i>Sigmatocia pumila</i> (Lendenfield, 1887)			•						
<i>Taxodocia dendyi</i> (Burton, 1936)			•						

<i>Taxodocia ridleyi</i> (Dendy, 1905)		•							
<i>Taxodocia toxius</i> (Topsent, 1897)		•							
<b>FAMILY: NIPHATIDAE</b>									
<i>Aka diagonoxea</i> Thomas, 1968		•							
<i>Aka minuta</i> Thomas, 1972		•							
<i>Amphimedon multiformis</i> (Dendy, 1889)		•							
<i>Gelliodes cellaria</i> (Rao, 1941)		•							
<i>Gelliodes fibrosa</i> Dendy, 1905		•							
<i>Gelliodes fibulatus</i> (Carter, 1885)	•								
<i>Gelliodes incrustans</i> Dendy, 1905		•							
<b>FAMILY: PHLOEODICTYIDAE</b>									
<i>Calyx clavata</i> Burton, 1928	•								
<i>Oceanapia arenosa</i> Rao, 1941		•							
<i>Oceanapia fistulosa</i> (Bowerbank, 1873)		•							
<i>Oceanapia media</i> (Thiele, 1899)		•							
<i>Oceanapia putridosa</i> (Ridley and Dendy, 1886)			•	•					
<i>Oceanapia sagittaria</i> (Sollas, 1888)		•							
<i>Oceanapia zoologica</i> (Dendy, 1905)		•							
<b>FAMILY: PETROSIIDAE</b>									
<i>Petrosia nilgricens</i> Lindgren, 1897		•							
<i>Petrosia similis</i> Ridley and Dendy, 1886		•							
<i>Strongylophora durissima</i> Dendy, 1905		•							
<i>Xerospongia exigua</i> (Kirkpatrick, 1900)		•							
<i>Xerospongia testudinaria</i> Lamarck, 1815	•	•							
<b>ORDER: DICTYOCERATIDA</b>									
<b>FAMILY: IRCHINIIDAE</b>									
<i>Ircinia aruensis</i> Hentschel, 1912		•							
<i>Ircinia cactiformis</i> Rao, 1941		•							
<i>Ircinia fusca</i> (Carter, 1880)		•							
<i>Ircinia ramodigitata</i> Burton, 1934		•							
<i>Ircinia ramosa</i> (Keller, 1889)		•							
<i>Ircinia tuberculata</i> (Polejaeff, 1884)		•							
<b>FAMILY: THEORECTIDAE</b>									
<i>Cacospongia mollior</i> Schmidt, 1862		•							
<i>Cacopongia salaris</i> Schmidt, 1862		•							
<i>Fasciospongia anomala</i> (Dendy, 1905)		•							
<i>Fasciospongia cavernosa</i> (Schmidt, 1862)		•							
<i>Hyrtios erecta</i> Keller, 1889		•							
<b>FAMILY: SPONGIIDAE</b>									
<i>Hyatella cribriformis</i> (Hyatt, 1875)		•							
<i>Hyatella intestinalis</i> (Lamarck, 1814)		•							
<i>Phyllospongia foliascens</i> (Pallas 1776)	•								
<i>Phyllospongia papyracea</i> (Esper, 1794)		•							
<i>Phyllospongia papyracea</i> spp		•							
<i>Polyphella</i> de Laubenfels, 1948									
<i>Spongia hispida</i> Lamarck, 1814		•							
<i>Spongia officinalis</i> , var. <i>ceylonensis</i> (Dendy, 1905)		•							
<i>Spongia officinalis</i> var. <i>ceylonensis</i> (Dendy, 1905)		•							
<i>Spongia officinalis</i> var. <i>fenestrata</i> Rao, 1941		•							

<b>ORDER: DENDROCERATIDA</b>									
<b>FAMILY: DYSIDEIDAE</b>									
<i>Dysidia fragilies</i> (Montagu, 1818)		•							
<i>Dysidia herbacea</i> (Keller, 1889)		•							
<i>Spongionella nigra</i> Dendy, 1889		•							
<i>Spongionella tuburlosa</i> Burton, 1937		•							
<b>FAMILY: DARWINELLIDAE</b>									
<i>Darwinella mulleri</i> Schulze, 1889		•							
<i>Dendrilla cactus</i> (Selenka, 1867)		•							
<i>Dendrilla membranosa</i> (Pallas, 1766)		•							
<i>Dendrilla nigra</i> (Dendry, 1889)		•							
<i>Hexadella purpurea</i> Burton, 1937		•							
<b>FAMILY: APLYSINA</b>									
<i>Aplysina lacunosa</i> (Lamarck, 1814)		•							
<b>FAMILY: DRUINELLIDAE</b>									
<i>Druinella purpurea</i> (Carter, 1880)		•							
CLASS: CALCAREA SUBCLASS: CALCINEA ORDER: CLATHRINIDA <b>FAMILY: CLATHRINIDAE</b>									
<i>Clathrina coriacea</i> (Montagu, 1818)		•							
<b>FAMILY : LEUCETTIDEA</b>									
<i>Pericharax heteroraphis</i> Polejaeff, 1884		•							
<b>FAMILY : GRANTIIDAE</b>									
<i>Ute syconoides</i> (Carter, 1886)		•							
CLASS: HEXACTINELLIDA SUBCLASS: AMPHIDISCOPHORA ORDER: AMPHIDISCOSIDA									
<b>FAMILY: HYALONEMATIDAE</b>									
<i>Hyalonema aculatum</i> Schulze, 1895		•							
<i>Hyalonema affine</i> Marshall, 1875		•							
<i>Hyalonema indicum</i> Schulze, 1895		•							
<i>Hyalonema lamella</i> Schulze, 1900		•	•						
<i>Hyalonema martabanense</i> Schulze, 1900		•							
<i>Hyalonema masoni</i> Schulze, 1895		•							
<i>Hyalonema nicobaricum</i> Schulze, 1900		•							
<i>Hyalonema pirum</i> Schulze		•							
<i>Hyalonema machrenthali</i> Schulze		•							
<i>Hyalonema affine Pauperum</i> Schulze		•							
<i>Hyalonema rapa</i> Schulze, 1904		•					•		
<i>Lophophysema inflatum</i> Schulze, 1902		•							
<b>FAMILY: PHERONEMATIDAE</b>									
<i>Pheronema raphanus</i> Schulze, 1895		•							
<i>Pheronema circumpalatum</i> Schulze		•							
<i>Semprella cucumis</i> Schulze, 1895		•							
SUBCLASS: HEXASTEROPHORA; ORDER: HEXACTINOSIDA									
<b>FAMILY: APROCALLYSTIDAE</b>									
<i>Aprocallistes beatrix</i> Gray, 1858		•							
<i>Aphrocallistes bocagei</i> Wright, 1870		•	•						
<i>Aphrocallistes ramosus</i> Schulze, 1886									
<b>FAMILY: FARREIDAE</b>									
<i>Farrea occa</i> Bowerbank, 1862		•	•						

FAMILY: TRETODICTYIDAE										
<i>Hexactinella minor</i> Dendy and Burton, 1926	•									
ORDER: LYSSACINOSIDA; FAMILY: EUPLECTELLIDAE										
SUBFAMILY: CORBITELLINAE										
<i>Dictyaulus elegans</i> Schulze, 1895		•								
<i>Regadrella decora</i> Schulze, 1900		•								
SUB FAMILY: EUPLECTELLINAE										
<i>Euplectella aspergillum</i> Owen, 1841	•									
<i>Euplectella regalis</i> Schulze, 1900	•									
<i>Euplectella simplex</i> Schulze, 1895	•									
SUB FAMILY: LANUGINELLINAE										
FAMILY: ROSELLIDAE										
<i>Lophocalyx spinosa</i> Schulze, 1900	•									
<i>Crytospongia enigmatica</i> Burton, 1928	•									
<i>Protoschmidtia cerebrum</i> Burton, 1928	•									

### CHECKLIST OF SOFT CORALS OF INDIA

SPECIES	AN	TN	AP	OR	WB	GO	MH	GU	LK
FAMILY: ALCYONIIDAE									
<i>Alcyonium flaccidum</i> Tixer-Durivault, 1966		•							
<i>Alcyonium klunzingeri</i> Simpson & Henderson, 1909	•								
<i>Cladiella pachyclados</i> Klunzinger, 1817	•	•						•	
<i>Dendronephthya brevirama</i> (Burckhardt)								•	
<i>Dendronephthya (Spongodes) dendrophyta</i> Wright & Studer								•	
<i>Dompia poecilliformes</i> Alderslade, 1983	•	•				•			
<i>Lobophytum batarum</i> Moser, 1919	•	•							
<i>Lobophytum catalai</i> Tixier- Durivault, 1956	•								
<i>Lobophytum compactum</i> Tixier- Durivault, 1958		•				•			
<i>Lobophytum crassum</i> Von Marenzeller, 1886		•				•			•
<i>Lobophytum durum</i> Tixier-Durivault, 1956		•							
<i>Lobophytum hirsutum</i> Tixier- Durivault, 1956	•								
<i>Lobophytum latilobatatum</i> Verseveldt, 1971	•	•				•			
<i>Lobophytum pauciflorum</i> Ehrenberg, 1834	•	•				•			•
<i>Lobophytum pusillum</i> Tixier- Durivault, 1970	•	•							
<i>Lobophytum schoedei</i> Moser, 1919	•								
<i>Lobophytum ransonii</i> Tixier- Durivault, 1958		•				•			
<i>Lobophytum sarcophytoides</i> Moser		•				•			
<i>Lobophytum strictum</i> Tixier- Durivault, 1957	•	•							







Thompson, Simpson & Henderson										
<i>Ellisella andamansis</i> Stimpson, 1986	•	•								
<i>Juncella juncea</i> Pallas, 1766		•						•	•	
<i>Juncella miniacea</i> Thompson & Henderson, 1906		•								
<i>Lophogorgia lutkeni</i> Wright & Studer								•		
<i>Nicella dichotoma</i> Gray		•								
<i>Nicella reticulate</i>										•
<i>Gorgonella umbriculam</i> Ellis & Solander, 1786		•								
<b>FAMILY: PLEXAURIDAE</b>										
<i>Astromuricea stellifer</i> Simpson&Henderson									•	
<i>Echinomuricea uliginosa</i> Thompson, Henderson										•
<i>Echinomuricea uliginosa tenerior</i> Thompson, Simpson&Henderson									•	
<b>FAMILY: MELITHEIDAE</b>										
<i>Clathraria maldivensis</i>										•
<b>FAMILY: UMBELLULLIDAE</b>										
<i>Umbellula indica</i> Thompson & Henderson, 1906		•								
<i>Umbellula pemdula</i> Thompson & Henderson, 1906		•								
<i>Umbellula radiata</i> Thompson & Henderson, 1906		•								
<b>FAMILY: VIRGULARIDAE</b>										
<i>Pavonaria willemoesii</i> Kolliker										•
<i>Virgularia fusca</i> Thompson & Henderson, 1906										•
<i>Virgularia rumphii</i> Kolliker									•	
<b>FAMILY: BRIAREIDAE</b>										
<i>Lutuaria phalloides</i> (Pallas)	•									
<i>Muricella ramose</i> Thompson & Henderson, 1906		•								
<i>Muricella rubra</i> Thompson & Henderson, 1906	•									
<i>Pteroeides andamanensis</i> Thompson & Henderson, 1909										•
<i>Scytalium martensii</i> Kolliker										•
<i>Verucella flexuosa</i> Klunzinger										•
<b>FAMILY: NIDALIIDAE</b>										
<i>Siphonogorgia media</i> Henderson & Henderson, 1909	•									
<i>Siphonogorgia palmate</i> Simpson & Henderson, 1909	•									
<i>Siphonogorgia annectens</i> Simpson & Henderson, 1909						•			•	
<i>Siphonogorgia asperula</i> Simpson & Henderson, 1909	•	•						•		
<i>Siphonogorgia duriuscula</i> Simpson & Henderson, 1909		•						•		
<b>FAMILY: XENIIDAE</b>										
<i>Xenia nana</i> Lamarck, 1816		•						•		
<i>Xenia ternate</i> Lamarck, 1816		•						•		
<i>Xenia umbellate</i> Savigny in Lamarck, 1816		•						•		

## CHECKLIST OF HARD CORALS OF INDIA

SPECIES	AN	TN	AP	OR	WB	GO	MH	GU	LK
<b>FAMILY : ACROPORIDAE Verrill, 1902</b>									
<i>Montipora foliosa</i> (Pallas, 1766)	•	•				•			•
<i>Montipora aequituberculata</i> Bernard, 1897	•	•				•			
<i>Montipora monasteriata</i> (Forskal, 1775)		•				•		•	
<i>Montipora tuberculosa</i> (Lamarck, 1816)		•				•			•
<i>Montipora peltiformis</i> Bernard, 1897	•								
<i>Montipora informis</i> Bernard, 1897	•	•				•			•
<i>Montipora spumosa</i> (Lamarck, 1816)		•				•			•
<i>Montipora turgescens</i> Bernard, 1897	•	•				•		•	•
<i>Montipora venosa</i> (Ehrenberg, 1834)	•	•				•		•	•
<i>Montipora verrucosa</i> (Lamarck, 1816)	•	•				•			•
<i>Montipora hispida</i> (Dana, 1846)	•	•				•		•	•
<i>Montipora digitata</i> (Dana, 1846)	•	•				•			•
<i>Montipora angulata</i> (Lamarck, 1816)	•								
<i>Montipora millepora</i> Crossland, 1952		•				•			
<i>Montipora spongiosa</i> (Ehrenberg, 1834)									•
<i>Montipora jonesi</i> Pillai, 1969		•				•			
<i>Montipora manauliensis</i> Pillai, 1967		•				•			
<i>Montipora edwardsi</i> Bernard, 1897									•
<i>Montipora explanata</i> Brueggeman, 1879		•				•		•	•
<i>Montipora exserta</i> Quelch, 1886		•				•			
<i>Acropora rudis</i> (Rehberg, 1892)		•				•			
<i>Acropora humilis</i> (Dana, 1846)	•	•				•		•	•
<i>Acropora gemmifera</i> (Brook, 1892)	•								
<i>Acropora monticulosa</i> (Bruggemann, 1879)	•								
<i>Acropora samoensis</i> (Brook, 1891)	•								
<i>Acropora digitifera</i> (Dana, 1846)	•	•				•			•
<i>Acropora multiacuta</i> Nemenzo, 1967	•								
<i>Acropora nasuta</i> (Dana, 1846)	•								•
<i>Acropora valida</i> (Dana, 1846)	•	•				•			
<i>Acropora secale</i> (Studer, 1878)	•	•				•			
<i>Acropora lutkeni</i> Crossland, 1952	•								
<i>Acropora divaricata</i> (Dana, 1846)	•								
<i>Acropora solitaryensis</i> Veron and Wallace, 1984	•	•							
<i>Acropora clathrata</i> (Brook, 1891)	•								
<i>Acropora glauca</i> (Brook, 1893)	•								
<i>Acropora muricata</i>	•	•				•			•

(Linnaeus, 1758)									
<i>Acropora grandis</i> (Brook, 1892)	•								
<i>Acropora valenciennesi</i> (MED & H, 1816)		•				•			
<i>Acropora abrotanoides</i> (Lamarck, 1816)									•
<i>Acropora robusta</i> (Dana, 1846)	•								•
<i>Acropora palmerae</i> Wells, 1954	•								•
<i>Acropora intermedia</i> (Dana, 1846)	•	•				•			•
<i>Acropora tenuis</i> (Dana, 1846)	•								
<i>Acropora aspera</i> (Dana, 1846)	•								•
<i>Acropora millepora</i> (Ehrenberg, 1834)	•	•				•			
<i>Acropora spicifera</i> (Dana, 1846)	•								
<i>Acropora papillare</i> Latypov, 1992	•								
<i>Acropora florida</i> (Dana, 1846)	•								
<i>Acropora hyacinthus</i> (Dana, 1846)	•	•				•			•
<i>Acropora cytherea</i> (Dana, 1846)	•	•				•			•
<i>Acropora microclados</i> (Ehrenberg, 1834)	•								
<i>Acropora microphthalma</i> (Verrill, 1869)		•				•			
<i>Acropora loripes</i> (Brook, 1892)	•								
<i>Acropora granulosa</i> (MED & H, 1860)	•	•							•
<i>Acropora caroliniana</i> Nemenzo, 1976	•								
<i>Acropora echinata</i> (Dana, 1846)	•	•				•			•
<i>Acropora subglabra</i> (Brook, 1891)	•								
<i>Acropora carduus</i> (Dana, 1846)	•								
<i>Acropora longicyathus</i> (MED & H, 1860)	•								
<i>Acropora palifera</i> (Lamarck, 1816)	•								•
<i>Acropora brueggemanni</i> (Brook, 1893)	•								
<i>Acropora austera</i> (Dana, 1846)	•								
<i>Acropora pulchra</i> (Brook, 1891)	•								
<i>Acropora anthocercis</i> (Brook, 1893)	•								
<i>Acropora polystoma</i> (Brook, 1891)	•								
<i>Acropora latistella</i> (Brook, 1892)	•								
<i>Acropora henprichi</i> (Ehrenberg, 1834)									•
<i>Astreopora listeri</i> Bernard, 1896	•								•
<i>Astreopora myriophthalma</i> (Lamarck, 1816)		•				•			•
<i>Astreopora cucullata</i> Lamberts, 1980	•								
<b>FAMILY : ASTROCOENIIDAE</b>									
<i>Stylocoeniella guentheri</i> BassettSmith 1890	•								
<i>Madracis kirbyi</i> Veron & Pichon, 1976	•	•				•			
<b>FAMILY: POCILLOPORIDAE</b>									

<i>Pocillopora damicornis</i> Linnaeus, 1758	•	•				•			•
<i>Pocillopora verrucosa</i> (Ellis & Solander, 1786)	•	•				•			•
<i>Pocillopora eydouxi</i> MED&H, 1860	•	•				•			•
<i>Pocillopora ligulata</i> Dana, 1846									•
<i>Pocillopora ankei</i> Scheer & Pillai, 1974	•								
<i>Seriatopora hystrix</i> Dana, 1846	•								
<i>Seriatopora stellata</i> Quelch, 1886	•								
<i>Seriatopora crassa</i> Quelch, 1886	•								
<i>Stylophora pistillata</i> Esper, 1797	•								•
<b>FAMILY: EUPHYLLIDAE</b>									
<i>Euphyllia glabrescens</i> (Chamisso & Eysenhardt, 1821)	•								•
<i>Plerogyra sinuosa</i> (Dana, 1846)	•								
<i>Physogyra lichtensteini</i> (MED & H, 1851)	•								
<b>FAMILY: OCULINIDAE</b>									
<i>Galaxea astreata</i> (Lamarck, 1816)	•	•				•			•
<i>Galaxea fascicularis</i> (Linnaeus, 1767)	•	•				•			•
<b>FAMILY: SIDERASTREIDAE</b>									
<i>Pseudosiderastrea tayami</i> Yabe & Sugiyama, 1935	•	•				•		•	•
<i>Siderastrea savignayana</i> Milne Edwards & Haime, 1850								•	
<i>Psammocora contigua</i> (Esper, 1797)	•	•				•			•
<i>Psammocora digitata</i> MED & H, 1851	•							•	•
<i>Psammocora profundacella</i> Gardiner, 1898	•								•
<i>Psammocora haimeana</i> MED & H, 1851									•
<i>Coscinaraea monile</i> (Forskal, 1775)		•				•			
<b>FAMILY : AGARICIIDAE</b>									
<i>Pavona cactus</i> (Forskal, 1775)	•	•				•			
<i>Pavona explanulata</i> (Lamarck, 1816)	•								
<i>Pavona varians</i> Verrill, 1864	•	•				•		•	•
<i>Pavona maldivensis</i> (Gardiner, 1905)	•								•
<i>Pavona decussata</i> (Dana, 1846)	•	•				•			
<i>Pavona venosa</i> (Ehrenberg, 1834)	•								
<i>Pavona clavus</i> (Dana, 1846)	•	•				•			•
<i>Pavona duerdeni</i> Vaughan, 1907	•								
<i>Pavona minuta</i> Wells, 1954	•								
<i>Leptoseris papyracea</i> (Dana, 1846)	•								
<i>Leptoseris hawaiiensis</i> Vaughan, 1907	•								
<i>Coeloseris mayeri</i> Vaughan, 1918	•								
<i>Gardineroseris planulata</i> (Dana, 1846)	•								•
<i>Pachyseris rugosa</i> (Lamarck, 1801)	•	•				•			

<i>Pachyseris speciosa</i> (Dana, 1846)	•								
<i>Pachyseris gemmae</i> Nemanzo, 1955	•								
<b>FAMILY : FUNGIIDAE</b>									
<i>Cycloseris cyclolites</i> (Lamarck, 1801)	•	•				•			
<i>Cycloseris costulata</i> (Ortmann, 1889)	•								
<i>Cycloseris hexagonalis</i> MED & H, 1848	•								
<i>Cycloseris patelliformis</i> (Boschma, 1923)	•								
<i>Cycloseris sinensis</i> MED & H, 1849	•								
<i>Cycloseris somervillei</i> (Gardiner, 1909)	•								•
<i>Diaseris distorta</i> (Michelin, 1843)	•								
<i>Fungia corona</i> Doderlein, 1901	•								
<i>Fungia horrida</i> Dana, 1846	•								
<i>Fungia danai</i> MED & H, 1851	•								•
<i>Fungia fungites</i> (Linnaeus, 1758)	•								•
<i>Fungia repanda</i> Dana, 1846	•								
<i>Fungia scutaria</i> Lamarck, 1801	•								•
<i>Fungia paumotensis</i> Stutchberry, 1833	•								
<i>Ctenactis echinata</i> (Pallas, 1766)	•								
<i>Ctenactis crassa</i> (Dana, 1846)	•								
<i>Herpolitha limax</i> (Houttuyn, 1772)	•								
<i>Polyphyllia talpina</i> (Lamarck, 1801)	•								•
<i>Sandalolitha robusta</i> (Quelch, 1886)	•								
<i>Halomitra pileus</i> (Linnaeus, 1758)	•								
<i>Lithophyllon undulatum</i> Rehberg, 1892	•								
<i>Podabacia crustacea</i> (Pallas, 1766)	•								•
<b>FAMILY : PECTINIIDAE</b>									
<i>Echinophyllia spera</i> (Ellis & Solander, 1786)	•								
<i>Oxypora lacera</i> (Verrill, 1864)	•								
<i>Mycedium elephantotus</i> (Pallas, 1766)	•	•				•		•	•
<i>Pectinia lactuca</i> Pallas, 1766	•								
<i>Pectinia paeonia</i> , (Dana, 1846)	•								
<b>FAMILY : MERULINIDAE</b>									
<i>Hydnophora rigida</i> (Dana, 1846)	•								
<i>Hydnophora exesa</i> (Pallas, 1766)	•	•				•		•	
<i>Hydnophora microconos</i> (Lamarck, 1816)	•	•				•			•
<i>Merulina ampliata</i> (Ellis & Solander, 1786)	•								•
<i>Scapophyllia cylindrica</i> MED & H, 1848	•								
<b>FAMILY : DENDROPHYLLIIDAE</b>									
<i>Turbinaria peltata</i> (Esper, 1794)	•	•				•		•	
<i>Turbinaria reniformis</i> Bernard, 1896	•								
<i>Turbinaria mesenterina</i> (Lamarck, 1816)	•	•				•		•	•



FAMILY : TRACHYPHYLLIDAE									
<i>Trachyphyllia geoffroyi</i> (Audouin, 1826)	•								
FAMILY : PORITIDAE									
<i>Porites lutea</i> MED & H, 1860	•	•				•		•	•
<i>Porites lobata</i> Dana, 1846	•								•
<i>Porites solida</i> (Forsk., 1775)	•	•				•			•
<i>Porites lichen</i> Dana, 1846	•	•				•		•	•
<i>Porites nigrescens</i> Dana, 1846	•								
<i>Porites compressa</i> Dana, 1846		•				•		•	
<i>Porites exserta</i> Pillai, 1969		•				•			
<i>Porites mannarensis</i> Pillai, 1969		•				•			
<i>Porites minicoensis</i> Pillai, 1969		•				•			•
<i>Porites murrayensis</i> Vaughan, 1918									
<i>Porites rus</i> (Forsk., 1775)	•								•
<i>Goniopora stokesi</i> MED & H, 1851	•	•				•			•
<i>Goniopora minor</i> Crossland, 1952	•							•	•
<i>Goniopora tenuidens</i> (Quelch, 1886)	•								
<i>Goniopora stutchburyi</i> Wells, 1955		•				•		•	
<i>Goniopora columna</i> Dana, 1846	•								
<i>Goniopora planulata</i> (Ehrenberg, 1834)	•	•				•		•	
<i>Alveopora verrilliana</i> Dana, 1846	•								
<i>Alveopora superficialis</i> Pillai & Scheer, 1976									•

### CHECKLIST OF CRUSTACEA OF EAST COAST OF INDIA

SPECIES	AN	TN	AP	OR	WB	GOA	MH	GU	LK
PHYLUM : ARTHROPODA CLASS : CRUSTACEA Pennant, 1777 LOBSTERS CLASS: MALACOSTRACA Latreille, 1806 SUBCLASS: EUMALACOSTRACA Calman, 1904 ORDER: DECAPODA Latreille, 1803 FAMILY: SCYLLARIDAE									
<i>Thenus orientalis</i> (Lund)	•	•	•	•		•			
<i>Panulirus homarus</i>	•	•				•			•
<i>Panulirus penicillatus</i> (Olivier)								•	
<i>Panulirus versicolor</i> (Latreille)								•	
<i>Panulirus polyphagus</i> Herbst		•					•		
<i>Scyllarus tutiensis</i> sp. nov	•	•				•			
<i>Scyllarus paradoxus</i> Miers, 1881	•					•			
<i>Scyllarus posteli</i> Forest, 1963		•				•			
<i>Scyllarus rubens</i> (Alcock and Anderson, 1894)	•					•			
<i>Scyllarus batei</i> (Bates, 1888)		•	•						
<i>Scyllarus sordidus</i> (Stimpson, 1860)		•				•			
FAMILY : PALINURIDAE									
<i>Panulirus polyphagus</i> (Herbst)		•	•	•		•			

1793)									
<i>Panulirus ornatus</i> (Fabricius1798)		•	•	•		•			
<b>PRAWNS</b>									
<b>FAMILY: ANCHISTIOIDAE</b>									
<i>Anchistioides compressus</i> Paulson	•					•			
<b>FAMILY: ATYIDAE</b>									
<i>Caridina brachydactyla</i> <i>brachydactyla</i> De Man	•					•			
<i>Caridina gracilivostris</i> <i>gracilivostris</i> De Haan	•								
<i>Cardina nilotica</i> (Roux.)								•	
<i>Caridina prashadi</i> Tiwari and Pillai	•								
<i>Caridina servatirostris</i> De Man	•								
<i>Caridina typus</i> H.M.Edwards	•					•			
<i>Aegeon andamanensis</i> (Wood Mason )	•								
<i>Aegeon medium</i> ( Alcock and Anderson )	•								
<i>Aegeon orientalis</i> Henderson	•					•			
<i>Aegeon propensalata</i> ( Bate )	•								
<i>Pontophilus angustirostris</i> de Haan	•								
<i>Pontophilus candidus</i> Kemp	•								
<i>Pontophilus gracilis</i> S.I.Smith	•								
<i>Pontophilus incisus</i> Kemp	•								
<i>Pontophilus lowisi</i> Kemp	•								
<i>Pontophilus plebs</i> Kemp	•					•			
<i>Pontophilus sabsechota</i> Kemp	•								
<i>Prionocrangon ommatosteres</i> WoodMason	•					•			
<b>FAMILY: DISCIADIDAE</b>									
<i>Discias exul</i> Kemp	•								
<b>FAMILY: GLYPHOCRANGONIDAE</b>									
<i>Glyphocrangon caeca</i> Wood Mason	•					•			
<i>Glyphocrangon gilesii</i> Wood Mason	•								
<i>Glyphocrangon investigatoris</i> Wood Mason	•								
<i>Glyphocrangon smithii</i> Wood Mason	•					•			
<b>FAMILY: GNATHOPHYLLIDAE</b>									
<i>Bnathophyllum fasciolatum</i> Stimpson	•								
<i>Hymenocera elegans</i> Heller	•								
<i>Phyllognathia ceratophthalma</i> ( Balss )	•					•			
<b>FAMILY: HOPLOPHORIDAE</b>									
<i>Azanthephyra armata</i> A.M.Edwards	•								
<i>Azanthephyra curtirastris</i> Wood	•					•			



<i>Anthanas dorsalis</i> (Stimpson) 1861		•	•						
<i>Athanas polymorphus</i> Kemp						•			
<i>Conchodytes biunguiculatus</i> (Paulson)	•					•			
<i>Conchodytes tridacnae</i> Peters	•								
<i>Coralliocaris graminea</i> (Dana)	•								
<i>Coralliocaris superba</i> (Dana)	•					•			
<b>FAMILY : PALAEMONIDAE</b>									
<i>Harpiliopsis beaupresi</i> (Audouin)	•								
<i>Harpiliopsis depressus</i> var. <i>spinigera</i> (Ortmann)	•								
<i>Jocaste lucina</i> (Nobili)	•								
<i>Leander tenuicornis</i> (Say)	•								
<i>Leptocarpus potamuscus</i> (Kemp)	•					•			
<i>Macrobrachium australe</i> (Guerin Meneville)	•	•		•					
<i>Macrobrachium equidens</i> (Dana 1852)	•				•	•			
<i>Macrobrachium hendersoni hendersoni</i> (de Man)		•							
<i>Macrobrachium lamarrei</i> (H. Milne Edwards, 1837)	•	•				•			
<i>Macrobrachium lar</i> (Fabricius)	•	•	•	•					
<i>Macrobrachium latidactylus</i> (Thallwitz)	•					•			
<i>Macrobrachium malcomsonii</i> (H. Milne Edwards, 1844)	•	•	•	•	•				
<i>Macrobrachium mirabile</i> (Kemp, 1917)		•			•	•			
<i>Macrobrachium placidulum</i> (Heller)	•								
<i>Macrobrachium rosenbergii</i> De man, 1879	•	•	•	•	•				
<i>Macrobrachium rude</i> (Heller, 1862)	•	•	•	•	•				
<i>Macrobrachium scabriculum</i> (Heller, 1862)	•		•		•				
<i>Macrobrachium villosimanus</i> Tiwari, 1949				•	•				
<i>Nematopalaemon tenuipes</i> (Henderson, 1893)		•			•				
<i>Palaemon (Palaemon) Semmelinki</i> (de Man)	•					•		•	
<i>Palaemon styliferus</i>								•	
<i>Palaemon tenuipes</i>								•	
<i>Palaemon (Palaemon) dedilis</i> Dana	•								
<i>Palaemonella lata</i> Kemp	•								
<i>Palaemonella vestigialis</i> Kemp	•	•							
<i>Periclimenes (Harpilius) agag</i> Kemp	•					•			
<i>Periclimenes (Harpilius)</i>	•			•					



<i>Metapenaeopsis coniger</i> (Woodmason)	•	•	•	•					
<i>Metapenaeopsis hilarula</i> Deman, 1971		•							
<i>Metapenaeopsis mogiensis</i> (Rathbun)	•	•	•	•	•				
<i>Metapenaeopsis phillippii</i> (Bate)	•								
<i>Metapenaeopsis stridulans</i> Alcock, 1905	•	•		•		•		•	
<i>Metapenaeus affinis</i> (H. Milne Edwards)		•	•	•	•	•		•	
<i>Metapenaeus alcocki</i> sp.nov.		•	•	•					•
<i>Metapenaeus brevicornis</i>		•	•	•	•			•	
<i>Metapenaeus burkenroadi</i> Kubo		•						•	
<i>Metapenaeus dobsoni</i> (Miers 1878)		•	•	•	•				
<i>Metapenaeus ensis</i> (De Haan)	•	•	•	•		•			
<i>Metapenaeus kutchensis</i>								•	
<i>Metapenaeus lysianassa</i> (De man)		•	•	•	•			•	
<i>Metapenaeus monoceros</i> (Fabricius)		•	•	•		•		•	•
<i>Metapennaenus stebbingi</i> (Nobili)								•	•
<i>Parapenaeopsis acclivirostris</i> Alcock		•	•		•				
<i>Parapenaeopsis coromandelica</i> (Alcock)		•	•	•	•				•
<i>Parapenaeopsis corunata</i> Kishinouye		•							
<i>Parapenaeopsis hardwickii</i>								•	
<i>Parapenaeopsis longipes</i> Alcock		•	•	•	•				
<i>Parapenaeopsis maxillipede</i> Alcock, 1906		•	•		•				•
<i>Parapenaeopsis sculptilis</i> (Heller, 1868)	•	•							
<i>Parapenaeopsis stylifera</i> (H.Milne Edwards)		•						•	•
<i>Parapenaeopsis tenella</i> Bate		•							
<i>Parapenaeopsis uncta</i> Alcock	•	•	•	•	•				
<i>Parapenaeus fissurus</i> (Bate)						•			
<i>Parapenaeus investigatoris</i> Alcock and Anderson	•	•							
<i>Penaeopsis rectacuta</i> (Bate)	•	•	•						•
<i>Penaeus canaliculatus</i> (Olivier)	•	•	•	•					•
<i>Penaeus indicus</i> H.Milne Edwards, 1837	•	•	•	•	•	•			
<i>Penaeus japonicus</i> Bate		•							•
<i>Penaeus latisulcatus</i> Kishinouye		•						•	•
<i>Penaeus monodon</i> Fabricius, 1798	•	•	•	•	•			•	•
<i>Penaeus semisulcatus</i> De Haan, 1950	•	•	•	•	•	•		•	•
<i>Penaeus affinis</i> (H. Milne Edwards)	•	•	•	•					
<i>Penaeus indicus</i> H. Milne Edwards	•	•	•	•	•	•		•	•
<i>Penaeus merguensis</i> de Man		•	•	•		•		•	

<i>Penaeus pencillatus</i>								•	
<i>Penaeus canaliculatus</i> Oliver	•	•	•	•		•			
<i>Penaeus longipes</i> Alcock		•	•	•		•			
<i>Metapenaeus brevicornis</i> H. Milne Edwards)		•	•	•	•	•			
<i>Metapenaeus monoceros</i> (Fabricius)		•	•	•	•	•			
<i>Metapenaeus lysianassa</i> (de Man )		•	•	•	•				
<i>Parapenaeopsis sculptilis</i> (Heller)		•	•		•	•			
<i>Parapenaeopsis stylifera</i> (Alcock)		•							
<i>Sicyonia lancifer</i> (Oliver)	•								•
<i>Trachypenaeus curvirostris</i> (Stimpson 1860)		•				•		•	•
<i>Trachypenaeus asper</i> Alcock	•	•							
<i>Trachypenaeus granulose</i>								•	
<i>Trachypenaeus minicoyensis</i> Thomas									•
<i>Trachypenaeus pescadoreensis</i>								•	
<b>FAMILY: SERGESTIDAE</b>									
<i>Acetes indicus</i> H. Milne Edwards 1830		•	•	•	•	•		•	
<i>Acetes cochinensis</i> Vedaveyasa rao									•
<i>Acetes erythraeus</i> Nobili			•		•				•
<i>Lucifer hansenii</i> Nobili	•								•
<i>Sergestes armatus</i> Kroyer									•
<i>Sergestes bisulcatus</i> WoodMason	•					•			
<i>Sergestes rubroguttatus</i> WoodMason	•					•			
<i>Sergestes seminudus</i> Hansen									•
<b>FAMILY: SOLENO CERIDAE</b>									
<i>Solenocera chopraii</i> Natraj	•	•	•		•	•			•
<i>Solenocera crassicornis</i> (H. Milne Edwards)		•		•		•		•	
<i>Solenocera hexti</i> Wood mason		•							•
<i>Solenocera annectens</i> Wood Mason	•								
<i>Solenocera alticarinata</i> Kubo									•
<i>Solenocera koelbeli</i> De man									•
<i>Solenocera melantho</i> De Man									•
<i>Solenocera pectinata</i> (Bate)									•
<b>HERMIT CRABS</b>									
<b>INFRA ORDER: ANOMURA</b>									
<b>FAMILY: PAGURIDAE</b>									
<i>Nematopagurus squamichelis</i> Alcock	•					•			
<i>Paguristes balanophilus</i> Alcock	•								
<i>Paguristes ciliatus</i> ( Heller )	•					•			
<i>Paguristes mundus</i> Alcock	•					•			
<i>Paguristes puniceus</i> Henderson	•					•			
<i>Paguristes longirostris</i> Dana	•	•							
<i>Paguristes incomitatus</i> Alcock	•	•							
<i>Paguristes megistos</i> Herbst	•	•							
<i>Paguristes setifer</i> Milne Edwards	•	•							

<i>Pagurus pergranulatus</i> (Henderson)	•								
<i>Pagurus zebra</i>	•								
<i>Porcellana cerratifrons</i>								•	
<i>Porcellana gaekwari</i>								•	
<i>Porcellana tuberculosa</i>								•	
<i>Spiropagurus spiriger</i> var. <i>lophomeris</i> Alcock	•								
<i>Spiropagurus spiriger profundorum</i> Alcock	•								
<i>Sympagurus bicristatus</i> var. <i>indicus</i> Alcock	•								
<i>Sympagurus monstrosus</i> (Alcock)	•					•			
<b>FAMILY: DIOGENIDAE</b>									
<i>Diogenes custos</i> (Fabricius)	•				•	•			
<i>Diogenes miles</i> (Herbst)	•				•	•			
<i>Diogenes effinis</i> (Henderson)	•				•				
<i>Dardanus hessii</i> Meirs	•	•				•			
<i>Dardanus asper</i> De Haan		•							
<i>Clibanarius padarensis</i> De man	•					•			
<i>Aniculus aniculus</i> (Herbst)	•					•			
<i>Aniculus strigatus</i> (Herbst)	•					•			
<i>Calcinus gaimardii</i> (H.M.Edwards)	•	•							
<i>Calcinus herbstii</i> de Man	•	•							
<i>Calcinus latens</i> (Randall)	•					•			
<i>Clibanarius arethusa</i> de Man	•	•							
<i>Clibanarius corallinus</i> (H.W. Edwards)	•	•							
<i>Clibanarius clibanarius</i> Herbst		•							
<i>Clibanarius cranantatus</i> Milne Edwards		•							
<i>Clibanarius signatus</i>								•	
<i>Clibanarius zebra</i> Dana		•						•	
<i>Clibanarius infraspines</i> Hilgendorf		•							
<i>Clibanarius humilis</i> Dana	•							•	
<i>Clibanarius longitarsus</i> (de Haan)	•	•				•			
<i>Clibanarius merguensis</i> de Haan	•	•							
<i>Clibanarius nathi</i>								•	
<i>Clibanarius olivaceus</i> Henderson	•					•			
<i>Clibanarius striolatus</i> Dana	•								
<i>Dardanus deformis</i> (H.M. Edwards)	•	•							
<i>Dardanus euopsis</i> (Dana)	•				•				
<i>Dardanus guttatus</i> (Olivier)	•								
<i>Dardanus megistos</i> (Herbst)	•	•							
<i>Dardanus varipes</i> (Heller)	•								
<i>Dardanus vulnerans</i> (Thallwitz)	•								
<i>Dardanus woodmasoni</i> (Alcock)	•								
<i>Diogenes avarus</i> Heller	•	•							



FAMILY: COENOBITIDAE									
<i>Birgus latro</i> (Linnaeus)	•								
<i>Coenobita cavipes</i> Stimpson	•								
<i>Coenobita clypeat</i> (Herbst)	•								
<i>Coenobita perlata</i> (H.M. Edwards)	•								
<i>Coenobita ruqosa</i> H.M. Edwards	•								
FAMILY: PYLOCHELIDAE									
<i>Pylocheles miersii</i> Alcock and Anderson	•								
<i>Parapylocheles scorpio</i> Alcock	•								
FAMILY: ALBUNIDAE									
<i>Albunea symnista</i> (Linnaeus)	•								
CRAB									
FAMILY: HOMOLODROMIDAE									
<i>Arachmodromia baffni</i> Alcock & Anderson	•								
FAMILY: DYNOMENIDAE									
<i>Acanthodromia margarita</i> Alcock	•								
<i>Dynomene pilumnoides</i> Alcock									•
FAMILY: DROMIIDAE Alcock, 1899									
<i>Conchoecates andamanicus</i> Alcock	•								
<i>Conchoecetes artificiosus</i> (Fabricius, 1798)	•				•				
<i>Cryptodromia tuberculata</i> Stimpson	•								
<i>Cryptodromia canaliculated</i> Stimpson	•								
<i>Cryptodromia hilgendorfi</i> de Man, 1888		•							
<i>Cryptodromia tuberculata pileifera</i> Alcock	•								
<i>Dromidiopsis abrollensis</i> Montgomery, 1931		•							
<i>Dromia</i> ( <i>Cryptodromia</i> ) <i>Bullifera</i> Alcock	•								
<i>Dromia</i> ( <i>Petalomera</i> ) <i>granulata</i> Stimpson	•								
<i>Dromia cranioides</i> De Haan	•								
<i>Dromia dehaani</i> Rathbun, 1923		•			•				
<i>Dromia dromia</i> (Linnaeus)		•							
<i>Dromia rumplii</i> Fabricius	•	•							
<i>Dromia unidentata</i> Rueppell	•				•				
<i>Dromidia unidentata</i> (Ruppell, 1830)	•								
<i>Petalomera granulata indica</i> Alcock	•								
<i>Pseudodromia integrifrons</i> Henderson		•							
<i>Sphaesodromia nux</i> Alcock	•								
FAMILY: HOMOLIDAE									
<i>Homola andamanica</i> Alcock	•								
<i>Homola megalops</i> Alcock	•								
<i>Paramalopsis boasi</i> Wood Mason	•								
FAMILY: LATREILLIDAE									

<i>Latreilopsis bispinosa</i> Henderson	•								
<i>Latreillia pennifera</i> Alcock	•								
<b>FAMILY: GONOPLACIDAE</b>									
<i>Camatopsis rubida</i> Alcock and Anderson	•								
<i>Carcinoplax longimanus</i> De Haan	•	•							
<i>Carcinoplax longipes</i> (Wood Mason)	•								
<i>Ceratoplax ciliata</i> Stimpson	•	•							
<i>Camatopsis rubida</i> Alcock & Anderson	•								
<i>Eucrata crenata</i> De Haan	•								
<i>Eucrate sexdentata</i> Haswell	•	•							
<i>Hepthopelta lugubris</i> Alcock	•								
<i>Libystes alphonsi</i> Alcock	•								
<i>Libystes edwardsi</i> Alcock, 1900	•								
<i>Litochira baumontii</i> Alcock	•								
<i>Litochira quadrispinosa</i> Zehntuer	•	•							
<i>Litochira setosa</i> (Edwards)	•								
<i>Notonyx vitreus</i> Alcock	•	•							
<i>Platypilumnus gracilipes</i> Wood-Mason	•								
<i>Pseudorhombilia spinipes</i> Alcock	•								
<i>Psopheticus insignis</i> Alcock	•								
<i>Psopheticus stridulans</i> Wood Mason	•								
<i>Scalopidia spinosikpes</i> Stimpson	•		•						
<i>Typhlocarcinus nudus</i> Stimpson	•								
<i>Xenopthalmodes moebii</i> Richters	•								
<b>FAMILY: PINNOTHERIDAE</b>									
<i>Xenopthalmus obscurus</i> Henderson	•								
<i>Tetrias fischeri</i> (A. M. Edwards)	•								
<i>Pinnotheres purporeus</i> Alcock	•								
<i>Pinnatheres deccanensis</i> Chopra		•							
<i>Pinnatheres ridgewayi</i> Southwell		•							
<i>Xanthasia Murigera</i> White	•								
<i>Ozius rugulosus</i> Stimpson, 1858		•							
<i>Pilumnus scabriuscular</i> (Fabricius, 1793)		•							
<b>FAMILY: MICTYRIDAE</b>									
<i>Mictyris longicarpus</i> Latrielle	•								
<b>FAMILY: HYMENOSOMIDAE</b>									
<i>Elamena (Trigonoplax) unguiformis</i> de Haan	•								
<i>Elamena truncata</i> (Stimpson)	•	•							
<i>Elemia sidensis</i> Alcock	•	•							
<i>Hymenicus woodmasoni</i> Alcock	•								
<b>FAMILY: LEUCOSIIDAE Dana 1852</b>									
<i>Arcania erinaceous</i> (Fabricius, 1798)	•		•						
<i>Arcania quinguespinosa</i> Alcock & Anderson	•	•		•					
<i>Arcania septemspinosa</i> De Haan,	•	•	•	•					

1841									
<i>Arcania tuberculata</i> Bell	•	•							
<i>Arcania undecimspinoso</i> De Haan , 1841	•	•	•		•				
<i>Ebalia malefactorix</i> Kemp	•	•			•				
<i>Ixa cylindrus</i> (Fabr.) Leach	•	•	•		•				
<i>Ixa inermis</i> Leach	•		•						
<i>Ixoides cornutus</i> Mac Gilchrist, 1905	•	•							
<i>Leucosia anatum</i> (Herbst, 1783)	•	•			•				
<i>Leucosia biannulata</i> Tyndale-Biscoe and George, 1962	•		•						
<i>Leucosia craniolaris</i> (Linnaeus, 1758)	•	•	•						
<i>Leucosia longifrons</i> De Haan, 1841	•	•							
<i>Leucosia pallida</i> Bell	•	•	•		•				
<i>Leucosia pubescens</i> Miers, 1886	•	•	•						
<i>Leucosia rhomboidalis</i> De Haan, 1841	•		•		•				
<i>Myra affinis</i> Bell, 1855	•	•							
<i>Myra fugax</i> (Fabricius, 1798)	•	•	•		•	•			
<i>Myra pentacantha</i> Alcock	•								
<i>Myra darleyensis</i> Haswell	•								
<i>Nucia speciosa</i> Dana									•
<i>Nursila dentata</i> Bell	•								
<i>Nursila tonsor</i> Alcock	•								
<i>Nursila hardwickii</i> Edwards	•								
<i>Parilla alcockii</i> Eood-Mason, 1891		•							
<i>Philyra adamis</i> Bell		•							
<i>Philyra alcocki</i> Kemp		•			•				
<i>Philyra globulosa</i> H. Milne Edwards, 1837	•	•							
<i>Philyra platychira</i> de Haan	•								
<i>Philyra scabriuscula</i> (Fabricius , 1798 )			•			•			
<i>Philyra verrucosa</i> Henderson		•	•						
<i>Randallia lanata</i> Alcock	•								
<i>Randallia Lamellidentata</i> Wood-Mason	•								
<i>Randallia pustulosa</i> Wood-Mason	•								
<i>Tios patus</i> Borradaile	•								
<i>Tios petraeus</i> Edwards	•								
<i>Tios patella</i> Alcock	•								
<b>FAMILY: HYMENOSOMATIDAE</b>									
<i>Elamenopsis alcocki</i> (Kemp,1917)						•			
<i>Elamenopsis demeloi</i> (Kemp,1917)						•			
<i>Elamenopsis octagonalis</i> (Kemp, 1917)						•			
<i>Elamena truncata</i> (Stimpson,1858)						•			
<i>Elamena xavieri</i> Kemp, 1917						•			
<b>FAMILY: CALAPPIDAE Dana 1852</b>									
<i>Ashtoret miersi</i> (Henderson,1887)						•			
<i>Calappa bicornis</i> Miers, 1884		•							

<i>Calappa fornicata</i> Fabricius	•		•						
<i>Calappa gallus</i> , Herbst, 1803	•	•							
<i>Calappa hepatica</i> (Linnaeus)	•		•						
<i>Calappa japonicas</i> Ortmann, 1892				•					
<i>Calappa lophos</i> (Herbst, 1782)	•	•	•	•	•				
<i>Calappa philargius</i> (Linnaeus, 1758)	•	•							
<i>Calappa pustulosa</i> Alcock, 1896			•	•					
<i>Calappa spinosissima</i> Edwards	•	•		•					
<i>Calappa terraerequii</i> Ward, 1936		•							
<i>Cryptosoma granulosum</i> (De Haan)	•		•						
<i>Matula miersi</i> Henderson, 1887		•	•	•					
<i>Matula plainpes</i> Fabricius, 1798		•	•	•	•				
<i>Matuta banksii</i> Leach	•			•					
<i>Matuta leanskii</i> Leach			•						
<i>Matuta lunaris</i> (Forskal, 1775)	•	•							
<i>Matuta miesii</i> (Henderson)		•	•	•					
<i>Matuta planipes</i> Fabricius, 1798		•	•	•					
<i>Matuta victor</i> Fabricius	•				•	•			
<i>Mursia bicristimana</i> Alcock & Anderson	•								
<b>FAMILY: MAJIDAE</b> Samouille, 1819									
<i>Composia retusa</i> Latreille, 1829		•							
<i>Cyclax suborbicularis</i> (Stimpson, 1858)		•							
<i>Doclea alcocki</i> Laurie, 1906		•		•	•				
<i>Doclea canalifera</i> Stimpson, 1853		•							
<i>Doclea gracilipers</i> Stimpson, 1857				•					
<i>Doclea hybrida</i> (Fabr.) Edw. 1798		•		•					
<i>Doclea muricata</i> (Herbst.) Edw.									
<i>Doclea ovis</i> Herbst, (1788)		•	•	•					
<i>Huenia brevifrons</i> Ward									•
<i>Huenia proteus</i> De Haan									•
<i>Hyastenus aries</i> (Latr. 1825)				•					
<i>Hyastenus diacanthus</i> (De Haan)									•
<i>Hyastenus elongates</i> Ortmann									•
<i>Hyastenus oryx</i> A. Milne Edwards, 1872		•							
<i>Hyastenus pleione</i> (Herbst, 1803)		•							
<i>Macropodia falcifera</i> (Stimpson 1853)				•					
<i>Menaethius araneus</i> DeHaan									•
<i>Micippa phylira</i> (Herbst)									•
<i>Ophthalmias cervicornis</i> (Herbst, 1803)		•							
<i>Phalangipus filliformis</i> Rathbun, 1916	•								
<i>Phalangipus hystrix</i> (Miers, 1836)		•							

<i>Naxioides hirta</i> A. Milne Edwards, 1865		•							
<i>Schizophryx aspera</i> (H. Milne Edwards, 1834)		•							•
<i>Tylocarcinus styx</i> (Herbst, 1803)		•							•
<b>FAMILY: PARATHONOPIDAE Miers, 1897</b>									
<i>Parathenope</i> ( <i>Partheriope</i> ) <i>longimanus</i>		•	•	•					
<i>Zebrida abamsi</i>	•								
<b>FAMILY: DORIPPIDAE White, 1841</b>									
<i>Cymonomops glaucomma</i> Alcock	•								
<i>Dorippe facchino</i> Fabricius	•	•							
<i>Dorippe dorsipes</i> (Linnaeus)	•								
<i>Dorippe astuta</i> Fabricius	•					•			
<i>Dorippoides frascione</i> (Herbst,1785)		•	•	•	•				
<i>Ethusa</i> ( <i>Ethusina</i> ) <i>descicens</i> Alcock	•								
<i>Ethusa andamanica</i> Alcock	•			•					
<i>Ethusa indica</i> Alcock	•								
<i>Ethusa pyamaea</i> Alcock	•		•						
<i>Neodorippe callida</i> (Fabricius, 1798)		•		•					
<i>Paradorippe granulata</i> (De Haan, 1841)		•							
<b>FAMILY : PORTUNIDAE RAFINESQUE, 1815</b>									
<i>Benthochascon hemingi</i> Alcock & Henderson	•								
<i>Carupa laeviuscula</i> Heller	•								
<i>Charybdis anisoden</i> De Man		•							
<i>Charybdis annulata</i> ( Fabricious, 1798 )				•					
<i>Charybdis</i> ( <i>Goniohellenus</i> ) <i>truncata</i> ( Fabricius )				•		•			
<i>Charybdis acutifrons</i> (de Man, 1879)		•							
<i>Charybdis affinis</i> Edwards	•	•	•		•	•			
<i>Charybdis annulata</i> (Fabricius)		•	•			•			
<i>Charybdis cruciata</i> Linnaeus		•							•
<i>Charybdis callianassa</i> (Herbst, 1789 )				•		•			
<i>Charybdis feriata</i> (Linnaeus)	•	•	•	•	•	•			
<i>Charybdis granulate</i> (De Haan 1835)		•							
<i>Charybdis elongatus</i> A.M.Edwards						•			
<i>Charybdis edwardsi</i> Leene and Buitendijk, 1952		•	•	•					
<i>Charybdis erythrodactyla</i> (Lamark)									•
<i>Charybdis helleri</i> (A. Milne Edwards, 1867)		•							









(Milne Edwards )									
<i>Phymodius ungulatus</i> (Edwards)	•								
<i>Piluminus caeruleseens</i> Edwards	•								
<i>Piluminus cursor</i> Edwards	•								
<i>Piluminus dorsipes</i> Stimpson	•								
<i>Piluminus heterodon</i> Sakai	•								
<i>Piluminus hirsutus</i> Stimpson	•								
<i>Piluminus investigatoris</i> Deb	•								
<i>Piluminus Kempf</i> Deb	•								
<i>Piluminus longicornis</i> Hilgendorf	•								
<i>Piluminus minutus</i> Stimpson	•	•							
<i>Piluminus rotundus</i> Borradaile	•								
<i>Piluminus scabrisculus</i> De Man	•								
<i>Pilumnus tomentosus</i> Latreille, 1825	•	•							
<i>Piluminus vespertilio</i> (Fabricius, 1793)	•	•							
<i>Pilumnopeus indicus</i> (De Man)	•	•	•	•	•				
<i>Pilumnus heterodon</i> Sakai	•								
<i>Pilumnus hirsutus</i> Stimpson	•								
<i>Pilumnus vespertillio</i> (Fabricius )	•								
<i>Platypilumnus gracilipes</i> Wood-Mason	•								
<i>Platypodia alcocki</i> Buidendijk	•								
<i>Platypodia anaglypta</i> (Heller)	•								
<i>Platypodia cristata</i> (A. Milne Edwards, 1865)	•	•							
<i>Platypodia granulosa</i> (Ruppell)	•								
<i>Platypodia semigranosa</i> (Heller)	•								
<i>Pseudoliomera granosimana</i> (Edwards)	•								
<i>Pseudoliomera speciosa</i> (Dana, 1852)	•	•							
<i>Pseudoliomera hellerii</i> Edwards	•								
<i>Pseudozius caystrus</i> (Ad. & White)	•								
<i>Quadrella coronata</i> Dana	•								
<i>Quadrella maculosa</i> Alcock	•								
<i>Quadrella reticulata</i> Alcock	•								
<i>Serenius andamanicus</i> Deb	•								
<i>Sphenomerus trapezoides</i> Wood-Mason	•								
<i>Xanthia lamarckii</i> (Milne Edwards)	•								
<i>Xanthia notatus</i> (Dana )	•								
<i>Xanthias bidentatus</i> (Edwards)	•								
<i>Xanthias impressus</i> (Lamarck)	•								
<i>Xanthodes lamarckii</i> (Edwards)	•								
<i>Zozymodes pumilus</i> (Jacquinot )	•								
<i>Zozymus aeneus</i> (Linnaeus )	•								
<i>Zozymus aeneus</i> (Linnaeus, 1758)	•	•							
<i>Zozymus pilosus</i> Edwards	•								
<i>Etisua laevimanus</i> Randall, 1839	•	•							
<i>Pilodius areolatus</i> (H. Milne Edwards, 1834)	•	•							
<i>Phymodius monticulosus</i> (Dana, 1852)	•	•							
<i>Phymodius granulatus</i> (deMan, 1888)	•	•							
<i>Phymodius ungulatus</i> (H. Milne Edwards, 1834)	•	•							
<i>Phymodius ungulatus</i> (H. Milne	•	•							





<i>Chthamalus stellatus stellatus</i> Poli, 1791	•	•	•	•	•				
<i>Chthamalus malayensis</i> Pilsbry	•	•	•	•	•				
<b>FAMILY : LITHOTRYIDAE</b>									
<i>Lithotrya nicobarica</i> Reinhardt	•	•							
<b>FAMILY: IBLIDAE</b>									
<i>Ibla cumingi</i> Darwin	•								
<b>FAMILY : CREUSIDAE</b>									
<i>Creusia spinulosus euspinosus</i> Broch	•	•							
<b>FAMILY : PYROGOMIDAE</b>									
<i>Pyrgoma grande</i> (Sowerby)	•	•							
<b>FAMILY : TETRACLITIDAE</b>									
<i>Tetraclita squamosa viridis</i> Darwin	•	•							
<i>Tetraclita squamosa patellaris</i> Darwin	•	•							
<b>STOMATOPODS</b>									
SUB CLASS : MALACOSTRACA									
ORDER : STOMATOPODA									
<b>FAMILY : SQUILLIDAE Latreille 1803</b>									
<i>Alima hyaline</i> Leach									•
<i>Anchisquilla fasciata</i> ( de Haan )	•								
<i>Carinosquilla lirata</i> ( Kemp and Chopra, 1921 )									•
<i>Clorida decorata</i> Wood Mason	•								
<i>Clorida latreille</i> Eydoux and Souleyet, 1842	•				•				
<i>Cloridopsis bengalensis</i> ( Tiwari and Biswas, 1952 )							•		
<i>Cloridopsis immaculate</i> ( Kemp, 1913 )	•				•				
<i>Cloridopsis scorpio</i> ( Latreille, 1825 )	•				•				
<i>Gonadactylus chiracra</i> (Fabricius)							•		
<i>Harpiosquilla annandalei</i> (Kemp)	•								
<i>Harpiosquilla harpax</i> (de Haan)	•								
<i>Harpiosquilla indica</i> Manning	•								
<i>Harpiosquilla raphidea</i> (Fabricius)	•						•		
<i>Kempina stridulans</i> (Wood Mason, 1894)	•								
<i>Leptosquilla schemeltzii</i> (A.M. Edwards)	•								
<i>Lysiosquilla tredecimdentata</i> Holthuis, 1941	•								
<i>Oratosquilla holoschista</i> (Kemp, 1911)	•								
<i>Oratosquilla interrupta</i> (Kemp, 1911)					•		•		
<i>Oratosquilla woodmasoni</i> (Kemp, 1911)	•								
<i>Oratosquilla gonypetes</i> (Kemp)	•								
<i>Oratosquilla hesperia</i> Manning 1968									
<i>Oratosquilla holoschista</i> (Kemp, 1911)		•			•		•		
<i>Oratosquilla indica</i> (Hansen)	•				•				
<i>Oratosquilla interrupta</i> (Kemp, 1911)	•	•							
<i>Oratosquilla massavensis</i> (Kossman, 1880)									
<i>Oratosquilla nepa</i> (Latreille, 1825)	•	•	•				•		
<i>Oratosquilla perpensa</i> (Kemp)	•				•				
<i>Oratosquilla quinquedentata</i> (Brooks, 188z)					•				
<i>Oratosquilla Wood masoni</i> (Kemp, 1911)		•	•						



<i>Colossendeis colossea</i> Wilson									
<i>Colossendeis macerrima</i> Wilson									
<i>Rhopalorhyncus kroyeri</i> Wood Mason									
<b>FAMILY : HARPIOSQUILLIDAE</b>									
<i>Harpiosquilla raphidea</i> (Fabricius, 1798)	•	•							
<i>Harpiosquilla paradipa</i>	•								
COPEPODS PHYLUM: ARTHROPODA CLASS: CRUSTACEA ORDER: COPEPODA <b>FAMILY : LONGIPEDIIDAE</b>									
<i>Longipedia coronata</i> (Claus 1953)	•	•							
<i>Longipedia weberi</i> ( A. Scott 1909)	•	•							
<i>Longipedia kikuchii</i> , Ito1980	•								
<i>Longipedia andamanica</i> , Wells, 1980	•								
<b>FAMILY : CANUELLIDAE</b>									
<i>Canuella (Canuella) furcigera</i> (Sars1903)	•	•							
<i>Canuella (Canuella) indica</i> Sp. Nov.	•	•							
<i>Canuella nicobaris</i> Wells and Rao, 1987	•								
<i>Scottolana longipes</i> (Thompson and Scott , 1903)	•								
<i>Scottolana rostrata</i> Wella and Rao, 1987	•								
<b>FAMILY : ECTINOSOMATIDAE</b>									
<i>Arenosetella germanica</i> Kunz, 1937	•								
<i>Ectinosoma melaniceps</i> (Boeck 1924)	•	•							
<i>Ectinosoma dentatum</i> Steuer, 1940	•								
<i>Ectinosoma andamanica</i>	•								
<i>Halophytophilus simplex</i> Wells and Rao 1987	•								
<i>Halectinosoma tenuirema</i> (T and A .Scott, 1896)	•								
<i>Hastigerella leptoderma</i> (Klie, 1929 )	•								
<i>Lineosoma intermedia</i> (Wells, 1967)	•								
<i>Microsetella rosea</i> (Dana1953).		•							
<b>FAMILY : TACHIDIIDAE</b>									
<i>Euterpina acutifrons</i> (Dana1953)		•							
<b>FAMILY : MACROSETELLIDAE</b>									
<i>Macrosetella gracilis</i> (Dana1932)		•							
<i>Miracia efferata</i> (Dana1883).		•							
<b>FAMILY : CLYTEMNESTRIDAE</b>									
<i>Clytemnestra rostrata</i> (Brady1892)		•							
<b>FAMILY : PELTIDIIDAE</b>									
<i>Alteutha sewelli</i> Krishnaswamy1952		•							
<i>Peltidium maldivanum</i> Sewell1940		•							
<i>Peltidium speciosum</i> (Thompson and Scott1903).		•							
<b>FAMILY : TEGASTIDAE</b>									
<i>Tegastes minutus</i> Sewel(1940)		•							
<i>Syngastes indicus</i> Sewel(1940)		•							
<i>Syngastes</i> Sp.		•							
<i>Parategastes sphaericus var similis</i> (		•							

Sewell1948)																			
<b>FAMILY : PORCELLIDIIDAE</b>																			
<i>Porcellidium fimbriatum</i> (Claus1903)			•																
<i>Porcellidium ravanae</i> Thompson and Scott, 1903	•																		
<i>Porcellidium australe</i> (Brady1941)			•																
<i>Porcellidium clavigerum</i> (Pesta.1935)			•																
<b>FAMILY : HARPACTICIDAE</b>																			
<i>Harpacticus clausi</i> A. Scott1909			•																
<i>Harpacticus fucicolus</i> (Scott1922)			•																
<i>Harpacticus gracilis</i> Claus1903	•		•																
<i>Harpacticus littoralis</i> (Sars1911).			•																
<i>Harpacticella lacustris</i> (Sewell1924)			•																
<i>Zausodes cinctus</i> Krishnaswamy1954			•																
<b>FAMILY : TISBIDAE</b>																			
<i>Tisbe furcata</i> (Baird1903)			•																
<i>Tisbe gracilis</i> (Claus1903)			•																
<i>Tisbe longicornis</i> (T. & A. Scott1903)			•																
<i>Scutellidium plumosum</i> (Brady1903)			•																
<b>FAMILY : DIOSACCIDAE</b>																			
<i>Diosaccus truncates</i> (Gurney1927)	•		•																
<i>Diosaccus monardi</i> Sewell1940	•																		
<i>Diosaccus monardi forma major</i> Nov.	•																		
<i>Diosaccus hamiltoni</i> (Thompson & Scott1903)	•		•																
<i>Amphiascopsis rebus</i> (Sewell1940)	•																		
<i>Amphiascopsis nicobaricus</i> (Sewell1940)	•		•																
<i>Amphiascopsis cinctus</i> (Claus1903)	•																		
<i>Amphiascopsis hirsutus</i> (Thompson & Scott1903)	•																		
<i>Amphiascopsis havelocki</i> (Thompson & Scott1903)	•																		
<i>Amphiascopsis minutus</i> (Claus1903)	•		•																
<i>Amphiascopsis aegyptius</i> (Gurney1927)	•																		
<i>Mesamphiascus parvus</i> (Sars1903)	•																		
<i>Amphiascoides calcarifer</i> (Sewell1940)	•		•																
<i>Amphiascoides robinsoni</i> (A. Scott1902)	•		•																
<i>Amphiascoides illevecensis</i> (Monard1941)	•		•																
<i>Robertsonid knoxi</i> (Thompson & Scott1903)	•		•																
<i>Robertsonia adduensis</i> (Sewell1940)	•		•																
<i>Stenhelia (Delavalia) longicaudata</i> Boeck1903	•		•																
<i>Stenhelia (Delavalia) indica</i> Sp. Nov.	•																		
<i>Tetragoniceps arenicolous</i> Sp. Nov.	•		•																
<i>Tetragoniceps dubia</i> Thompson & Scott1903	•																		
<i>Phyllopodopsyllus minor</i> (Thompson & Scott1903)	•																		
<i>Phyllopodopsyllus longicaudata</i> (A. Scott1935)	•									•									
<i>Phyllopodopsyllus furcifer</i> Sars1903	•																		
<b>FAMILY : CYLINDROPSYLLIDAE</b>																			







<i>Pilumnus Kempfi</i> Deb	•								
<i>Pilumnus longicornis</i> Hilgendorf	•								
<i>Pilumnus minutus</i> Stimpson	•	•							
<i>Pilumnus rotundus</i> Borradaile	•								
<i>Pilumnus scabrisculus</i> De Man	•								
<i>Pilumnus tomentosus</i> Latreille, 1825	•	•							
<i>Pilumnus vespertilio</i> (Fabricius, 1793)	•	•							
<i>Pilumnopus indicus</i> (De Man)	•	•	•	•	•				
<i>Pilumnus heterodon</i> Sakai	•								
<i>Pilumnus hirsutus</i> Stimpson	•								
<i>Pilumnus vespertillio</i> (Fabricius)	•								
<i>Platypilumnus gracilipes</i> Wood-Mason	•								
<i>Platypodia alcocki</i> Buidendijk	•								
<i>Platypodia anaglypta</i> (Heller)	•								
<i>Platypodia cristata</i> (A. Milne Edwards, 1865)	•	•							
<i>Platypodia granulosa</i> (Ruppell)	•								
<i>Platypodia semigranosa</i> (Heller)	•								
<i>Pseudoliomera granosimana</i> (Edwards)	•								
<i>Pseudoliomera speciosa</i> (Dana, 1852)	•	•							
<i>Pseudoliomera hellerii</i> Edwards	•								
<i>Pseudozium caystrus</i> (Ad. & White)	•								
<i>Quadrella coronata</i> Dana	•								
<i>Quadrella maculosa</i> Alcock	•								
<i>Quadrella reticulata</i> Alcock	•								
<i>Serenius andamanicus</i> Deb	•								
<i>Sphenomerus trapezoides</i> Wood-Mason	•								
<i>Xanthia larmarckii</i> (Milne Edwards)	•								
<i>Xanthia notatus</i> (Dana)	•								
<i>Xanthias bidentatus</i> (Edwards)	•								
<i>Xanthias impressus</i> (Lamarck)	•								
<i>Xanthodes lamarckii</i> (Edwards)	•								
<i>Zozymodes pumilus</i> (Jacquinot)	•								
<i>Zozymus aeneus</i> (Linnaeus)	•								
<i>Zozymus aeneus</i> (Linnaeus, 1758)	•	•							
<i>Zozymus pilosus</i> Edwards	•								
<i>Etisua laevimanus</i> Randall, 1839	•	•							
<i>Pilodius areolatus</i> (H. Milne Edwards, 1834)	•	•							
<i>Phymodius monticulosus</i> (Dana, 1852)	•	•							
<i>Phymodius granulatus</i> (deMan, 1888)	•	•							
<i>Phymodius unguatus</i> (H. Milne Edwards, 1834)	•	•							
<i>Phymodius nitidus</i> (Dana, 1852)	•	•							
<b>FAMILY: TRAPEZIIDAE</b>									
<i>Tetralia glaberrima</i> (Herbst)	•								
<i>Tetralia Cavimana</i> Heller, 1861		•							
<i>Trapezia cymodoce</i> (Herbst, 1801)	•	•							
<i>Trapezia aereolata</i> Dana, 1852	•	•							
<i>Trapezia digitalis</i> Latreille	•								
<i>Trapezia ferruginea</i> var. <i>intermedia</i> Miers	•	•							



<i>Conchoderma virgatum</i> var. <i>olfersii</i> , Leach, 1818		•		•	•				
<i>Lepas anatifera indica</i> Annandale, 1909	•	•	•	•	•				
<i>Lepas anserifera</i> Linne, 1761	•	•	•	•	•				
<i>Lepas bengalensis</i> Daniel, 1952	•	•	•	•	•				
<i>Lepas pectinata</i> Spengler, 1793	•	•	•	•	•				
<b>FAMILY: TRILASMATIDAE</b>									
<i>Tilasmis minuta</i> (Gruvel, 1825)		•							
<i>Octolasmis tridens</i> (Aurivillius, 1893)		•							
<i>Octolasmis warwickii</i> Gray, 1825			•						
<i>Octolasmis grayii</i> (Darwin, 1851)	•	•							
<i>Octolasmis grayii</i> var. <i>permuda</i> (Annandale, 1909)		•							
<i>Octolasmis lowei</i> (Darwin, 1851)		•							
<i>Octolasmis stella</i> (Annandale, 1909)		•	•						
<i>Octolasmis cor</i> var. A (Aurivillius, 1893)		•							
<i>Octolasmis angulata</i> (Aurivillius, 1894)		•	•						
<b>SUBORDER: BALANOMORPHA</b>									
<b>FAMILY: BALANIDAE</b>									
<b>SUB-FAMILY: BALANINAE</b>									
<i>Balanus tintinnabulum tintinnabulum</i> Linne, 1758	•	•	•	•	•				
<i>Balanus ebumeus</i> Gould, 1841		•							
<i>Balanus amphitrite variegatus</i> Darwin, 1854	•	•	•	•	•				
<i>Balanus amphitrite communis</i> Darwin, 1854	•	•	•	•	•				
<i>Balanus calidus</i> Pilsbry, 1916		•							
<i>Balanus perforatus</i> (Brugiere, 1789)		•							
<i>Balanus balanoides</i> Linne, 1766		•		•					
<i>Balanus tenuis</i> Hook		•							
<i>Balanus amaryllis</i> forma <i>euamaryllis</i> , Broch, 1922		•							
<i>Balanus calceolus</i> Darwin, 1854		•		•					
<i>Balanus cymbiformis</i> Darwin, 1854		•							
<i>Balanus tintinnabulum occator</i> Darwin	•	•	•	•	•				
<i>Balanus tintinnabulum volcano</i> Pilsbry	•	•	•	•	•				
<i>Balanus tintinnabulum validus</i> Darwin	•	•	•	•	•				
<i>Balanus madrasensis</i> Daniel		•							
<i>Chelonobia tstudinaria</i> Linne, 1761				•					
<i>Chelonobia caretta</i> Spengler, 1790		•		•					
<i>Chelonobia patula</i> Ranzani, 1818		•							
<i>Platylepas hexastylus</i> Fabricus, 1798				•					
<b>FAMILY: CHTHAMLIDAE</b>									
<i>Chthamalus stellatus stellatus</i> Poli, 1791	•	•	•	•	•				
<i>Chthamalus malayensis</i> Pilsbry	•	•	•	•	•				
<b>FAMILY: LITHOTRYIDAE</b>									
<i>Lithotrya nicobarica</i> Reinhardt		•							
<b>FAMILY: CREUSIDAE</b>									
<i>Creusia spinulosus euspinosus</i> Broch		•							
<b>FAMILY: PYROGOMIDAE</b>									
<i>Pyrgoma grande</i> (Sowerby)		•							
<b>FAMILY: TETRACLITIDAE</b>									

<i>Tetraclita squamosa viridis</i> Darwin		•							
<i>Tetraclita squamosa patellaris</i> Darwin		•							
<b>STOMATOPODS</b> <b>SUB CLASS: MALACOSTRACA</b> <b>ORDER: STOMATOPODA</b> <b>FAMILY: SQUILLIDAE Latreille 1803</b>									
<i>Anchisquilla fasciata</i> (de Haan)		•							
<i>Carinosquilla lirata</i> (Kemp and Chopra, 1921)									
<i>Clorida decorata</i> Wood Mason		•							
<i>Clorida latreille</i> Eydoux and Souleyet, 1842		•			•				
<i>Cloridopsis bengalensis</i> (Tiwari and Biswas, 1952)						•			
<i>Cloridopsis immaculate</i> (Kemp, 1913)		•			•				
<i>Cloridopsis scorpio</i> (Latreille, 1825)		•			•				
<i>Gonadactylus chiracra</i> (Fabricius)						•			
<i>Harpiosquilla annandalei</i> (Kemp)		•							
<i>Harpiosquilla harpax</i> (de Haan)		•							
<i>Harpiosquilla indica</i> Manning									
<i>Harpiosquilla raphidea</i> (Fabricius)						•			
<i>Kempina stridulans</i> (Wood mason, 1894)		•							
<i>Leptosquilla schemeltzii</i> (A.M. Edwards)		•							
<i>Lysiosquilla tredecimdentata</i> Holthuis, 1941		•							
<i>Oratosquilla holoschista</i> (Kemp, 1911)		•							
<i>Oratosquilla interrupta</i> (Kemp, 1911)					•	•			
<i>Oratosquilla woodmasoni</i> (Kemp, 1911)		•							
<i>Oratosquilla gonypetes</i> (Kemp)		•							
<i>Oratosquilla hesperia</i> Manning 1968									
<i>Oratosquilla holoschista</i> (Kemp, 1911)			•		•	•			
<i>Oratosquilla indica</i> (Hansen)					•				
<i>Oratosquilla interrupta</i> (Kemp, 1911)			•						
<i>Oratosquilla massavensis</i> (Kossmann, 1880)									
<i>Oratosquilla nepa</i> (Latreille, 1825)			•	•		•			
<i>Oratosquilla perpensa</i> (Kemp)					•				
<i>Oratosquilla quinquedentata</i> (Brooks, 1886)					•				
<i>Oratosquilla Wood masoni</i> (Kemp, 1911)			•		•				
<i>Squilla nepa</i> Latreille						•			
<i>Squilloides gilesi</i> (Kemp, 1911)			•						
<i>Squilloides tenuispinis</i> (Wood mason, 1891)		•							
<i>Squilloides gilesi</i> (Kemp, 1911)			•						
<i>Squilloides leptosquilla</i> (Brooks)		•							



<i>Atylus minikoi</i> (Walker, 1905)	•	•							
<b>FAMILY: AORIDAE</b>									
<i>Lembos podoceroideus</i> Walker 1909		•							
<i>Lembos chelatus</i> Walker, 1904		•							
<i>Lembos kergueleni</i> (Stebbing, 1888)		•							
<i>Lembos leptochirus</i> (Walker, 1909)		•							
<i>Lembos quadrimanus</i>		•							
<i>Lembos griseus</i>		•							
<i>Lembos leapakahi</i>		•							
<i>Lembos bryopsis</i>		•							
<b>FAMILY: CALLIOPHIDAE</b>									
<i>Paracalliope indica</i> Barnard, 1935		•							
<i>Atylopsis latipalpus</i> Walker & Scott, 1903		•							
<b>FAMILY: COLOMASTIGIDAE</b>									
<i>Colomastix pusilla</i> (Grube, 1955)		•							
<b>FAMILY: COROPHIDAE</b>									
<i>Cerapus abditus</i> Templeton 1937		•							
<i>Corophium acherusieum</i> (Costa, 1959)				•					
<i>Corophium madrasensis</i> (Nayar 1950)		•							
<i>Corophium triaenonyx</i> (Stebbing, 1921)		•		•					
<i>Erichthonius brasiliensis</i> (Dana, 1853)		•							
<i>Erichthonius macrodactylus</i> (Dana, 1938)		•							
<i>Erichthonius brasiliensis</i> (Dana, 1936)		•							
<i>Grandidierella bonnieri</i> (Stebbing, 1908)		•							
<i>Grandidierella gilesi</i> Chilton, 1921		•							
<i>Siphonocetes orientalis</i> (Walker, 1937)		•							
<b>FAMILY: DEXAMINIDAE</b>									
<i>Dexamine serraticrus</i> Walker, 1904		•							
<i>Polycheria atolli</i> Walker, 1957		•							
<b>FAMILY: EUSIRIDAE</b>									
<i>Eusiroides diplonyx</i> Walker, 1909		•							
<i>Eusiroides orchomenipes</i> Walker, 1904		•							
<b>FAMILY: GAMMARIDAE</b>									
<i>Ceradocoides chiltoni</i> nicholls, 1938		•							
<i>Ceradocus rubromaculatus</i> (Stimpson, 1987)		•							
<i>Elasmopus dubius</i> Walker, 1904		•							
<i>Elasmopus erythraeus</i> (Kossmann, 1940)									
<i>Elasmopus japonicus</i> Stephenson, 1932		•							
<i>Elasmopus latibrachium</i> Walker, 1905		•							
<i>Elasmopus pecteniscrus</i> (Bate, 1935)		•							
<i>Elasmopus rapax</i> (Costa, 1955)		•							
<i>Elasmopus sokotrae</i> Walker and Scott, 1903		•							

<i>Elasmopus spinibasus</i>	•	•							
<i>Elasmopus spinidactylus</i> Chevreux, 1907		•							
<i>Elasmopus spinimanus</i> Walker, 1904	•	•							
<i>Eriopisa chilensis</i> (Chilton, 1921)		•							
<i>Eriopsilla sechellensis</i> (Chevreux, 1901)	•	•	•	•	•				
<i>Maera inaequipes serrata</i> Schellenberg, 1938		•							
<i>Maera insignis</i> (Chevreux, 1901)		•							
<i>Maera latibrachium</i> (Walker, 1905)		•							
<i>Maera mannarensis</i>									
<i>Maera mastersi</i> (Haswell, 1936)		•							
<i>Maera othonides</i> Walker, 1935		•							
<i>Maera pacifica</i> Schellenberg, 1937		•							
<i>Maera quadrimana</i> Dana, 1853		•							
<i>Maera sokotrae</i> (Walker and Scott, 1967)									
<i>Maera subcarinata</i> (Haswell, 1940)		•							
<i>Maera tanella</i> Dana, 1904		•							
<i>Megaluropus agilis</i> Hoeck, 1941		•							
<i>Melita fresnelii</i> (Audouin, 1955)		•							
<i>Melita obtusata</i> (Mont, 1942)		•							
<i>Melita orgasmos</i> (Barnard, 1916)		•							
<i>Melita zeylanica</i> (Stebbing, 1904)		•							
<i>Melita fresnalli</i> (Audouin, 1937)		•							
<i>Pareasmopus albidus</i> (Dana, 1853)		•							
<i>Pareasmopus suluensis</i> (Dana, 1959)		•							
<i>Quadrivisio bengalensis</i> Stebbing, 1904		•							
<b>FAMILY: HYALELLIDAE</b>									
<i>Hyale affinis</i> Chevreux, 1908		•							
<i>Hyale ayeli</i> Barnard, 1955		•							
<i>Hyale chevreuxi</i> Barnard, 1916		•							
<i>Hyale diplodactyla</i> Stebbing, 1899		•							
<i>Hyale honoluluensis</i> Schellenberg, 1938		•							
<i>Hyale macrodactyla</i> Stebbing, 1899		•							
<i>Hyale nigra</i> (Hoswell, 1880)		•							
<i>Parahyale hawaiiensis</i> (Dana, 1853)		•							
<i>Parahyale inyacka</i> (Barnard, 1916)		•							
<i>Parhyalella indica</i> Barnard, 1935		•							
<b>FAMILY: HYPERIIDAE</b>									
<i>Hyperia bengalensis</i> (Giles, 1888)		•							
<b>FAMILY: HAUSTORIIDAE</b>									
<i>Platyischnopus herdmani</i> Walker, 1904		•		•					
<i>Urothoe spinidigitatus</i> Walker, 1904		•							
<i>Platyischnopus herdmani</i> Walker, 1904	•	•	•	•	•				
<i>Urothoe spinidigitatus</i> Walker, 1904		•							
<b>FAMILY: ISCHYROCERIDAE</b>									
<i>Jassa falcata</i> (Montagu, 1904)		•							
<b>FAMILY: LYSIANASSIDAE</b>									
<i>Ichnopus taurus</i> (Costa, 1904)		•							
<i>Lepidepcreum foraminiferum</i> Stebbing,		•							

1888									
<i>Lysianassa cinghalensis</i> (Stebbing, 1937)		•							
<i>Lysianassa coelochir</i> (Walker, 1904)		•							
<i>Orchomenella affinis</i> Holmes, 1908		•							
<i>Orchomenella nana</i> (Kroyer, 1904)		•							
<i>Shoemakerella nasuta</i> (Dana, 1853)		•							
<i>Socarnella bonnierii</i> Walker, 1904		•							
<b>FAMILY: LEUCOTHOIDAE</b>									
<i>Leucothae spinicarpa</i> (Abildgaard, 1959)		•							
<i>Leucothae furina</i> (Savigny, 1966)		•							
<i>Leucothae richiardi</i> (Lessona, 1916)		•							
<i>Leucothana madrasana</i>		•							
<i>Leucothoides pottsi</i> Shoemaker, 1933									
<b>FAMILY: LILJEBORGIIDAE</b>									
<i>Liljeborgia pallida</i> (Bate, 1904)		•							
<b>FAMILY: LYCAEOPSIDAE</b>									
<i>Brachyscelus cruscolum</i> Bate, 1861		•							
<b>FAMILY: MELPHIDIPPIDAE</b>									
<i>Hornella incerta</i> Walker, 1904		•							
<b>FAMILY: OXYCEPHALIDAE</b>									
<i>Rhabdosoma armatum</i> (Milne Edwards, 1862)		•							
<b>FAMILY: OEDICEROTIDAE</b>									
<i>Periocolodes serra</i> Walker, 1904		•							
<i>Syneheldium brevicarpum</i> (Bate, 1904)		•							
<b>FAMILY: PODOCERIDAE</b>									
<i>Podocerus laevis</i> (Haswell, 1937)		•							
<i>Podocerus zeylanicus</i> (Walker, 1904)		•							
<i>Podocerus brasiliensis</i> (Dana, 1853)		•							
<b>FAMILY: PHOTIDAE</b>									
<i>Audulla chelifera</i> Chevreux, 1901		•							
<i>Cleantis natalensis</i> Barnard		•							
<i>Audulla chelifera</i> Chevreux, 1901									
<i>Eurystheus atlanticus</i> (Stebbing, 1938)		•							
<i>Eurystheus afer</i> (Stebbing, 1888)					•				
<i>Eurystheus togoensis</i> Schellenberg, 1925	•	•							
<i>Eurystheus digitatus</i> Schellenberg, 1938		•							
<i>Photis longicaudata</i> (Bate & Westwood, 1959)		•							
<i>Photis longimanus</i> Walker, 1904		•							
<i>Photis hana</i> Walker, 1904		•				•			
<i>Photis digitata</i> Bernard, 1935									
<i>Cheriphotis maegacheles</i> (Giles, 1959)		•							
<i>Chevalia aviculae</i> (Walker, 1937)		•							
<b>FAMILY: PHOXOCEPHALIDAE</b>									

<i>Leptophoxus uncirostra</i> (Giles, 1890)		•							
<i>Paraphoxus uncirostrata</i> (Giles, 1890)		•							
<b>FAMILY: STENOTHOIDAE</b>									
<i>Stenothoe gallensis</i> Walker, 1904		•							
<i>Stenothoe marina</i> (Bate, 1904)		•							
<i>Stenothoe monoculoidea</i> (Mont, 1904)		•							
<i>Stenothoe valida</i> Dana, 1853		•							
<b>FAMILY: TIRONDAE</b>									
<i>Tiron thompsoni</i> Walker, 1904		•							
<b>FAMILY: TALITRIDAE</b>									
<i>Talorchestia martensii</i> (Weber, 1959)		•							
<i>Orchestia anomala</i> Chevreux, 1901		•							
<b>FAMILY: CAPRELLIDAE</b>									
<i>Paradeutella bidentata</i> (Mayer, 1890)		•							
<i>Tritella pilimana</i> Mayer, 1890		•							
<i>Monoliropus falcimanus</i> Mayer, 1904	•	•							
<i>Paracaprella alata</i> Mayer, 1903		•							
ORDER : ISOPODA									
<b>FAMILY: IDOTEIDAE</b>									
<i>Cheiriphotis megacheles</i> (Giles)		•							
<b>FAMILY: BOPYRIDAE</b>									
<i>Bopyrus</i> sp.		•							
<b>FAMILY: CYMOTHOIDAE</b>									
<i>Nerocila serra</i> (Schioedt and Meinrt)		•							
<b>FAMILY: LIGIIDAE</b>									
<i>Ligia exotica</i> Roux		•							
CLASS: MALACOSTRACA ORDER: CUMACEAE FAMILY :BODOTHRIDAE									
<i>Pseudosymphodomma indica</i> Kurian		•	•						
<i>Eucoma lata</i> Calman			•						
<i>Eucoma travancoricum</i> Kurian			•						
<i>Eucoma striata</i>			•						
<i>Cyclaspis levis</i> Thompson			•						
<i>Cyclaspis cingulata</i> Calman		•	•						
<i>Iphinoe calmani</i> Fage	•		•						
<i>Iphinoe serrata</i> Norman			•						
<i>Iphinoe macrobrachium</i> Calman		•	•						
<b>FAMILY: DIASTYLIDAE</b>									
<i>Makrokylindrus fistularis</i> (Calman)			•						
MYSIDS ORDER : MYSIDACEA FAMILY : MYSIDACEAE									
<i>Rhopalophthalmus eregius</i> Hansen		•							
<i>Castrosaccus muticus</i> Tattersall		•							
<i>Macropsis orientalis</i> Tattersall		•							

## CHECK LIST OF MOLLUSCA OF EAST COAST OF INDIA

SPECIES	AN	TN	AP	OR	WB	GU	LA
CLASS: POLYPLACOPHORA ORDER: NEOLORICATA SUBORDER: ISCHNOCHITONINA FAMILY: ISCHNOCHITONIDAE							
<i>Callistochiton pulchellus</i> (Gray, 1828)	•						
<i>Ischnochiton alatus</i> (Sowerby, 1847)	•						
<i>Ischnochiton bouryi</i> Dupuis, 1917.	•						
<i>Ischnochiton winckworthi</i> Leloup, 1936	•						
FAMILY: CHITONIDAE							
<i>Acanthopleura spinger</i> (Spinger, 1840)	•						
<i>Chiton granoradiatus</i> Leloup, 1937	•		•				
<i>Chiton hululensis</i> (Smith, 1906)	•						
<i>Chiton pulcherrimus</i> (Sowerby, 1841)	•						
<i>Squamopleura imitator</i> Nierstraz, 1905	•						
<i>Toncia pectinoides</i> Sykes, 1903	•						
FAMILY : CRYPTOPLACIDAE							
<i>Cryptoplax larvaeformis</i> Burrow, 1815	•						
<i>F. Oculatus</i> (Quoy & Gaimard, 1843)	•	•					
FAMILY: ACANTHOCHITONIDAE							
<i>Acanthochitona mahensis</i> Winckworth, 1927	•	•	•	•			
<i>Acanthochitona penetrans</i> Winckworth, 1933	•						
<i>Craspedochiton laqueatus</i> (G.B.Sowerby, 1841)		•					
<i>Cryptoplax larvaeformis f. oculatus</i> (Quoy & Gaimard, 1834)	•						
FAMILY: LEPIDOPLEURIDAE							
<i>Lepidopleurus andamanicus</i> Smith	•						
FAMILY : MOPALIIDAE							
<i>Plaxiphora tricolor</i> Thiele, 1969	•						
CLASS: GASTROPODA ORDER: ARCHAEGASTROPODA FAMILY: HALIOTIDAE							
<i>Haliotis (Haliotis) asinina</i> Linnaeus, 1758	•						
<i>Haliotis (Haliotis) diversicolor</i> Reeve, 1846	•						
<i>Haliotis (Haliotis) jacnensis</i> Reeve, 1846	•						
<i>Haliotis pulcherrima</i> Gmelin, 1791	•						
<i>Haliotis (Haliotis) rugosa</i> Reeve, 1846	•						
<i>Haliotis (Ovinotis) ovina</i> Gmelin, 1791	•		•				•
<i>Haliotis (Sanhaliotis) varia</i> Linnaeus, 1758	•						
<i>Haliotis glabra</i> Gmelin		•					
FAMILY: FISSURELLIDAE							
<i>Cellana cernica</i> H. Adams		•					
<i>Cellana radiata radiata</i> (Born)		•		•			

<i>Cellana testudinaria</i> (Linnaeus)		•					
<i>Clypidina (Clypidina) notata</i> (Linnaeus, 1758)		•					
<i>Diadora bombayana</i> (Sowerby)		•		•		•	•
<i>Diodora funiculata</i> (Reeve, 1850)	•	•				•	
<i>Diodora granifera</i> (Reeve, 1850)	•						
<i>Diodora induscica</i> (Reeve, 1850)		•					
<i>Diodora lentiginosa</i> (Reeve, 1850)	•						
<i>Diodora lima</i> (Sowerby)	•						
<i>Diodora pileopsoides</i> (Reeve, 1850)	•						
<i>Diodora ruppellii</i> (Sowerby, 1834)	•					•	•
<i>Diodora singaporensis</i> (Reeve, 1850)	•	•	•				
<i>Diodora subquadrata</i> (Nevill)	•						
<i>Diodora ticaonica</i> (Reeve, 1850)	•	•				•	
<i>Diodora townsendi</i> (Melvill)	•						
<i>Diadora yivsonivis</i> (Reeve, 1851)	•						
<i>Emarginula clypea</i> Adams, 1851	•						
<i>Emarginula costulata</i> Deshayes	•						
<i>Emarginula elongate</i>	•						
<i>Emarginula eximia</i> Adams, 1851	•						
<i>Emarginula fuliginea</i> A. Adams, 1851	•						
<i>Emarginula incisura</i> A.A dams	•	•					•
<i>Emarginula obovata</i> A. Adams, 1851		•	•				
<i>Emarginula planulata</i> A. Adams, 1851	•						•
<i>Emarginula peasei</i> Thiele		•					
<i>Emarginula scabriuscula</i> A. Admas, 1851	•						
<i>Fiofots yivsonivis</i> (Reeve, 1851)	•						
<i>Fissurella cyathulum</i> Reeve, 1850.	•						
<i>Fissurella gibberula</i> Reeve, 1850.	•						
<i>Hemifusus pungilinus</i> Born	•						
<i>Lucapinella canalifera</i> (G. & H. Nevill, 1869)	•						
<i>Lucapinella gaylodrae</i> Preston, 1908	•						
<i>Macroschisma canalifera</i> (G & H. Nevill, 1869)	•	•					
<i>Macroschisma elegans</i> Preston, 1908	•						
<i>Rimula exquisita</i> A. Adams, 1851	•						
<i>Scutus abormis</i> Nevill					•		
<i>Scutus cf. corrugatus</i> (Reeve)		•					
<i>Scutus unguis</i> (Linnaeus, 1758)		•	•			•	
<b>FAMILY : ACMAEAIDAE</b>							
<i>Acmaea achates</i> (Reeve, 1855)	•						
<i>Acmaea inconspicua</i> (Gray, 1843)	•						
<i>Acmaea puncturata</i> (Lamarck, 1819)	•						
<i>Acmaea semicornea</i> Preston, 1909	•						
<i>Acmae saccharina</i> (Linnaeus, 1758)	•						
<b>FAMILY: PATELLIDAE</b>							
<i>Cellana radiata enneagona</i> (Reeve, 1854)	•					•	
<i>Cellana radiata radiata</i> (Born, 1778)	•	•	•	•	•		•
<i>Cellana testudinaria</i> (Linnaeus, 1758)	•						
<i>Patella flexuosa</i> Quoy and Gaimard, 1834	•	•					

<i>Patella radiata</i> (Born-Gravelly)						•	
<i>Patelloida flammea</i> (Quoy and Gaimard, 1834)	•						
<i>Patelloida saccharina</i> (Linneus, 1758)	•						
<i>Potamacmaea fluviatilis</i> (Blanford, 1868)	•				•		
<i>Scutellastra flexuosa</i> (Quoy & Gaimard, 1843)	•	•					
<b>FAMILY : LEPETELLIDAE Dall, 1869</b>							
<i>Cocculinella minutissima</i> (Smith, 1904)	•						
<i>Saptadonta nasika</i> Prashad and Rao, 1934	•						
<b>FAMILY : TROCHIDAE</b>							
<i>Angaria delphinus</i> (Linnaeus)	•						
<i>Angaria distorta</i> (Linnaeus)	•						
<i>Angaria plicata</i> (Kiener)						•	
<i>Calliostoma polychroma</i> (A. Adams)	•						
<i>Calliostoma scobinata</i> (A. Adam)			•				
<i>Calliostoma speciosa</i> (A. Adams, 1854)	•						
<i>Calliostoma sublaeve</i> E.A. Smith, 1895							
<i>Calliostoma tranquebarica</i> (Roeding, 1798)		•	•	•			
<i>Cantharidus (Thalotia) kotschy</i> (Philippi)		•					
<i>Cantharidus interruptus</i> (Wood)		•	•				
<i>Canthardius maldivensis</i> (Smith)	•						•
<i>Cantharidus tricingulatus</i> A. Adams		•					
<i>Chrysostoma paradoxum</i> (Born, 1972)	•						
<i>Clanculus clanguloides</i> (Wood, 1856)	•	•					
<i>Clanculus depictus</i> (A. Adams)						•	
<i>Clanculus margaritarius</i> (Philippi, 1846)	•						
<i>Clanculus microdon</i> A. Adams, 1851	•	•				•	
<i>Chrysostoma paradoxum</i> (Born, 1972)	•						
<i>Euchelus alabastrum</i> Reeve		•		•			
<i>Euchelus asper</i> var. <i>tricarinatus</i> (Lamarck)		•	•				
<i>Euchelus asper</i> (Gmelin, 1791)	•	•	•			•	
<i>Euchelus atratus</i> (Gmelin, 1791)	•	•					•
<i>Euchelus circulatus</i> (Anton, 1848)	•	•					
<i>Euchelus fossulatus</i> Sowerby	•	•	•				
<i>Euchelus foveolatus</i> (A. Adams)		•					
<i>Euchelus horridus</i> (Philippi, 1846)	•	•		•	•		
<i>Euchelus indicus</i> (A. Adams)						•	
<i>Euchelus scaber</i> (Fischer)		•					
<i>Euchelus quadrcarinatus</i> (Horten)		•	•				
<i>Gibbula (Gibbula) blanfordiana</i> G & H. Nevill	•	•					
<i>Gibbula (Gibbula) coeni</i> Preston, 1908	•						
<i>Gibbula (Enida) nobomii</i> Ray		•					
<i>Gibbula coeni</i> Preston, 1908	•						
<i>Gibbula declivis</i> forskal, 1817	•						
<i>Gibbula holdsworthana</i> G& H. Nevill		•					
<i>Gibbula pulcherrima</i> (A. Adams, 1850)	•						•
<i>Gibbula stolickzana</i> G& H. Nevill		•					

<i>Minolia biangulosa</i> (A.Adams)		•				
<i>Minolia casta</i> (G & H. Nevill, 1874)		•				
<i>Minolia holdsworthana</i> (G & H Nevill, 1871)	•	•				
<i>Minolia impressa</i> (G & H. Nevill, 1874)		•				
<i>Minolia subplicata</i> Nevill		•				
<i>Minolia variabilis</i> (A. Adams)		•				
<i>Mondonta</i> ( <i>Mondonta</i> ) <i>australis</i> Lamarck	•					
<i>Monilea</i> ( <i>Rossiteria</i> ) <i>nucleus</i> (Philippi)	•	•				
<i>Monilea</i> ( <i>Monilea</i> ) <i>callifera</i> (Lamarck, 1822)	•	•	•			
<i>Monilea</i> ( <i>Monilea</i> ) <i>masoni</i> G. & H Nevill, 1874	•					
<i>Monilea obscura</i> (Wood)		•				
<i>Monilea solandri</i> (Philippi)		•				
<i>Monilea subplicata</i> Nevill	•					
<i>Monilea</i> ( <i>Monilea</i> ) <i>warnefordi</i> (Nevill, 1874)	•					
<i>Minolia subplicata</i> Nevill	•					
<i>Monodonta</i> ( <i>Monodonta</i> ) <i>australis</i> Lamarck, 1799	•					•
<i>Monodonta</i> ( <i>Monodonta</i> ) <i>labio</i> (Linnaeus, 1758)	•					
<i>Rubritrochus pulcherrimus</i> (A.Adams, 1855)	•					
<i>Solariella</i> ( <i>Solariella</i> ) <i>bellula</i> Melvil				•		
<i>Solariella</i> ( <i>Solariella</i> ) <i>deliciosa</i> Preston, 1916		•				
<i>Solariella</i> ( <i>Solariella</i> ) <i>dulcissima</i> Preston, 1908	•					
<i>Solariella</i> ( <i>Solaricida</i> ) <i>infundibulum</i> Watson	•					
<i>Solariella sataparensis</i> Preston, 1914				•	•	
<i>Stomatella</i> ( <i>Gena</i> ) <i>varia</i> (A.Adams)	•					•
<i>Stomatella</i> ( <i>Gena</i> ) <i>auricular</i> Lamarck	•					•
<i>Tectus fenestratus</i> (Gmelin, 1791)	•					
<i>Tectus mauritanus</i> (Gmelin, 1791)	•					•
<i>Tectus pyramis</i> (Born, 1778)	•					•
<i>Tectus incrassatus</i> Lamarck	•					•
<i>Trochus</i> ( <i>Infundibulum</i> ) <i>ochroleucus</i> Gmelin, 1791	•					
<i>Trochus</i> ( <i>Infundibulum</i> ) <i>pustulosus</i> Philippi, 1849		•				
<i>Trochus</i> ( <i>Infundibulum</i> ) <i>radiatus</i> Gmelin, 1791	•	•			•	•
<i>Trochus</i> ( <i>Infundibulum</i> ) <i>stellatus</i> Gmelin, 1791	•	•			•	•
<i>Trochus</i> ( <i>Trochus</i> ) <i>erythreus</i> Brocchi, 1821	•					
<i>Trochus</i> ( <i>Trochus</i> ) <i>maculatus</i> Linnaeus, 1758	•					•
<i>Trochus</i> ( <i>Trochus</i> ) <i>niloticus</i> Linnaeus, 1767	•					

<i>Trochus fenestratus</i> (Gmelin, 1791)	•						
<i>Trochus tentorium</i> Gmelin, 1791	•	•					
<i>Trochus venetus</i> Reeve		•					
<i>Umbonium vestiarium</i> (Linnaeus, 1758)	•	•	•	•	•	•	
<b>FAMILY : STOMATELLIDAE</b>							
<i>Astrea semicostata</i> (Kiener)	•					•	
<i>Astrea stellata</i> (Gmelin)						•	
<i>Angaria delphinus</i> (Linnaeus, 1758)	•						
<i>Bolma girgylus</i> Reeve	•						
<i>Broderipia rosea</i> (Broderip, 1834)	•						
<i>Liotia cidaris</i> (Reeve, 1843)	•						
<i>Liotia varicose</i> (Reeve, 1843)	•						
<i>Potamacmaea fluviatilis</i> (Blanford, 1868)	•				•		
<i>Pseudostomatella papyracea</i> (Gmelin, 1791)	•						
<i>Stomatella asperulata</i> A.Adams	•						
<i>Stomatella crenulata</i> Preston, 1908	•						
<i>Stomatella elegeans</i> Gray	•						
<i>Stomatella haliotideia</i> Sowerby, 1854	•						
<i>Stomatella sulcifera</i> Lamarck, 1822	•						
<i>Stomatia phymotis</i> Helbling, 1779	•						
<b>FAMILY: SKENEIDAE</b>							
<i>Tubiola microscopia</i> (Nevill, 1877)	•	•	•	•	•		
<i>Tubiola subdisjuncta</i> (H. Adams, 1868)	•						
<b>FAMILY: CYCLOSTREMATIDAE</b>							
<i>Cyclostrema bushi</i> Dautzenberg & Fisher		•					
<i>Cyclostrema eburnea</i> Nevill	•				•		
<i>Cyclostrema micans</i> A.Adams, 1850	•						
<i>Cyclostrema pulchellum</i> Dunker		•					
<i>Leucorhynchia variegata</i> (Preston)						•	
<b>FAMILY: TRICOLIIDAE</b>							
<i>Tricolia indica</i> (Winckworth)		•			•	•	
<b>FAMILY : TURBINIDAE</b>							
<i>Angaria atratus</i> (Gmelin)	•						
<i>Angaria</i> ( <i>Angaria</i> ) <i>delphinus</i> (Linnaeus, 1758)	•						
<i>Angaria</i> ( <i>Angaria</i> ) <i>distorta</i> (Linnaeus, 1758)	•	•					
<i>Astraea</i> ( <i>Astraliium</i> ) <i>semicostata</i> (Keiener, 1838)	•	•					
<i>Astraliium calcari</i> (Linnaeus, 1958)	•						
<i>Astraliium rhodostoma</i> (Lamarck, 1822)	•						
<i>Astraliium semicostata</i> (Kiener, 1839)	•						
<i>Astraliium stellare</i> (Gmelin, 1791)	•						
<i>Bolma girgyllus</i> Reeve	•						
<i>Leptothyra delecta</i> Smith, 1899	•						
<i>Leptothyra solida</i> Preston, 1908	•						
<i>Liotia cidaris</i> (Reeve, 1843)	•	•					
<i>Liotia varicosa</i> (Reeve, 1843)	•	•					
<i>Turbo indicus</i> E. A. Smith, 1894		•					
<i>Turbo</i> ( <i>Marmaostoma</i> ) <i>argyrostoma</i>	•						•

Linnaeus							
<i>Turbo (Marmaostoma) brunneus</i> (Roeding, 1798)	•	•	•			•	
<i>Turbo coronatus</i> Gmelin						•	
<i>Turbo (Lunella) cinerea</i> Born, 1778	•						
<i>Turbo (Lunella) porphyrites</i> (Martyn)	•						
<i>Turbo (Lunella) granulata</i> Gmelin, 1791	•						
<i>Turbo (Marmarostoma) chrysostomus</i> Linnaeus, 1758)	•						
<i>Turbo (Marmarostoma) crassus</i> Wood, 1828	•						
<i>Turbo (Marmarostoma) sparverius</i> Gmelin, 1791	•						
<i>Turbo (Marmorostoma) argyrostoma</i> Linnaeus, 1758	•						
<i>Turbo (Turbo) cochleus</i> Linnaeus, 1758	•					•	
<i>Turbo intercostalis</i> Menke							
<i>Turbo (Lunatica) marmoratus</i> Linnaeus, 1758	•	•					
<i>Turbo (Turbo) petholatus</i> Linnaeus, 1758	•	•					
<i>Turbo (Turbo) spinosus</i> Gmelin, 1791	•	•					
<b>FAMILY: PHASIANELLIDAE</b>							
<i>Phasianella indica</i> Winckworth	•						
<i>Phasianella nivosa</i> Reeve	•						
<b>FAMILY : NERITIDAE</b>							
<i>Clithon oualaniensis</i> (Lesson, 1831)	•		•	•			
<i>Clithon reticularis</i> (Sowerby, 1838)					•		
<i>Dostia violacea</i> (Gmelin, 1791)	•					•	
<i>Nerita (Amphinerita) articulata</i> Gould, 1847	•			•	•		
<i>Nerita (Amphinerita) georgia</i> Recluz		•					
<i>Nerita (Amphinerita) insculpta</i> Recluz, 1841	•						
<i>Nerita (Amphinerita) lineata</i> Gmelin					•		
<i>Nerita (Amphinerita) polita</i> Linnaeus, 1758	•	•	•				•
<i>Nerita (Heminerita) insculpta</i> Recluz, 1841	•	•					
<i>Nerita (Nerita) undata</i> Linnaeus, 1758	•						•
<i>Nerita (Nerita) albicilla</i> Linnaeus, 1758	•	•	•		•	•	•
<i>Nerita (Ritena) grayana</i> Recluz, 1843	•						
<i>Nerita (Ritena) maxima</i> Gmelin, 1791	•						•
<i>Nerita (Ritena) plicata</i> Linnaeus			•				
<i>Nerita (Theliostyla) albicilla</i> Linnaeus			•				
<i>Nerita (Theliostyla) chamaeleon</i> Linnaeus, 1758	•	•	•	•		•	•
<i>Nerita (Theliostyla) costata</i> Gmelin, 1791	•						
<i>Nerita crepidularia</i> (Lamarck)	•						
<i>Nerita dombeyi</i> Recluz						•	
<i>Nerita maura</i> Recluz	•	•					
<i>Nerita oryzarum</i> (Recluz)						•	
<i>Nerita plexa</i> Chemnitz						•	
<i>Nerita (Theliostyla) patula</i> Recluz, 1841	•						

<i>Nerita (Theliostyla) planospira</i> Anton, 1839	•						
<i>Nerita (Theliostyla) squamulata</i> Le Guillou, 1841	•	•	•	•		•	
<i>Nerita (Ritena) plicata</i> Linnaeus, 1758	•						
<i>Nerita (Ritena) semirugosa</i> Reculz	•						•
<i>Nerita gemmulata</i> Reeve		•					
<i>Neritina (Dostia) violacea</i> (Gmelin)	•		•	•	•		
<i>Neritina (Doastia) crepidularia</i> (Lamarck)			•				
<i>Neritina (Pseudonerita) sulculosa</i> Von Martens			•				
<i>Neritina (Vittina) turrita</i> (Gmelin, 1791)	•						
<i>Neritina (Vittina) variegata</i> Lesson, 1831	•						
<i>Neritina aciculate</i> Reeve	•						
<i>Neritina rangiana</i> Reculz	•						
<i>Neritina siquijorensis</i> Reeve	•						
<i>Neritina smithi</i> Wood, 1828					•		
<i>Pseudonerita amoena</i> (Gould, 1847)	•		•	•			•
<i>Pseudonerita obtusa</i> (Sowerby, 1841)	•				•		
<i>Pseudonerita sulculosa</i> (von. Martens, 1879)		•		•	•		
<i>Septaria caerulea</i> (Sowerby, 1849)					•		
<i>Septaria lineata</i> (Lamarck, 1816)					•		
<i>Smaragdia (Smaragdella) mamilla</i> Annandale				•			
<i>Theodoxus (Clithon) oualaniensis</i> (Lesson)			•				
<b>FAMILY: VIVIPARIDAE</b>							
<i>Bellamya bengalensis</i> (Lamarck, 1822)			•		•		
<i>Bellamya dissimilis</i> (Mueller)					•		
<b>FAMILY: PHENACOLEPADIDAE</b>							
<i>Phenacolepas crenulata</i> (Broderip, 1847)		•					
<b>ORDER: MESOGASTROPODA</b>							
<b>FAMILY : LITTORINIDAE</b>							
<i>Littoraria (Littoraria) kraussi</i> Rosewater		•					•
<i>Littoraria (Littoraria) undulata</i> (Gray, 1839)	•	•	•	•		•	
<i>Littorina (Littorinopsis) carnifera</i> (Menke)	•						
<i>Littorina (Littorinopsis) melanostoma</i> Gray, 1839			•	•	•		
<i>Littorina (Littorinopsis) scabra scabra</i> (Linnaeus, 1758)	•	•	•	•	•	•	
<i>Littorina glabrata</i> Philippi	•						•
<i>Littorina (Palustronia) melanostoma</i> Gray, 1839	•	•	•	•	•		
<i>Nodlittorina (Nodlittorina) trochoides</i> (Gray, 1839)		•	•	•			
<i>Nodlittorina (Nodlittorina) vidua</i> (Gould, 1859)		•	•				
<i>Nodlittorina (Nodlittorina) quadricincta</i> (Muhlfeldt, 1824)		•					
<i>Nodlittorina (Granulilittorina)</i>	•		•				

<i>leucosticta</i> (Philippi, 1848)							
<i>Nodilittorina</i> ( <i>Granulilittorina</i> ) <i>millegrana</i> (Philippi, 1848)	•	•	•				
<i>Nodilittorina</i> ( <i>Nodilittorina</i> ) <i>pyramidalis</i> (Quoy and Gaimard, 1833)	•		•	•			•
<i>Peasiella balteatum</i> (Preston, 1908)	•						
<i>Peasiella roepstorffii</i> Nevill, 1884	•						
<i>Peasiella tantilla</i> (Gould)	•						•
<i>Peasiella templiana</i> (Nevill, 1884)	•						
<b>FAMILY: IRAVADIIDAE</b>							
<i>Iravadia ornata</i> Blandford, 1867				•	•		
<b>FAMILY: RISSOIDAE</b>							
<i>Alvania stigmatica</i> Frauenfeld, 1867	•						
<i>Onoba convexiuscula</i>	•						
<i>Onoba fortisulcata</i>	•						
<i>Rissoina abnormis</i> Nevill	•						
<i>Rissoina</i> ( <i>Moerchiella</i> ) <i>artensis</i> Montrouzier, 1872	•						
<i>Rissoina</i> ( <i>Moerchiella</i> ) <i>d'orbigny</i> A.Adams, 1851	•						
<i>Rissoina</i> ( <i>Moerchiella</i> ) <i>gigantea</i> Deshayes, 1848	•						
<i>Rissoina ambigua</i> Gould	•						
<i>Rissoina andamanica</i> Weinkauff, 1881	•						
<i>Rissoina angusta</i> Preston, 1908	•						
<i>Rissoina evanida</i> Nevill, 1874	•						
<i>Rissoina mohrensterni</i> Deshayes, 1863	•						
<i>Risioina obeliscus</i> Recluz	•						
<i>Rissoina oryza</i> Garrett, 1873	•						
<i>Rissoina oryza</i> <i>vr.sublaevigata</i> Nevill	•						
<i>Rissoina pupiniformis</i> Preston, 1808	•						
<i>Rissoina sculpturata</i> Preston, 1908	•						
<i>Rissoina subnodicincta</i> Nevill	•						
<i>Rissoina sulzeriana</i> Risso, 1826	•						
<i>Rissoina striata</i> Quoy	•						
<i>Rissoina striolata</i> A.Adams	•						
<i>Rissoina tridentata</i> Michaud, 1830	•						
<i>Rissoina warnefordiae</i> Preston, 1908	•						
<i>Rissoina woodmasoniana</i> Nevill, 1877	•						
<i>Rissoina zygantia</i> Deshayes	•						
<i>Rissoina</i> ( <i>Mobrchiella</i> ) <i>artensis</i> Montrouzier, 1872	•						
<i>Rissoina</i> ( <i>Mobrchiella</i> ) <i>gigantean</i> Deshayes, 1848	•						
<i>Rissoina</i> ( <i>Mobrchiella</i> ) <i>d'orbigny</i> A.Adams, 1851	•						
<i>Rissoina media</i> Schwartz	•						
<i>Schwartziella</i> ( <i>Pandalosia</i> ) <i>minuta</i> (G. & H.Nevill, 1878)	•						
<i>Stenothyra blanfordiana</i> Nevill	•						
<i>Stenothyra deltae</i> (Benson)	•						
<b>FAMILY: ASSIMINEIDAE</b>							
<i>Acmella andamanica</i> Nevill, 1870	•						
<i>Acmella roepstorffiana</i> Nevill, 1870	•						

<i>Assimineia brevicula</i> (Pfeiffer, 1854)	•		•				
<i>Assimineia templeana</i> Nevill, 1880	•						
<i>Assimineia theobaldiana</i> Nevill, 1880				•			
<i>Assimineia woodmasoniana</i> Nevill, 1880				•			
<b>FAMILY: THIARIDAE</b>							
<i>Thiara (Terebria) lineata</i> (Gray, 1828)			•				
<i>Thiara (Thiara) scabra</i> (Muller, 1774)			•				
<b>FAMILY: PLANAXIDAE</b>							
<i>Planaxis acutus</i> Krauss	•						
<i>Planaxis breviculus</i> Deshayes var. <i>tesselata</i> Nevill	•						
<i>Planaxis ineptus</i> Gould, 1806	•						
<i>Planaxis niger</i> Quoy and Gaimard, 1834	•			•			
<i>Planaxis nicobaricus</i> Frauenfeld	•						
<i>Planaxis similes</i> Smith	•						
<i>Planaxis sulcatus</i> (Born, 1780)	•	•	•				
<i>Planaxis suturalis</i> Smith, 1872	•						
<b>FAMILY: MODULIDAE</b>							
<i>Modulus candidus</i> Petit, 1853	•						
<i>Modulus tectum</i> (Gmelin, 1791)	•						•
<b>FAMILY: CERITHIIDAE</b>							
<i>Adesta onyx adesta</i> (Lamarck)	•						
<i>Arabica arabica</i> Arabica (Linnaeus)	•						
<i>Arestorides argus argus</i> (Linnaeus)	•						
<i>Bsilitrona isabella isabella</i> (Linnaeus)	•						
<i>Bistolida hiranto neglecta</i> (Sowerby)	•						
<i>Bistolida kineri depriesteri</i> Schilder	•						
<i>Bistolida stolidia stolidia</i> (Linnaeus)	•						
<i>Chelycypraea testudina ria</i> (Linnaeus)	•						•
<i>Cribraria cribraria cribraria</i> Linnaeus	•						
<i>Cerithium adamsonii</i> Bruguiere, 1792	•	•					
<i>Cerithium armatum</i> Born	•						
<i>Cerithium asper</i>	•	•					
<i>Cerithium balteatum</i> Philippi, 1848	•						
<i>Cerithium citrinum</i> sowerby, 1855	•						
<i>Cerithium columna</i> sowerby, 1834	•	•					•
<i>Cerithium coralium</i> Kiener, 1841	•						
<i>Cerithium dialeucum</i> Philippi, 1849	•						
<i>Cerithium echinatum</i> Keiner, 1841	•	•					
<i>Cerithium hanleyi</i>	•						•
<i>Cerithium gemma</i> Sowerby, 1834	•	•					
<i>Cerithium lacteum</i> Kiener	•						•
<i>Cerithium lifuense</i> Melvill and Standen, 1848	•						
<i>Cerithium litteratum</i> Born	•						
<i>Cerithium menkei</i> Deshayes, 1863	•	•					
<i>Cerithium morus</i> Lamarck	•						•
<i>Cerithium nodulosum</i> Bruguiere, 1792	•	•					•
<i>Cerithium obeliscus</i> Bruguiere	•				•		•
<i>Cerithium proditum</i> Bayie	•						
<i>Cerithium piperatum</i> Sowerby	•						•
<i>Cerithium punctatum</i> Bruguiere, 1792	•						

<i>Cerithium rugosum</i> Wood	•						•
<i>Cerithium rubus</i> Martyn		•					
<i>Cerithium salebrosum</i> Sowerby	•	•					
<i>Cerithium scabridum</i> Philippi, 1848	•	•					
<i>Cerithium tenellum</i> Sowerby, 1855	•	•				•	
<i>Cerithium traillii</i> Sowerby, 1855	•	•					
<i>Cerithium tuberculatum</i> Linnaeus	•	•					
<i>Cerithium vulgatum</i> Bruguiere	•						
<i>Cerithium zonatum</i> (Wood, 1828)	•						
<i>Clypeomorus batillariaeformis</i> Habe and Kosuge, 1966	•	•	•			•	
<i>Clypeomorus bifasciata bifasciata</i> (Sowerby, 1855)	•	•	•			•	
<i>Clypeomorus clypeomorus</i> Jousseume, 1888	•	•					
<i>Clypeomorus delectum</i> (A. Adams, 1855)	•	•					•
<i>Clypeomorus moniliferus</i> (Keiner)	•	•	•				
<i>Clypeomorus petrosa gennesi</i> (Fischer and Vignal, 1901)	•	•					
<i>Clypeomorus purpurastoma</i> Houbriek, 1992	•						
<i>Clypeomorus splendens</i> (Sowerby, 1855)	•	•					
<i>Clypeomorus trailli</i> (Sowerby)	•	•					•
<i>Colina pupaeformis</i> A. Adams		•					
<i>Colina selecta</i> Melvill & Standen		•					
<i>Rhinoclavis articulata</i> (A. Adams & Reeve)	•						•
<i>Rhinoclavis (Proclavis) kochi</i> (Philippi, 1848)	•						•
<i>Rhinoclavis (Proclavis) sordidula</i> (Gould, 1849)	•						
<i>Rhinoclavis (Rhinoclavis) aspera</i> (Linnaeus, 1758)	•						
<i>Rhinoclavis (Rhinoclavis) fasciatus</i> (Bruguiere)	•	•					•
<i>Rhinoclavis (Rhinoclavis) sinensis</i> (Gmelin, 1791)	•	•	•			•	•
<i>Rhinoclavis (Rhinoclavis) vertagus</i> Linnaeus, 1767	•						
<b>FAMILY: DIALIDAE</b>							
<i>Dialia semistriata</i> (Philippi, 1849)	•						
<b>FAMILY: LITIOPIDAE</b>							
<i>Alaba warnefordiana</i> Preston, 1908	•						
<b>FAMILY : POTAMIDIDAE</b>							
<i>Batillaria angulifera</i> (Sowerby)		•					
<i>Cerithidea alata</i> (Philippi, 1847)	•	•	•		•		
<i>Cerithidea (Cerithideopsilla) cingulata</i> (Gmelin, 1791)	•	•	•	•	•	•	
<i>Cerithidea (Cerithidea) obtusa</i> Lamarck	•		•	•	•		
<i>Cerithidea (Cerithidea) quadrata</i> Sowerby, 1866	•	•					
<i>Cerithidea fuluwitilis</i> (Potiz & Michaud)						•	
<i>Telescopium fuscum</i> Reeve, 1865	•	•					
<i>Telescopium (Telescopium) telescopium</i>	•	•	•	•	•	•	

(Linnaeus, 1758)							
<i>Terebralia palustris</i> (Linnaeus, 1767)	•	•	•	•			•
<b>FAMILY: SCALIDAE</b>							
<i>Acrilla acuminata</i> (Sowerby)				•			
<i>Acrilla gracilis</i> A. Adams				•	•		
<b>FAMILY: LITIOPIIDAE</b>							
<i>Alaba blanfordi</i> A. Adams				•			
<b>FAMILY: FOSSARIIDAE</b>							
<i>Chilkaia imitatrix</i> Preston, 1915				•			
<i>Fossarus (Conradia) stoliczkiana</i> Nevill			•				
<b>FAMILY: TURRITELLIDAE</b>							
<i>Turritella acutingula</i> Linnaeus						•	
<i>Turritella cerea</i> (Reeve)						•	
<i>Turritella (Haustator) trisulcata</i> Lamarck, 1822		•					
<i>Turritella attenuata</i> Reeve, 1849		•	•	•	•		
<i>Turritella baciliium</i> Keiner, 1843		•					
<i>Turritella columnaris</i> Keiner, 1843- 44		•	•	•		•	
<i>Turritella duplicata</i> (Linnaeus, 1758)	•	•	•	•			
<i>Turritella fastigiata</i> Adams and Reeve, 1850	•						
<i>Turritella fultoni</i> Melvill				•			
<i>Turritella infraconstricta</i> Smith, 1878	•						
<i>Turritella monilifera</i> Adams & Reeve, 1850	•						
<i>Turritella palustris</i> (Linnaeus)	•						
<b>FAMILY: SILIQUARIIDAE</b>							
<i>Siliquaria (Tenagodus) muricata</i> (Born) Lamarck, 1818	•						
<i>Siliquaria anguina</i> (Linnaeus)				•			
<i>Siliquaria cumingii</i> Moerch				•			
<i>Siliquaria tostus</i> Moerch			•	•			
<i>Siliquaria trochlearis</i> Moerch				•			
<i>Tenagodus anguina</i> (Linnaeus, 1758)	•			•			
<i>Tenagodus cumingi</i> Moerch, 1860				•			
<i>Tenagodus tostus</i> Moerch, 1860				•			
<i>Tenagodus trochlearis</i> Moerch, 1860				•			
<b>FAMILY: VERMIETIDAE</b>							
<i>Dendropoma andamanicus</i> (Prashad and Rao, 1933)	•						
<i>Dendropoma maximus</i> Moerch/Sowerby, 1951	•						
<i>Serpulorbis</i> sp	•						
<b>FAMILY: STROMBIDAE</b>							
<i>Lambis (Harpago) chiragra chiragra</i> (Linnaeus, 1758)	•	•				•	
<i>Lambis (Lambis) crocata crocata</i> (Link, 1807)	•	•					
<i>Lambis (Lambis) lambis</i> Linnaeus, 1758	•	•					•
<i>Lambis (Millepes) scorpius indomaris</i> Abbott, 1961	•	•					
<i>Lambis truncata</i>	•						•
<i>Rimella (Varicospira) cancellata</i> Linnaeus, 1758	•		•				

<i>Strombus rubbosa</i> Sclandr	•	•					
<i>Strombus (Laevistrombus) canarium</i> Linnaeus, 1758	•	•	•				•
<i>Strombus (Canarium) dentatus</i> Linnaeus, 1758	•	•	•				•
<i>Strombus (Canarium) erythrinus</i> <i>erythrinus</i> Dillwyn, 1817	•						
<i>Strombus (Canarium) fragilis</i> (Roeding, 1798)	•						
<i>Strombus (Canarium) labiatus labiatus</i> (Roeding, 1798)	•	•					
<i>Strombus (Canarium) labiatus olydius</i> (Duclos, 1844)	•						
<i>Strombus (Canarium) mutabilis</i> Swainson, 1821	•	•					•
<i>Strombus (Canarium) terebellatus</i> <i>terebellatus</i> Sowerby, 1842	•						
<i>Strombus (Dolomena) dilatus dilatus</i> Swainson, 1821	•						
<i>Strombus (Dolomena) marginatus</i> <i>marginatus</i> Linnaeus, 1758	•	•				•	•
<i>Strombus (Dolomena) marginatus</i> <i>succinctus</i> Linnaeus, 1758	•	•					
<i>Strombus (Dolomena) plicatus pulchellus</i> Reeve, 1851	•						
<i>Strombus (Dolomena) variabilis variabilis</i> Swainson, 1820	•						
<i>Strombus (Doxander) listeri</i> T.Gray, 1852		•	•		•		
<i>Strombus (Euprotomus) aurisdianae</i> Linnaeus, 1758	•						
<i>Strombus (Euprotomus) listeri</i> Gray			•				
<i>Strombus (Gibberulus) gibberulus</i> <i>gibberulus</i> Linnaeus	•	•	•			•	•
<i>Strombus (Laevistrombus) canarium</i> Linnaeus, 1758	•		•				
<i>Strombus (Lentigo) lentiginosus</i> Linnaeus, 1758	•						
<i>Strombus uricus</i> Linnaeus						•	
<i>Terebellum (Terebellum) terebellum</i> Linnaeus, 1758	•	•					
<i>Tibia (Tibia) curvirostris</i> (Lamarck)		•					
<i>Tibia curta</i> (Lamarck)		•					
<i>Tibia delicatula</i> (Nevill)		•	•	•			
<i>Tibia fusus</i> Linnaeus, 1758	•	•					
<i>Tibia insulaechorab curta</i> (Sowerby, 1842)	•						
<i>Tibia powisii</i> (Petit, 1842)	•						
<i>Tibia unicornis</i> (Dillwyn, 1817)	•						
<b>FAMILY: VANIKORIDAE</b>							
<i>Vanikoro cancellata</i> (Lamarck, 1822)	•	•			•		
<i>Vanikoro granularis</i> (Reculz)		•					
<i>Vanikoro plicata</i> (Recluz, 1844)	•						

Vanikoro rosea (Recluz, 1844)	•						
<b>FAMILY: HIPPONICIDAE</b>							
Hipponyx acuta Quoy and Gaimard	•						
Hipponyx tricarinata (Linnaeus, 1758)							
Cheilea equestris (Linnaeus, 1758)	•	•					
<b>FAMILY: CREPIDULIDAE</b>							
Calyptraea dormitoria Reeve, 1858	•						
Calyptraea pallucida (Reeve)	•						
Cheilia equestris (Linnaeus)		•					
Crepidula fornicata (Linnaeus)		•					
Crepidula walshi Herrmannson, 1859	•		•	•			
Crucibulum extintorium Lamarck, 1836	•	•	•	•			
<b>FAMILY: AMLATHEIDAE</b>							
Amathina tricarinata (Linnaeus)				•			
<b>FAMILY: CAPULIDAE</b>							
Capulus fragilis E.A.Smith, 1904		•	•	•	•		
Capulus lamellosa Chemnitz	•						
<b>FAMILY : XENOPHORIDAE</b>							
Xenophora (Onustus) exuta (Reeve, 1842)	•						
Xenophora (Onustus) indica (Gmelin, 1791)	•	•					
Xenophora (Stellaria) solaris (Linnaeus, 1764)	•	•	•	•	•		
Xenophora chinensis chinensis (Philippi, 1841)	•						
Xenophora (Xenophora) corrugata (Reeve, 1842)		•		•	•		
Xenophora pallidula (Reeve, 1842)	•	•					
Xenophora (Xenophora) solarioides solarioides (Reeve, 1845)	•		•				
Xenophora solaris (Linnaeus, 1758)				•			
<b>FAMILY: CYPRAEIDAE</b>							
Bistolida hirundo (Linnaeus)	•	•					
Blasicrura pallidila (Gaskoin)		•					
Chelycypraea testudinaria (Linnaeus)	•						
Cribrararia cribraria (Linnaeus)		•					
Cypraea (Monetaria) annulus Linnaeus, 1758	•		•				•
Cypraea (Monetaria) moneta (Linnaeus, 1758)	•	•					
Cypraea (Mauritia) arabica Linnaeus, 1758	•	•	•			•	•
Cypraea (Lyncina) argus (Linnaeus, 1758)	•						
Cypraea asellus Linnaeus, 1758	•						
Cypraea (Lyncina) lynx (Linnaeus, 1758)	•	•					
Cypraea (Lyncina) vitellus (Linnaeus, 1758)	•						
Cypraea asellus Linnaeus, 1758	•						
Cypraea caputstrpentis Linnaeus, 1758	•		•				•

<i>Cypraea (Ponda) carneola</i> (Linnaeus, 1758)	•	•				
<i>Cypraea carputea</i> Pentis	•	•				
<i>Cypraea caurica</i> Linnaeus, 1758	•					
<i>Cypraea chinensis</i> Gmelin, 1791	•					
<i>Cypraea cicercula</i> Linnaeus, 1758	•					
<i>Cypraea clandestina</i> Linnaeus, 1767	•					
<i>Cypraea cribraria</i> Linnaeus, 1758	•					•
<i>Cypraea erosa</i> Linnaeus, 1758	•		•			
<i>Cypraea erronea</i> Linnaeus, 1758	•					
<i>Cypraea gangronosa</i> Dillwyn, 1817	•					
<i>Cypraea globulus</i> Linnaeus, 1758	•					
<i>Cypraea gracilis</i> Gaskoin, 1848	•		•			
<i>Cypraea hirundo</i> Linnaeus, 1758	•					
<i>Cypraea histrio</i> Meuschen, 1781	•					•
<i>Cypraea isabella</i> Linnaeus, 1758	•					•
<i>Cypraea kieneri</i> Hidalgo, 1906	•					
<i>Cypraea lamarckii</i> Gray, 1825	•		•			
<i>Cypraea lynx</i> Linnaeus, 1758	•				•	•
<i>Cypraea (Gratiadusta) lentiginosa</i> (Gray, 1825)		•				
<i>Cypraea (Gratiadusta) pallida</i> (Gray, 1824)	•	•	•			
<i>Cypraea (Leparocypraea) mappa</i> (Linnaeus, 1758)	•					
<i>Cypraea (Pustularia) lenardi</i> (Jousseume, 1874)	•					
<i>Cypraea (Mauritia) mauritiana</i> Linnaeus, 1758	•					
<i>Cypraea microdon</i> Gray, 1828	•					
<i>Cypraea moneta</i> Linnaeus, 1758	•	•	•			•
<i>Cypraea (Nucleolaria) nucleus</i> Linnaeus, 1758	•	•				
<i>Cypraea ocellata</i> Linnaeus, 1758	•		•		•	
<i>Cypraea (Adusta) onyx</i> Linnaeus, 1758	•	•				
<i>Cypraea (Adusta) onyx adusta</i> (Lamarck, 1810)	•					
<i>Cypraea pallida</i> Gray, 1824	•		•			
<i>Cypraea poraria</i> Linnaeus, 1758	•					
<i>Cypraea punctata</i> Linnaeus, 1771	•					
<i>Cypraea (Staphylaea) staphylaea</i> Linnaeus, 1758	•					
<i>Cypraea stolidia</i> Linnaeus, 1758	•					
<i>Cypraea (Talparia) talpa</i> Linnaeus, 1758	•					
<i>Cypraea testudinaria</i> Linnaeus, 1758	•					
<i>Cypraea (Cypraea) tigris</i> Linnaeus, 1758	•	•				•
<i>Cypraea vittaalus</i> Linnaeus, 1758	•					
<i>Cypraea walkeri</i> Sowerby, 1832	•					•
<i>Cypraea zizac</i> Linnaeus, 1758	•					
<i>Cypraea (Erronea) caurica</i> (Linnaeus, 1758)	•	•				•
<i>Cypraea (Erronea) erronea</i> (Linnaeus, 1758)	•	•				•
<i>Cypraea (Erosaria) caputserpentis</i>	•	•	•			•

(Linnaeus, 1758)							
<i>Cypraea (Erosaria) erosa</i> (Linnaeus, 1758)	•	•					•
<i>Cypraea (Erosaria) gangrenosa reentsi</i> (Dunker, 1852)		•					
<i>Cypraea (Erosaria) helvola</i> (Linnaeus, 1758)	•	•					•
<i>Cypraea (Erosaria) labrolineata</i> (Gaskoin)	•						•
<i>Cypraea (Erosaria) nebrites ceylonsis</i> Schidlar & Schidlar	•						•
<i>Cypraea (Erosaria) miliaris</i> (Gmelin, 1791)	•						
<i>Cypraea (Erosaria) ocellata</i> (Linnaeus, 1758)	•	•	•				•
<i>Cypraea poriera</i> (Linnaeus)	•						•
<i>Cypraea testudinaria</i>		•					
<i>Erronea erronea</i> (Linnaeus, 1758)		•					
<i>Erronea listeri</i> (Gray)	•	•					
<i>Erronea pulchella novaebritanniae</i> Schidler & Schidler	•	•					
<i>Luria isabella</i> (Linnaeus)		•					
<i>Lyncina lynx</i> (Linnaeus)		•					
<i>Mauritia arabica</i> (Linnaeus)		•					
<i>Mauritia histrio</i> (Gmelin)		•					
<i>Mauritia mauritiana</i> (Linnaeus)		•					
<i>Monetaria annulus</i> (Linnaeus)		•					
<i>Monetaria moneta</i> (Linnaeus, 1758)		•					
<i>Ornamentaria annulus annulus</i> (Linnaeus)					•		
<i>Palmadusta asellus</i> (Linnaeus)		•					
<i>Purpuradusta fimbriata</i> (Gmelin)		•					
<i>Purpuradusta gracilis</i> (Gaskoin)		•					
<i>Pustularia childreni</i> (Gray)		•					
<i>Staphylacea staphylacea</i> (Linnaeus)		•					
<i>Talparia talpa</i> Linnaeus	•						
<b>FAMILY : OVULIDAE</b>							
<i>Calpurnus (Calpurnus) verrucosus</i> (Linnaeus, 1758)	•						
<i>Diminovula punctata</i> (Duclos)		•					
<i>Ovula ovulum</i>	•						
<i>Ovula birostre</i> (Linnaeus, 1758)		•					
<i>Ovula formosa</i> (Adams and Reeve)		•					
<i>Pseudosimnia (Diminovula) frumentum</i> (Sowerby, 1828)			•				
<i>Pseudosimnia (Diminovula) punctata</i> (Duclos, 1831)	•	•					
<i>Volva sowerbyana</i> Weinkauff			•				
<i>Volva volva</i> (Linnaeus, 1758)		•					
<b>FAMILY: LAMELLARIDAE</b>							
<i>Lamellaria (Coroicella) indica</i> Leach		•					
<b>FAMILY: ATLANTIDAE</b>							
<i>Atlanta peronii</i> Leseur, 1817							
<b>FAMILY: TRIVIIDAE</b>							
<i>Dolichupis (Cleotrivia) globosa cosmoi</i>		•				•	

(Dautzenberg)							
<i>Lachryma sulcifera</i> (Sowerby)	•						
<i>Pusula pilula</i> (Keiner)	•						
<i>Pusula pisum</i> (Gaskoin)	•						
<i>Pusula producta</i> (Gaskoin)	•						
<i>Trivirostra hordacea</i> (Kiener, 1843)	•	•					
<i>Trivirostra oryza</i> (Lamarck, 1811)	•						
<b>FAMILY: NATICIDAE Forbes, 1838</b>							
<i>Eunaticina (Eunaticina) coarctata</i> (Reeve, 1864)	•	•					
<i>Natica manceli</i> Jousseume	•						
<i>Eunaticina (Eunaticina) linneana</i> (Recluz, 1843)							
<i>Eunaticina (Eunaticina) papilla</i> (Gmelin, 1791)		•	•				
<i>Eunaticina pomatiella</i> (Melvill)		•					
<i>Eunaticina tener</i> Smith				•			
<i>Natica arachnoidea</i> (Gmelin)		•					
<i>Natica (Naticarius) alapapilionis</i> (Roeding, 1798)	•	•	•				
<i>Natica (Naticarius) manceli</i> Jousseume, 1874	•				•		
<i>Natica (Naticarius) onca</i> (Roeding, 1798)	•						
<i>Natica (Naticarius) pulicaria</i> (Philippi, 1852)	•	•	•				
<i>Natica (Stimaulax) sulcata</i> (Born)	•						
<i>Natica (Testonatica) violacea</i> Sowerby, 1825	•						
<i>Natica adamsoni</i> Blainville, 1825	•						
<i>Natica didyma</i> (Roeding)						•	
<i>Natica euzona</i> (Recluz, 1844)	•						•
<i>Natica globosa</i> Chemnitz					•		
<i>Natica gracilis</i> Recluz, 1844	•						
<i>Natica gualteriana</i> Recluz, 1844		•	•	•	•		•
<i>Natica kempfi</i> Preston, 1916	•						
<i>Natica lamarki</i> Chenu						•	
<i>Natica lineata</i> (Roeding, 1791)	•	•	•	•	•		
<i>Natica marochuensis</i> (Gmelin)	•	•					
<i>Natica orientalis</i> (Gmelin, 1791)	•	•					
<i>Natica pelligrinalis</i> Gmelin					•		
<i>Natica pulicaria</i> Philippi, 1852	•	•					
<i>Natica picta</i> Recluz	•						
<i>Natica robillardii</i> Sowerby	•						•
<i>Natica sulcata</i> (Born, 1801)	•						
<i>Natica tigrina</i> (Roeding)	•	•	•	•		•	
<i>Natica trailli</i> Reeve							
<i>Natica vitellus</i> (Linnaeus, 1758)	•	•	•	•	•		•
<i>Neverita albumen</i> (Linnaeus, 1758)	•	•					
<i>Neverita peselphanti</i> (Link, 1807)		•					
<i>Polinices mammilla</i> (Linnaeus)	•				•		
<i>Polinices (Glossoulax) didyma</i> (oeding)	•	•	•	•			
<i>Polinices (Mammilla) mammilla</i> (Linnaeus, 1758)							

<i>Polinices (Mammilla) maurus</i> (Lamarck, 1816)	•						
<i>Polinices (Mammilla) melanostoma</i> (Gmelin, 1791)	•	•					•
<i>Polinices (Mammilla) zanzibarica</i> (Recluz, 1844)	•	•					
<i>Polinices (Neveritia) albumen</i> (Linnaeus, 1767)	•						
<i>Polinices (Neverita) peselphanti</i> Link, 1807	•	•					
<i>Polinices (Neverita) effuse</i> Swainson, 1822	•	•					
<i>Polinices (Polinices) flemingiana</i> (Recluz, 1844)	•		•				
<i>Polinices (Polinices) mammilla</i> (Linnaeus, 1758)	•	•	•				
<i>Polinices (Polinices) tumidus</i> (Swainson, 1840)	•	•	•	•			•
<i>Polinices melanostomoides</i> (Quoy & Gaimard)	•						
<i>Polinices chinensis</i> (Lamarck)	•						
<i>Sinum cuvierianum</i> (Recluz)						•	
<i>Sinum delesserti</i> (Recluz, 1843)		•		•			
<i>Sinum haliotoideum</i> (Linnaeus, 1758)		•	•				
<i>Sinum laevigatum</i> (Lamarck, 1822)	•						
<i>Sinum neritoideum</i> (Linnaeus, 1758)	•	•	•	•			
<i>Sinum planulatum</i> (Recluz, 1843)	•	•					
<i>Sinum tumescens</i> (Reeve)		•					
<i>Tanea euzona</i> Recluz, 1844	•	•					
<b>FAMILY: TONNIDAE</b>							
<i>Malea pomum</i> (Linnaeus, 1758)	•						
<i>Tonna cepa</i> (Roeding, 1798)	•	•					
<i>Tonna cumingii</i> (Reeve, 1849)		•					
<i>Tonna dolium</i> (Linnaeus, 1758)	•	•	•	•	•		
<i>Tonna olearium</i> (Bruguiere)	•						
<i>Tonna maculata</i> (Lamarck)					•		
<i>Tonna perdix</i> (Linnaeus, 1758)	•	•					
<i>Tonna sulcosa</i> (Born, 1778)	•	•	•	•			
<i>Tonna tessellata</i> (Lamarck, 1816)	•	•					
<b>FAMILY: FICIDAE</b>							
<i>Ficus ficoides</i> (Lamarck, 1822)	•	•	•	•			
<i>Ficus ficus</i> Linnaeus	•	•					
<i>Ficus gracilis</i> (Sowerby, 1825)	•		•	•	•		
<i>Ficus investigatoris</i> (Smith, 1894)	•			•			
<i>Ficus subintermedia</i> (Orbigny, 1852)	•						
<i>Ficus variegata</i> Roeding, 1798	•	•	•	•	•		
<b>FAMILY: CASSIDIDAE</b>							
<i>Casmaria erinaceus erinaceus</i> (Linnaeus, 1758)	•						•
<i>Casmaria ponderosa ponderosa</i> (Gmelin, 1791)	•	•					•
<i>Cassis cornuta</i> (Linnaeus, 1758)	•	•					•
<i>Cypraecassis rufa</i> (Linnaeus, 1758)	•						•
<i>Phalium (Phalium) areola</i> Linnaeus,	•	•	•	•			

1758							
<i>Phalium (Phalium) glaucum</i> (Linnaeus, 1758)	•	•					
<i>Phalium (Semicassis) bisulcatum</i> (Shubert & Wanger, 1829)	•	•		•			
<i>Phalium (Semicassis) canaliculatum</i> (Bruguere)	•	•					
<i>Phalium (Semicassis) faurotis</i> (Jousseume, 1888)	•						
<i>Semicassis bisulcatum bisulcatum</i> (Schubert and Wagner)			•				
<i>Semicassis canaliculatum</i> (Bruguere)			•				
<b>FAMILY: RANELLIDAE</b>							
	•						
<b><i>Biplex perca</i> (Pery, 1811)</b>							
<i>Biplex pulchra</i> (Gray in G.B.Sowerby, 1836)	•	•	•	•			
<i>Charonia obscura</i> (Reeve, 1846)	•						
<i>Charonia tritonix</i> (Linnaeus, 1758)	•						
<i>Charonia tritonis</i> Linnaeus, 1758	•						
<i>Cymatium (Gelagna) succinctum</i> (Linnaeus, 1771)	•						
<i>Cymatium (Guttarium) muricinum</i> Roeding, 1798		•					
<i>Cymatium (Guttarium) retusum</i> (Lamarck)		•					
<i>Cymatium (Guttarium) tripus</i> (Lamarck)	•		•	•			
<i>Cymatium (Monoplex) nicobaricum</i> (Roeding, 1798)	•	•					
<i>Cymatium (Monoplex) pileare</i> (Linnaeus, 1758)		•				•	
<i>Cymatium (Monoplex) thersites</i> (Reeve, 1844)	•						
<i>Cymatium (Monoplex) vespaceum</i> (Lamarck, 1822)		•					
<i>Cymatium (Reticutriton) pfeifferianum</i> (Reeve, 1844)		•					
<i>Cymatium (Septa) rubeculum</i> (Linnaeus, 1758)	•	•					
<i>Cymatium chlorostomum</i> (Lamarck)		•					
<i>Cymatium exile</i> (Reeve, 1844)	•						
<i>Cymatium gracilis</i> (Reeve, 1844)	•						
<i>Cymatium labiosum</i> (Wood)	•						
<i>Cymatium loebbeckii</i> Lischke	•						
<i>Cymatium pileare</i> (Linnaeus)	•						
<i>Cymatium retusum</i> Lamarck, 1822	•	•					
<i>Cymatium truncates</i> (Hinds)	•						
<i>Cymatium muricinum</i> Roeding, 1798		•					
<i>Cymatium rhinoceros</i> (Lamarck)	•						
<i>Distorsio (Distorsio) anus</i> (Linnaeus, 1758)	•						
<i>Distorsio (Distorsio) reticularis</i> (Linnaeus, 1758)	•	•	•	•			

<i>Gyineum (Gyrineum) natator</i> (Roeding, 1758)	•		•	•		•	
<i>Gyineum perca</i> (Perry, 1811)		•					
<i>Gyineum perca</i> var. <i>aculeata</i> Schepman							
<i>Gyrineum gyrinum</i> (Linnaeus, 1758)	•	•	•				
<i>Gyrineum natator</i> (Roeding)			•				
<i>Gyrinum wilmerianum</i> Preston, 1908	•						
<i>Linatella (Gelagna) succincta</i> (Linnaeus)	•						
<i>Linatella cingulata</i> (Lamarck)		•	•				
<b>FAMILY: BURSIDAE</b>							
<i>Bursa (Bufonaria) crumena crumena</i> (Lamarck, 1816)	•	•	•				
<i>Bursa (Bufonaria) echinata</i> (Link, 1807)	•		•				
<i>Bursa (Bufonaria) margaritula</i> (Deshayes, 1832)			•				
<i>Bursa (Bufonaria) rana</i> (Linnaeus)	•	•	•	•			
<i>Bursa granularis</i> (Roeding)	•					•	
<i>Bursa bufonia</i> (Gmelin)	•	•					
<i>Bursa cruentata</i> (Sowerby)	•						•
<i>Bursa awatii</i> Ray		•					
<i>Bursa elegans</i> (Beck)		•					
<i>Bursa lamarckii</i>							
<i>Bursa margaritula</i> (Deshayes)	•	•					
<i>Bursa prox subgranosa</i> (Beck)		•					
<i>Bursa spinosa</i> (Lamarck)	•	•		•	•		•
<i>Bursa swainsonii</i> Moersch		•					
<i>Bursa tuberculata</i> (Broderip)	•						•
<i>Colubellina granularis</i> (Roeding, 1798)	•	•		•		•	
<i>Tutufa (T.) bufo</i> (Roeding, 1798)	•						
<i>Tutufa (T.) bufonia</i> (Gmelin, 1791)	•						
<i>Tutufa (Tutufella) rubeta</i> (Linnaeus, 1758)	•	•					
<i>Tutufa (Tutufa) bubo</i> (Linnaeus, 1758)	•	•					
<b>FAMILY: CERITHIOPSIDAE</b>							
<i>Cerithiopsis pulvis</i> (Issel, 1869)	•						
<b>FAMILY: TRIPHORIDAE</b>							
<i>Triphora alveolatus</i> Adams and Reeve, 1950	•						
<i>Triphora concinnus</i> Hinds, 1843	•	•					
<i>Triphora corrugatus</i> Hinds, 1843	•						
<i>Triphora formosus</i> Deshayes, 1832	•						
<i>Triphora ornata</i> Deshayes, 1832	•						
<i>Triphora violacea</i> (Quoy & Gaimard)		•					
<i>Triphora vittatus</i> Hinds, 1843	•						
<b>FAMILY: EPITONIIDAE</b>							
<i>Amaea (Acrilla) accuminata</i> (Sowerby, 1844)		•	•	•			
<i>Amaea (Acrilla) gracilis</i> (Sowerby, 1844)				•	•		
<i>Cirsotrema (Cirsotrema) varicosum</i> (Lamarck, 1822)	•						
<i>Eglisia tricarinata</i> Adams & Reeve		•		•			
<i>Epitonium hamatulae</i> Preston				•			

<i>Epitonium immaculatum</i> (Sowerby, 1844)		•		•			
<i>Epitonium lamellosum</i> (Lamarck, 1822)		•					
<i>Epitonium (Papyriscala) latifasciatum</i> (Sowerby, 1874)		•					
<i>Epitonium melior</i> (Melvill & Standen)							
<i>Epitonium multicosata</i> (Sowerby, 1844)	•						
<i>Epitonium (Epitonium) pallassii</i> (Keiner, 1838- 39)		•					
<i>Epitonium perplexum</i> (Pease, 1860)	•						
<i>Epitonium philippinarum</i> (Sowerby)							
<i>Epitonium pyramidale</i> (Sowerby, 1844)		•					
<i>Epitonium scalare</i> (Linnaeus, 1758)		•					
<i>Epitonium subarticulatum</i> (Souverbie)		•					
<i>Epitonium subtile</i> (Sowerby)		•					
<i>Epitonium varicosa</i> (Lamarck, 1822)	•						
<i>Gyroscala lamellose</i> (Lamarck, 1822)							
<b>FAMILY: LITIOPIDAE</b>							
<i>Finella virgata</i> (Philippi)				•			
<b>FAMILY: JANTHINIDAE</b>							
<i>Janthina globosa</i> Swainson, 1822	•	•	•	•	•		
<i>Janthina janthina</i> (Linnaeus, 1758)	•		•				
<i>Janthina jehennei</i> Reeve	•	•					
<i>Janthina roseola</i> Reeve		•					
<i>Recluzia jehennei</i> Petit, 1853	•						
<b>FAMILY : EULIMIDAE</b>							
<i>Eulima acuformis</i> G. & H. Nevill, 1875	•						
<i>Eulima balteata</i> Preston, 1908	•						
<i>Eulima oxytata</i> Watson				•			
<i>Eulima oxytata</i> Watson				•			
<i>Eulima rossinsulae</i> Preston, 1916	•						
<i>Melanella acuta</i> (Sowerby, 1834)	•						
<i>Melanella fulvescens</i> (A. Adams, 1866)	•						
<i>Melanella oxydata</i> (Watson, 1883)	•						
<i>Melanella recurva</i> Boettger	•						
<i>Melanella solidula</i> (Adams & Reeve, 1850)	•						
<i>Niso pyramidelloides</i> G & H Nevill				•			
<b>FAMILY: FOSSARIDAE</b>							
<i>Chilkaia imitatrix</i> Preston				•			
<b>ORDER: NEOGASTROPODA</b>							
<b>FAMILY : MURICIDAE</b>							
<i>Attiliosa nodilifera</i> (Sowerby, 1841)	•						
<i>Boreotrophon indicus</i> (Smith, 1899)	•						
<i>Boreotrophon tenuirostratus</i> (Smith, 1899)	•						
<i>Chicoreces (Naquetia) capucinus</i> (Roeding, 1798)	•	•					
<i>Chicoreus (Naquetia) annandalei</i> (Preston, 1910)	•	•					
<i>Chicoreus (Naquetia) triqueter</i> (Born, 1778)	•						
<i>Chicoreus axicornis</i> (Lamarck, 1822)	•						

<i>Chicoreus banksii</i> (Sowerby, 1841)	•						
<i>Chicoreus brunneus</i> (Lamarck, 1807)	•	•	•	•	•	•	
<i>Chicoreus denudatus</i> (Perry, 1811)	•						
<i>Chicoreus kilburni</i> Houart and Pain, 1982	•						
<i>Chicoreus microphyllus</i> (Lamarck, 1816)	•	•		•			
<i>Chicoreus ramosus</i> (Linnaeus, 1758)	•		•			•	•
<i>Cronia amygdala</i> (Kiener, 1836)	•					•	
<i>Cronia (Erglatax) contracta</i> (Reeve, 1846)	•	•	•	•	•		
<i>Cronia fiscella</i> (Gmelin, 1788)	•						
<i>Cronia konkanensis</i> (Melvill, 1893)	•	•					
<i>Cronia ochrostoma</i> (Blainville, 1832)	•						
<i>Cronia ozenneana</i> (Crosse, 1861)	•						
<i>Cronia subnodulosa</i> (Melvill, 1893)	•	•		•		•	
<i>Cuma disjuncta</i> Annandale					•		
<i>Cymia lacera</i> (Born)				•			
<i>Drupa margariticola</i> (Broderip)						•	
<i>Drupa (Drupa) morum morum</i> Roeding, 1798	•	•					
<i>Drupa (Drupa) ricinus ricinus</i> (Linnaeus, 1758)	•						
<i>Drupa heptagonalis</i> (Reeve)						•	
<i>Drupa (Drupa) lobata</i> (Blainville, 1832)	•	•					
<i>Drupa (Ricinella) rubusidaeus</i> Roeding, 1798	•						
<i>Drupa tuberculata</i> (Blainville)						•	
<i>Drupella concatenata</i> (Lamarck, 1822)	•						
<i>Drupella cornus</i> (Roeding, 1777)	•						
<i>Favartia tetragona</i> (Broderip, 1833)	•						
<i>Haustellum haustellum</i> (Linnaeus, 1758)	•	•					
<i>Hexaplex (Muricanthus) virineus</i> (Roeding)			•				
<i>Homalocantha scorpio</i> (Linnaeus, 1758)	•						
<i>Homalocantha secunda</i> (Lamarck, 1822)	•	•	•				
<i>Maculotrion serriale</i> (Deshayes in Laborde and Linant, 1834)	•	•					•
<i>Mancinella alouina</i> (Roeding, 1798)	•						
<i>Mancinella bufo</i> (Lamarck, 1822)	•			•			
<i>Morula anaxares</i> (Kiener, 1835)	•	•					
<i>Morula biconica</i> (Blainville, 1832)	•			•			
<i>Morula funiculata</i> (Reeve, 1846)		•					
<i>Morula granulata</i> (Duclos, 1832)	•	•	•	•	•		
<i>Morula marginata</i> (Blainville, 1832)	•					•	
<i>Morula nodicostata</i> (Pease, 1868)	•						
<i>Morula uva</i> (Roeding, 1798)	•						
<i>Murex adustus</i> Lamarck						•	
<i>Murex occa</i> Sowerby, 1834	•						
<i>Murex pecten</i> Lightfoot	•						
<i>Murex carbonnieri</i> (Jousseume, 1881)	•	•	•	•	•		
<i>Murex occa</i> Sowerby, 1834	•						
<i>Murex scolopax</i> Dillwyn, 1817	•						
<i>Murex tenuirostrum tenuirostrum</i>	•	•					

Lamarck, 1832							
<i>Murex ternispina</i> Lamarck, 1822	•			•		•	
<i>Murex trapa</i> Roeding, 1798	•	•	•	•	•	•	
<i>Murex tribulus</i> Linnaeus, 1758	•	•	•	•	•	•	
<i>Murex troscheli</i> Lischke, 1868	•						
<i>Murexiella andamanensis</i> Haurat and Surya Rao, 1996	•	•					
<i>Muricanthus virgineus</i> (Roeding, 1798)		•				•	
<i>Muricopsis bombayanus</i> (Melvill, 1893)	•						
<i>Muricopsis orri</i> Cernohorsky	•						
<i>Naquetia annandalei</i> (Preston, 1910)	•			•			
<i>Naquetia capucina</i> (Roeding, 1798)	•						
<i>Naquetia triqueter</i> (Born, 1778)	•						
<i>Nassa sarta</i> (Bruguiere, 1789)	•	•					
<i>Pterynotus pinnatus</i> (Swainson, 1822)	•	•	•				
<i>Purpura buccinea</i> (Deshayes, 1844)	•						
<i>Purpura panama</i> (Roeding, 1798)	•	•	•	•	•		
<i>Purpura persica</i> (Linnaeus, 1758)	•		•				
<i>Rapana rapiformis</i> (Born, 1778)	•	•	•	•			
<i>Thais armigera</i> (Link, 1796)	•						
<i>Thais bufo</i> (Lamarck, 1822)	•	•	•	•	•		
<i>Thais blanfordi</i> (Melvill, 1893)	•						
<i>Thais carnifera</i> (Lamarck)	•	•			•		
<i>Thais echinata</i> (Balinville, 1832)	•		•				
<i>Thais hippocastanum</i> (Linnaeus, 1758)	•		•				
<i>Thais intermedia</i> (Kiener, 1836)	•	•					
<i>Thais lacera</i> (Born, 1778)	•	•	•	•	•	•	
<i>Thais (Purpurea) rudolphi</i> Link	•	•					
<i>Thais rudolphi</i> (Lamarck)		•					
<i>Thais rugosa</i> (Born, 1778)	•	•	•	•	•	•	
<i>Thais armisgera</i> (Link, 1796)	•						
<i>Thais blanfordi</i> (Nevill, 1893)	•					•	
<i>Thais carnifera</i> Lamarck	•						
<i>Thais hippocastanum</i> (Linnaeus, 1758)	•						
<i>Thais intermedia</i> Kiener, 1836	•						
<i>Thais panama</i> (Roeding, 1798)	•					•	
<i>Thais tissorti</i> (Petit, 1852)	•	•	•	•			
<i>Thais tuberosa</i> (Roeding, 1798)	•	•		•			
<i>Vitularia milliaris</i> (Gmelin, 1791)	•						
<b>FAMILY : CORALLIOPHILIDAE</b>							
<i>Coralliophila abnormis</i> E.A.Smith	•						
<i>Coralliophila fusioidea</i> Nevill	•						
<i>Coralliophila erosa</i> (Roeding, 1798)	•	•					
<i>Coralliophila neritoidea</i> (Lamarck, 1816)	•						•
<i>Coralliophila madreporaraium</i> (Sowerby, 1832)	•						•
<i>Coralliophila suturalis</i> A.Adams	•						•
<i>Magilus ellipticus</i> Sowerby	•						•
<i>Magilus cumingii</i> Deshayes	•						•
<i>Quiyula madreporarum</i> (Sowerby, 1832)	•						
<i>Rapa rapa</i> (Linnaeus, 1758)	•						
<i>Rapa tenuis</i> Martini	•						

FAMILY : BUCCINIDAE							
<i>Babylonia ambulacrum</i> (Sowerby)	•						
<i>Babylonia spirata</i> (Linnaeus, 1758)	•	•	•	•		•	
<i>Babylonia zeylanica</i> (Bruguiere, 1789)	•	•	•				
<i>Cantharus (Pollia) delicata</i> (Smith, 1899)	•	•					
<i>Cantharus (Pollia) fumosus</i> (Dillwyn, 1817)	•						
<i>Cantharus (Pollia) spiralis</i> (Gray, 1846)		•	•				
<i>Cantharus (Pollia) undosus</i> (Linnaeus, 1758)	•	•	•			•	
<i>Cantharus (Pollia) tranquebaricus</i> (Gmelin)		•	•	•			
<i>Cantharus (Pollia) wagneri</i> (Anton, 1839)	•						
<i>Colubraria muricata</i> (Lightfoot, 1776)	•			•			
<i>Colubraria tortuosa</i> (Reeve, 1844)	•						
<i>Clea blocki</i> Brot		•	•				
<i>Engina alveolata</i> (Kiener, 1836)	•	•					•
<i>Engina armillata</i> (Reeve)			•				
<i>Engina crenulata</i> Kiener, 1836	•						
<i>Engina lineate</i> (Reeve)	•						
<i>Engina mendicaria</i> (Linnaeus, 1758)	•	•					•
<i>Engina pulchra</i>	•						•
<i>Engina rawsonii</i> Melvill	•						•
<i>Engina trifasciata</i> Reeve	•						•
<i>Engina zonalis</i> (Lamarck, 1822)	•						
<i>Nassaria nivea</i> (Gmelin)			•	•			
<i>Nassaria acuminata</i> (Reeve, 1844)	•	•	•	•			•
<i>Nassaria coromandalica</i> (E.A.Smith, 1894)		•	•	•	•		
<i>Nassaria laevier</i> Smith, 1899	•						
<i>Nassaria pusilla</i> Roeding, 1798	•	•	•	•			
<i>Nassaria suturalis</i> (Adams)				•			
<i>Pseuanchis duclosina</i> (Sowerby, 1847)		•	•	•			
<i>Pisania ignea</i> (Gmelin, 1791)	•						
<i>Phos blainvillei</i> Deshayes	•						
<i>Phos roseatus</i> Hinds	•						
<i>Phos senticosus</i> (Linnaeus, 1758)	•						
<i>Phos textum</i> (Gmelin, 1791)	•						
FAMILY : COLUMBELLIDAE							
<i>Anachis terpsichore</i> Leith, 1844	•		•				•
<i>Columbella duclosiana</i> Sowerby, 1847	•		•				
<i>Columbella galaxies</i> Reeve	•						•
<i>Columbella scripta</i> Lamarck, 1822	•						
<i>Euplica varians</i> (Sowerby, 1832)		•					
<i>Mitrella philippina</i> Dunker	•						
<i>Mitrella puella</i> (Sowerby, 1844)	•						
<i>Pyrene conspersa</i> (Gaskoin)	•						
<i>Pyrene contaminate</i> (Gaskoin)	•						
<i>Pyrene faba</i> (Linnaeus, 1758)	•						
<i>Pyrene flava</i> (Bruguiere, 1798)	•	•					
<i>Pyrene flavida</i> Lamarck)						•	
<i>Pyrene lactea</i> (Kiener, 1844)	•						

<i>Pyrene palumbrina</i> (Gould)	•						
<i>Pyrene paradalina</i> (Lamarck)	•						
<i>Pyrene parvula</i> Dunker	•						
<i>Pyrene (Columbella) varians</i> (Sowerby)	•						
<i>Pyrene philippinarum</i> (Reeve, 1842)	•						•
<i>Pyrene scripta</i> (Lamarck, 1822)	•	•					
<i>Pyrene testudinaria</i> (Link, 1807)		•					
<i>Pyrene turturina</i> (Lamarck, 1822)	•						
<i>Pyrene versicolor</i> (Sowerby, 1832)	•					•	•
<b>FAMILY: NASSARIIDAE Iredale, 1916</b>							
<i>Bullia (Leiodomus) livida</i> Reeve			•	•			
<i>Bullia (Bullia) tranquebarica</i> (Roeding, 1798)				•			
<i>Bullia (Bullia) melanoides</i> (Deshayes, 1832)		•	•				
<i>Bullia (Bullia) tranquebarica</i> (Roeding)			•				
<i>Bullia (Dorsanum) vittata</i> (Linnaeus, 1758)	•	•	•	•			
<i>Cyllene (Cyllene) fuscata</i> A. Adams, 1850		•		•			
<i>Hebra horrida</i> Dunker, 1847	•						
<i>Hebra subspinosa</i> (Lamarck, 1822)	•						
<i>Hebra horridus</i> (Dunker, 1847)							
<i>Nassarius (Gussonea) marguesa</i> (Gaskoin)	•						
<i>Nassarius (Aciculina) exilis</i> Powis, 1835	•						
<i>Nassarius (Aciculina) subconstrictus</i> Sowerby, 1899		•	•	•	•		
<i>Nassarius (Aciculina) vittatus</i> (A. Adams, 1853)	•	•		•			
<i>Nassarius arcularis arcularia</i> Linnaeus, 1758	•						
<i>Nassarius arcularis plicatus</i> (Roeding, 1798)	•						
<i>Nassarius (Alectrion) papillosus</i> (Linnaeus)	•						
<i>Nassarius (Gussonea) marguesa</i> (Gaskoin)	•						•
<i>Nassarius (Herba) horridus</i> (Dunker)	•						
<i>Nassarius (Herba) nigra</i> (Hombron & Jacquinet)		•					
<i>Nassarius (Herba) subspinus</i> Lamarck	•						
<i>Nassarius (Hima) stolatus</i> (Gmelin, 1791)			•	•	•		
<i>Nassarius (Hima) stoltatus</i> (Gmelin, 1791)				•			
<i>Nassarius (Nassarius) coronatus</i> (Bruguiere, 1789)							
<i>Nassarius (Nassarius) auricularis</i> Linnaeus, 1758)		•					
<i>Nassarius (Niotha) albescens albescens</i> (Dunker, 1846)	•	•					•
<i>Nassarius (Niotha) albescens gemmuliferus</i> (A. Adams, 1852)	•						
<i>Nassarius (Niotha) conoidalis</i> (Deshayes)	•	•		•			

in Belanger, 1832)							
<i>Nassarius (Niotha) distortus</i> (A.Adams, 1852)	•	•					
<i>Nassarius dissparalis</i> (Smith)	•						
<i>Nassarius (Niotha) echinatus</i> (A.Adams, 1852)	•						•
<i>Nassarius (Niotha) jacksonianus</i> (Quoy & Gaimard, 1833)		•		•			
<i>Nassarius (Niotha) luridus</i> (Gould, 1849)	•						
<i>Nassarius fidus</i>	•						•
<i>Nassarius gemmulatus</i>	•						•
<i>Nassarius (Niotha) livescens</i> (Philippi, 1849)	•		•				•
<i>Nassarius (Niotha) nigellus</i> (Reeve)	•						
<i>Nassarius maldivensis</i> (Smith)	•						
<i>Nassarius (Niotha) nodifera</i> (Powis, 1835)	•						•
<i>Nassarius (Niotha) stolatus</i> (Gmelin)			•				
<i>Nassarius (Niotha) solendidulus</i> (Dunker)	•						
<i>Nassarius (Niotha) escillibus</i> (Melvill and Staden)		•					•
<i>Nassarius (Niotha) venusta</i> (dunker)	•						
<i>Nassarius (Plicarcularia) callospira</i> (A.Adams, 1852)	•	•		•			
<i>Nassarius (Plicarcularia) camelus</i> (V.Martens, 1897)	•	•					
<i>Nassarius (Plicarcularia) globosus</i> (Quoy and Gaimard, 1833)	•		•				•
<i>Nassarius (Plicarcularia) graniferus</i> (Kiener, 1834)	•						
<i>Nassarius (Plicarcularia) novaezelandiae</i> (Reeve)	•						•
<i>Nassarius (Plicarcularia) pullus</i> (Linnaeus, 1758)	•	•	•	•			
<i>Nassarius (Pygmaeonassa) orissaensis</i> (Preston)				•			
<i>Nassarius (Telasco) gaudiosus</i> (Hinds, 1844)	•						
<i>Nassarius (Telasco) luridus</i> (Gould, 1849)	•						
<i>Nassarius (Zeuxis) comptus</i> (A.Adams, 1852)	•			•			
<i>Nassarius (Zeuxis) cremates</i> (Hinds)	•						
<i>Nassarius (Zeuxis) dorsatus</i> (Roeding, 1798)	•	•	•	•			
<i>Nassarius (Zeuxis) faveolatus</i> (Dunker, 1847)		•	•	•	•		
<i>Nassarius (Zeuxis) margaritiferus</i> (Dunker, 1847)	•						
<i>Nassarius (Zeuxis) olivaceus</i> (Bruguiere, 1789)	•	•					
<i>Nassarius (Zeuxis) pictus</i> (Dunker, 1846)	•						

<i>Nassarius (Zeuxis) vitiensis</i> (Hambron & Jaquinot, 1853)	•						•
<i>Nassarius (Zeuxis) olivaceus</i> (Bruguiere, 1798)	•	•	•				
<i>Nassarius albescens gemmuliferus</i> (A.Adamas)	•						
<i>Nassarius arcularia arcularia</i> (Linnaeus,1758)	•						
<i>Nassarius arcularius plicatus</i> (Roeding,1798)	•						
<i>Nassarius coronatus</i> (Bruguiere,1789)	•						
<i>Nassarius faveolata</i> (Dunker)					•		
<i>Nassarius gerstenbrandti</i> (Preston,1908)	•						
<i>Nassarius globosus</i> Quoy&gaimard	•						
<i>Nassarius idyllius</i> Melvill &Standen	•						
<i>Nassarius jucundus</i> (Preston, 1908)	•						
<i>Nassarius kempfi</i> Preston, 1916	•						
<i>Nassarius livscene</i> (Philippi)	•						
<i>Nassarius moestus</i> (Hinds)	•						
<i>Nassarius nakayami</i> (Habe)	•						
<i>Nassarius phoenicensis</i> (Preston, 1916)	•						
<i>Nassarius pullus</i> (Linnaeus)	•						
<i>Nassarius stigmara</i> A.Adams, 1851	•						
<i>Nassarius stolatus</i> (Gmelin)						•	
<i>Nassarius subconstrictus</i> (Sowerby, 1899)	•			•			
<i>Nassarius tristis</i> (Preston, 1908)	•						
<i>Nassarius vibex</i> (Say)	•						
<i>Nassarius vittatus</i> (A.Adams)	•						
<i>Nassarius arcularia arcularia</i> (Linnaeus, 1758)	•						
<b>FAMILY : MELONGENIDAE</b>							
<i>Pugilina (Hemifusus) cochlidium</i> (Linnaeus, 1758)	•	•	•	•	•		
<i>Pugilina pugilina</i> (Born)	•						
<i>Pugilina (Hemifusus) ternatus</i> (Gmelin, 1791)		•					
<b>FAMILY : FASCIOLARIIDAE</b>							
<i>Fuscus captinus</i> Smith, 1899	•					•	
<i>Fusinus colus</i> (Linnaeus)		•	•	•			
<i>Fusinus forceps</i> (Perry, 1811)		•					
<i>Fusinus nicobaricus</i> (Roeding, 1798)	•	•					
<i>Latirus andamanicus</i> Smith, 1894	•						
<i>Latirus craticulatus</i> Linnaeus, 1758	•						
<i>Latirus gibbulus</i> (Gmelin, 1791)	•						
<i>Latirus nodatus</i> (Gmelin, 1791)	•						•
<i>Latirus polygonus</i> (Gmelin, 1791)		•					
<i>Leucozonia (Latirolagena) smaragdulus</i> (Linnaeus, 1758)	•	•					•
<i>Leucozonia (Latirolagena) smaragdulus</i> (Linnaeus,1758)		•					•
<i>Peristernia pulchella</i> (Reeve, 1847)	•						
<i>Peristernia nassatula</i> (Lamarck, 1822)	•						
<i>Peristernia ustulata</i> (Reeve, 1846)	•						

<i>Peristernia violacea</i> (Reeve, 1847)	•						
<i>Pleuroploca filamentosa</i> (Roeding, 1798)	•	•					
<i>Pleuroploca trapezium</i> (Linnaeus, 1758)		•					
<b>FAMILY : VOLUTIDAE</b>							
<i>Lyria coronata</i> (Hinds, 1843)	•						
<i>Lyria elegans</i> Reeve, 1846	•						
<i>Lyria funebris</i> Reeve, 1846	•						
<i>Lyria lyrica</i> (Reeve, 1846)	•						
<i>Lyria marginelloides</i> Reeve, 1846	•						
<i>Lyria trivittata</i> Adams and Reeve, 1850	•						
<i>Melo melo</i> (Solander, 1786)		•	•				
<b>FAMILY: VASIDAE</b>							
<i>Turbinella pyrum fusus</i> Sowerby	•						
<i>Vasum (Vasum) ceramicum</i> Linnaeus, 1758	•	•					•
<i>Vasum (Vasum) turbinellus</i> Linnaeus, 1758	•	•					•
<i>Xancus pyrum</i> (Linnaeus, 1758)		•				•	
<b>FAMILY: HARPIDAE</b>							
<i>Harpa amouretta</i> Roeding, 1798	•	•					•
<i>Harpa conoidalis</i> Lamarck, 1822	•						•
<i>Harpa costata</i> (Linnaeus)			•				
<i>Harpa davidis</i> Roeding, 1798	•	•	•	•			
<i>Harpa harpa</i> (Linnaeus, 1758)	•						
<i>Harpulina laponica</i> (Linnaeus, 1767)		•					
<i>Harpa major</i> Roeding, 1798	•	•	•				
<i>Harpa ventricosa</i> Linnaeus, 1758	•						
<b>FAMILY : OLIVIDAE</b>							
<i>Agaronia nebulosa</i> (Lamarck, 1845)	•		•	•			
<i>Amalda ampula</i> (Gmelin, 1791)	•	•	•	•	•		
<i>Ancilla (Ancilla) ampula</i> (Gmelin, 1791)	•				•		
<i>Ancilla glans</i> smith, 1899	•						
<i>Ancilla leucospira</i> Smith, 1899	•						
<i>Ancilla monilifera</i> Reeve, 1864	•						
<i>Ancilla nivea</i> (Gmelin, 1791)	•						
<b>FAMILY: MARGINELLIDAE</b>							
<i>Marginella angustata</i> Sowerby, 1846	•	•	•	•			
<i>Marginella latritia</i> Melvill and Sykes	•	•					•
<i>Marginella loebeckeanai</i> (Weinkauff)	•	•	•				
<i>Marginella louisae</i> Bourguignat	•						
<i>Marginella persica</i> Nevill	•						
<i>Marginella picturata</i> Nevill	•						
<i>Marginella scripta</i> (Hinds)	•						•
<i>Marginella sordida</i> (Reeve)	•						
<i>Marginell ventricosa</i> G.Fischer, 1807		•		•	•		
<i>Oliva miniacea</i> (Roeding, 1798)	•						
<i>Oliva ispidula</i> Linnaeus					•		
<i>Oliva annulata</i> (Gmelin, 1791)]	•						
<i>Oliva caerulea</i> (Roeding, 1798)	•	•					
<i>Olivia erythrostoma</i> Lamarck	•						
<i>Oliva gibbosa</i> (Born)	•	•			•		
<i>Oliva guttata</i> Lamarck	•						
<i>Olivia irisans</i> Lamarck	•						•

<i>Olivia lepida</i> Duclos						•	
<i>Olivia maura</i> Lamarck	•						
<i>Oliva miniacea</i> (Roeding, 1798)	•						
<i>Olivia nebulosa</i> Lamarck						•	
<i>Olivia nigrita</i> von Martens	•						
<i>Olivia nobilis</i>	•						
<i>Oliva oliva</i> (Linnaeus, 1758)	•	•	•	•			•
<i>Oliva sericea</i> (Roeding, 1798)	•		•				
<i>Oliva sidelia</i> duclos, 1835	•						
<i>Oliva tricolor</i> Lamarck, 1811	•						
<i>Olivia undata</i> Lamarck, 1811	•						
<i>Oliva vidua</i> (Roeding, 1798)	•	•	•	•			
<i>Olivancillaria gibbosa</i> (Born, 1778)	•	•	•	•	•		
<i>Olivella</i> sp.	•	•				•	•
<i>Persicula persicula</i>	•						
<i>Tibia fusus</i> Linnaeus, 1758	•						
<i>Tibia powisii</i> petit, 1842)	•						
<i>Tibia unicornis</i> (Dilwyn, 1817)	•						
<i>Varicospira cancellata</i> (Lamarck, 1836)	•						
<b>FAMILY : MITRIDAE</b>							
<i>Cancilla (Domiporia) rufilirata</i> (Adams and Reeve)						•	
<i>Cancilla (Domiporia) praestantissima</i> (Roeding, 1798)	•						
<i>Cancilla (Domiporia) rufilirata</i> (Adams and Reeve, 1850)	•						
<i>Cancilla filaria</i> (Linnaeus)	•						
<i>Cancilla interlirata</i> (Reeve, 1844)	•			•	•		
<i>Cancilla isabella</i> (Swainson, 1831)	•						
<i>Cancilla philippinarum</i> (A.Adams, 1851)	•						
<i>Domiporia praestantissima</i> (Roeding, 1798)	•						
<i>Domiporia rufilirata</i> (Adams and Reeve, 1850)	•						
<i>Imbricaria conularis</i> (Lamarck)	•						
<i>Imbricaria punctata</i> (Swainson, 1821)	•						
<i>Mitra (Cancilla) insculpta</i> (Gmelin)	•						
<i>Mitra (Costellaria) exasperate</i> Gmelin	•						•
<i>Mitra (Mitra) ambigua</i> Swainson, 1829	•						
<i>Mitra (Mitra) cardinalis</i> (Gmelin, 1791)	•						
<i>Mitra circula</i>	•						
<i>Mitra (Mitra) guttata</i> Swainson, 1824	•	•					
<i>Mitra (Mitra) imperialis</i> Roeding, 1798	•					•	
<i>Mitra mica</i> Reeve						•	
<i>Mitra (Mitra) mitra</i> (Linnaeus, 1758)	•						
<i>Mitra (Mitra) stictica</i> (Link, 1807)	•		•				•
<i>Mitra (Nebularia) aurantia aurantia</i> (Gmelin, 1791)	•		•			•	•
<i>Mitra (Nebularia) aurantia subruppelli</i> Finlay	•						
<i>Mitra (Nebularia) chrysalis</i> Reeve, 1844	•						•
<i>Mitra (Nebularia) chrysostoma</i> Broderip	•						
<i>Mitra (Nebularia) contracta</i> Swainson	•						

<i>Mitra (Nebularia) coronata</i> Lamarck	•						
<i>Mitra (Nebularia) cucumerina</i> Lamarck, 1811	•	•					
<i>Mitra (Nebularia) doliolum</i> Kuester, 1839	•						
<i>Mitra (Nebularia) luctuosa</i> A.Adams, 1853	•						
<i>Mitra (Nebularia) maesta</i> Reeve, 1845	•						
<i>Mitra (Nebularia) ruelii</i> Reeve, 1844	•						
<i>Mitra (Nebularia) tabanula</i> Lamarck, 1811	•						
<i>Mitra (Nebularia) ticaonica</i> Reeve, 1844	•						•
<i>Mitra (Nebularia) turgida</i> Reeve, 1845	•						
<i>Mitra (Strigatella) scabriscula</i> Linnaeus, 1758	•						
<i>Mitra (Strigatella) variegata</i> Reeve, 1844	•						•
<i>Mitra (Strigatella) acuminata</i> Swainson, 1828	•						•
<i>Mitra (Strigatella) decurtata</i> Reeve, 1844	•						
<i>Mitra (Strigatella) litterata</i> Lamarck, 1811	•						
<i>Mitra (Strigatella) meurtata</i> Reeve, 1844	•						
<i>Mitra (Strigatella) paupercula</i> (Linnaeus, 1758)	•						
<i>Mitra (Strigatella) pellisserpentis</i> Reeve, 1844	•						
<i>Mitra (Strigatella) retusa</i> Lamarck, 1811	•						
<i>Mitra (Strigatella) scutulata</i> (Gmelin, 1791)	•	•					
<i>Mitra coffea</i> Schubert & Wagner	•						
<i>Nenocancilla granatina</i> (Lamarck, 1811)	•						
<i>Neocancilla antoniae</i> (H.Adams)	•		•				•
<i>Neocancilla circula</i> (Kiener, 1838)	•	•	•	•			
<i>Neocancilla clathrus</i> (Gmelin, 1791)	•						
<i>Neocancilla papilio</i> (Link, 1807)	•						
<i>Pterygia crenulata</i> (Gmelin, 1817)	•						
<i>Pterygia dactylus</i> (Linnaeus, 1767)	•						
<i>Pterygia fenestrata</i> (Lamarck, 1811)	•						
<i>Scabricola (Scabricola) caerulea</i> (Reeve, 1844)	•						
<i>Scabricola (Scabricola) coriacea</i> (Reeve, 1845)	•						
<i>Scabricola (Swainsonia) fusca</i> (Swainson)		•		•			
<i>Subcancilla flammea</i> (Quoy and Gaimard, 1833)	•						
<b>FAMILY : CANCELLARIIDAE</b>							
<i>Cancellaria asperella</i> (Lamarck, 1822)		•	•	•			
<i>Cancellaria elegans</i> Sowerby	•						
<i>Cancellaria crenilifera</i> (Sowerby)					•		
<i>Cancellaria lambarti</i> Sowerby	•						
<i>Cancellaria oblonga</i> Sowerby				•			
<i>Cylindra sinensis</i> Reeve							•
<i>Drillia crenularis</i> Lamarck					•		

<i>Scalptia scalarina</i> (Lamarck, 1847)	•		•				
<i>Scalptia scalata</i> (Sowerby, 1833)	•						
<i>Scalptia lamellose</i> (Hinds, 1943)	•						
<i>Scalpita obliquata</i> (Lamarck, 1847)	•						
<i>Surcula javana</i> (Linnaeus)					•		
<i>Trigonostoma lamellosa</i> (Hinds, 1943)	•			•			
<i>Trigonostoma scalariformis</i> (Lamarck, 1822)							
<i>Vexillum (Costellaria) mandriella</i> (Ray)				•			
<i>Vexillum (Pusia) amabilis</i> (Reeve, 1884)	•						
<i>Vexillum acuminatum</i> (Gmelin, 1791)	•						•
<i>Vexillum acupicta</i> (Reeve, 1844)	•						
<i>Vexillum cadaverosum</i> (Reeve, 1844)	•						
<i>Vexillum costellaris</i> (Lamarck, 1811)	•						
<i>Vexillum crebrilirata</i> (Reeve, 1844)	•						
<i>Vexillum cruentatum</i> (Gmelin, 1791)	•						
<i>Vexillum daedalum</i> (Reeve, 1845)	•						
<i>Vexillum deshayesi</i> (Reeve, 1845)	•						
<i>Vexillum exasperatum</i> (Gmelin, 1791)	•						
<i>Vexillum gruneri</i> (Reeve, 1844)	•						•
<i>Vexillum luculentum</i> (Reeve, 1844)	•						
<i>Vexillum melongena</i> (Lamarck, 1811)	•						
<i>Vexillum obeliscus</i> (Reeve, 1844)	•						
<i>Vexillum plicarium</i> (Linnaeus, 1758)	•						
<i>Vexillum rectilateralis</i> Sowerby, 1874	•						
<i>Vexillum regina</i> (Sowerby, 1882)	•						
<i>Vexillum sanguisugum</i> (Linnaeus, 1767)	•						
<i>Vexillum sculoptilis</i> (Reeve, 1845)	•						
<i>Vexillum semifasciatum</i> (Lamarck, 1811)	•						
<i>Vexillum taeniatum</i> (Lamarck, 1811)	•						
<i>Vexillum (Pusia) amabilis</i> (Reeve, 1844)	•						
<i>Zieliana woldemarii</i> (Kiener, 1840)	•						
<b>FAMILY: CONIDAE</b>							
<i>Conus flavidus</i> (Lamarck, 1810)	•						
<i>Conus achatinus</i> Hwass	•						
<i>Conus aculeiformis</i> Reeve, 1843	•	•	•				
<i>Conus acutangulus</i> Lamarck, 1810							
<i>Conus adamsonii</i> (Broderip, 1836)	•						
<i>Conus andamanensis</i> E.A. Smith, 1878	•	•					
<i>Conus amadis</i> (Gmelin, 1791)	•	•	•	•	•		
<i>Conus araneosus</i> Solander in Lightfoot, 1786	•	•	•	•	•		
<i>Conus araneosus var. nicobaricus</i> (Hwass, 1786)	•						•
<i>Conus arenatus</i> (Hwass, 1792)	•						
<i>Conus aulicus</i> (Linnaeus, 1758)	•						
<i>Conus balteatus</i> (Sowerby, 1833)	•						
<i>Conus bandanus</i> (Hwass, 1792)	•						•
<i>Conus betulinus</i> Linnaeus, 1758	•	•	•	•			
<i>Conus biliosus</i> (Roeding, 1798)	•	•	•				
<i>Conus canonicus</i> (Hwass, 1792)	•						
<i>Conus capitaneus</i> (Linnaeus, 1758)	•						
<i>Conus characteristicus</i> (Fishcher, 1807)	•		•				•

<i>Conus coromandelicus</i> (E.A.Smith, 1894)	•	•	•	•	•		
<i>Conus catus</i> (Hwass in Bruguiere, 1792)	•	•					•
<i>Conus ceylanensis</i> Hwass in Bruguiere, 1792	•	•					
<i>Conus chaldaeus</i> (Roeding, 1798)	•						•
<i>Conus cinareus</i>	•						
<i>Conus coronatus</i> (Gmelin, 1791)	•	•					•
<i>Conus distans</i> (Hwass in Bruguiere, 1792)	•	•					•
<i>Conus ebraeus</i> Linnaeus, 1758	•	•	•				•
<i>Conus elegans</i> Sowerby, 1895			•				
<i>Conus eburneus</i> (Hwass in Bruguiere, 1792)	•		•				•
<i>Conus edwardi</i> (Preston, 1908)	•						•
<i>Conus episcopus</i> Hwass in Bruguiere	•						
<i>Conus emaciatus</i> (Reeve, 1949).	•						
<i>Conus episcopus</i> Hwass, 1792	•						•
<i>Conus ermineus</i> (Born, 1778)	•						
<i>Conus figulinus</i> Linnaeus	•	•	•	•			
<i>Conus flavidus</i> Lamarck	•						
<i>Conus generalis</i> var. <i>maldives</i> Hwass, 1792	•		•				•
<i>Conus geographus</i> Linnaeus, 1758	•	•					
<i>Conus glans</i> Hwass in Bruguiere, 1792	•						•
<i>Conus gubernator</i> Hwass in Bruguiere	•						
<i>Conus herbeus</i> Linnaeus, 1758	•						•
<i>Conus hyaena</i> Hwass, 1792	•						•
<i>Conus imperialis</i>	•						
<i>Conus inscriptus</i> Reeve, 1843		•	•	•			
<i>Conus insculptus</i> Kiener	•						
<i>Conus janus</i> Hwass, 1792	•						•
<i>Conus lentiginosus</i> Reeve			•				
<i>Conus leopardus</i>	•						
<i>Conus lineatus</i> Linnaeus, 1758	•						•
<i>Conus litteratus</i> Linnaeus, 1758.	•						•
<i>Conus lividus</i> (Hwass, 1792)	•						•
<i>Conus marmoreus</i> Linnaeus, 1758	•	•					
<i>Conus masoni</i> G.H. Nevill	•						•
<i>Conus miles</i> Linnaeus, 1758	•						
<i>Conus miliaris</i> Hwass, 1792	•						•
<i>Conus millepunctatus</i> Lamarck, 1811	•						•
<i>Conus mitratus</i> Hwass, 1792	•						•
<i>Conus monachus</i> Linnaeus, 1758	•						
<i>Conus monile</i> Hwass, 1792	•						•
<i>Conus musicus</i> Hwass in Bruguiere	•						
<i>Conus mutabilis</i> Reeve, 1844	•	•	•				•
<i>Conus nicoaricus</i> Hwass in Bruguiere, 1792	•						
<i>Conus nobilis</i> Linnaeus, 1758	•						
<i>Conus nussatella</i> Linnaeus, 1758	•	•					•
<i>Conus piperatus</i> Dillwyn, 1817	•		•				
<i>Conus pennaceus</i> Born, 1778	•						•

<i>Conus pretiosus</i> G&H Nevill	•						
<i>Conus punctatus</i> Chemnitz						•	
<i>Conus rattus</i> Hwass, 1792	•						
<i>Conus scabriusculus</i> Dilwyn	•						•
<i>Conus straturatus</i> Sowerby, 1865	•						
<i>Conus striatus</i> Hwass in Bruguiere, 1792	•	•					
<i>Conus sumatrensis</i> (Hwass, 1792)	•						
<i>Conus terebra</i> Born, 1778	•	•					
<i>Conus tessulatus</i> Born, 1778	•	•					•
<i>Conus textile</i> Linnaeus, 1758	•	•	•				
<i>Conus tulipa</i> Linnaeus, 1758	•						•
<i>Conus vexillum</i> Gmelin, 1791	•	•					
<i>Conus virgo</i> Linnaeus, 1758	•	•					•
<i>Conus zonatus</i> Hwass, 1792	•						•
<i>Conus zeylandicus</i> Gmelin			•				
<b>FAMILY: TURRIDAE</b>							
<i>Asthenotoma vertebrata</i> (Smith)				•	•		
<i>Austroclavus exasperatus</i> (Reeve, 1843)	•						
<i>Clavus unizonalis</i> (Lamarck, 1822)	•						
<i>Conchlespira travancorica</i> (E.A.Smith, 1896)	•						•
<i>Daphnella lymnaeiformis</i> (Kiener, 1840)			•				
<i>Daphanella saturate</i> Reeve							•
<i>Drillia euchores</i> Melvill				•			
<i>Drilla (Clavus) exasperate</i> Reeve	•						•
<i>Drillia ganjamensis</i> Preston				•			
<i>Drillia major</i> (Reeve)				•			
<i>Eucithara duplaris</i> (Melvill, 1923)	•						
<i>Etrema gravelyi</i> (Winckworth, 1940)		•		•			
<i>Funa flavidula</i> (Lamarck, 1822)		•					
<i>Fuan tayloriana</i> (Reeve, 1846)		•					
<i>Gemmula congener congener</i> (E.A.Smith, 1894)	•	•	•	•	•		•
<i>Gemmula gilchristi</i> (Sowerby, 1792)	•						
<i>Gemmula hombroni</i> (Hedley)	•						
<i>Gemmula speciosa</i> (Reeve, 1843)	•		•	•			
<i>Gemmula vagata</i> (E.A.Smith, 1895)	•						
<i>Inquisitor flava</i> (Bruguiere)			•				
<i>Lienardia (Etrema) cosmia</i> (Winckworth, 1940)		•		•			
<i>Lienardia (Etrema) gravelyi</i> Winckworth				•			
<i>Liphiotoma indica</i> (Roeding, 1798).	•		•	•			
<i>Lophiotoma (Lophioturris) indica</i> (Roeding, 1798)		•	•	•			
<i>Lophiotoma (Xenuroturris) cingulifera</i> (Lamarck, 1822)	•	•					
<i>Lophiotoma abbreviate abbreviate</i> (Reeve, 1844)		•					•
<i>Lophiotoma acuta</i> (Perry, 1811)	•						
<i>Lophiotoma ustulata</i> (Reeve, 1844)	•						
<i>Lophiotoma albina</i> (Lamarck, 1822)	•						
<i>Mangelia (Pseudorhaphiotoma) fairbandti</i>				•			

Nevill							
<i>Mangelia fulvocincta</i>				•			
<i>Ptychobela griffithii</i> (Gray, 1834)	•	•	•	•	•		
<i>Ptychobela nodulosa</i> (Gmelin, 1791)		•	•	•			
<i>Pseudoraphitoma fairbankii</i> (G &H Nevill)	•			•			
<i>Splendrilla persica</i> (Smith)			•				
<i>Tomopleura vertebrata</i> (Smith, 1875)		•	•	•	•		
<i>Turricula javana</i> (Linnaeus, 1758)	•	•	•	•			
<i>Turricula tornata tornata</i> (Dillwyn, 1791)		•	•	•			
<i>Turricula tornata fulminata</i> (Keiener, 1839-40)		•		•			
<i>Turridrupa acutigenmata</i> (E.A.Smith, 1877)		•	•	•	•		
<i>Turridrupa bijubata</i> (Reeve, 1843)	•						
<i>Turris annulata</i> (Reeve, 1844)	•						
<i>Turris spectabilis</i> Reeve	•						•
<i>Unedogemmula unedo</i> (Keiner, 1840)							
<i>Xenoturiis cingulifera cingulifera</i> (Lamarck, 1822)							
<b>FAMILY: RINGICULIDAE</b>							
<i>Ringicula propinquanus</i> Hinds					•		
<b>FAMILY: AGLAJIDAE</b>							
<i>Melanochlamys sp</i>					•		
<b>FAMILY: ATYIDAE</b>							
<i>Atys (Alicularia) cylindricus</i> Helbing				•			
<i>Haminea crocata</i> Pease				•	•		
<b>FAMILY : TEREBRIDAE</b>							
<i>Duplicaria duplicata</i> (Linnaeus, 1758)		•					•
<i>Duplicaria raphanula</i> Lamarack	•						
<i>Duplicaria roseate</i> Adams & Reeve	•						
<i>Duplicaria straminea</i> Gray	•						•
<i>Duplicaria tricolor</i> Sowerby	•						•
<i>Diplomerixa duplicata</i> (Linnaeus, 1767).	•		•				
<i>Diplomerixa straminea</i> (Gray, 1843)	•						
<i>Diplomerixa tricolor</i> (Sowerby, 1825).	•						
<i>Hastula trailli</i> (Deshayes, 1859)		•	•	•			
<i>Hastula albula</i> (Menke, 1843)	•						•
<i>Hastula alveolata</i> Hinds	•						
<i>Hastula bacillum</i> (Deshayes)			•	•			
<i>Hastula hastata</i> (Gmelin, 1791)	•						
<i>Hastula hectic</i> (Linnaeus, 1758)	•						•
<i>Hastula inconstans</i> (Hinds, 1844)	•	•					
<i>Hastula lauta</i> (Pease, 1869)	•						
<i>Hastula matheroniana</i> (Deshayes, 1859)	•						•
<i>Hastula strigillata</i> (Linnaeus, 1758)				•			
<i>Hastula stylata</i> (Hinds, 1843)	•						•
<i>Impages hectica</i> (Linnaeus, 1758)	•	•	•				
<i>Terebra aceculina</i> Lamark, 1822	•						•
<i>Terebra acuminata</i>	•						
<i>Terebra affinis</i> Gray, 1834	•						•

<i>Terebra andamanica</i> Melville & Skys	•						
<i>Terebra (Sttrioterebrum) tricincta</i> Smith				•			
<i>Terebra alveolata</i> Hinds, 1844	•						
<i>Terebra areolata</i> (Link, 1972)	•						
<i>Terebra ceruthina</i>	•						•
<i>Terebra cingulifera</i> Lamarck, 1822	•						•
<i>Terebra chlorata</i> Lamarck, 1822	•						
<i>Terebra cingulifera</i> Lamarck, 1822.	•						•
<i>Terebra columellarisi</i> Gray, 1834							
<i>Terebra commaculata</i> (Gmelin, 1791)	•	•	•				•
<i>Terebra crenulata</i> Linnaeus, 1758)	•						•
<i>Terebra deshayesi</i> (Reeve, 1899).	•						•
<i>Terebra dimidiata</i> (Linnaeus, 1758)	•						•
<i>Terebra duplicate</i> Reeve, 1899	•						•
<i>Terebra durgella</i> Ray				•			
<i>Terebra exigua</i> (Dehsayes, 1859)	•						•
<i>Terebra feline</i> (Dilwyn)	•						•
<i>Terebra guttata</i> (Roeding, 1798)	•		•				
<i>Terebra laevigata</i> (Gray, 1834)	•						•
<i>Terebra (Hastula) lanceolata</i> Linnaeus,1758	•						•
<i>Terebra maculate</i> (Linnaeus, 1758)	•		•				•
<i>Terebra nebulosa</i> Sowerby, 1825	•						•
<i>Terebra oculata</i> Linnaeus,1758	•						
<i>Terebra pertusa</i> (Born, 1778)	•						
<i>Terebra strigilla</i> Linnaeus			•				
<i>Terebra subulata</i> (Linnaeus, 1767)	•	•					
<i>Terebra succincta</i> Boss, 1801	•		•				
<i>Terebra undulata</i> Gray, 1834	•						
<b>FAMILY: ARCHITECTONICIDAE</b>							
<i>Architectonica aspera</i> (Hinds)		•					
<i>Architectonica laevigata</i> (Lamarck, 1822)	•	•	•	•		•	•
<i>Architectonica modesta</i> (Philippi)	•						
<i>Architectonica perspectivum</i> (Linnaeus, 1758)	•	•	•		•		•
<i>Architectonica picta</i> ( Philippi)		•					
<i>Architectonica purpurata</i> (Hinds)		•					
<i>Helaicus dorsuosus</i> (Hinds, 1844)	•	•					
<i>Helaicus stramineus</i> (Gmelin, 1791)	•	•	•				•
<i>Philippia radiata</i> (Roeding, 1798)		•					•
<i>Tornaria dorsuosa</i> (Hinds, 1844)		•					
<i>Tornaria staminea</i> (Gmelin, 1791)		•					
<b>FAMILY: VERMETIDAE</b>							
<i>Dendropoma andamanicus</i> (Prashad & Rao, 1933)	•						
<i>Dendropoma maximus</i> Moersch/Sowerby, 1951	•						
<i>Spiroglyphis spirulaeformis</i> ( de Serres)		•					
<i>Tenagodus encuasticus</i> (Morch)		•					
<i>Tenagodus lacteus</i> (Lamarck)		•					
<i>Tenagodus muricata</i> (Born)	•						
<i>Vermicularia inopertus</i> (Ruppell)		•					

SUBCLASS: OPLSTHOBRANCHIA							
ORDER: ENTOMOTAENIATA							
FAMILY : PYRAMIDELLIDAE							
<i>Menestho acuminata</i> Preston, 1908	•						
<i>Odostomia andamanensis</i> (Preston, 1908)	•						
<i>Odostomia babylonica</i> Winckworth		•		•	•		
<i>Odostomia canaliculata</i> (C.B. Adams, 1850).	•						
<i>Odostomia chilkaensis</i> Preston				•			
<i>Odostomia decorata</i> Philippi	•						
<i>Odostomia oxia</i> Watson, 1886							
<i>Odostomia pfeifferi</i> (Preston, 1908).	•						
<i>Otopleura auriscati</i> (Holten, 1802).	•				•		
<i>Menestio acuminatus</i> Preston, 1908	•						
<i>Pyramidella dolobrata terebellum</i> (Mueller, 1774)							
<i>Pyramidella pulchella</i> (A. Adams)				•			
<i>Pyramidella sulcata</i> (A. Adams, 1854)	•						
<i>Pyramidella ventricosa</i> (Guerin, 1831)	•						
<i>Pyrgulina eccelsia</i> (Preston)				•			
<i>Pyrgulina humilis</i> (Preston)				•			
<i>Pyrgulina nadiensis</i> (Preston)				•			
<i>Phyramidella acuricate</i> Chemnitz	•						
<i>Syrnola brunnea</i> (A. Adams, 1854)	•						
<i>Syrnola dubiosa</i> G & H Nevill, 1871				•			
<i>Turbonilla (Nisiturris) maternal</i> Melvill				•			
<i>Turbonilla crichtoni</i> Winckworth				•			
<i>Turbonilla felicitas</i> Laseron, 1959					•		
<i>Turbonilla kempii</i> Ray				•			
<i>Turbonilla prashadi</i> Ray				•			
<i>Turbonilla puriensis</i> Ray				•			
<i>Turbonilla rhambhaensis</i> (Preston)				•			
<i>Turbonilla rubrolineata</i> Preston, 1908	•						
<i>Turbonilla rubrobrunnea</i> Preston, 1908	•						
<i>Tornatina conspicta</i> Preston, 1850	•						
FAMILY: AMATHINIDAE							
<i>Amathina carinata</i> (Rathike, 1857).	•						
<i>Amathina tricarinata</i> (Linnaeus, 1767).	•		•				
ORDER: TECTIBRANCHIA							
FAMILY: PLEUROBRANCHIDAE							
<i>Pleurobranchus sp.</i>					•		
ORDER: NUDIBRANCHIA							
FAMILY: AEOLIDIIDAE							
<i>Aeolidia sp.</i>							
ORDER : CEPHALASPIDEA							
FAMILY: RINGICULIDAE							
<i>Ringicula encarpiferens</i> De Folin				•	•		
<i>Ringicula propinquanus</i> Hinds, 1844			•	•			
FAMILY: SCAPHANDRIDAE							
<i>Actaeocina estriata</i> (Preston, 1914)				•			
<i>Cylichna andamanica</i> Smith, 1904	•						

<i>Cylichna grandi</i> (A. Adams)	•						•
<i>Cylichna syngenes</i> Preston, 1916	•						•
<i>Philine aperta</i> (Linnaeus, 1758)			•				
<i>Scaphander andamanicus</i> Smith, 1894	•						
<i>Tornatina conspicua</i> Preston, 1850	•						•
<b>FAMILY : BULLIDAE</b>							
<i>Bulla ampulla</i> Linnaeus, 1758	•	•	•	•	•	•	
<i>Bulla tranquebarica</i> (Roeding, 1798)	•						•
<i>Bulla vernicosa</i> Gould	•						•
<b>FAMILY: CUTHONIDAE</b>							
<i>Cuthona henrici</i> Eliot				•			
<b>FAMILY: HAMINEIDAE</b>							
<i>Atys amygdala</i> Sowerby, 1869	•						•
<i>Atys cylindricus</i> (Helbing, 1779)	•						•
<i>Atys debilis</i> Pease, 1860	•						•
<i>Atys elongates</i> A.Adams, 1850	•						
<i>Atys ferruginosa</i> Chemnitz	•						
<i>Atys hyaline</i> Watson	•						
<i>Atys naucum</i> (Linnaeus, 1758)	•						
<i>Atys neglecta</i> Preston, 1908	•						•
<i>Atys nonscripta</i> (A. Adams, 1850)	•						•
<i>Atys pacei</i> Preston, 1908	•						•
<i>Atys submalleata</i> Smith, 1904	•						•
<i>Haminoea ambigua</i>	•						•
<i>Haminoea curta</i> A.Adams	•						
<i>Haminea crocata</i> Pease, 1860				•	•		
<i>Haminoea cymbalum</i> Quoy and Gimard			•				
<i>Haminea elegans</i> A.Adams			•				
<i>Haminoea tenera</i> (Adams)						•	
<i>Volvulella perangusta</i> (A.Adams)	•						•
<b>ORDER: NOTASPIDA</b>							
<b>FAMILY: ARMINIDAE</b>							
<i>Armina</i> sp			•				
SUBCLASS: GYNOMORPHA ORDER: SYSTELLOMMATOPHORA <b>FAMILY: ONCHIDIIDAE</b>							
<i>Pseudovermis sulcatus</i> Salinivinipalwen and Rao	•						
<i>Onchidium pallidum</i> Stoliczka					•		
<i>Onchidium peronii</i> Cuvier, 1830	•						
<i>Onchidium tenerum</i> Stoiczka					•		
<i>Onchidium tigrinum</i> Stoliczka	•				•		
<i>Onchidium typhae</i> Buchanan					•		
<i>Onchidium verruculatum</i> Cuvier	•			•			
<b>FAMILY: RETUSIDAE</b>							
<i>Retusa pyramidata</i> (A. Adams, 1850)		•		•	•		
<i>Volvulella perangusta</i> (A.Adams, 1850)	•						
<b>ORDER: SACCOGLOSSA</b> <b>FAMILY: CYLINDROBULLIDAE</b>							
<i>Cylindrobulla pusilla</i> Nevill, 1869.	•						
<b>FAMILY: JULIIDAE</b>							
<i>Tamanovalva limax</i> Kawaguti and Baba, 1959		•	•				

<i>Tamanovalva schlumbergeri</i> Dautzenberg, 1895	•						
<i>Julia burni</i> Sarma, 1975	•						
<b>ORDER : APLYSIOMORPHA</b> <b>FAMILY: APLYSIIDAE</b>							
<i>Aplysia benedicti</i> Eliot, 1899							
<i>Aplysia cornigera</i> Sowerby, 1876		•					
<i>Dolabella auricularia</i> (Solander, 1786)	•	•					
<i>Onchidium peronii</i> Cuvier, 1830	•						
<i>Onchidium tenerum</i> Stoliczka, 1869	•			•			
<i>Onchidium tigrinum</i> Stoliczka, 1896.	•						
<i>Onchidium verruculatum</i> Cuvier, 1830.	•		•	•			
<i>Pseudovermis solcuatus</i> Salivniplawen & Rao, 1973.	•						
<i>Umbraculum umbraculum</i> (Lightfoot, 1786)		•					
<b>ORDER: THECOSTOMATA</b> <b>FAMILY: LIMACINIDAE</b>							
<i>Limacina inflata</i> (d'Orbigny, 1836)	•						
<b>FAMILY: CAVOLINIDAE</b>							
<i>Cavolina globules</i> (Gray, 1805)	•						
<i>Cavolina tridentate</i> (Forskal, 1773)	•						
<i>Creseis acicula</i> (Rang, 1826)	•						
<i>Creseis acicula acicula</i>	•						
<i>Creseis cherchari</i> (Bows, 1886)	•						
<i>Clio convexa</i> (Boas, 1886)	•						
<i>Clio pyramidata</i> Linnaeus, 1767	•						
<i>Hyalocylis striata</i> (Rang, 1828)	•						
<i>Styliola subula</i> Quoy and Gaimard, 1827	•						
<b>ORDER : SYSTELLOMMATOPHORA</b> <b>FAMILY: ONCHIDIIDAE</b>							
<i>Onchidium tenerum</i> (Stolickza, 1869)					•		
<i>Onchidium tigrinum</i> Stolickza, 1869					•		
<i>Onchidium typhae</i> (Buchanan, 1800)					•		
<i>Onchidium verruculatum</i> (Cuvier, 1830)		•	•	•	•		
<b>FAMILY : ELLOBIIDAE</b>							
<i>Auriculastra subula</i> (Quoy & Gaimard)	•						
<i>Cassidula aurisfelis</i> Bruguiere	•						
<i>Cassidula labrella</i> Deshayes	•						
<i>Cassidula nucleus</i> Martyn, 1838	•	•	•		•	•	
<i>Ellobium aurisjudae</i> (Linnaeus, 1758)	•						
<i>Ellobium (Auricularia) gangetica</i> (Pfeiffer, 1855)	•		•	•	•		
<i>Ellobium aurisjudae</i> (Linnaeus, 1758)	•			•	•		
<i>Laemodonta cumingiana</i> (Blanford)			•				
<i>Laemodonta monilifera</i> (H&A Adams, 1854)				•			
<i>Melampus caffer</i> Kuester, 1844	•					•	
<i>Melampus castaneus</i> (Muehlfeldt, 1818).	•					•	
<i>Melampus ceylanicus</i> Petit.	•		•				

<i>Melampus faciatus</i> Deshayes	•						
<i>Melampus luteus</i> Quoy and Gaimard, 1838	•						
<i>Melampus pulchella</i> (Petit, 1841)			•	•			
<i>Pythia albovaricosa</i> Pfeffer	•						
<i>Pythia castanea</i> Lesson	•						
<i>Pythia plicata</i> (Ferrusac) Gray, 1825	•	•		•	•		
<i>Pythia plicata</i> (Gray, 1825)	•		•	•			
<i>Pythia scarabaeus</i> (Linnaeus, 1758)	•						
<b>ORDER: SACOGLOSSA</b>							
<b>FAMILY: ELYSIIDAE</b>							
<i>Elysia chilkaensis</i> Elliot				•			
<b>FAMILY: STILIGERIDAE</b>							
<i>Stiliger pica</i> Annandale and Prashad							
<b>FAMILY: LYMNAEIDAE</b>							
<i>Lymnaea (Pseudosuccinea) acuminata</i> f. <i>typica</i> Lamarck					•		
<i>Lymnaea (Pseudosuccinea) f. rufescens</i> Gray					•		
<i>Lymnaea (Pseudosuccinea) luteola</i> f. <i>typical</i> Lamarck					•		
<b>FAMILY: PLANORBIDAE</b>							
<i>Indoplanorbis exustus</i> (Deshayes, 1834)			•		•		
<b>FAMILY : SIPHONARIIDAE</b>							
<i>Siphonaria acuta</i> Quoy and Gaimard	•						•
<i>Siphonaria aspera</i> Krauss, 1858	•						•
<i>Siphonaria plana</i> Quoy and Gaimard, 1833	•						•
<i>Siphonaria siphon</i> var. <i>exigua</i> Sowerby, 1823	•						•
<b>FAMILY: AMPHIBOLIDAE</b>							
<i>Salinator burmana</i> (Blanford, 1867)			•		•		
<b>CLASS: CEPHALOPODA</b>							
<b>SUBCLASS: NAUTILOIDEA</b>							
<b>ORDER: NAUTILIDA</b>							
<b>FAMILY: NAUTILIDAE</b>							
<i>Nautilus pompilius</i> Linnaeus, 1758	•						
<b>SUBCLASS : COLEOIDEA</b>							
<b>ORDER : SEPIIDA</b>							
<b>FAMILY : SEPIIDAE</b>							
<i>Aurosepina arabica</i> (Massy, 1916)		•					
<i>Sepia aculeata</i> Ferrussac & d'Orbigny, 1848	•	•	•	•	•	•	
<i>Sepia arabica</i> Massy	•						•
<i>Sepia brevimana</i> Steenstrup	•	•		•		•	
<i>Sepia kobsiensis</i> Hoyle, 1885		•					
<i>Sepia pharaonis</i> Ehrenberg, 1831	•	•	•	•			
<i>Sepia prashadi</i> Winckworth, 1936		•					
<i>Sepia rouxi</i> d'Orbigny	•						•
<i>Sepiella inermis</i> (Ferrussac & d'Orbigny, 1848)	•	•	•	•	•	•	
<b>FAMILY : SEPIOLIDAE Leach, 1817</b>							
<i>Euprymna berryi</i> Sasaki, 1929	•	•					
<i>Intoteuthis japonica</i> Verrill, 1881	•	•					

<i>Iniotheuthis maculosa</i> Goodrich, 1886	•	•					
<i>Sepiadarium kochii</i> Steenstrup, 1881	•						
<b>ORDER : TEUTHIDA</b>							
<b>FAMILY : LOLIGINIDAE</b>							
<i>Loligo bengalnesis</i> Jothinayagam,		•					
<i>Loligo duvauceli</i> d'Orbigny, 1845	•	•		•		•	•
<i>Loligo indica</i> Pfeiffer						•	
<i>Loligo uyii</i> Wakiya & Ishikawa, 1921		•					
<i>Loliolus investigatoris</i> Goodrich, 1850		•		•	•		
<i>Doryteuthis singhalensis</i> Ortmann, 1891		•					
<i>Sepioteuthis lessoniana</i> Lesson, 1830	•	•				•	
<b>FAMILY : ENDOPLOTEUTHIDAE</b>							
<i>Abralia andamanica</i> Goodrich, 1896	•						•
<i>Abraliopsis gilchristi</i> (Robson)	•						•
<i>Abraliopsis lineata</i> (Goodrich, 1896)	•			•			
<b>FAMILY: HISTIOTEUTHIDAE</b>							
<i>Histioteuthis hoyle</i> (Goodrich, 1896)	•						
<i>Histioteuthis reversa</i> Verrill, 1981	•						
<b>FAMILY: SYMPLECTOTEUTHIDAE</b>							
<i>Symplectoteuthis ovalaniensis</i>	•	•					•
<b>ORDER: OCTOPODA</b>							
<b>FAMILY: CIPROTEUTHIDAE</b>							
<i>Grimpoteuthis grimaldii</i> (Joubin, 1896)	•						
<i>Grimpoteuthis pacifica</i> (Hoyle)	•						
<b>FAMILY: BOLITAENIDAE</b>							
<i>Eledonella diaphana</i> (Hoyle, 1885)	•						
<b>FAMILY: OCTOPODIDAE</b>							
<i>Benthoctopus profundorum</i> Robson, 1932	•						
<i>Cistopus indicus</i> (Orbigny, 1840)		•					
<i>Danoctopus hoylei</i> (Berry, 1909)	•	•					
<i>Hapalochlaena fasciata</i> (Hoyle, 1886)	•	•					
<i>Octopus (Callistoctopus) cyaneus</i> (Gray, 1849)	•						•
<i>Octopus (Octopus) globosus</i> Apelloef, 1886	•			•			
<i>Octopus (Octopus) rugosus</i> (Bosc, 1792.)	•	•		•	•		
<i>Octopus aegina</i> Gray, 1849		•					
<i>Octopus arborescens</i> (Hoyle, 1904)	•						•
<i>Octopus areolatus</i> Orbigny, 1848		•					
<i>Octopus elegans</i> Brock	•						
<i>Octopus fusiformis</i> Brock, 1887		•					
<i>Octopus gardineri</i> (Hoyle)	•						•
<i>Octopus honkongensis</i> Hoyle						•	
<i>Octopus horridus</i> (d'Orbigny)	•						•
<i>Octopus macropus</i> Risso, 1826		•					
<i>Octopus microphthalmus</i> Goodrich, 1896.	•						•
<i>Octopus nierstrazi</i> Adam	•						
<i>Octopus niveus</i> Lesson, 1831	•						
<i>Octopus prashadi</i> Adam, 1939	•	•					
<i>Octopus rugosus</i> (Bosc)	•						
<i>Octopus vulgaris</i> Lamarck, 1799	•						

<i>Teretocopus alcocki</i> Robson, 1932	•							•
<b>FAMILY : ARGONAUTIDAE</b>								
<i>Argonauta boettgeri</i> Maltzan, 1881	•							
CLASS: BIVALVIA ORDER: NUCULOIDA <b>FAMILY: NUCULIDAE</b>								
<i>Nucula (Leionucula) convexa</i> Sowerby				•				
<i>Nucula (Leionucula) cumingii</i> Hinds, 1843	•							
<i>Nucula (Leionucula) layardi</i> A.Adams, 1856	•							
<i>Nucula (Nucula) marmorea</i> Hinds, 1843	•							
<i>Nucula (Nucula) mitralis</i> Hinds, 1843	•			•				
<b>FAMILY: UNIONIDAE</b>								
<i>Indoniana caerulea</i>							•	
<i>Lamellidens consobrinus</i>							•	
<i>Lamellidens marginalis</i> (Lamarck)							•	
<b>FAMILY : NUCULANIDAE</b>								
<i>Nuculana (Nuculana) brookei</i> (Hanley, 1860)	•							
<i>Nuculana (Nuculana) retusa</i> (Hinds), 1843	•							
<i>Nuculana (Nuculana) robsoni</i> Prashad				•				
<b>FAMILY : YOLDIIDAE</b>								
<i>Yoldia nicobarica</i> (Bruguiere), 1814.	•							
<i>Yoldia tenella</i> Hinds, 1843	•							
<b>FAMILY : ARCIDAE</b>								
<i>Anadara antiquata</i> (Linnaeus,1758)	•							
<i>Anadara (Scapharca) inequivalvis</i> (Bruguiere)						•		
<i>Anadara (Tegillarca) granosa</i> (Linnaeus)						•		
<i>Anadara granosa</i> (Linnaeus, 1758)	•	•	•	•	•	•		•
<i>Anadara lischkei</i> (Dunker)	•							•
<i>Anadara holoserica</i> (Reeve, 1844)	•							
<i>Anadara rhombea</i> (Born, 1780)	•		•	•				•
<i>Anadara scapha</i> (Linnaeus, 1758)	•							•
<i>Anadara uropygmellana</i> (Bary De st. Vincent, 1824)	•						•	•
<i>Arca (Arca) avellana</i> Lamarck, 1819	•						•	•
<i>Arca (Arca) ventricosa</i> Lamarck, 1819	•							
<i>Arca bistrigata</i> Dunker							•	
<i>Arca complanata</i>	•						•	•
<i>Arca fusca</i> Bruguiere, 1789	•						•	•
<i>Arca gubermaculum</i> Reeve							•	
<i>Arca granosa</i> Lamarck							•	
<i>Arca inequivalvis</i> Bruguiere							•	
<i>Arca navicularis</i> Bruguiere							•	
<i>Arca plicata</i> Chemnitz, 1795	•	•						•
<i>Arca rhombea</i> Born							•	
<i>Arca symmetrica</i> Reeve, 1844	•	•						
<i>Arca tortuosa</i> Linnaeus							•	
<i>Arca ventricosa</i> lamarck,1819	•							•
<i>Barbatia (Acar) plicata</i> (Dillwyn, 1817)	•							•

<i>Barbatia (Barbatia) amygdalumtostum</i> (Roeding, 1798)	•	•				•	•
<i>Barbatia (Barbatia) cancellata</i> Preston, 1908	•						•
<i>Barbatia (Barbatia) coelata</i> (Reeve, 1844)	•						•
<i>Barbatia (Barbatia) tenella</i> (Reeve, 1844)	•	•					•
<i>Barbatia (Calloarca) bristigata</i> (Dunker)				•			
<i>Barbatia (Calloarca) helblingii</i> (Bruguiere, 1789)	•			•			•
<i>Barbatia (Cucullaearca) lacerata</i> (Linnaeus, 1753)	•						•
<i>Barbatia obliquata</i> Gray						•	
<i>Scapharca clathrata</i> (Reeve)	•			•			•
<i>Scapharca deyrollei</i> Jousseaume, 1893				•			
<i>Scapharca inaequivalvis</i> (Bruguiere, 1792)	•		•	•			•
<i>Scapharca lischkei</i> (Dunker, 1868)	•						•
<i>Scapharca pilula</i> (Reeve, 1843)	•					•	•
<i>Scaphula celox</i> Benson						•	
<i>Scaphula deltae</i> Blanford						•	
<i>Trisidos semitorta</i> (Lamarck)							
<i>Trisidos tortuosa</i> (Linnaeus, 1758)	•						•
<b>FAMILY: CUCULLAEIDAE</b>							
<i>Cucullaea (Cucullaea) labiata</i> (Lightfoot)				•			
<b>FAMILY: NOETIIDAE</b>							
<i>Striarca lactea</i> (Linnaeus, 1758)				•	•		
<b>FAMILY: LIMOPSIDAE</b> Dall, 1895							
<i>Limopsis compressa</i> G. & H. Nevill, 1874	•						
<b>FAMILY : GLYCYMERIDIDAE</b> Newton, 1922							
<i>Glycymeris castaneus</i> (Lamarck), 1819	•					•	•
<i>Glycymeris lividus</i> (Reeve), 1843	•						
<i>Glycymeris taylori</i> (Angus)						•	
<i>Glycymeris tenuicostatus</i> (Reeve, 1843)	•			•			
<b>ORDER : MYTILOIDA</b>							
<b>FAMILY: MYTILIDAE</b>							
<i>Adipicola indica</i> (Smith)	•						
<i>Amygdalum watsoni</i> Smith, 1885	•			•			
<i>Botula cinnamoma</i> (Lamarck)	•						
<i>Brachidontes variabilis</i> Krauss, 1848.	•						
<i>Gregariella coralliophaga</i> Gmelin, 1791.	•						
<i>Lithophaga canalifera</i> (Hanley, 1844)	•						
<i>Lithophaga cinnamomea</i> (Lamarck)						•	
<i>Lithophaga gracilis</i> (Philippi, 1846)	•						
<i>Lithophaga levigata</i> (Quoy & Gaimard, 1835)	•						
<i>Lithophaga malaccana</i> Reeve	•						
<i>Lithophaga nasuta</i> (Philippi, 1846)	•						
<i>Lithophaga nigra</i> (d' Orbigny)						•	
<i>Lithophaga teres</i> (Philippi, 1758).	•					•	
<i>Modiolus (Modiolus) striatulus</i> Hanley, 1843				•	•		
<i>Modiolus albicostata</i> Lamarck, 1836	•						
<i>Modiolus aratus</i> (Dunker) Reeve, 1857	•						

<i>Modiolus curvatus</i> Dunker, 1856	•						
<i>Modiolus cymbula</i> Preston, 1908	•						
<i>Modiolus metacalfei</i> Hanley, 1843	•					•	
<i>Modiolus philippinarum</i> Hanley	•	•		•			
<i>Modiolus tulipa</i> (Lamarck, 1836)	•				•		
<i>Modiolus undulatus</i> (Dunker, 1856)	•		•	•			
<i>Modiolus undulatus</i> (Dunker, 1856)	•				•		
<i>Modiolus zebra</i> Preston, 1908.	•					•	
<i>Musculus cuminganus</i> (Dunker)				•			
<i>Perna samoensis</i> Baird, 1899	•						
<i>Perna viridis</i> (Linnaeus, 1758)	•			•			
<i>Septifer bilocularis</i> (Linnaeus, 1758)	•						
<b>FAMILY : PINNIDAE</b>							
<i>Artina (Atrina) vexillum</i> (Born, 1767)	•					•	
<i>Atrina (Seroatrina) pectinata pectinata</i> (Linnaeus, 1767)	•						
<i>Pinna atropurpurea</i> Sowerby						•	
<i>Pinna bicolor</i> Gmelin, 1791	•					•	•
<i>Pinna muricata</i> Linnaeus, 1758	•						
<i>Pinna nigra</i> Dil							
<b>FAMILY: PTERIIDAE</b>							
<i>Electroma ovata</i> (Quoy & Gaimard, 1834)	•						
<i>Pinctada anomioides</i> (Reeve, 1857)	•						
<i>Pinctada fucata</i> (Gould)		•				•	
<i>Pinctada inquinata</i> (Reeve, 1857).	•						
<i>Pinctada margaritifera</i> (Linnaeus, 1758).	•						
<i>Pinctada vulgaris</i> (Schumacher)	•					•	•
<i>Pinctada sugillata</i> (Reeve, 1857)	•						•
<i>Pteria chinensis</i> (Leach, 1814)	•						•
<i>Pteria smithi</i> (Preston)				•			
<i>Pteria chinensis</i> (Leach, 1814)	•						
<i>Pteria penguin</i> (Roeding, 1798)	•						
<i>Pteria reticulata</i> (Reeve, 1857)	•						
<b>FAMILY: ISOGNOMONIDAE</b>							
<i>Isognomon ephippium</i> (Linnaeus, 1758)	•						
<i>Isognomon isognomon</i> (Linnaeus, 1758)	•			•			
<i>Isognomon legumen</i> (Gmelin, 1791)	•			•			
<i>Isognomon nucleus</i> (Lamarck, 1836)	•						
<i>Isognomon perna</i> (Linnaeus, 1767)	•	•					
<b>FAMILY : MALLEIDAE</b>							
<i>Malleus albus</i> (Lamarck, 1819)	•						
<i>Malleus malleus</i> (Linnaeus, 1758)	•						
<i>Malleus regularis</i> (Forskal, 1775)	•						
<i>Vulsella vulsella</i> (Linnaeus, 1758)	•						
<b>FAMILY: PROPEAMUSSIIDAE</b>							
<i>Parvamussium cristellum</i> (dautzenberg & Bavay, 1991)	•						
<i>Parvamussium scitulum</i> (Smith, 1885)	•						
<i>Propeamussium caducum</i> (Smith, 1885)	•						
<b>FAMILY: PECTINIDAE</b>							
<i>Ammusium pleuronectes</i> (Linnaeus, 1758)	•		•	•			

<i>Amusium andamanicum</i> (Smith, 1894)	•						
<i>Amusium japonicum</i> (Gmelin, 1791)	•						
<i>Cyclopecten (Hyalopecten) fluctuatus</i> (Bavay, 1904)	•						
<i>Pecten aspera</i> Sowerby	•						
<i>Pecten crassicosatus</i> Sowerby						•	
<i>Pecten cretatus</i> Reeve	•						
<i>Pecten distans</i> Lamarck						•	
<i>Pecten (Pecten) pyxidatus</i> (Born)					•	•	
<i>Pecten tranquebaricus</i> Gmelin					•	•	
<b>SUBFAMILY: CHLAMYDINAE</b>							
<i>Argopecten tranquebari</i> (Gmelin, 1791)	•						
<i>Bratechlamys vexillum</i> (Reeve, 1857)	•					•	
<i>Chlamys albolineata</i> (Sowerby)	•						
<i>Chlamys andamanica</i> (Preston, 1908).	•						
<i>Chlamys fricata</i> (Reeve, 1853).	•						
<i>Chlamys irregularis</i> (Sowerby, 1842)	•						
<i>Chlamys pallium</i> (Linnaeus)	•						
<i>Chlamys squamosa</i> (Gmelin, 1791)	•						
<i>Chlamys testudinea</i> (Reeve, 1853)	•						
<i>Comptopallium radula</i> (Linnaeus, 1758)	•						
<i>Coralichlamys madreporarum</i> (Sowerby, 1842)	•						
<i>Cyclopecten (Hyalopecten) fluctuatus</i> (Bavay)		•					
<i>Decatopecten amiculum</i> (Philippi, 1851)	•						
<i>Decatopecten plica</i> (Linnaeus, 1758)	•						
<i>Delectopecten alcocki</i> (Smith, 1904)	•						
<i>Excellichlamys histrionica</i> (Gmelin, 1791)	•	•					
<i>Flexopecten distans</i> Lamarck, 1822	•						
<i>Gloripallium pallium</i> (Linnaeus, 1758)	•						
<i>Haumea inaequalis</i> (Sowerby, 1842)	•						
<i>Lyropecten corallinoides</i> (d'Orbigny, 1834)	•						
<i>Mimachlamys albolineata</i> (Sowerby, 1842)	•						
<i>Mimachlamys lentiginosa</i> (Reeve, 1853)	•						
<i>Mimachlamys senatoria</i> (Gmelin, 1791)	•						
<i>Minnivola pyxidata</i> (Born, 1780)	•						
<i>Parvamussium cristellum</i> (Dautzenberg and Bavay, 1991)		•					
<i>Parvamussium scitulum</i> (Smith, 1885)	•						
<i>Pedum spondyloideum</i> (Gmelin, 1791).	•	•					
<i>Propeamussium caducum</i> (Smith, 1885)	•						
<i>Semipallium tigris</i> (Lamarck, 1819)	•						
<i>Serratovola gardineri</i> (E.A. Smith, 1903)	•						
<i>Volachlamys tranquebarica</i> (Gmelin)					•		
<b>FAMILY: SPONDYLIDAE</b>							
<i>Plicatula plicata</i>	•						
<i>Spondylus anacanthus</i> Mawe	•						
<i>Spondylus hystrix</i> (Roeding, 1788)	•				•		
<i>Spondylus layardi</i> (Reeve, 1836)	•				•		•



<i>Lucina edentula</i> Linnaeus, 1758	•					•	
<i>Lucina macandreae</i> (A.Adams, 1870)	•						
<i>Lucina nassula</i>							•
<i>Lucina ovulum</i> Reeve, 1850	•						
<i>Lucina philippina</i> Reeve, 1850	•						
<i>Lucina pisum</i> (Reeve, 1850)	•						
<i>Lucina simplex</i> (Reeve, 1850)	•						
<b>FAMILY : FIMBRIIDAE</b>							
<i>Fimbria fimbriata</i> (Linnaeus, 1758)	•						
<b>FAMILY : UNGULINIDAE</b>							
<i>Diplodonta bramhapurensis</i> Preston				•			
<i>Diplodonta bullata</i> Dunker, 1865	•			•			
<i>Diplodonta globasa</i> (Forsk., 1775)	•						
<i>Diplodonta insulsa</i> Preston, 1908	•						
<i>Diplodonta sataparensis</i> Preston				•			
<i>Felania annandalei</i> Preston				•			
<i>Felania chilkaensis</i> Preston				•			
<i>Felania ovalis</i> Preston				•			
<b>FAMILY : CHAMIDAE</b>							
<i>Chama brassica</i> (Reeve, 1847)	•						
<i>Chama fragrum</i> Reeve							•
<i>Chama imbricata</i> Broderip	•						•
<i>Chama isotoma</i> (Conrad, 1837)	•					•	
<i>Chama japonica</i> (Linnaeus, 1819)	•						
<i>Chama lazarus</i> (Linnaeus, 1758)	•			•			
<i>Chama multisquamosa</i> (Reeve, 1846)	•						•
<i>Chama reflexa</i> Reeve				•		•	
<i>Chama spinosa</i> Broderip						•	
<b>FAMILY : KELLIIDAE</b>							
<i>Kellia chilkaensis</i> Preston				•			
<i>Kellia mahosaensis</i> Preston				•			
<i>Kellia mirabilis</i> (Preston, 1908)	•						
<b>FAMILY : GALEOMMATIDAE</b>							
<i>Galeomma argenta</i> Deshayes				•			
<i>Scintilla chilakensis</i> Preston				•			
<i>Scintilla citrina</i> (Preston, 1908)	•						
<i>Scintilla elongata</i> (Preston, 1908)	•						
<i>Scintilla faba</i> (Deshayes, 1856)	•						•
<i>Scintilla lactea</i> (Sowerby, 1865)	•						•
<i>Scintilla perflexa</i> (Preston, 1908)	•						•
<b>FAMILY : CARDITIDAE</b>							
<i>Beguina pica</i> (Reeve, 1843)	•						
<i>Beguina semiorbiculata</i> (Linnaeus, 1758)	•						
<i>Beguina variegata</i> Bruguiere						•	
<i>Cardita antiquata</i> (Linnaeus, 1758)	•			•			
<i>Cardita antiquata</i> (Linnaeus, 1758).	•			•			
<i>Cardita bicolor</i> Lamarck	•						
<i>Cardita calyculata</i> Linnaeus	•						
<i>Cardita distorta</i> Reeve, 1843	•						
<i>Cardita rufescens</i> Lamarck							•
<i>Cardita variegata</i> Bruguiere, 1792	•						•

FAMILY : CRASSATELLIDAE							
<i>Bathormus radiatus</i> Sowerby, 1825	•						
<i>Crassatella radiata</i> Sowerby	•						
<i>Crassatella rostrata</i> Lamarck						•	
FAMILY : CARDIIDAE							
<i>Acanthocardia coronata</i> (Schroeter, 1786)			•	•			
<i>Acanthocardia lata</i> (Born)				•			
<i>Cardium flavum</i> Linnaeus, 1758						•	
<i>Cardium asiaticum</i> Bruguiere		•			•	•	
<i>Cardium assimile</i> Reeve						•	
<i>Cardium (Laevicardium) australe</i> Sowerby						•	•
<i>Cardium (laevicardium) labulatum</i> Deshayes							•
<i>Cardium fragum</i> Linnaeus							•
<i>Cardium leucostoma</i> Born							•
<i>Cardium sueziense</i>							•
<i>Cardium formata</i> (Sowerby)							•
<i>Cardium coronatum</i> Spengler					•		
<i>Cardium virgo</i> Reeve, 1845	•						
<i>Corculum cardissa</i> (Linnaeus, 1758)	•						
<i>Ctenocardia hystrix</i> (Reeve, 1844)	•						
<i>Fragum fornicatum</i> (Sowerby, 1840).	•						
<i>Fragum fragum</i> (Linnaeus, 1758)	•						
<i>Fragum unedo</i> (Linnaeus, 1758)	•						
<i>Fulvia australis</i> (Sowerby, 1841)	•						
<i>Fulvia papyracea</i> (Sowerby, 1782)	•						
<i>Laevicardium australe</i> (Sowerby)	•						
<i>Laevicardium (Fulvia) aperum</i> (Bruguiere)				•			
<i>Lunulicardia hemicardia</i> (Linnaeus, 1758)	•						
<i>Lunulicardia retusa</i> (Linnaeus, 1767)	•						
<i>Lyrocardium aeolicum</i> (Born, 1899)	•						
<i>Lyrocardium lyratum</i> (Sowerby, 1841)	•						
<i>Nemocardium exasperatum</i> (Soerby, 1841)	•						
<i>Papyridea (P) papyracea</i> Chemnitz	•						
<i>Trachycardium asiaticum</i> (Bruguiere, 1792)	•						
<i>Trachycardium elongatum</i> Bruguiere	•						
<i>Trachycardium flavum</i> (Linnaeus, 1758)	•						
<i>Trachycardium leucostoma</i> (Born)	•						
<i>Trachycardium unicolor</i> (Sowerby, 1840)	•						
<i>Trachycardium variegatum</i> (Sowerby, 1840)				•			
FAMILY: LABITINIDAE							
<i>Labitina vellicata</i> Reeve						•	
FAMILY: TRIDACNIDAE							
<i>Hippopus hippopus</i> (Linnaeus, 1758)	•						
<i>Tridacna crocea</i> Lamarck, 1819	•						
<i>Tridacna maxima</i> Roeding, 1798	•						
<i>Tridacna squamosa</i> Lamarck, 1819	•						

FAMILY: MACTRIDAE							
<i>Coelomacra antiquata</i> Spengler, 1802	•						
<i>Mactra (Mactra) grandis</i> Gmelin, 1791	•			•			
<i>Mactra (Coelomacra) turgida</i> Gmelin, 1791	•			•			
<i>Mactra (Coelomacra) violacea</i> Gmelin, 1791	•			•	•		
<i>Mactra (Mactra) luzonica</i> Dunker, 1854	•		•	•	•		•
<i>Mactra (Mactra) symmetrica</i> Deshayes				•			
<i>Mactra (Mactrinula) laevis</i> Chemnitz				•			
<i>Mactra (Mactrinula) reevesi</i> Gray				•			
<i>Mactra achatina</i> Holten	•						
<i>Mactra andamanica</i> Smith, 1904	•						
<i>Mactra antiquata</i> (Spengler)	•						
<i>Mactra apicina</i> Deshayes, 1854	•						
<i>Mactra cuneata</i> Chemnitz, 1854	•					•	•
<i>Mactra decora</i> Deshayes, 1854	•						
<i>Mactra gibbosula</i> Deshayes						•	
<i>Mactra hepatica</i> Deshayes, 1854	•						
<i>Mactra maculata</i> Gmelin, 1782	•						
<i>Mactra macomaeformis</i>	•						
<i>Mactra mera</i> Reeve				•	•		
<i>Mactra olorina</i>	•						•
<i>Mactra (Mactra) cuneata</i> Gmelin, 1791	•		•	•			
<i>Mactrinula (Mactrinula) plicataria</i> Linnaeus				•	•		
<i>Meropesta nicobarica</i> (Gmelin, 1791)	•						
<i>Lutaria arcuata</i> Deshayes						•	
<i>Spisula (Standella) annandalei</i> Preston, 1915				•			
<i>Spinsula triangularis</i> (Lamarck)						•	
<i>Standella (Standella) pellucida</i> (Chemnitz)					•	•	
<i>Standella nicobarica</i> (Gmelin)						•	
FAMILY: MESODESMATIDAE							
<i>Atactodea striata</i> (Gmelin, 1791)	•						
<i>Alactodea glabrata</i> Lamarck							•
<i>Davila crassula</i> Deshayes	•						•
<i>Mesodesma glabratum</i> (Lamarck)						•	
FAMILY: SOLENIDAE							
<i>Solen annandalei</i> Preston, 1915				•			
<i>Solen asperus</i> Dunker, 1861	•						
<i>Solen brevis</i> Gray, 1842-56.	•				•		
<i>Solen gravelyi</i> Ghosh				•			
<i>Solen kempfi</i> Preston, 1915				•			
<i>Solen lamarckii</i>						•	
<i>Solen truncates</i> Wood				•		•	
FAMILY: CULTELLIDAE							
<i>Cultellus cumingianus</i> Dunker, 1861	•						
<i>Cultellus lividus</i> Dunker, 1861	•						
<i>Cultellus maximus</i> (Gmelin, 1791)	•					•	
<i>Cultellus subelliptica</i> Dunker					•		
<i>Ensiculus cultellus</i> (Linnaeus, 1758)	•						

<i>Neosolen aquaedulcoris</i> Ghosh			•	•	•		
<i>Enisculus cutellus</i> (Linnaeus)	•						
<i>Pharella javanicus</i> (Lamarck)				•	•		
<i>Siliqua (Siliqua) radiata</i> (Linnaeus, 1758)	•			•	•	•	
<i>Siliqua (Siliqua) fasciata</i> (Spengler)				•			
<i>Siliqua albida</i> Dunker				•	•		
<i>Siliqua (Aeretica) Slendida</i>	•						
<i>Tanyisiphon rivalis</i> Benson					•		
<b>FAMILY: TELLINIDAE</b>							
<i>Aploymetis edentula</i> Spengler, 1782				•			
<i>Aploymetis papyracea</i> (Gmelin, 1782)	•						
<i>Gastrana polygona</i> (Gmelin, 1791)	•						
<i>Macalia (Macalia) bruguieri</i> (Hanley, 1844)	•						
<i>Macoma (Psammacoma) ala</i> (Hanley)	•			•			
<i>Macoma (Psammacoma) birmanica</i> (Philippi, 1849)			•	•	•		
<i>Macoma (Psammacoma) candida</i> (Lamarck, 1818)	•						
<i>Macoma (Psammacoma) truncata</i> (Jonas, 1844)	•	•		•			
<i>Macoma (Scissulina) dispar</i> (Conrad, 1837)	•						
<i>Macoma (Scissulina) reticulata</i> (Sowerby, 1867)	•	•					•
<i>Macoma (Scutarcopagia) lingua-felis</i> Linnaeus	•						
<i>Macoma (Scutarcopagia) scobinata</i> Linnaeus	•						
<i>Psammotreta ala</i> (Hanley, 1844)	•						
<i>Psammotreta micans</i> (Hanley, 1844)	•					•	
<i>Strigilla (Aeretica) splendida</i> (Anton, 1839)	•		•	•	•		
<i>Tellina planissima</i> Anton					•		
<i>Tellina (Angulus) corbuloides</i> Hanley, 1844	•				•		
<i>Tellina (Angulus) incisa</i> Preston, 1908	•						
<i>Tellina (Angulus) lanceolata</i> Gmelin, 1791	•			•	•		
<i>Tellina (Arcopagia) angulata</i> Linnaeus, 1767.	•				•		
<i>Tellina (Arcopagia) carnicolor</i> Hanley, 1846	•						
<i>Tellina (Arcopagia) casta</i> Hanley, 1844	•			•			
<i>Tellina (Arcopagia) inflata</i> Gmelin, 1791	•						•
<i>Tellina (Arcopagia) pinguis</i> Hanley, 1844	•						•
<i>Tellina (Arcopagia) pudica</i> Hanley, 1844	•						
<i>Tellina (Arcopagia) remies</i> Linnaeus, 1758	•						•
<i>Tellina (Acropagia) corbuloides</i> Hanley, 1844	•						
<i>Tellina (Arcopagia) robusta</i> Hanley, 1844	•						•
<i>Tellina (Cadella) semen</i> Hanley, 1844	•						•

<i>Tellina (Dalitellina) rostrata</i> Linnaeus, 1958				•			
<i>Tellina (Homalina) myaeformis</i> Sowerby				•			
<i>Tellina (Moerella) ostracea</i> Lamarck, 1791	•						
<i>Tellina (Moerella) philippinarum</i> Hanley, 1844	•						
<i>Tellina (Moerella) subtruncata</i> Hanley, 1844	•						
<i>Tellina (Omala) texturata</i> Sowerby	•			•			
<i>Tellina (Pharaonella) iridescens</i> (Benson)				•			
<i>Tellina (Pharaonella) perna</i> Spengler, 1798	•						
<i>Tellina (Pharaonella) vulsella</i> Hanley, 1791	•						
<i>Tellina (Phylloda) foliacea</i> Linnaeus, 1758	•						
<i>Tellina (Quidnipagus) gargadia</i> Linnaeus, 1758	•						
<i>Tellina (Quidnipagus) palatam</i> Iredale, 1929.	•						
<i>Tellina (Scutarcopagia) scobinata</i> Linnaeus, 1758	•	•					•
<i>Tellina (Serratina) capsoides</i> Lamarck, 1818	•						•
<i>Tellina (Tellinella) staurella</i> Lamarck 1818	•						•
<i>Tellina (Tellinella) virgata</i> Linnaeus, 1758	•						
<i>Tellina (Tellinides) opalina</i> Gmelin	•						
<i>Tellina (Tellinides) ovalis</i> Sowerby, 1825	•						
<i>Tellina (Tellinides) sinuata</i> SPengler, 1798	•			•	•		
<i>Tellina ala</i> Henley	•						
<i>Tellina bruguieri</i> Hanley	•						
<i>Tellina brahmapurensis</i> (Preston)				•			
<i>Tellina coarctata</i> Philippi	•						
<i>Tellina elegans</i> Gray	•						•
<i>Tellina emarginata</i> Sowerby						•	
<i>Tellina idea</i>	•						
<i>Tellina iridescens</i> (Benson)					•		
<i>Tellina pristis</i> Lamarck	•						
<i>Tellina radiata</i>	•						•
<i>Tellina rastellum</i> Hanley	•						•
<i>Tellina rhomboids</i> Quoy and Gaimard	•						•
<i>Tellina rugosa</i> Born	•						•
<i>Tellina sinuata</i> Spengler	•						•
<i>Tellina verrucosa</i> Hanley	•						•
<i>Tellina virgata</i> Linnaeus, 1758	•						•
<b>FAMILY: DONACIDAE</b>							
<i>Asaphis violascens</i> (Forskal, 1838)	•						
<i>Asaphis deflorata</i> (Linnaeus, 1758)	•						•
<i>Donax (Latona) lubricus</i> Hanley				•	•		
<i>Donax (Donax) pulchella</i> Hanley				•			

<i>Donax (Hecuba) scortum</i> (Linnaeus, 1758)				•	•	•		
<i>Donax (Latona) cuneausa</i> Linnaeus, 1758	•							
<i>Donax (Latona) fuba</i> Schroeter, 1788.	•	•					•	
<i>Donax (Latona) incarnatus</i> Gmelin, 1782	•	•			•	•		•
<i>Donax (Paradonax) aperittus</i> Melvill					•			
<i>Donax (Paradonax) nuxfagus</i> Preston 1908.	•						•	
<i>Donax (Plebidonax) compressus</i> Lamarck, 1835	•	•						
<b>FAMILY: SANGUINOLARIIDAE</b>								
<i>Sanguinilarai (Soletellina) acuminata</i> (Deshayes)						•		
<b>FAMILY: GLAUCOMYIDAE</b>								
<i>Glaucomya cerea</i> Reeve							•	
<i>Glaucomya sculpta</i> (Sowerby)						•		
<b>FAMILY: PSAMMOBIIDAE</b>								
<i>Gari (Psammobia) mahosaensis</i> (Preston)					•			
<i>Gari obtusa</i> Preston, 1908.	•							
<i>Gari (Gammotomya) pulcherrima</i> (Deshayes, 1855)	•	•						
<i>Gari (Grammatomya) squamosa</i> Lamarck	•							
<i>Gari elongata</i> (Lamarck, 1818)	•							
<i>Gari maculosa</i> (Lamarck, 1818)	•				•			
<i>Gari pulchella</i> Lamarck, 1818	•							
<i>Gari suffusa</i> (Reeve, 1857)	•							
<i>Gari tenuis</i> (Deshayes, 1854)	•							
<i>Sanguinolaria (Gelonia) bengalensis</i> (Lamarck, 1818)					•			
<i>Sanguinolaria (Solentellina) acuminata</i> (Deshayes, 1857)			•	•	•			
<i>Sanguinolaria (Solentellina) diphos</i> (Linnaeus)					•			
<i>Sanguinolaria (Psammotella) elongate</i> (Lamarck)		•						
<i>Sanguinolaria (Psammotella) oblonga</i> (Deshayes)		•						
<i>Psammobia radiate</i> Philippi							•	
<i>Soletellina diphos</i> Reeve							•	
<b>FAMILY: CORBICULIDAE</b>								
<i>Corbicula bensoni</i> Deshayes						•		
<i>Corbicula striatella</i> (Deshayes, 1854)			•			•		
<i>Geloina erosa</i> (Solander, 1786)			•					
<i>Polymesoda (Gelonia) bengalensis</i> (Lamarck, 1818)					•	•		
<b>FAMILY : SCROBICULARIIDAE</b>								
<i>Scrobicularia ceylanica</i> Smith	•							
<i>Theora hindsiana</i> Preston, 1961.	•							
<i>Theora opalina</i> (Hinds)						•		
<b>FAMILY : SEMELIDAE</b>								
<i>Abra convexion</i> Smith	•							
<i>Abra maxima</i> (Sowerby, 1894)	•							

<i>Cumingia hinduorum</i> Preston					•			
<i>Cumingia rostrata</i> A.Adams	•							
<i>Cumingia striata</i> Rueppelei, 1855	•							
<i>Semele crenulata</i> (Sowerby)							•	
<i>Semele striata</i> (Ruppell)							•	
<i>Theora</i> ( <i>Theora</i> ) <i>opalina</i> (Hinds)					•			
<b>FAMILY : SOLECURTIDAE</b>								
<i>Azorinus coarctatus</i> (Gmelin, 1782)	•							
<i>Novaculina andamanensis</i> Preston, 1908	•							
<i>Novaculina gangetica</i> Benson						•		
<i>Solecurtis philippinarum</i> Dunker, 1861	•							
<b>FAMILY: TRAPEZIIDAE</b>								
<i>Coralliophaga coralliophaga</i> (Gmelin, 1791).	•							
<i>Coralliophaga venerupoides</i> Nevill	•							
<i>Cypraecardia guiniana</i> Lamarck	•						•	
<i>Trapezium rostratum</i> Lamarck	•							
<i>Trapezium</i> ( <i>Neotrapezium</i> ) <i>sublaevigatum</i> (Lamarck, 1819)	•			•		•		•
<i>Trapezium</i> ( <i>Trapezium</i> ) <i>bicarinatum</i> (Schumacher, 1817)	•						•	
<i>Meiocardia moltkiana</i> (Gmelin, 1783)	•							
<b>FAMILY: GLOSSIDAE</b>								
<i>Meiocardia moltkiana</i> (Gmelin, 1783)	•							
<b>FAMILY: VESICOMYIDAE</b>								
<i>Vesicomya indica</i> E.A. Smith, 1904	•							
<i>Antigona lamellaris</i> Shumacher, 1817	•							
<i>Periglypta puerpera</i> (Linnaeus, 1771)	•							
<i>Periglypta reticulata</i> (Linnaeus, 1758)	•							
<b>FAMILY: VENERIDAE</b>								
<i>Anomalocardia</i> ( <i>Anomalocardia</i> ) <i>flexusa</i> (Linnaeus)	•							
<i>Anomalocardia</i> ( <i>Anomalodiscus</i> ) <i>squamosa</i> (Linnaeus)					•			
<i>Antigona lamellaris</i> Schumacher, 1817	•							
<i>Bssina callophylla</i> (Philippi, 1836)	•				•			
<i>Callista erycina</i> (Linnaeus, 1758)	•							
<i>Chione layardi</i> (Reeve, 1864)	•							
<i>Circe scripta</i> (Linnaeus, 1758)	•						•	
<i>Clausinella callophylia</i> (Philippi)	•	•						
<i>Clementia vatheleti</i> Mabilie					•			
<i>Dosina cretacea</i> Reeve							•	
<i>Dosinia fibula</i> (Reeve, 1850)	•							
<i>Dosinia histrio</i> (Gmelin, 1791)	•							
<i>Dosinia</i> ( <i>Asa</i> ) <i>fibula</i> (Reeve, 1850)	•				•			
<i>Dosinia</i> ( <i>Asa</i> ) <i>fibula</i> (Reeve)					•			
<i>Dosinia juvenilis</i> (Gmelin, 1791)	•							
<i>Dosinia planatum</i> (G and H.Nevill, 1874)	•							
<i>Dosinia puella</i> Angas							•	
<i>Dosinia</i> ( <i>Asa</i> ) <i>tumida</i> (Gray, 1838)					•			
<i>Dosinia excisa</i> (Chemnitz)							•	
<i>Dosinia juvenilis</i> (Gmelin, 1791)	•							

<i>Dosinia planatum</i> (G. and H. Nevill, 1874)	•						
<i>Dosinia prostrata</i> (Linnaeus)					•		
<i>Dosinia pubescens</i> (Philippi, 1847)	•						
<i>Dosinia trigona</i> Reeve					•		
<i>Gafrarium divaricatum</i> (Gmelin, 1791)	•					•	
<i>Gafrarium pectinatum</i> (Linnaeus, 1798)	•		•	•			
<i>Gafrarium tumidum</i> Rueding, 1798	•					•	•
<i>Lioconcha (Sulciloconcha) philippinarum</i> (Hanley, 1844)	•	•					
<i>Lioconcha castrensis</i> (Linnaeus, 1758)	•						
<i>Lioconcha ornata</i> (Dillwyn, 1817)	•						
<i>Lioconcha picta</i> Lamarck	•						•
<i>Lioconcha polita</i> (Roeding, 1798)	•						
<i>Lioconcha trimaculata</i> (Lamarck, 1818)	•						
<i>Marcia recens</i> (Dillwyn, 1795)				•			
<i>Marcia japonica</i> (Gmelin, 1791)	•						
<i>Marcia pinguis</i> Schroeter, 1788	•		•	•			•
<i>Meretrix attenuata</i> var. <i>flava</i> Hornell, 1858	•						
<i>Meretrix casta</i> (Gmelin, 1791)	•	•	•	•		•	
<i>Meretrix meretrix</i> (Linnaeus, 1758).	•	•		•	•	•	
<i>Paphia alapapilionones</i> Roeding, 1798.	•					•	
<i>Paphia amabilis</i> Philippi, 1847.	•						
<i>Paphia malabarica</i> (Schroeter, 1788)	•		•	•		•	
<i>Paphia pinguis</i> (Dillwyn)					•		
<i>Paphia textile</i> Gmelin, 1790	•	•					
<i>Paphia textrix</i> (Schroeter, 1788)	•	•		•			
<i>Paphia undulata</i> (Born, 1778)	•			•			
<i>Pelecypora (Pelecypora) excisa</i> (Schroeter, 1788)				•			
<i>Pelecypora (Pelecypora) trigona</i> (Reeve, 1850)				•	•		
<i>Periglypta puerpera</i> (Linnaeus, 1771)	•						
<i>Periglypta reticulata</i> (Linnaeus, 1758)	•						
<i>Petricola divergens</i> (Gmelin, 1791)	•						
<i>Petricola lithophaga</i> (Retzius)	•						
<i>Petricola monstrosa</i> (Gmelin, 1791)	•						
<i>Pitar erycina</i> Linnaeus						•	
<i>Pitar nobilis</i> Reeve						•	
<i>Pitar (Pitarina) citrina</i> (Lamarck, 1818)	•						
<i>Pitar (Pitarina) varina</i> (Wood, 1828)	•						
<i>Pitar alabastrum</i> (Reeve)				•			
<i>Pitar inflata</i> (Sowerby, 1853)	•						
<i>Pitaria obliquata</i> Hanley	•						•
<i>Ruditapes brugieri</i> (Hanley, 1845)	•			•			
<i>Ruditapes philippinarum</i> (Adams and Reeve, 1850)	•	•					
<i>Ruditapes variegatus</i> (Sowerby, 1852)	•						
<i>Sunetta (Cyclosunetta) excavata</i> (Hanley)				•			
<i>Sunetta (Sunetta) donacina</i> Gmelin, 1791				•			
<i>Sunetta (Sunetta) effosa</i> (Hanley, 1842)				•			

<i>Sunetta (Sunetta) meroe</i> (Linnaeus, 1758)				•			
<i>Sunetta scripta</i> (Linnaeus, 1758)	•			•		•	
<i>Tapes deshayesi</i> Hanley	•	•					•
<i>Tapes literatus</i> (Linnaeus, 1758)	•						
<i>Tapes luzonica</i> Deshayes					•		
<i>Tapes philippianum</i>	•						•
<i>Tapes radiatus</i> (Chemnitz)						•	
<i>Timoclea (Glycydonta) marica</i> (Linnaeus, 1758)	•	•					
<i>Timoclea arakana</i> (G & H. Nevill, 1871)				•			
<i>Timoclea imbricata</i> (Sowerby, 1853)				•			
<i>Timoclea scabra</i> (Hanley)	•			•			•
<i>Tivela dillwyni</i> (Deshayes)				•			
<i>Venerupis macrophylla</i> (Deshayes, 1853)	•					•	
<i>Ventricolaria toreuma</i> Gould, 1851	•						
<i>Venus chemnitzii</i> Hanley						•	
<i>Venus (antigona) lamellaris</i> Schumacher	•						
<i>Venus marica</i> Linnaeus	•						•
<i>Venus reticulata</i> Linnaeus, 1758	•						•
<i>Venus toreuma</i> Gould	•	•					•
<b>FAMILY: GLAUCONOMIDAE</b>							
<i>Galuconome angulata</i> Reeve				•			
<i>Gluconome cerea</i> Reeve						•	
<i>Gluconome sculpta</i> Sowerby, 1894			•	•	•		
<b>ORDER: MYOIDA FAMILY: MYIDAE</b>							
<i>Sphenia perversa</i> Blanford						•	
<b>FAMILY : CORBULIDAE</b>							
<i>Corbula abbreviata</i> Preston						•	
<i>Corbula andamanica</i> E.A.Smith, 1906	•						
<i>Corbula calcarea</i> Preston						•	
<i>Corbula crassa</i> Hinds, 1843	•						
<i>Corbula fortisulcata</i> E.A.Smith, 1878	•						
<i>Corbula gracilis</i> Preston						•	
<i>Corbula rotalis</i> Hinds, 1843				•			
<b>FAMILY: GASTROCHAENIDAE</b>							
<i>Gastrochaena cuneiformis</i> Spengler, 1783	•						•
<i>Gastrochaena gigantea</i>							•
<i>Gastrochaena impressa</i>							•
<i>Gastrochaena indistincta</i> Deshayes				•			
<i>Gastrochaena lamellose</i> Deshayes						•	
<b>FAMILY: PHOLADIDAE</b>							
<i>Barnea candida</i> (Linnaeus, 1758)				•	•		
<i>Jouannetia globosa</i> Quoy & Gaimard, 1835	•						
<i>Jounetia cumingii</i> (Sowerby, 1849)	•					•	
<i>Martesia rivicola</i> Sowerby						•	
<i>Martesia delicatula</i> Preston				•			
<i>Martesia fluminalis</i> Blanford						•	
<i>Martesia fragilis</i> Verrill and Bush						•	•
<i>Martesia multistriata</i> Sowerby, 1849	•						
<i>Martesia striata</i> (Linnaeus, 1758)	•			•		•	•

<i>Parapholas quadrizonata</i> (Spengler, 1792)	•						
<i>Pholas (Monothyra) orientalis</i> Gmelin, 1791	•		•	•			•
<i>Pholas (Thovana) Chiloensis</i> Molina)	•						•
<i>Pholas candida</i> Linnaeus					•		
<i>Parapholas quadrizonata</i> (Spengler, 1792)	•						
<i>Xylophaga indica</i> Smith, 1904	•						
<b>FAMILY: TEREDINIDAE</b>							
<i>Bactronophorus thoracites</i> (Gould, 1856)	•			•	•		
<i>Bankia bipalmulata</i> (Lamarck, 1801)	•						
<i>Bankia bipinnata</i> (Turton, 1819).	•						
<i>Bankia campanellata</i> Moll and Roch, 1831	•			•	•		•
<i>Bankia carinata</i> (Gray, 1827)	•			•	•		•
<i>Bankia fimbriata</i> Moll and Roch				•			
<i>Bankia nordi</i> Moll					•		
<i>Bankia rochi</i> Moll, 1931	•			•	•		
<i>Dicyathifer mannii</i> (Wright, 1866)	•			•	•		
<i>Lyrodus massa</i> (Lamy)	•						•
<i>Lyrodus pedicellatus</i> (Quatrefagus, 1849)	•			•			
<i>Nausitora dunlopei</i> Wright, 1864.	•			•	•	•	
<i>Nausitora fusticula</i> (Jeffreys, 1860)				•			
<i>Nausitora hedleyi</i> Schepman 1919	•			•			•
<i>Nausitora knoxi</i> (Bartsch, 1917)				•			
<i>Nototerodo edax</i> (Hedley, 1895)	•						
<i>Teredo aegypos</i> (Moll)	•						•
<i>Teredo clappi</i> (Bartsch)	•						•
<i>Teredo clava</i> Gmelin					•		
<i>Teredo fulleri</i> (Clapp)	•						•
<i>Teredo furcifera</i> Von Martens, 1894	•						•
<i>Teredo somersi</i> (Clapp)	•						•
<i>Teredo triangularis</i> (Edmondson)	•						•
<i>Teredo palauensis</i> (Edmondson)	•						•
<i>Teredora princisae</i> (Sivicks, 1928)	•			•			•
<i>Teredothyra smithi</i> (Bartsch)	•						•
<i>Uperotus clava</i> (Gmelin, 1791)	•						•
<i>Uperotus rehderi</i> (Nair, 1954)	•						•
SUBCLASS: ANOMALODESMATA ORDER: PHOLADOMYOIDA FAMILY: PANDORIDAE							
<i>Pandora (Frenamyia) zeilanica</i> Sowerby, 1835	•						•
<i>Pandora brevifrons</i> Sowerby, 1835				•			
<i>Pandora obtusa</i> Leach					•		
<b>FAMILY: LYONSIIDAE</b>							
<i>Lyonsia jucunda</i> E.A. Smith, 1896	•						
<b>FAMILY: MYOCHAMIDAE</b>							
<i>Myadora quadrata</i> Smith, 1899	•						
<b>FAMILY: LATERNULIDAE</b>							
<i>Laternula subrostrata</i> (Lamarck)					•		
<i>Laternula lanterna</i> (Lamarck, 1817)	•						

<i>Laternula navicula</i> (Reeve, 1863)					•			
<i>Laternula truncata</i> (Lamarck)					•	•		
<b>ORDER: POROMYOIDA</b>								
<b>SUPERFAMILY : POROMYACEA</b>								
<b>FAMILY : CUSPIDARIIDAE</b>								
<i>Cardiomya andamanica</i> Preston, 1916	•							
<i>Cuspidaria annandalei</i> Preston					•			
<i>Cuspidaria approximata</i> Smith, 1896	•							
<i>Cuspidaria caduca</i> Smith, 1894	•							
<i>Cuspidaria chilkaensis</i> (Preston)					•	•		
<i>Cuspidaria elegans</i> Hinds	•							•
<i>Cuspidaria spirula</i> (Linnaeus)	•							•
<i>Euciroa</i> ( <i>Euciroa eburnea</i> Woodmason and Alcock)	•							
<b>FAMILY : VERTICORDIIDAE</b>								
<i>Euciroa</i> ( <i>Euciroa</i> ) <i>eburnea</i> Woodmason & Alcock, 1891	•							
<i>Verticordia eburnea</i> Wood mason and Alcock	•							
<i>Verticordia optima</i> Sowerby, 1893	•							
<b>CLASS: SCAPHOPODA</b>								
<b>FAMILY: DENTALIIDAE</b>								
<i>Cadulus clavatus</i> Gould						•		
<i>Dentalium aprinum</i> Linnaeus, 1758.	•							
<i>Dentalium insolitum</i> Smith, 1894	•							
<i>Dentalium octangulatum</i> (Donovan)	•				•	•		
<i>Dentalium serrulatum</i> Smith, 1906	•							
<i>Dentalium subfissura</i> Nevill	•							
<i>Dentalium subfolium</i> Nevill	•							
<i>Dentalium subquadraquere</i> Nevill	•							
<i>Dentalium variable</i> Deshayes, 1926	•							

### CHECKLIST OF ECHINODERMS OF EAST COAST OF INDIA

SPECIES	AN	TN	AP	OR	WB	GK	LK
<b>CLASS : CRINOIDEA</b>							
<b>ORDER:COMATULIDA</b>							
<b>FAMILY: BOURGUETICRINIDAE</b>							
<i>Bathycrinus woodmasoni</i> A.H.Clark	•						
<b>FAMILY:COMASTERIDAE</b>							
<i>Comatella maculate</i> (P.H.Carpenter	•						
<i>Capillaster mariae</i> A.H.Clark	•						
<i>Capillaster multiradiatus</i> (Linnaeus, 1758)	•	•					•
<i>Comanthina</i> ( <i>comanthus</i> ) <i>timorensis</i> J. Muller, 1841		•					•
<i>Comanthina nobilis</i> ((P. H. Carpenter, 1881)	•						
<i>Comanthina schlegeli</i> (P.H. Carpenter, 1881)		•					•
<i>Comanthus parvicirrus</i> (J. Muller, 1841)	•	•					
<i>Comanthus samoanus</i> A. H. Clark, 1909	•						
<i>Comaster gracilis</i> (Hartlaub, 1890)	•	•					

<i>Comaster multibrachiata</i> (P.H.Carpenter, 1888)	•						
<i>Comaster multifidus</i> (J. Muller, 1841)	•						
<i>Comaster parvus</i> A.H.Clark	•						
<i>Comatella maculata</i> (P. H. Carpenter, 1888)	•						•
<i>Comatella nigra</i> (P. H. Carpenter, 1888)	•						
<i>Comatella stelligera</i> (P. H. Carpenter, 1880)	•	•					
<i>Comatula brevicirra</i> (Bell)	•						
<i>Comatula micraster</i> A.H.Clark	•						
<i>Oxycomanthus bennetti</i> (J. Muller, 1841)	•						
<b>FAMILY: PENTACRINIDAE</b>							
<i>Comasterocrinus ornatus</i> (A.H. Clark)	•						
<b>FAMILY : HIMEROMETRIDAE</b>							
<i>Amphimetra philberti</i> (J.Muller)	•						
<i>Craspidometra acuticirra</i> (P.H. Carpenter)	•						
<i>Heterometra bengalensis</i> (Hartlaub, 1890)	•						
<i>Heterometra flora</i> (A.H.Clark, 1913)	•						
<i>Heterometra reynaudi</i> (J. Muller, 1846)		•					•
<i>Himeromera robustipinna</i> (P.H. Carpenter)	•						
<i>Himerometra magnipinna</i> (A. H. Clark, 1908)	•						
<b>FAMILY : MARIAMETRIDAE</b>							
<i>Dichometra protectus</i> (J. Muller)	•						
<i>Lamprometra palmata</i> (J. Muller, 1841)	•	•				•	
<i>Selenometra ararnea</i> (A.H.Clark)	•						
<i>Stephanometra indica</i> (Smith, 1876)	•	•					•
<i>Stephnaometra monocantha</i> (Lutken)	•						
<b>FAMILY COLOBOMETRIDAE</b>							
<i>Decametra mollis</i> (A.H. Clark)	•						•
<i>Decametra taprobanes</i> (A.H. Clark)	•						•
<i>Oligometra intermedia</i> A.H. Clark	•						•
<i>Oligometra serripinna</i> (P.H. Carpenter)							•
<b>FAMILY: EUDIOCRINIDAE</b>							
<i>Eudiocrinus minor</i> A.H. Clark	•						
<i>Eudiocrinus ornatus</i> A.H. Clark	•						
<b>FAMILY:TROPIOMETRIDAE</b>							
<i>Tropiometra carinata</i> (Lamarck, 1816)		•					
<b>FAMILY: CALOMETRIDAE</b>							
<i>Neometra spinossima</i> A.H. Clark	•	•					
<b>FAMILY: CHARITOMETRIDAE</b>							
<i>Glyptometra invenusta</i> (A.H.Clark)	•						
<i>Permissometra occidentalis</i> A.H.Clark	•						
<b>FAMILY: THALASSOMETRIDAE</b>							
<i>Crotometra eridanella</i> A.H. Clark	•						
<i>Thalassometra peripolos</i> A.H. Clark	•						
<b>FAMILY : ANTEDONIDAE</b>							
<i>Dorometra mauritiana</i> A.H. Clark							•
<i>Eumetra indica</i> A.H. Clark	•						
<i>Iridometra nana</i> (Hartlaub)	•						
<i>Psathyrometra mira</i> A.H.Clark	•						
<i>Psathyrometra inusitata</i> A.H. Clark	•						
<i>Sarametra nicobarica</i> A.H. Clark	•						

CLASS: ASTEROIDEA							
ORDER: PAXILLOSIDA							
FAMILY: LUIDIIDAE							
<i>Luidia integra</i> Koehler	•						
<i>Luidia hardwicki</i> (Gray, 1840)	•	•			•		
<i>Luidia limbata</i> (Sladen)	•						
<i>Luidia maculata</i> Muller and Troschel, 1842	•	•					•
<i>Luidia savignyi</i> (Audouin, 1826)	•						
ORDER: PAXILLOSIDA							
FAMILY: ASTROPECTINIDAE							
<i>Astropecten bengalensis</i> Doderlein 1917		•		•			
<i>Astropecten euryacanthus</i> Leutken, 1872					•		
<i>Astropecten griegi</i> Koehler	•	•					
<i>Astropecten hemprichi</i> Muller and Doderlein, 1842	•	•	•		•		
<i>Astropecten hemprichi tamilicus</i> Doederlin	•	•					•
<i>Astropecten indicus</i> Doderlein, 1889		•		•	•		
<i>Astropecten mauritanus</i> Gray, 1840					•		
<i>Astropecten monocanthus</i> Sladen, 1883	•	•					
<i>Astropecten polyacanthus</i> Muller and Troschel, 1842	•	•				•	
<i>Astropecten tamilicus</i> Doderlein	•						
<i>Astropecten zebra</i> Sladen, 1883	•	•					
<i>Craspidaster heperus</i> (Muller & Troschel, 1840)	•						
<i>Dipcaster pentagonalis</i> Alcock	•						
<i>Dipcaster sladeni</i> Alcock	•						
<i>Persephonaste coelochilus</i> Alcock	•						
FAMILY: PORECELLANASTERIDAE							
<i>Porecellanaster coeruleus</i>	•				•		
<i>Sidomaster batheryi</i> Koehler	•						
FAMILY: BENTHOPECTINIDAE							
<i>Cheiraster snyderi</i> Fisher	•						
ORDER : VALVATIDA							
FAMILY : ACANTHASTERIDAE							
<i>Acanthaster planci</i> (Linnaeus, 1768)	•						
FAMILY: ARCHASTERIDAE							
<i>Archaster typicus</i> Muller & Troschel, 1840	•						•
FAMILY: ASTERINIDAE							
<i>Anserpoda pellucidus</i> Alcock	•						
<i>Asterina burtoni</i> Gray, 1840	•	•					•
<i>Asterina coronata</i> von Martens, 1866	•	•					
<i>Asterina lorioli</i> Koehler, 1910	•	•					
<i>Asterina sarasini</i> de Loriol, 1897	•	•					
<i>Disasterina spinosa</i> Koehler, 1910	•						
<i>Nepenthina brachiata</i> Koehler	•						
<i>Patirella pseudoexigua</i> (Lamarck, 1816)	•						
<i>Patirella exigua</i>							•
<i>Plamipes pellucidus</i> Alcock	•						
<i>Tegulaster ceylonica</i> (Doderlein, 1889)	•						•
FAMILY: CHAETESTERIDAE							
<i>Chaetaster vestitus</i> Koehler, 1910							

FAMILY: GONIASTERIDAE							
<i>Anthena pentagonula</i> (Lamarck, 1816)	•	•					
<i>Anthenea rudis</i> Koehler	•						
<i>Anthenooides sarissa</i> Alcock	•						
<i>Asteroceramis fisheri</i> Koehler	•						
<i>Calliaster mammilifer</i> Alcock	•						
<i>Dorigona belli</i> Koehler	•						
<i>Dorigona nora</i> Alcock	•	•					
<i>Goniaster mammilifer</i> Alcock	•						
<i>Goniodiscus forficulatus</i> Perrier	•	•					
<i>Goniodiscaster scaber</i> (Mobius, 1859)	•	•					
<i>Goniodiscaster valleii</i> (Koehler)					•		
<i>Iconaster pentaphyllus</i> Alcock	•						
<i>Mediaster floriferi</i> Alcock	•						
<i>Miltiphaster</i> sp.	•						
<i>Nymphaster belli</i> Koehler	•						
<i>Nymphaster ternalis</i> Koehler	•						
<i>Ogmaster capella</i> (Muller & Troschel)	•						
<i>Pentagonaster arcuatus</i> Sladen	•						
<i>Pseudarchaster mozaicus</i> Wood Mason & Alcock		•					
<i>Rosaster confinis</i> (Koehler)	•						
<i>Siraster tuberculatus</i> H.L. Clark, 1915	•					•	
<i>Stellaster equestris</i> (Retzius, 1820)	•				•		•
FAMILY: METRODIRIDAE							
<i>Metrodira subulata</i> Gray, 1840	•	•					
FAMILY: MITHRODIDAE							
<i>Mithrodia clavigera</i> (Lamarck, 1816)	•						
FAMILY: ORAESTERIDAE							
<i>Asterodiscides elegans</i> Gray, 1847		•					
<i>Culcita novaeguinae</i> Muller and Troschel, 1842	•	•			•		•
<i>Culcita novaguinea</i> Var. <i>plana</i> Doderelin	•	•					
<i>Culcita schmideliana</i> (Retzius, 1805)	•	•					•
<i>Halityle regularis</i>							•
<i>Pentaceraster affinis</i> (Muller and Troschel, 1842)		•					
<i>Pentaceraster regulus</i> (Muller and Troschel, 1842)		•			•		•
<i>Poraster superbus</i> (Mobius, 1858)		•					
<i>Protoreaster lincki</i> (de Blainville, 1834)	•	•					
<i>Protoreaster australis</i> Lutken		•					
<i>Protoreaster affinis</i> Muller and Troschel, 1842		•					
<i>Protoreaster indicus</i> Koehler		•					
<i>Asterodiscus elegans</i>		•					
FAMILY: OPHIDIASTERIDAE							
<i>Andora frianti</i> Koehler	•						
<i>Andora lemonnieri</i> Koehler	•						
<i>Certonardoa carinata</i> Koehler, 1910	•						
<i>Chaetaster vestitus</i> Koehler, 1910	•						
<i>Dactylosaster cylindricus</i> (Lamarck, 1816)	•						•
<i>Ferdina offreti</i> Koehler	•						
<i>Fromia armata</i> Koehler, 1910	•						

<i>Fromia indica</i> (Perrier, 1869)	•						•
<i>Fromia milleporella</i>							•
<i>Fromia monilis</i> Perrier, 1875	•						
<i>Gomophia aegyptica</i> Gray							
<i>Leisaster callipeplus</i> Fisher	•						
<i>Leiaster leachi</i>							•
<i>Linckia guldingi</i> Gray, 1840	•						•
<i>Linckia laevigata</i> (Linnaeus, 1816)	•	•					•
<i>Linckia multiflora</i> (Lamarck, 1816)	•	•					•
<i>Nardoa aegyptica</i> (Gray)							
<i>Nardoa carinata</i> Koehler	•						
<i>Nardoa faouxii</i> Macan, 1938		•					
<i>Nardoa frianti</i> Koehler, 1910	•						
<i>Nardoa lemonieri</i> Koehler, 1910	•						
<i>Nardoa mollis</i> de Loriol, 1891		•					
<i>Nardoa novaecaledoniae</i> (Perrier)	•	•					
<i>Nardoa variolata</i> Lamarck		•					
<i>Neoferdina offreti</i> (Koehler, 1910)	•						
<i>Ophidiaaster armatus</i> Koehler	•						
<i>Paraferdina laccadivensis</i>							•
<i>Tamaria dubiosa</i> (Koehler, 1910)	•						
<i>Tamaria fusca</i> (Gray, 1840)	•						
<i>Tamaria hirsute</i> (Kohler)	•						
<i>Tamaria tubifer</i> Sladen	•						
<b>FAMILY: PORCELLANASTERIDAE</b>							
<i>Sidonaster sp.</i> Koehler	•						
<b>FAMILY: PTERASTERIDAE</b>							
<i>Euretaster cribrosus</i> (V. Mortens, 1867)	•	•					
<b>ORDER: SPINULOSIDA</b>							
<b>FAMILY: ECHINASTERIDAE</b>							
<i>Cribrella mutans</i> Koehler	•						
<i>Cistina columbiae</i>							•
<i>Dictyaster xenophilus</i> Wood Mason & Alcock	•						
<i>Echinaster callosus</i> Marenzelleri	•	•					
<i>Echinaster luzonicus</i> (Gray, 1840)	•	•					•
<i>Echinaster purpureus</i> (Gray, 1840)	•	•					•
<i>Cribrella mutans</i> Koehler	•						
<b>FAMILY: VALVASTERIDAE</b>							
<i>Valvaster striatus</i> Perrier	•						
<b>FAMILY: ACANTHASTERIDAE</b>							
<i>Acanthaster planci</i> (Linnaeus)	•						•
<b>FAMILY: MITHRODIDAE</b>							
<i>Metrodira subulata</i> Gray, 1840	•	•					
<i>Mithrodia clavigera</i> (Lamarck)							•
<b>FAMILY: ASTERIIDAE</b>							
<i>Asterias mozophores</i> Alcock	•						
<b>FAMILY: BRISINGIDAE</b>							
<i>Brisinga andamanica</i> Alcock, 1891	•						
<i>Brisinga gracilis</i> Koehler	•						
<i>Freyella indica</i> Koehler	•						
<b>FAMILY: ZORASTERIDAE</b>							
<i>Zoroaster adamu</i> Koehler	•						

<i>Zoraster carinatus</i> Alcock, 1893	•						
<i>Zoraster gilesii</i> Alcock, 1893	•						
<b>ORDER: FORCIPULATIDA</b>							
<b>FAMILY: ASTERIIDAE</b>							
<i>Distolasterias mozophorus</i> Alcock and Wood Mason		•					
<i>Sclerasterias nitida</i> Koehler	•						
<b>CLASS : OPHIUROIDEA</b>							
<b>ORDER : PHRYNOPHIURIDA</b>							
<b>FAMILY:GORGONOCEPHALIDAE</b>							
<i>Astroboa clavata</i> (Lyman, 1861)	•	•					
<i>Astrocladus exigus</i> (Lamarck)	•						
<i>Gorgonocephalus cornutus</i> Koehler	•						
<b>FAMILY: ASTEROSCHEMATIDAE</b>							
<i>Astroba clavata</i> Lyman	•	•					
<i>Asteroschema fastosum</i> Koehler	•						
<i>Asteroschema subfastosum</i> Doederlein	•						
<i>Ophiocnida echinata</i> Ljungman	•	•					
<i>Ophioceras sibogae</i> (Doderlein)	•						
<b>ORDER : OPHIOMYXIDAE</b>							
<b>FAMILY : OPHIOMYXIDAE</b>							
<i>Ophiomyxa bengalensis</i> Koehler	•						
<i>Ophiomyxa brevispina</i> var. <i>irregularis</i>	•						
<i>Ophiophrixus confinis</i> Koehler, 1922	•						
<i>Ophiomyxa australis</i> Lutken, 1869	•	•					•
<b>FAMILY : OPHIOCOMIDAE</b>							
<i>Ophiarthrum elegans</i> Peters, 1851	•						
<i>Ophiarthrum pictum</i> (Muller & Troschel, 1842)	•						
<i>Ophiocoma anaglyptica</i> Ely, 1994	•						•
<i>Ophiocoma brevipes</i> Teters, 1851	•						•
<i>Ophiocoma dentata</i> Muller & Troschel 1842	•						•
<i>Ophiocoma erinaceus</i> Muller & Troschel, 1842	•	•					•
<i>Ophiocoma pica</i> Muller and Troschel, 1842	•	•					•
<i>Ophiocoma scolopendrina</i> (Lamarck, 1816)	•	•					•
<i>Ophiocomella sexradia</i> (Duncan, 1887)	•	•					•
<i>Ophiomastix annulosa</i> (Lamarck, 1816)	•						•
<i>Ophiomusium simplex</i> Lyman, 1875	•						
<i>Ophiophrixus confinis</i> Koehler, 1922	•						
<i>Ophiopsila pantherina</i> Koehler	•						
<b>FAMILY: OPHIODERMATIDAE</b>							
<i>Bathypectinura heros</i> (Lyman)	•						
<i>Ophionereis dubia</i> Muller and Troschel, 1842	•	•					
<i>Ophiarachnella gorgonia</i> (Muller and Troschel, 1842)	•	•					
<i>Ophiarachnella infernalis</i> (Muller and Troschel, 1842)	•	•					
<i>Ophiarchna incrassata</i> (Lamarck, 1816)	•						
<i>Ophiocoris indica</i> Koehler	•						

<i>Ophiopeza custus</i> Koehler	•						
<b>FAMILY: OPHURIDAE</b>							
<i>Amphiophiura ornate</i> (Lyamn)	•						
<i>Homalophiura inflata</i> (Koehler)	•						
<i>Ophiernus adpersus</i>	•						
<i>Ophioceramis tenera</i> Koehler	•						
<i>Ophioelegans cincta</i> (Miller, & Troschel, 1842)	•						•
<i>Ophioglypha aequalis</i> Lyman	•						
<i>Ophioglypha flagellata</i> Lyman	•						
<i>Ophioglypha forbesi</i> Duncan	•						
<i>Ophioglypha sinensis</i> Lyman	•						
<i>Ophioglypha sordida</i> Koehler	•						
<i>Ophiolepis superba</i> H. L. Clark, 1915	•						•
<i>Ophiolypus granulatus</i> Koehler	•						
<i>Ophiomusa relict</i> a (Koehler)	•						
<i>Ophiomusim fimbriatum</i> Koehler			•				
<i>Ophiomusium elegans</i> Koehler	•						
<i>Ophiomusium simplex</i> Lyman	•						
<i>Ophiomusium scalare</i> Lyman	•						
<i>Ophiopyren bispinosus</i> Koehler	•						
<i>Ophiura aequalis</i> (Lyman)	•						
<i>Ophiura flagellate</i> (Lyman)	•						
<i>Ophiura forbesi</i> (Duncan)	•						
<i>Ophiura kinbergi</i> (Ljungman)	•						•
<i>Ophiolypus granulates</i> Koehler	•						
<i>Ophiomusa relict</i> a (Koehler)	•						
<i>Ophioplocus imbricatus</i> (Muller and Troschel)	•						
<i>Ophioleichus nodosa</i> (Duncan, 1887)	•						
<i>Ophiozonelle bispinosa</i> (Koehler)	•						
<b>FAMILY: OPHIACANTHIDAE</b>							
<i>Ophiocamax fasciculata</i> Lyman	•						
<i>Ophiocamax rugosa</i> Koehler	•						
<i>Ophiocantha abnormis</i> Lyman	•						
<i>Ophiocantha composita</i> Koehler	•						
<i>Ophiocantha decora</i> Koehler	•						
<i>Ophiocantha gratiosa</i> Koehler	•						
<i>Ophiocantha indica</i> Ljungman	•						
<i>Ophiocantha pentagona</i> Koehler	•						
<i>Ophiocantha sociadilis</i> Koehler	•						
<i>Ophiocantha vestita</i> Koehler	•						
<i>Ophiometra integra</i> Koehler	•						
<i>Ophiometra rudis</i> Koehler	•						
<b>FAMILY: OPHIOPLEUCIDIDAE</b>							
<i>Ophiernus adpersum</i> Lyman	•						
<i>Ophiopteron bispinosus</i> Koehler	•						
<b>FAMILY: OPHIONEREIDAE</b>							
<i>Ophiochiton modestus</i> Koehler	•						
<i>Ophionereis andamensis</i> James, 1982							
<i>Ophionereis dubia</i> (Muller and Troschel, 1842)	•	•					•
<i>Ophionereis porrecta</i> Lyman, 1860	•						•

FAMILY : OPHIOTRICHIDAE							
<i>Gymnolophus obscura</i> (Ljungman, 1867)	•	•					
<i>Macrophiothrix aspidota</i> (Muller & Troschel, 1842)	•	•					
<i>Macrophiothrix demessa</i> (Lyman)	•						•
<i>Macrophiothrix galataeae</i> (Lutken, 1872)	•						
<i>Macrophiothrix koehleri</i> A.M.Clark	•						
<i>Macrophiothrix longipeda</i> (Lamarck, 1816)	•	•			•		•
<i>Macrophiothrix propingua</i> (Linnaeus, 1758)	•						•
<i>Macrophiothrix speciosa</i> (Koehler, 1898)	•						
<i>Macrophiothrix variabilis</i> (Duncan, 1887)	•	•					
<i>Ophiocnemis marmorata</i> (Lamarck, 1816)		•			•		
<i>Ophiogymna lineata</i> H. L. Clark, 1938	•	•					
<i>Ophiomaza cacaotica</i> Lyman, 1871	•	•					
<i>Ophiomaza cacaotica</i> Var <i>picta</i> H.L.Clark	•	•					
<i>Ophiomaza cataphracta</i> Broak	•	•					
<i>Ophiopterion elegans</i> Ludwig, 1888	•						
<i>Ophiothela danae</i> Verill, 1869	•	•			•		
<i>Ophiothrix accedens</i> Koehler	•	•					
<i>Ophiothrix aristulata</i> Lyman	•						
<i>Ophiothrix ciliaris</i> (Lamarck)	•						
<i>Ophiothrix diligens</i> Koehler	•						
<i>Ophiothrix exigua</i> Lyman, 1874	•	•					
<i>Ophiothrix</i> ( <i>Acanthophiothrix</i> ) <i>purpurea</i> Von Morteus, 1867	•						
<i>Ophiothrix</i> ( <i>Acanthophrio</i> ) <i>vigelandi</i> A. M. Clark, 1968	•						
<i>Ophiothrix</i> ( <i>Keystonea</i> ) <i>neridina</i> (Lamarck)	•	•					•
<i>Ophiothrix accedens</i> Koehler		•					
<i>Ophiothrix aristulata</i> Lyman	•						
<i>Ophiothrix deligens</i> Koehler	•						
<i>Ophiothrix lepidus</i> de Loriol	•						•
<i>Ophiothrix nereidina</i>		•				•	•
<i>Ophiothrix propinqua</i> Lyman	•						
<i>Ophiothrix proteus</i> Koehler	•						
<i>Ophiothrix purpurea</i> von Martens	•						
<i>Ophiothrix savignyi</i> A.M. Clark	•	•					
<i>Ophiothrix stelligera</i> Lyman	•						
<i>Ophiothrix trilineata</i> Lutken, 1869	•						
<i>Ophiothrix vigelandi</i> A.M.Clark	•						
<i>Ophiothrix variegata</i> Duncan	•						
<i>Ophiothrix vitrea</i> Doderlein	•						
FAMILY: HEMIEURYALIDAE							
<i>Ophiomoeris tenera</i> Koehler	•						
ORDER : OPHIURIDA							
FAMILY : OPHIACTIDAE							
<i>Ophiactis delagoa</i> Balinsky, 1957					•		•
<i>Ophiactis modesta</i> Brock, 1888	•	•			•		
<i>Ophiactis savignyi</i> (Miller & Troschel, 1842)	•	•			•		•
FAMILY : AMPHIURIDAE							
<i>Amphioplus</i> ( <i>Amphioplus</i> ) <i>ravelly</i> James,		•					
<i>Amphioplus</i> ( <i>Amphioplus</i> ) <i>intermedius</i> (Koehler, 1905)	•						

<i>Amphioplus (Lymanella) andrae</i> (Lutken, 1872)	•						
<i>Amphioplus (Lymanella) hastatus</i> (Ljungman,					•		
<i>Amphipholis misera</i> Koehler	•						
<i>Amphipholis squamata</i>							•
<i>Amphioplus (Lymanella) sp. near laevis</i> (Lyman)					•		
<i>Amphipholis squamata</i> (D. Chiaje, 1829)	•	•					•
<i>Amphiura (Ophiopeltis) tenuis</i> (H. L. Clark, 1938)					•		
<i>Amphiura dispar</i> Koehler	•						
<i>Amphiura miserea</i> Koehler	•						
<i>Amphiura septemspinosa</i> H.L.Clark	•						•
<i>Dougaloplus echinatus</i> (Ljungman, 1867)							
<i>Ophiocentrus verticellatus</i> (Doderlein)	•						
<i>Ophiocentrus dilatatus</i> (Koehler)	•						
<i>Ophiocnida echinata</i> (Ljungman)							
<i>Ophiocnida picteti</i> de Loriol	•						•
<b>CLASS: ECHINOIDEA</b>							
<b>ORDER : CIDARIIDA</b>							
<b>FAMILY : CIDARIDAE</b>							
<i>Dorocidaris lorioli</i> Koehler	•						
<i>Dorocidaris tiara</i> Anderson	•						
<i>Eucidaris metularia</i> (Lamarck, 1816)	•						•
<i>Phyllacanthus imperialis</i> (Lamarck, 1816)	•						
<i>Phyllacanthus verticillatus</i> (Lamarck)	•						•
<i>Prionocidaris baculosa</i> (Lamarck, 1816)	•	•					•
<i>Prionocidaris brevicollis</i> (de Meijere)	•						•
<i>Prionocidaris verticillata</i> (Lamarck, 1816)	•						
<i>Procidaris purpurea</i> Wyville- Thompson	•						
<i>Sterocidaris alcocki</i> (Anderson)	•						
<i>Sterocidaris indica</i> Doderlein	•						
<i>Stylocidaris lorioli</i> Koehler	•						
<i>Stylocidaris tiara</i> Anderson	•						
<i>Stylocidaris albidens</i>	•						
<i>Stylocidaris bracteata</i> var. <i>albidans</i> H.L. Clark	•						
<b>ORDER: LEPIDOCENTROIDA</b>							
<b>FAMILY: ECHINOTHURIIDAE</b>							
<i>Hygrosoma luculentum</i> (Agassiz)	•						
<i>Phormosoma bursarium</i> A.Agassiz	•						
<i>Phormosoma verticellatum</i> Mortensen	•						
<b>ORDER : DIAMDEMATIDA</b>							
<b>FAMILY : DIADEMATIDAE</b>							
<i>Astropyga radiata</i> (Leske, 1778)	•	•					•
<i>Centrostephanus nitidus</i> Koehler	•						
<i>Chaetodiadema granulatum</i> Mortensen, 1903	•				•		
<i>Diadema savignyi</i> Michelin	•						•
<i>Diadema setosum</i> (Leske, 1778)	•						•
<i>Echinothrix calamaris</i> (Pallas, 1774)	•						•
<i>Echinothrix diadema</i> (Linnaeus, 1758)	•						•
<b>FAMILY: ASPIDODIAEMATIDAE</b>							
<i>Aspidodiadema nicobaricum</i> Doderlein	•						

<b>ORDER: SALENIIDIA</b>							
<b>FAMILY: SALENIIDAE</b>							
<i>Salenia sculpta</i>	•						
<b>ORDER : PHYMOSOMATIDA</b>							
<b>FAMILY : STOMOPNEUSTIDAE</b>							
<i>Stomopneustes variolaris</i> (Lamarck, 1816)	•	•	•				•
<b>FAMILY: ARBACIIDAE</b>							
<i>Coelopleurus vittatus</i> Koehler	•						
<i>Pygmaeocidaris prionigera</i> (Lamarck)	•						
<b>ORDER : TEMNOPLEUROIDA</b>							
<b>FAMILY : TEMNOPLEURIDAE</b>							
<i>Heerocentrotus mammilatus</i> (Linnaeus)	•						
<i>Mespilia globulus</i> (Linnaeus)	•						•
<i>Microcyphus ceylanicus</i> (von Martens)	•						
<i>Prionechinus agassizi</i> Wood Mason & Alcock	•						
<i>Printechinus impressus</i> Koehler	•						
<i>Paratrema dodderleni</i> (von Martens)	•						
<i>Salmaciella dussumieri</i> (L. Agassiz and Desor, 1846)		•					
<i>Salmacis bicolor</i> (L. Agassiz and Desor, 1846)	•	•				•	
<i>Salmacis bicolor</i> var. <i>typica</i> Mortensen	•	•					
<i>Salmacis bicolor</i> var. <i>rarisipina</i> L. Agassiz, 1846		•					•
<i>Salmacis virgulata</i> L. Agassiz & Desor, 1846	•	•					•
<i>Salmaciella dussumieri</i> L. Agassiz, 1846	•	•					
<i>Temnopleurus apodus</i> Agassiz & H.L. Calrk	•						
<i>Temnopleurus proctalis</i> (Koehler)	•						
<i>Temnopleurus toreumaticus</i> (Leske, 1778)	•	•			•		•
<i>Temnotrema scillae</i> (Mazetti)	•						•
<i>Trigonocidaris versicolor</i> Koehler	•						
<b>FAMILY : TOXOPNEUSTIDAE</b>							
<i>Gymnechinus robbillardi</i> (de Loriol)	•	•					
<i>Psuedoboletia maculata</i> Troschel, 1869	•	•					•
<i>Toxopneustes pileolus</i> (Lamarck, 1816)	•	•					•
<i>Tripneustes gratilla</i> (Linnaeus, 1758)	•	•					•
<b>FAMILY: PARASALENIDAE</b>							
<i>Parasalenia gratiosa</i> L. Agassiz							•
<i>Parasalenia poehli</i> Pfeffer							•
<b>ORDER : ECHINOIDA</b>							
<b>FAMILY : ECHINOMETRIDAE</b>							
<i>Colobocentrotus atratus</i> (Linnaeus, 1758)	•						
<i>Echinometra mathaei</i> (de Blainville, 1825)	•	•					•
<i>Echinostrephus molaris</i> (de Blainville, 1825)	•						•
<i>Heterocentrotus mammilatus</i>	•						•
<b>ORDER : HOLECTYPOIDA</b>							
<b>FAMILY : ECHINONEIDAE</b>							
<i>Echinoneus cyclostomus</i> Leske, 1778	•						•
<b>ORDER : GLYPEASTERIDAE</b>							
<b>FAMILY : ARACHNOIDIDAE</b>							
<i>Arachnoides placenta</i> (Linnaeus, 1858)	•						
<b>ORDER: CLYPEASTEROIDA</b>							
<b>FAMILY: CLYPEASTERIDAE</b>							
<i>Clypeaster humilis</i> (Leske, 1778)	•	•				•	
<i>Clypeaster rarisipinus</i> de Meijere, 1903		•			•		•

<i>Clypeaster 123reticulates</i> (Linnaeus)	•						•
<i>Peronella menoproctes</i> Koehler, 1922	•						
<i>Peronella orbicularis</i> (Leske)		•					
<i>Peronella rubra</i> Doderlein, 1885	•						
<b>FAMILY: ARACHNOIDEA</b>							
<i>Arachnoides placentis</i> (Linnaeus)	•						
<b>FAMILY : FIBULARIDAE</b>							
<i>Echinocyamus crispus</i> Mazetti	•						
<i>Fibularia ovulum</i> Lamarck							•
<i>Fibularia volva</i> L. Agassiz and Desor, 1846		•					
<b>FAMILY : LAGANIDAE</b>							
<i>Laganum decagonale</i> (de Blainville, 1827)					•		
<i>Laganum depressum</i> Lesson, 1841	•	•					•
<i>Laganum laganum</i> (Leske, 1778)	•						
<i>Laganum retinens</i> Koehler	•						
<i>Laganum versatile</i> Koehler	•						
<i>Peronella lessueuri</i> (Valenciennes)	•						•
<i>Peronella macroproctes</i> Koehler	•						
<i>Peronella orbicularis</i> Leske	•	•					
<i>Peronella rubra</i> Doederlein	•						
<i>Peronella rutlandi</i> (Koehler)	•						
<b>ORDER : SCUTELLINA</b>							
<b>FAMILY : SCUTELLIDAE</b>							
<i>Echinodiscus auritus</i> Leske, 1778	•	•			•		
<i>Echinodiscus bisperforatus</i> Leske, 1778	•	•					
<b>ORDER : CASSIDULIDA</b>							
<b>FAMILY: ECHINOLAMPADIDAE</b>							
<i>Echinolampus alexandri</i> de Loriol, 1876		•					•
<i>Echinolampus ovata</i> (Leske, 1778)		•					•
<b>FAMILY : SPATANGIDA</b>							
<i>Breynia vredenburgi</i> Anderson	•						
<i>Lovenia subcarinata</i> Gray	•						
<i>Maretia spatagus</i> (Linnaeus)	•						
<i>Pseudomaretia alta</i> (A.Agassiz)	•						
<b>FAMILY: ASTEROSTOMATIDAE</b>							
<i>Argopatagus vitreus</i> A.Agassiz	•						
<b>FAMILY : LOVENIIDAE</b>							
<i>Areolampas glauca</i> (Wood Mason & Alcock)	•						
<i>Breynia vredenburgi</i> Anderson, 1907	•						
<i>Lovenia 123longate</i> (Gray, 1845)	•	•					
<i>Lovenia sternalis</i>		•					
<i>Maretia planulata</i> (Lamarck)	•						
<b>FAMILY : SCHIZASTERIDAE</b>							
<i>Brisaster indicus</i> Koehler	•						
<i>Faorina chinensis</i> Gray	•						
<i>Moiria stygia</i> Lutken, 1872	•						
<i>Prymna investigatoris</i> Koehler	•						
<b>FAMILY: AEROPSIDAE</b>							
<i>Acesta ovate</i> A.Agassiz & H.L. Clark	•						
<b>FAMILY : BRISSIDAE</b>							
<i>Brissopsis luzonica</i> Gray	•						
<i>Brissopsis oldhami</i> Alcock	•						
<i>Brissopsis parallela</i> Koehler	•						



ORDER : ASPIDOCHIROTIDA							
FAMILY : HOLOTHURIDAE							
<i>Actinopyga echinites</i> (Jaeger, 1833)	•	•					•
<i>Actinopyga lecanora</i> (Jaeger, 1833)	•						
<i>Actinopyga mauritiana</i> (Quoy & Gaimard, 1833)	•						•
<i>Actinopyga miliaris</i> (Quoy & Gaimard, 1833)	•	•					•
<i>Allopatides dendroides</i> Koehler & Vaney	•						
<i>Bathyplores cinctus</i> Koehler & Vaney,	•						
<i>Bathyplores crenlatus</i> Koehler & Vaney,	•						
<i>Bathyplores profundus</i> Koehler & Vaney,	•						
<i>Benthothuria cristatus</i> Koehler & Vaney	•						
<i>Bohadschia argus</i> Jaeger, 1833	•						•
<i>Bohadschia marmorata</i> Jaeger, 1883	•	•					•
<i>Bohadschia vitiensis</i> Semper	•						
<i>Holothuria argus</i> Semper	•						•
<i>Holothuria ocellata</i> Jaeger						•	
<i>Holothuria (Acanthotapeza) pyxis</i> Selenka, 1867,	•						
<i>Holothuria (Cystipus) inhabilis</i> Selenka	•						
<i>Holothuria (Cystipus) rigida</i> (Selenka, 1867)	•						•
<i>Holothuria (Halodeima) atra</i> Jaeger, 1833	•	•					•
<i>Holothuria (Halodeima) edulis</i> Lesson, 1830	•	•					•
<i>Holothuria (Lessonothuria) pardalis</i> Selenka, 1867	•	•				•	•
<i>Holothuria (Mertensiothuria) exilis</i> Koehler & Vaney	•	•					
<i>Holothuria (Mertensiothuria) fuscocinerea</i> Jaeger, 1833	•						
<i>Holothuria (Mertensiothuria) leuospilota</i> Brandt, 1835	•	•				•	•
<i>Holothuria (Mertensiothuria) pervicax</i> Selenka,	•						•
<i>Holothuria (Metriatyla) scabra</i> Jaeger, 1833	•	•					•
<i>Holothuria (Microthele) nobilis</i> (Selenka, 1867)	•						•
<i>Holothuria (Microthele) fuscogilva</i>		•					
<i>Holothuria (Platyperona) difficilis</i> Semper, 1868	•						•
<i>Holothuria (Selenkothuria) erinaceus</i> Semper	•						
<i>Holothuria (Selenkothuria) glabberima</i> Selenka	•						
<i>Holothuria (Semperothria) cinerascens</i> Brandt	•	•					•
<i>Holothuria (Selenkothuria) moebii</i> Ludwig, 1833	•	•					
<i>Holothuria (Semperothria) cinerascens</i> (Brandt, 1835)	•	•					•
<i>Holothuria (Stauropora) prompta</i> Koehler & Vaney	•	•					
<i>Holothuria (Theelothuria) kurti</i> Ludwig		•					
<i>Holothuria (Theelothuria) spinifera</i> Theel, 1886	•	•					
<i>Holothuria (Thymiosycia) arenicola</i> Semper, 1868	•	•					•
<i>Holothuria (Thymiosycia) hilla</i> Lesson, 1830	•	•					•
<i>Holothuria (Thymiosycia) impatiens</i> (Forskal,	•	•					•

1775)							
<i>Holothuria (Thymiosycia) impatiens var. bicolor</i> Clark		•				•	
<i>Holothuria (Thymiosycia) remollescens</i> Lampert,	•						
<i>Holothuria moebi</i> Ludwig	•	•					
<i>Labidodemas rugosa</i> (Ludwig)	•	•					•
<i>Labidodemas semperianum</i> Selenka	•						•
<b>FAMILY: SYNALLACTIDAE</b>							
<i>Allopatides dendroides</i> Koehelr & Vaney	•						
<i>Bathyplores cinctus</i> Koehler & Vaney	•						
<i>Bathyplores crenulatus</i> Koehler & Vaney	•						
<i>Bathyplores profundus</i> Koehelr & Vaney	•						
<i>Benthohria cristatus</i> Koehler & Vaney	•						
<i>Pelopatides dissidens</i> Koehler & Vaney	•						
<i>Pelopatides gelatinosus</i> (Walsh)	•						
<i>Pelopatides modestus</i> (Koehler & Vaney)	•						
<i>Pelopatides mollis</i> (Koehler & Vaney)	•						
<i>Pelopatides ovalis</i> (Walsh)	•						
<i>Pelopatides verrucosus</i> Koehler & Vaney	•						
<i>Synallactes rigidus</i> Koehler & Vaney	•						
<i>Synallactes woodmasoni</i> (Walsh)	•						
<b>FAMILY: LABIDODEMATIDAE</b>							
<i>Labidodemas rugosum</i> (Ludwig, 1875)	•						
<i>Labidodemas semperianum</i> Selenka, 1867	•						
<b>FAMILY : CHIRODOTIDAE</b>							
<i>Polycheira rufescens</i> (Brandt)	•						
<b>FAMILY : STICHOPODIDAE</b>							
<i>Stichopus chloronotus</i> Brandt, 1835	•	•					•
<i>Stichopus hermanni</i> Semper	•	•					
<i>Stichopus horrens</i> Selenka,	•						
<i>Stichopus variegates</i> Semper	•	•					•
<i>Stichopus vastus</i> Sluiter, 1887	•						
<i>Thelenota ananas</i> (Jaeger, 1833)	•					•	•
<b>ORDER: DACTYLOCHIROTIDA</b>							
<b>FAMILY: YPSILOTHURIIDAE</b>							
<i>Ypsilothuria bitentaculata</i> (Ludwig)	•						
<b>ORDER : APODIDA</b>							
<b>FAMILY : SYNAPTIDAE</b>							
<i>Anapta gracilis</i> Semper, 1868	•						
<i>Chondrocloea striata</i> Sluiter	•	•					
<i>Euapta godeffreyi</i> (Semper, 1868)	•						•
<i>Labidopalx</i> sp	•						
<i>Opheodesoma grisea</i> (Semper, 1868)	•						•
<i>Patinapta ooplax</i> (Von Marenzellar)	•						
<i>Protankyra errata</i> Koehler & Vaney	•						
<i>Protankyra innominata</i> Ludwig	•	•					
<i>Protankyra pseudodigitata</i> (Semper, 1868)	•	•					
<i>Protankyra similis</i> Semper, 1868	•						
<i>Protankyra timida</i> Koehler	•						
<i>Protankyra tuticorenensis</i> James, 1982		•					
<i>Synapta maculate</i> (Chamisso & Eysenhardt)	•						•
<i>Syaptula recta</i> (Semper, 1868)	•	•					

<i>Synaptula striata</i> (Sluiter, 1888)	•	•						•
<i>Opheodesma grisea</i> (Semper)								•
<i>Patinapta ooplax</i> (Marezellar)	•							
<i>Protankyra errata</i> Koehler & Vaney	•							
<i>Protankyra innominata</i> Koehler	•	•						
<i>Protankyra timida</i> Koehler & Vaney	•							
<b>FAMILY: CHIRIDOTIDAE</b>								
<i>Polycheira rufescens</i> (Brandt)	•							•
<b>FAMILY: MYRIOTRICHIDAE</b>								
<i>Ankyroderma danielsseni</i> Theel	•							
<i>Ankyroderma musculus</i> (Risso)	•							
<i>Trochostoma andamanense</i> Walsh	•							
<b>ORDER : MOLPADIDA FAMILY : CAUDINIDAE</b>								
<i>Acaudina australis</i> Semper	•							
<i>Acaudina iranai</i> Heding	•							
<i>Acaudina malpadioides</i> (Semper, 1868)	•		•	•	•	•		
<i>Paracaudina australis</i> (Semper)	•							
<b>FAMILY : MOLPADIIDAE</b>								
<i>Molpadia musculus</i> var. <i>undulatum</i> Koehler & Vaney	•							
<i>Molpadia andamanense</i> Walsh	•							
<i>Molpadia australis</i> (Semper)	•	•						
<i>Molpadia bravicaudatum</i> Koehler & Vaney	•							
<i>Molpadia elongatum</i> Koehler & Vaney	•							
<i>Molpadia musculus</i> Risso	•					•		
<i>Molpadia musculus</i> var. <i>undulatum</i> Koehler & Vaney	•	•						
<i>Molpadia musculus</i> var. <i>acutum</i> Koehler & Vaney	•	•						
<i>Acaudina australis</i> Semper	•							
<i>Acaudina iranai</i> Heding	•							
<i>Acaudina molpadioides</i> (Semper)	•						•	
<i>Paracaudina australis</i> (Semper)	•							
<b>ORDER : ELASIPODIDA FAMILY : DEIMATIDAE</b>								
<i>Apodogaster alcocki</i> Walsh	•							
<i>Deima validum</i> Theel	•							
<i>Orphnurgus glober</i> Walsh	•							
<b>FAMILY : PELAGOTHURIDAE</b>								
<i>Euriplastes obscura</i> Koehler & Vaney	•							
<b>FAMILY : PSYCHROPOTIDAE</b>								
<i>Benthodytes sanguinolenta</i> Theel	•							
<i>Benthodytes typia</i> Theel	•							
<i>Filithuria elegans</i> Koehler & Vaney	•							

## CHECKLIST OF FISHES OF EAST COAST OF INDIA

SPECIES	AN	TN	AP	OR	WB	GK	LK
CLASS : CHONDRICHTHYES							
ORDER : ORECTOLOBIFORMES							
FAMILY : HEMISCYLIDAE							
<i>Chyloscyllium griseum</i> Muller & Henle, 1838		•	•		•	•	
<i>Chyloscyllium indicus</i> Gmelin			•		•	•	
<i>Chyloscyllium plagiosum</i> (Bennett)			•				
<i>Chiloscyllium punctatum</i> Muller and Henle, 1837		•	•				
FAMILY : STEGOSTOMATIDAE							
<i>Stegostoma fasciatus</i> (Hermann, 1783)	•	•	•		•	•	
<i>Stegostoma varium</i> (Seba)						•	
FAMILY: GINGLYSTOMATIDAE							
<i>Nebrius ferrugineus</i> Lesson, 1830			•			•	
FAMILY: RHINODONTIDAE							
<i>Rhindon typus</i> Smith, 1828			•			•	
ORDER : LAMNIFORMES							
FAMILY : LAMNIDAE							
<i>Alopias vulpinus</i> (Bonnaterre)						•	
<i>Isurus oxyrinchus</i> Rafinesque, 1810		•	•				
FAMILY: ODONTASPIDIDAE							
<i>Carcharius tricuspidatus</i> Day			•				
<i>Eugomphodus taurus</i> Rafinesque, 1809						•	
FAMILY: ALOPIDAE							
<i>Alopias vulpinus</i> Bonnaterre, 1788						•	
<i>Alopias pelagicus</i> Nakamura						•	
FAMILY: TRIAKIDAE							
<i>Mustelus mosis</i> Hemprich and Ehrenberg, 1815			•			•	
FAMILY: HEMIGALIDAE							
<i>Chaenogaleus macrostoma</i> Bleeker, 1852			•			•	
<i>Hemipristis elongatus</i> (Klunzinger)			•				
FAMILY: SQUALIDAE							
<i>Centroscyllium ornatum</i> (Alcock, 1889)					•		
FAMILY: SCYLORHINIDAE							
<i>Apristurus investiagtoris</i> (Misra)	•						
<i>Atelomycterus marmoratus</i> (Bennett)			•				
<i>Halaelurus hispidus</i> (Alcock)	•						
FAMILY: PROSCYLLIDAE							
<i>Eridacnis radcliffei</i>	•						
ORDER : CARCHARHINIFORMES							
FAMILY : CARCHARHINIDAE							
<i>Carcharhinus dussumieri</i> (Valenciennes, 1839)	•	•	•		•	•	
<i>Charcharhinus ellioti</i> (Day)						•	
<i>Carcharhinus hemiodon</i> Valenciennes		•	•		•	•	
<i>Carcharhinus limbatus</i> Valenciennes		•	•		•	•	
<i>Carcharhinus longimanus</i> Poey		•	•		•	•	
<i>Carcharhinus macloti</i> Muller & Henle	•	•	•		•	•	
<i>Carcharhinus melanopterus</i> (Quoy & Gaimard, 1824)	•	•	•		•	•	

<i>Charcharhinus menisorrhah</i> (Muller & Henle)							•	
<i>Carcharhinus sealei</i> (Peitschmann)	•						•	
<i>Carcharhinus sorrah</i> Valenciennes	•		•			•		
<i>Charcharias wheeleri</i> Garrick	•							
<i>Galeocerdo cuvieri</i> (Peron & Le Sueur, 1822)		•	•				•	
<i>Glyphis gangeticus</i> (Muller and Henley, 1841)						•		
<i>Hemipristis elongates</i> (Klunzinger,1871)		•						
<i>Hypoprion macloti</i>							•	
<i>Lamiopsis temmincki</i> Muller & Henle	•		•			•		
<i>Loxodon macrorhinas</i> Muller & Henle, 1841			•			•	•	
<i>Mobula diabolus</i>							•	
<i>Megaprion acutidens</i> Ruppell		•	•			•	•	
<i>Priomace glauca</i> Linnaeus	•		•			•		
<i>Rhizoprionodon acutus</i> (Ruppell, 1838)	•	•	•				•	
<i>Rhizoprionodon oligolinx</i> Springer,1964	•	•	•				•	
<i>Scoliodon plassorah</i>							•	
<i>Scoliodon laticaudus</i> (Muller & Henle, 1838)		•	•			•	•	
<i>Scoliodon walbeehmi</i> (Bleeker)						•		
<i>Triaenodon obesus</i> Ruppell, 1837			•				•	
<b>FAMILY: RHINIODONTIDAE</b>								
<i>Rhiniodon typus</i> Smith						•		
<b>FAMILY : SPHYRNIDAE</b>								
<i>Eusphyrna blochii</i> (Cuvier)	•	•	•			•	•	
<i>Sphyrna lewini</i> (Griffith & Smith, 1834)		•	•			•	•	
<i>Sphyrna mokarran</i> Ruppell			•			•	•	
<i>Sphyrna tudes</i>							•	
<b>FAMILY: SCYLIIORHINIDAE</b>								
<i>Atelomycterus marmoratus</i> Bennett, 1830							•	
<b>ORDER : PRISTIFORMES</b>								
<b>FAMILY : PRISTIDAE</b>								
<i>Anoxypristis cuspidatus</i> (Latham, 1794)		•	•				•	
<i>Anoxypristis variegata</i> (Latham, 1794)								
<i>Atelomycterus marmoratum</i> (Bennett)		•					•	
<i>Pristis cuspidatus</i> Latham, 1794			•			•		
<i>Pristis microdon</i> Latham	•		•			•	•	
<i>Pristis zijsron</i> Bleeker, 1851	•	•	•				•	
<b>ORDER : TORPEDINIFORMES</b>								
<b>FAMILY: TORPEDINIDAE</b>								
<i>Narke sp.</i>	•							
<i>Torpedo panther</i> Olfers			•					
<b>FAMILY: NARCINIDAE</b>								
<i>Narcine brunnea</i> Annandale, 1909		•	•			•	•	
<i>Narcine indica</i> Henle			•					
<i>Narcine maculata</i> (Shaw, 1804)		•						
<i>Narcine timlei</i> (Schneider, 1801)		•	•		•		•	
<i>Narke dipterygia</i> (Bloch & Schneider)					•			
<b>FAMILY: RAJIDAE</b>								
<i>Raja mamillidens</i> Alcock							•	
<b>FAMILY: TRYGONIDAE</b>								
<i>Trygon sephen</i> Cuvier							•	
<i>Trygon narnak</i>							•	
<b>FAMILY : NARKIDAE</b>								
<i>Bengalichthys impennis</i> Annandale, 1909		•	•					

<i>Narke dipterygia</i> (Schneider, 1801)		•	•				
<b>ORDER : RAJIFORMES</b>							
<b>FAMILY : RHINOBATIDAE</b>							
<i>Rhina acnylostoma</i> Schneider, 1801	•	•	•			•	
<i>Rhinobatos annandalei</i> (Norman)					•		
<i>Rhinobatos granulatus</i> Cuvier, 1829		•	•		•	•	
<i>Rhinobatos lionotus</i> (Norman)		•			•	•	
<i>Rhinobatos obtusus</i> Muller & Henle			•				
<i>Rhinobatos thouiniana</i> (Shaw, 1804)		•	•			•	
<i>Rhinobatos ariegates</i> Nair & Mohan, 1973				•			
<i>Rhynchobatus djiddensis</i> (Forsskal, 1775)	•	•	•		•	•	
<i>Zanobatus schoenleinii</i> (Muller & Henle, 1841)		•					
<b>ORDER : MYLIOBATIFORMES</b>							
<b>FAMILY : MYLIOBATIDAE</b>							
<i>Aetobatus flagellum</i> (Euphrasen)					•		
<i>Aetobatus narinari</i> (Euphrasen)	•		•		•	•	
<i>Aetomylaeus maculates</i> Gray, 1908		•				•	
<i>Aetomylaeus milvus</i> Valenciennes, 1841		•				•	
<i>Aetomylaeus nichofii</i> (Schneider, 1801)		•	•			•	
<i>Rhinoptera adpersa</i> (Muller & Henle, 1841)		•				•	
<i>Rhinoptera javanica</i> Muller and Henle, 1841						•	
<b>FAMILY : MOBULIDAE</b>							
<i>Mobula diabolus</i> (Shaw, 1804)		•	•			•	
<i>Mobula mobular</i> Bonnaterre, 1788						•	
<b>FAMILY : DASYATIDAE</b>							
<i>Dasyatis imbricata</i> (Schneider, 1801)		•				•	
<i>Dasyatis kuhlii</i> (Muller & Henle, 1841)		•	•			•	
<i>Dasyatis microps</i> (Annaadale, 1908)				•			
<i>Dasyatis sephen</i> (Forsskal)					•		
<i>Dasyatis thetidis</i> Ogliby, 1899	•	•					
<i>Dasyatis walga</i> (Muller & Henle, 1841)				•			
<i>Dasyatis zugei</i> (Muller & Henle, 1841)		•		•	•	•	
<i>Gymnura japonica</i> (Schlegel, 1850)		•			•		
<i>Gymnura poecilura</i> (Shaw, 1804)		•			•	•	
<i>Himantura bleekeri</i> (Blyth)					•		
<i>Himantura favus</i> (Annandale, 1909)		•	•		•		
<i>Himantura gerrardi</i> (Gray, 1851)	•	•					
<i>Himantura fluviatilis</i> (Hamilton -Buchanan)					•		
<i>Himantura imbricata</i> (Schneider)			•				
<i>Himantura marginatus</i> (Blyth, 1861)			•		•		
<i>Himantura uarnak</i> (Forsskal, 1775)		•	•		•		
<i>Himantura walga</i> (Muller & Henle, 1841)		•	•		•		
<i>Hypolophus sephen</i> (Forsskal, 1775)	•	•	•		•		
<i>Taeniura melanospila</i> Bleeker			•				
<i>Urogymnus asperrimus</i> (Bloch & Schneider, 1801)		•					
<b>FAMILY: GYMNURIDAE</b>							
<i>Gymnura poecihira</i> Shaw, 1804						•	
<i>Gymnura japonica</i> (Schlegel)			•				
<i>Gymnura micrura</i> (Schneider)			•				
<i>Gymnura poecilura</i> (Shaw)			•				
<i>Gymnura tentaculata</i> (Valenciennes)			•				

CLASS : OSTEICHTHYES							
ORDER : ELOPIFORMES							
FAMILY : ELOPIDAE							
<i>Elops machnata</i> (Forsskal, 1775)	•	•	•			•	
FAMILY : MEGALOPIDAE							
<i>Megalops cyprinoides</i> (Broussonet, 1782)	•	•	•			•	
FAMILY : ALBULIDAE							
<i>Albula vulpes</i> (Linnaeus, 1758)	•	•					
ORDER: NOTACANTHIFORMES							
FAMILY: HALOSAURIDAE							
<i>Halosaurus carnicauda</i> (Alcock)	•						
ORDER : ANGUILLIFORMES							
FAMILY : ANGUILLIDAE							
<i>Anguilla bengalensis bengalensis</i> (Gray, 1831)	•	•	•		•	•	
<i>Anguilla bicolor bicolor</i> McClelland, 1844	•	•	•	•	•	•	
FAMILY: MORINGUIDAE							
<i>Moringua auninacea</i> (Mc Clelland)					•		
<i>Moringua hodgarti</i> Chaudhuri					•		
<i>Moringua raitaborua</i> (Hamilton- Buchanan)			•		•		
<i>Moringua arundinacea</i> (McClelland)					•		
FAMILY : MURAENIDAE							
<i>Echidna nebulosa</i> Ahl, 1789	•		•				•
<i>Echidna polyzoa</i> (Richardson)							•
<i>Echidna zebra</i> (Shaw, 1797)	•		•			•	
<i>Echidna nigra</i> (Day)	•						
<i>Gymnothorax boschi</i> (Bleeker)							
<i>Gymnothorax favagineus</i> (Bloch & Schneider)	•					•	
<i>Gymnothorax fimbriatus</i> (Bennett, 1831)	•						•
<i>Gymnothorax flavimarginatus</i> (Ruppell, 1830)	•						
<i>Gymnothorax hepaticus</i> (Ruppell)	•						
<i>Gymnothorax pseudothyrsoides</i> Bleeker							•
<i>Gymnothorax punctatus</i> (Bloch & Schneider)					•		
<i>Gymnothorax reticularis</i> Bloch, 1795			•	•			
<i>Gymnothorax richardsoni</i> (Bleeker, 1852)	•						
<i>Gymnothorax ruppelliae</i> (McClelland, 1845)	•						
<i>Gymnothorax undulates</i> (Lacepede, 1803)	•						
<i>Lycodontis fimbriatus</i> (Bennet)			•				
<i>Lycodontis meleagris</i> Shaw and Nodder, 1795				•		•	
<i>Lycodontis punctatus</i> (Bloch & Schneider, 1801)			•				
<i>Lycodontis sathete</i> (Hamilton - Buchanan, 1822)			•		•		
<i>Lycodontis tile</i> (Hamilton - Buchanan, 1822)	•	•	•	•	•		
<i>Siderea picta</i> (Ahl, 1789)	•				•	•	
<i>Siderea thyrsoidea</i> (Richardson)	•						
<i>Thyrsoidea macrura</i> (Bleeker, 1854)		•	•		•	•	
<i>Uropterygius concolor</i> Ruppell, 1838	•						
<i>Uropterygius marmoratus</i> (Lacepede, 1803)	•						
<i>Uropterygius micropterus</i> (Bleeker)	•						
<i>Uropterygius tigrinus</i> (Linnaeus)	•				•		
<i>Uropterygius macrocephalus</i> (Bleeker)	•						
FAMILY: NEMICHTHYIDAE							
<i>Avocettina infans</i> (Gunther)	•						
<i>Nemichthys scolopaceus</i> (Richardson)	•						

FAMILY: MORINGUIDAE							
<i>Moringua arundinacea</i> (Mc Celland, 1844)							
<i>Moringua raitaborua</i> (Hamilton - Buchanan, 1822)					•		
FAMILY : OPHICHTHIDAE							
<i>Bascanichthys deraniagalai</i> Menon , 1961			•				
<i>Caecula pterygea</i> Vahl, 1794				•			
<i>Callechelys melanotaenia</i>		•					•
<i>Cirrhimuraena playfairii</i> (Gunther, 1870)	•	•	•				
<i>Lamnostoma orientalis</i> Mc Clelland		•	•			•	
<i>Leiuramus semicinctus</i>	•	•					•
<i>Muraenichthys gymnopterus</i> (Bleeker, 1853)			•				
<i>Muraenichthys macropterus</i> (Bleeker, 1857)	•	•	•	•			
<i>Muraenichthys shultzei</i> Bleeker	•	•				•	
<i>Myrichthys colubrinus</i> Boddart	•	•					•
<i>Myriophis lepturus</i> Kotthaus				•			
<i>Myrichthys maculosus</i> Cuvier	•	•					•
<i>Neenchelys buitendijki</i> Weber and de- Beaufort		•	•		•	•	
<i>Ophichthys apicalis</i> (Bennett, 1830)	•	•	•	•			
<i>Ophichthus microcephalus</i> Day, 1878		•					
<i>Pisodonophis boro</i> (Hamilton-Buchanan, 1822)		•	•	•	•		
<i>Pisodonophis cancrivorus</i> (Richardson, 1844)	•	•	•	•			
FAMILY: COLOCONGRIDAE							
<i>Coloconger raniceps</i> Alcock	•						
FAMILY : MURAENESOCIDAE							
<i>Congresox talaban</i> (Cuvier, 1829)			•				
<i>Congresox talabnoides</i> (Bleeker)			•				
<i>Gavialiceps taeniola</i> Alcock	•						
<i>Muraensox talobonoides</i> Bleeker, 1853		•				•	
<i>Muraenesox bagio</i> (Hamilton, 1822)		•	•	•	•	•	
<i>Muraenesox cinereus</i> (Forsskal, 1775)		•	•		•	•	
FAMILY: SERRIVOMERIDAE							
<i>Seerrivomer microps</i> (Alcock)	•						
FAMILY : CONGRIDAE							
<i>Ariosoma anago</i> (Temminck & Schlegel, 1846)	•	•	•				
<i>Ariosoma macrocercus</i> (Alcock)	•						
<i>Ariosoma mauritianum</i> (Pappenheim, 1914)	•	•					
<i>Congresox talabon</i> (Cuvier, 1829)	•				•		
<i>Gorgasia maculata</i> Klausewitz & Eidl- eibesfeldt							
<i>Heteroconger hassi</i> (Klausewitz & Eidl- eibesfeldt)	•						
<i>Heteroconger obscura</i> (Klausewitz & Eidl- eibesfeldt)	•						
<i>Uroconger lepturus</i> (Richardson, 1845)		•	•			•	
ORDER : CLUPEIFORMES							
FAMILY : CLUPEIDAE							
<i>Amblygaster clupeoides</i> Bleeker			•				
<i>Amblygaster leiogaster</i> (Valenciennes)			•	•			
<i>Amblygaster siram</i> (Walbaum, 1762)	•	•	•				
<i>Anodontosoma chacunda</i> (Hamilton- Buchanan, 1822)	•	•	•	•	•	•	
<i>Anodontostoma selangkat</i> (Bleeker)	•						

<i>Anodontostoma thalindiae</i> (Wongratana)	•						
<i>Corica soborina</i> Hamilton, 1822				•	•		
<i>Dayella malabarica</i> (Day, 1873)			•				
<i>Dussumieria acuta</i> Valenciennes, 1847	•	•	•	•		•	
<i>Dussumieria elopsoides</i> Bleeker, 1849	•	•	•				
<i>Ehirava fluviatilis</i> Deraniyagala, 1929				•			
<i>Escualosa thoracata</i> (Valenciennes, 1847)	•	•	•	•	•	•	
<i>Gonialosa manmina</i> (Hamilton - Buchanan)	•						
<i>Gelusia chapra</i> (Hamilton & Buchanan)					•		
<i>Herklosichthys quadrimaculatus</i> Ruppell, 1837	•	•	•			•	
<i>Hilsa (Tenualosa) ilisha</i> (Hamilton-Buchanan)		•		•	•	•	
<i>Hilsa (Tenualosa) toli</i> (Valenciennes, 1847)					•		
<i>Hilsa kelee</i> (Cuvier, 1829)		•	•		•	•	
<i>Hilsa (Tenualosa) toli</i> (Valenciennes)	•	•				•	
<i>Ilisha elongata</i> (Bennett, 1830)					•		
<i>Ilisha melastoma</i> (Schneider, 1801)					•		
<i>Nematolosa galathea</i> Nelson & Rothman			•				
<i>Nematolosa nasus</i> (Bloch, 1795)	•	•	•			•	
<i>Ophisthopterus tardoore</i> (Cuvier, 1829)					•		
<i>Pellona ditchella</i> (Valenciennes, 1847)	•	•			•		
<i>Raconda russeliana</i> Gray, 1831					•		
<i>Sardinella albella</i> (Valenciennes, 1847)	•	•	•	•	•	•	
<i>Sardinella brachysoma</i> Bleeker, 1852	•	•	•				
<i>Sardinella dayi</i> Regan				•			
<i>Sardinella fimbriata</i> (Valenciennes, 1847)		•	•	•		•	
<i>Sardinella gibbosa</i> (Bleeker, 1849)	•	•	•	•		•	
<i>Sardinella longiceps</i> Valenciennes, 1847	•	•	•		•	•	
<i>Sardinella melanura</i> (Valenciennes)	•				•		
<i>Sardinella sidensis</i> Day						•	
<i>Spratelloides delicatulus</i> (Bennett)			•		•	•	
<i>Spratelloides gracilisi</i> (Schlegel)			•		•		
<i>Tenualosa ilisha</i> (Hamilton, 1822)			•		•		
<i>Tenualosa toli</i> (Valenciennes, 1847)			•		•		
<b>FAMILY: DOROSOMIDAE</b>							
<i>Anodontostoma chacunda</i> (Hamilton & Buchanan)					•		
<i>Nematolosa nasus</i> (Bloch)					•		
<b>FAMILY : PRISTIGASTERIDAE</b>							
<i>Ilisha elongata</i> (Bennett, 1830)		•	•				
<i>Ilisha kampeni</i> (Weber & de Beaufort)			•	•			
<i>Ilisha filigera</i> (Valenciennes, 1847)	•	•	•			•	
<i>Ilisha megaloptera</i> (Swainson, 1839)		•	•	•	•	•	
<i>Ilisha melastoma</i> (Schneides, 1801)	•	•	•	•	•	•	
<i>Ilisha obfuscatai</i> Wongratana, 1983							
<i>Ilisha sirishai</i> Seshagiri Rao, 1975		•	•			•	
<i>Ilisha striatula</i> Wongratana, 1983		•	•			•	
<i>Opisthopterus tardoore</i> (Cuvier, 1829)	•	•	•		•	•	
<i>Pellona dayi</i> Wongratana, 1983	•		•				
<i>Pellona ditchella</i> Valenciennes, 1847		•	•		•	•	
<i>Raconda russeliana</i> Gray, 1831			•			•	
<b>FAMILY : ENGRAULIDIDAE</b>							
<i>Coilia dussumieri</i> Valenciennes, 1848		•	•		•	•	
<i>Coilia neglecta</i> Whitehead, 1968		•	•		•	•	

<i>Coilia remcarati</i> (Hamilton - Buchanan, 1822)	•	•	•		•		
<i>Coilia reynaldi</i> Valenciennes, 1848		•	•		•	•	
<i>Encrasicholina heteroloba</i> (Ruppell, 1837)	•	•	•				
<i>Setipinna brevifilis</i> (Valenciennes)				•			
<i>Setipinna phasa</i> (Hamilton- Buchanan, 1822)	•		•		•		
<i>Setipinna taty</i> (Valenciennes, 1848)		•	•		•	•	
<i>Setipinna tenuifilis</i> Valenciennes, 1848	•		•		•		
<i>Stolephorus andhraensis</i> Babu Rao, 1965		•	•	•		•	
<i>Stolephorus baganensis</i> Hardenberg, 1931		•	•	•	•	•	
<i>Stolephorus commersonii</i> (Laceperde, 1803)	•	•	•	•		•	
<i>Stolephorus devis</i> Whitley, 1940		•	•	•		•	
<i>Stolephorus dubiosus</i> Wongratana, 1983			•				
<i>Stolephorus heterolobus</i> Ruppell, 1837		•	•	•		•	
<i>Stolephorus indicus</i> (van Hasselt, 1823)	•	•	•	•	•	•	
<i>Stolephorus insularis</i> Hardenberg, 1933			•				
<i>Stolephorus punctifer</i> Fowler		•				•	
<i>Stolephorus waitei</i> Jordan & Seale, 1926	•		•	•			
<i>Thyssa baelama</i> (Forsskal, 1775)	•	•					
<i>Thyssa dayi</i> Wongratana, 1983		•					
<i>Thyssa dussumieri</i> (Valenciennes, 1848)		•	•	•	•	•	
<i>Thyssa encrasicholoides</i> (Bleeker, 1852)	•						
<i>Thyssa gautamiensis</i> Babu Rao, 1971			•				
<i>Thyssa hamiltonii</i> (Gray, 1835)	•	•	•		•	•	
<i>Thyssa kammalensoides</i> Wongratana, 1983			•		•		
<i>Thyssa malabarica</i> (Bloch, 1795)	•	•	•	•	•	•	
<i>Thyssa mystax</i> (Schneider, 1801)	•	•	•	•	•	•	
<i>Thyssa polybranchialis</i> Wongratana, 1983							
<i>Thyssa purava</i> (Hamilton-Buchanan, 1822)		•	•		•	•	
<i>Thyssa spinidens</i> (Jordan & Seale, 1925)							
<i>Thyssa setirostris</i> (Broussonet, 1782)	•	•	•	•		•	
<i>Thyssa stenosoma</i> Wongratana, 1983			•				
<i>Thyssa vitriostriis</i> (Gilchrist & Thompson, 1908)		•	•	•	•	•	
<b>FAMILY: BAGRIDAE</b>							
<i>Mystus gulio</i> (Hamilton, 1822)				•	•		
<i>Mystus vittatus</i> (Bloch, 1797)				•	•		
<b>FAMILY : CHIROCENTRIDAE</b>							
<i>Chirocentrus dorab</i> (Forsskal, 1775)	•	•	•		•	•	
<i>Chirocentrus nudus</i> Swainson, 1839		•	•			•	
<b>ORDER : GONORHYNCHIFORMES</b>							
<b>FAMILY : CHANIDAE</b>							
<i>Chanos chanos</i> (Forsskal, 1775)	•	•	•			•	
<b>ORDER : SILURIFORMES</b>							
<b>FAMILY : ARIIDAE</b>							
<i>Ariodes dussumieri</i> (Valenciennes, 1840)		•	•			•	
<i>Arius arius</i> (Hamilton, 1822)		•	•		•	•	
<i>Arius caelatus</i> Valenciennes, 1840		•	•		•	•	
<i>Arius gagora</i> (Hamilton- Buchanan)				•	•		
<i>Arius jella</i> (Day, 1877)		•	•		•	•	
<i>Arius maculatus</i> (Thunberg, 1793)		•	•	•	•	•	
<i>Arius macronotacanthus</i> Bleeker	•						
<i>Arius parvipinnus</i> Day, 1877				•			

<i>Arius platystomus</i> Day, 1877		•	•			•	
<i>Arius sagor</i> (Hamilton- Buchanan, 1822)		•	•		•	•	
<i>Arius sona</i> (Hamilton - Buchanan, 1822)		•	•		•	•	
<i>Arius subrostratus</i> Valenciennes, 1840		•				•	
<i>Arius sumatranus</i> (Bennett, 1830)	•	•					
<i>Arius tenuispinus</i> Day, 1877		•	•	•		•	
<i>Arius thalassinus</i> (Ruppell, 1837)	•	•	•		•	•	
<i>Batrachocephalus mino</i> (Hamilton -Buchanan)		•	•		•	•	
<i>Hemipimelodus jatius</i> (Hamilton- Buchanan)					•		
<i>Ketengus typus</i> Bleeker	•						
<i>Osteogeneiosus militaris</i> (Linnaeus, 1758)		•	•		•	•	
<i>Tachysurus arius</i> (Hamilton)		•				•	
<i>Tachysurus caelatus</i> (Valenciennes)		•				•	
<i>Tachysurus dussumieri</i> (Valenciennes)		•				•	
<i>Tachysurus nenga</i> (Hamilton)					•		
<i>Tachysurus thalassinus</i> (Ruppell)		•				•	
<i>Tachysurus dussumieri</i> (Valenciennes)		•				•	
<b>FAMILY : PLOTOSIDAE</b>							
<i>Plotosus anguillaris</i> Cuvier					•		
<i>Plotosus canius</i> Hamilton, 1822	•	•	•		•		
<i>Plotosus limbatus</i> Valenciennes, 1840				•			
<i>Plotosus lineatus</i> (Thunberg,1791)		•	•			•	•
<b>FAMILY: ALOPOCEPHALIDAE</b>							
<i>Alepocephalus longiceps</i> Lloyd	•						
<i>Bathytroctes microplepis</i> Gunther	•						
<i>Rouleina squamilatrea</i> (Alcock)	•						
ORDER: STOMIFORMES							
<b>FAMILY: GONOSTOMATIDAE</b>							
<i>Cyclothone microdon</i> (Gunther)	•						
<b>FAMILY: STERNOPTYCHIDAE</b>							
<i>Polypinus spinosus</i>	•						
<b>FAMILY: PHOTICHTHYIDAE</b>							
<i>Yarella corythaeolum</i>	•						
<b>FAMILY: CHAULIODONTIDAE</b>							
<i>Chauliodus sloani</i> Schneider	•						
<b>FAMILY: MALACOSTEIDAE</b>							
<i>Malacosteus niger</i> Ayres	•						
<i>Photostomias guernei</i> Collett	•						
ORDER: AULOPIFORMES							
<b>FAMILY: CHLOROPHTHALMIDAE</b>							
<i>Bathypterois guentheri</i> Alcock	•						
<i>Chlorophthalmus agassizi</i> Bonaparte			•				
<i>Ipnops agassizii</i> Garman	•						
<b>FAMILY : SYNODONTIDAE</b>							
<i>Saurida elongata</i> Temmnick & Schlegel					•		
<i>Saurida gracilis</i> (Quoy and Gaimard, 1824)	•	•					
<i>Saurida micropectoralis</i> Shindo & Yamada, 1972	•	•	•	•			
<i>Saurida nebulosa</i> Valenciennes, 1849	•						
<i>Saurida pseudotumbil</i> Dutt & Sagar, 1981		•	•				
<i>Saurida tumbil</i> (Bloch, 1795)	•	•	•	•	•	•	
<i>Saurida undosquamis</i> Richardson, 1848	•	•	•			•	
<i>Synodus indicus</i> (Day, 1873)		•	•				

<i>Synodus variegates</i> Lacepede, 1803	•	•	•			•	
<i>Trachinocephalus myops</i> (Schneider, 1801)	•	•	•			•	
<b>FAMILY: SILURIDAE</b>							
<i>Batrocephalus mino</i>						•	
<b>FAMILY: EVERMANELLIDAE</b>							
<i>Evermanella atratus</i> (Alcock)	•						
<b>FAMILY: HARPODONTIDAE</b>							
<i>Harpodon nehereus</i> (Hamilton-Buchanan)			•				
<b>ORDER : MYCHTHOPIFORMES</b>							
<b>FAMILY: NEOSCOPELIDAE</b>							
<i>Neosopelus macrolepidotus</i> Johnson	•						
<b>FAMILY: MYCTOPHIDAE</b>							
<i>Benthoosema petrotum</i>	•						
<i>Diaphus coeruleus</i> Kluzinger	•						
<i>Diaphus diademopholis</i>	•						
<i>Diaphus malayanus</i> Weber	•						
<i>Diaphus nielseni</i> Nafpakitis	•						
<i>Diaphus suborbitalis</i> Weber	•						
<b>ORDER: CYPRINIFORMES</b>							
<b>FAMILY: CYPRINIDAE</b>							
<i>Ophisthopterus tardoore</i> (Cuvier)						•	
<b>FAMILY : HARPADONTIDAE</b>							
<i>Harpadon nehereus</i> (Hamilton - Buchanan, 1822)		•	•		•	•	
<b>FAMILY: MACROURIDAE</b>							
<i>Bathygadus furvescens</i> Alcock	•						
<i>Coelorhynchus flabellispinis</i> (Alcock, 1894)	•						
<i>Coelorhynchus parallelus</i> (Gunther)	•						
<i>Coelorhynchus quadricristatus</i> (Woodmason - Alcock)	•						
<i>Coryphaena lophotes</i> (Alcock)							
<i>Coryphaenoides macroplophus</i> (Alcock)	•						
<i>Gadomus multifilis</i> (Gunther)	•						
<i>Hymenocephalus heterolepis</i> (Alcock)	•						
<i>Malacocephalus laevis</i> (Lowe)	•						
<i>Nezumia brevirostris</i> (Alcock)	•						
<i>Nezumia investigatoris</i> (Alcock)	•						
<i>Nezumia semiquincunciata</i> (Alcock)	•						
<i>Ventrifossa petersoni</i> (Alcock)	•						
<b>FAMILY: BATRACHOIDIDAE</b>							
<i>Austrobatrachus dussumieri</i> (Valenciennes)			•	•		•	
<i>Batrichthys grunnicus</i> (Bloch)			•		•	•	
<i>Batrachus gangrene</i> (Hamilton)						•	
<b>FAMILY: CHAUNACIDAE</b>							
<i>Chaunax pictus</i> Lowe						•	
<b>ORDER : GADIFORMES</b>							
<b>FAMILY: MORIDAE</b>							
<i>Physiculus roseus</i> Alcock	•						
<b>FAMILY: BREGMACEROTIDAE</b>							
<i>Bregmaceros macclllandii</i> Thompson, 1840		•	•	•	•	•	
<b>ORDER : OPHIDIIFORMES</b>							
<b>FAMILY : CARAPIDAE</b>							
<i>Carapus homei</i> (Richardson, 1846)	•	•					

FAMILY : OPHIDIIDAE							
<i>Brotula multibarbata</i> Temmink & Schlegel, 1846	•	•	•			•	
<i>Dicrolene intronigra</i> Goode & Bean	•						
<i>Dicrolene multifilis</i> (Alcock)	•						
<i>Dicrolene nigricaudus</i> (Woodmasson Alcock)	•						
<i>Dinematichthys ilucoeteoides</i> Bleeker, 1855	•						
<i>Diplacanthopoma brachysoma</i> (Gunther)	•						
<i>Glyptophidium argenteum</i> Alcock	•						
<i>Hepthocara simum</i> Alcock	•						
<i>Lamprogrammus niger</i> Alcock	•						
<i>Monomitopus nigripinnis</i> (Alcock)	•						
<i>Neobythites macrops</i> Gunther	•						
<i>Spottobrotula mahodadi</i> Cohen & Neilsen	•						
FAMILY: APHYONIDAE							
<i>Barathronus diaphanus</i>	•						
ORDER: LOPHIIFORMES							
FAMILY LOPHIIDAE							
<i>Lophoides mutilus</i> (Alcock, 1893)			•	•			
<i>Lophiomus setigerus</i> (Vahl)	•		•				
FAMILY : ANTENNARIIDAE							
<i>Antennarius coccineus</i> (Lesson, 1831)	•	•					
<i>Antennarius commersoni</i> (Latrielle, 1804)	•	•					
<i>Antennarius hispidus</i> (Bloch & Schneider 1801)		•	•				
<i>Antennarius nummifer</i> (Cuvier, 1817)		•					
<i>Histrio histrio</i> (Linnaeus, 1758)	•						
FAMILY: OGOCEPHALIDAE							
<i>Halimetus rubber</i> Alcock	•						
<i>Haliutea coccinea</i> Alcock	•						
<i>Haliutea indica</i> (Annandale & Jenkins, 1910)					•		
<i>Haliutea nigra</i>	•						
<i>Haliutopsis micropus</i> (Alcock)	•						
<i>Haliutopsis nasutus</i> (Alcock)	•						
<i>Haliutea stellata</i> (Vahl)			•				
<i>Malthopsis luteus</i> Alcock	•						
<i>Malthopsis mitrigera</i>	•						
ORDER : CYPRINODONTIFORMES							
FAMILY : EXOCOETIDAE							
<i>Cheilopogon cyanopterus</i> (Valenciennes)			•				
<i>Cheilopogon furcatus</i> (Mitchill, 1815)	•	•	•				
<i>Cheilopogon nigricans</i> (Bennett)			•				
<i>Cypselurus bahiensis</i> (Ranzani, 1842)		•					
<i>Cypselurus oligolepis</i> (Bleeker, 1866)		•					
<i>Cypselurus spilopectus</i> (Valenciennes, 1846)		•				•	
<i>Cypselurus starksi</i> Abe	•						
<i>Exocoetus monocirrhus</i> Richardson		•	•			•	
<i>Exocoetus volitans</i> Linnaeus, 1758	•		•			•	
<i>Hirundichthys coromandelensis</i> (Hornell)			•				
<i>Hirundichthys oxycephalus</i> (Bleeker)			•				
<i>Parexocoetus mento</i> (Valenciennes, 1846)		•	•			•	
<i>Prognichthys brevipinnis</i> (Valenciennes)			•				
<i>Rhynchorampus georgii</i> (Valenciennes)		•				•	

FAMILY : HEMIRAMPHIDAE							
<i>Dermogenys brachyopterus</i> (Bleeker)				•			
<i>Euleptorhamphus limbatus</i> (van Hasselt, 1823)			•		•		
<i>Hemiramphus far</i> (Forsskal, 1775)	•	•	•	•		•	
<i>Hemiramphus lutkei</i> Valenciennes, 1846	•		•			•	
<i>Hemiramphus marginatus</i> (Forsskal)		•			•	•	
<i>Hirundichthys coramandelensis</i> Hornell, 1923		•					
<i>Hyporhamphus dussumieri</i> (Valenciennes, 1846)	•	•	•				
<i>Hyporhamphus limbatus</i> (Valenciennes, 1846)	•	•	•	•	•		
<i>Hyporhamphus xanthopterus</i> (Valenciennes, 1846)		•	•				
<i>Parexocoetus mento</i> Cuvier, 1846		•				•	
<i>Rhynchorhamphus georgii</i> (Valenciennes, 1846)		•					
<i>Rhynchorhamphus malabaricus</i> Collette, 1976		•	•	•	•		
<i>Zenarchopterus buffonis</i> (Valenciennes, 1846)	•						
<i>Zenarchopterus ectunio</i> (Hamilton- Buchanan, 1822)						•	
<i>Zenarchopterus gilli</i> Smith, 1946	•						
<i>Zenarchopterus pappenheimi</i> Mohr	•						
<i>Zenarchopterus striga</i> (Blyth)						•	
FAMILY : BELONIDAE							
<i>Ablennes hians</i> Valenciennes, 1846	•		•			•	
<i>Strongylura incisa</i> (Valenciennes)		•				•	
<i>Strongylura leiura</i> (Bleeker, 1851)		•	•	•	•		
<i>Strongylura strongylura</i> (van Hasselt, 1823)		•	•	•	•	•	
<i>Strongylura strongylura leiura</i> Bleeker, 1850	•	•				•	
<i>Tylosurus acus melanotus</i> Bleeker, 1850		•	•			•	
<i>Tylosurus crocodilus crocodilus</i> (Peron & LeSuer, 1821)		•	•			•	•
<i>Tylosurus giganteus</i> (Temminck and Schlegel, 1846)		•					
<i>Xenotodon cancila</i> (Hamilton, 1822)			•	•	•		
FAMILY: CYPRINODONTIDAE							
<i>Aphanius dispar</i> (Ruppell)						•	
FAMILY: ORYZIIDAE							
<i>Oryzias melastigma</i> (Mc Clelland, 1839)	•	•	•				
FAMILY: APLOCHEILIDAE							
<i>Aplocheilus blocki</i> (Arnold, 1911)			•				
ORDER : ATHERINIFORMES							
FAMILY : ATHERINIDAE							
<i>Atherinomorus deodecimalis</i> (Valenciennes, 1835)		•	•				•
<i>Atherinomorus endrachtensis</i> (Cuvier & Gaimard)	•						
<i>Atherinomorus lacunosus</i> Forster, 1801	•		•	•		•	
<i>Hypoatherina temminckii</i> (Bleeker)	•		•				
ORDER: LAMPRIFORMES							
FAMILY: ATELEOPODIIDAE							
<i>Ateleopus indicus</i> Alcock	•						
ORDER : BERYCIFORMES							
FAMILY : HOLOCENTRIDAE							
<i>Monocentrus japonicus</i> (Houttuyn)	•						

<i>Myripristis adusta</i> (Bleeker, 1853)	•	•					•
<i>Myripristis kuntee</i> Cuvier			•				
<i>Myripristis melanostictus</i> Bleeker			•				
<i>Myripristis murdjan</i> (Forsskal, 1775)	•	•					
<i>Neoniphon samara</i> (Forsskal, 1775)	•	•					•
<i>Sargocentron caudimaculatum</i> (Ruppell,1838)	•						
<i>Sargocentron diadema</i> (Lecepede)		•					•
<i>Sargocentron ittodai</i> (Jordan and Fowler,1903)	•						
<i>Sargocentron praslin</i> (Lecepede, 1802)	•						
<i>Sargocentron punctatissimum</i> (Cuvier)							•
<i>Sargocentron rubrum</i> (Forsskal, 1775)	•		•				
<i>Holocentrus lacteoguttatus</i> Cuvier	•						
<i>Ostichthys japonicus</i> (Cuvier)	•						
<b>FAMILY: PSEUDOGRAMMIDAE</b>							
<i>Pseudogramma polyacantha</i> (Bleeker)							•
<b>FAMILY: POLYMIXIIDAE</b>							
<i>Polymixia japonicus</i> Gunther	•						
<b>ORDER : PEGASIFORMES</b>							
<b>FAMILY : PEGASIDAE</b>							
<i>Eurypegasus draconis</i> (Linnaeus)	•						
<i>Pegasus volitans</i> Linnaeus, 1758		•					
<b>ORDER: ZEIFORMES</b>							
<b>FAMILY: CAPROIDAE</b>							
<i>Antigonia rubescens</i> (Gunther)			•				
<b>ORDER : SYNGNATHIFORMES</b>							
<b>FAMILY : FISTULARIIDAE</b>							
<i>Fistularia commersonii</i> Ruppell, 1838	•	•	•				
<i>Fistularia petimba</i> Lacepede, 1803	•	•	•			•	•
<b>FAMILY : CENTRISCIDAE</b>							
<i>Aeoliscus strigatus</i> (Gunther, 1861)	•	•					
<i>Centriscus scutatus</i> Linnaeus, 1753	•	•					
<b>FAMILY: SOLENOSTOMIDAE</b>							
<i>Solenostomus cyanopterus</i> Bleeker,1854	•						
<i>Solenostomus paradoxus</i> (Pallas, 1870)	•						
<b>FAMILY : SYNGNATHIDAE</b>							
<i>Acventronura garcillima</i> (Schlegel)	•						
<i>Bhanotia fasciolata</i> (Dumeril)	•						
<i>Choeroichthys sculptus</i>	•	•					•
<i>Choeroichthys haemotopterus</i> (Bleeker, 1851)	•						
<i>Choeroichthys intestinalis</i>		•					•
<i>Doryichthys martensi</i> (Peters, 1869)	•	•					
<i>Doryramphys dactyliophorus</i> (Bleeker, 1853)	•	•					
<i>Doryramphus excisus excisus</i> Kaup, 1856	•	•					
<i>Halicampus koilomatodon</i> (Bleeker, 1858)	•		•				
<i>Halicampus matafae</i> (Jordan and Seale, 1906)	•	•					
<i>Hippichthys cyanospilos</i> (Bleeker, 1854)		•	•			•	
<i>Hippichthys heptagonus</i> Bleeker, 1849	•	•					
<i>Hippichthys spicifer</i> (Ruppell, 1838)	•	•	•				
<i>Hippocampus branchyrrhynchus</i> Dunker, 1914					•		
<i>Hippocampus hystrix</i> Kaup					•		
<i>Hippocampus kuda</i> Bleeker, 1852	•	•	•			•	
<i>Hippocampus trimaculatus</i> Leach	•						
<i>Ichthyocampus carce</i> (Hamilton- Buchanan)					•	•	

<i>Micrognathus brevisrostris</i>		•					
<i>Microphis brachyurus</i> (Bleeker, 1853)	•	•	•				
<i>Microphis cuncalus</i> (Hamilton, 1822)		•		•	•		
<i>Microphis deocata</i> (Hamilton)				•			
<i>Microphis insularis</i> (Hora)	•						
<i>Phoxocampus tetropthalmus</i> (Bleeker, 1858)	•	•					
<i>Syngnathoides biaculeatus</i> (Bloch, 1785)		•					
<i>Trachyrhamphus longirostris</i> Kaup, 1856		•			•		
<i>Trachyrhamphus serratus</i> (Schlegel, 1847)		•	•			•	
<b>FAMILY: SYNBRANCHIDAE</b>							
<i>Ophisternon bengalense</i> Mc Clelland, 1845				•			
<b>FAMILY: SYNANCEIIDAE</b>							
<i>Trachicephalus uranoscopus</i> (Bloch & Schneider)					•		
<b>ORDER: DACTYLOPTERIFORMES</b>							
<b>FAMILY: DACTYLOPTERIDAE</b>							
<i>Dactyloptena macracanthus</i> (Bleeker, 1854)							
<i>Dactyloptena orientalis</i> (Cuvier, 1829)	•	•	•				
<b>ORDER: SCORPAENIFORMES</b>							
<b>FAMILY: SCORPAENIDAE</b>							
<i>Ablabys macracanthus</i> (Bleeker)	•						
<i>Ablabys taenianotus</i> (Cuvier)	•						
<i>Amblyapistus taenionotus</i>					•		
<i>Apistes carinatus</i> (Bloch & Schneider, 1801)		•	•				
<i>Centropogon indicus</i> Day, 1875		•					
<i>Choridactylus multibarbus</i> Richardson, 1848	•	•	•				
<i>Dendrochirus brachypterus</i> (Cuvier, 1829)	•	•					
<i>Dendrochirus zebra</i> (Cuvier, 1829)	•	•					•
<i>Gymnapistes dracaena</i>		•					
<i>Minous monodactylus</i> (Bloch & Schneider, 1801)		•	•			•	
<i>Parascorpaena picta</i> (Cuvier, 1829)	•	•					
<i>Polycaulis uranoscopus</i> (Bloch & Schneider)					•		
<i>Pteroidichthys amboiensis</i> Bleeker, 1856		•					
<i>Pterois antennata</i> (Bloch, 1787)	•	•					
<i>Pterois miles</i> (Bennett, 1828)		•					
<i>Pterois mombasae</i> (Smith, 1957)		•	•				
<i>Pterosis radiata</i> Cuvier, 1829	•	•					
<i>Pterois russellii</i> (Bennett, 1831)		•	•			•	
<i>Pterois volitans</i> (Linnaeus, 1758)	•	•	•			•	•
<i>Scorpaena neglecta</i> Temnick & Schlegel	•						
<i>Scorpaenodes guamensis</i> Quoy and Gaimard	•	•					•
<i>Scorpaenodes cirrhosa</i> (Thunberg, 1793)	•	•					
<i>Scorpaenodes gibbosa</i> Bloch and Schneider, 1801)		•					•
<i>Scorpaenodes smithi</i> Eschemeyer & Rao	•						
<i>Scorpaenopsis roseus</i> (Day, 1867)		•					
<i>Scorpaenopsis venosa</i> (Cuvier)	•						
<i>Sebastapistes rhodochrous</i> (Gunther)	•						
<i>Sebastapistes strongia</i> (Cuvier, 1829)	•	•					•
<i>Seterches guentheri</i> Johnson	•						
<i>Seterches longimanus</i> (Alcock)	•						
<i>Synanceia verrucosa</i> Bloch & Schneider			•				
<i>Trachicephalus uranoscopus</i> (Bl. & Schn., 1801)		•	•				

<i>Vespicola depressiformis</i> (Richardson,1848)	•						
<i>Vespicola trachinoides</i> (Cuvier, 1829)	•						
<i>Tetraroge barbata</i> (Cuvier,1829)	•						
<i>Tetraroge niger</i> (Cuvier,1829)	•						
<b>FAMILY: SYNANCEIIDAE</b>							
<i>Cocotropus echinatus</i> (Cantor)	•						
<i>Cocotropus steinitzi</i> Eschmeyer & Dor	•						
<i>Inimicus didactylus</i> (pallas,1769)							•
<i>Polycaulus uranoscopus</i> Bloch and Schneider,1801			•				
<i>Synanceia verrucosa</i> Bloch and Schneider, 1801			•				
<i>Xenoploactis cautes</i> Poss & Eschmeyer	•						
<b>FAMILY: CARACANTHIDAE</b>							
<i>Caracanthus unipinna</i> (Gray)	•						•
<i>Caracanthus madagascarensis</i> (Guichenot)							•
<b>FAMILY: DIODONTIDAE</b>							
<i>Diodon holocanthus</i> Linnaeus, 1758	•						
<i>Diodon hystrix</i> Linnaeus, 1758	•		•			•	
<i>Diodon liturosus</i> Shaw, 1804	•						•
<i>Lophodiodon calori</i> (Bianconi)							
<b>FAMILY: CANTHIGASTERIDAE</b>							
<i>Canthigaster margaritotus</i> (Ruppell)							•
<b>FAMILY : TETRAROGIDAE</b>							
<i>Tetraroge niger</i> (Cuvier, 1829)			•				
<b>FAMILY : APLOACTINIDAE</b>							
<i>Cocotropus roseus</i> Day, 1875	•	•					
<b>FAMILY : TRIGLIDAE</b>							
<i>Lepidotrigla omanensis</i> Regan, 1905			•				
<i>Lepidotrigla riggsi</i> Richards & Saksena, 1977			•				
<i>Lepidotrigla spiloptera</i> Gunther, 1880			•				
<b>FAMILY : PLATYCEPHALIDAE</b>							
<i>Cociella crocodila</i> (Tilseus, 1812)	•	•	•				•
<i>Grammoplites scaber</i> (Linnaeus, 1758)	•	•	•				
<i>Grammoplites suppositus</i> (Troschel, 1840)			•				•
<i>Inegocia japonica</i> (Tilseus, 1820)			•				
<i>Onigocia oligolepis</i> (Regan, 1908)	•	•					
<i>Platycephalus bengalensis</i> Visweswara Rao				•	•		
<i>Platycephalus crocodiles</i> Tilesius			•				•
<i>Platycephalus cantor</i> Bleeker				•			
<i>Platycephalus indicus</i> (Linnaeus, 1758)	•	•	•	•	•	•	
<i>Platycephalus insidiator</i> (Forsskal)						•	
<i>Platycephalus scaber</i> (Linnaeus, 1758)		•	•			•	•
<i>Rogadius asperi</i> (Cuvier & Valenciennes)				•		•	
<i>Rogadius pristiger</i> (Cuvier, 1829)	•						
<i>Sorsogona tuberculata</i> (Cuvier, 1829)	•	•	•				
<i>Suggrundus bengalensis</i> (Visweswara-Rao,1966)			•				
<i>Suggrundus rodericensis</i> (Cuvier, 1829)			•	•		•	•
<i>Thysanophrys celebica</i> (Bleeker, 1854)			•				
<i>Thysanophrys carbunculus</i> (Valenciennes, 1833)			•				
<i>Trachicephalus uranoscopus</i> (Bloch & Schneider)			•			•	

ORDER: PERCIFORMES						
FAMILY: CENTROPOMIDAE						
<i>Lates calcarifer</i> (Bloch, 1790)		•	•		•	
<i>Psammoperca waigiensis</i> (Cuvier)		•				•
FAMILY AMBASSIDAE						
<i>Ambassis buton</i> Popta	•					
<i>Ambassis buruensis</i> Bleeker, 1852	•	•				
<i>Ambassis commersoni</i> Cuvier, 1828	•	•	•			
<i>Ambassis dayi</i> Bleeker, 1874		•				
<i>Ambassis dussumieri</i> Cuvier	•					
<i>Ambassis gymnocephalus</i> (Lacepede, 1802)	•	•	•			•
<i>Ambassis interruptus</i> Bleeker, 1852	•	•				
<i>Ambassis kopsii</i> Bleeker, 1858	•		•			
<i>Ambassis miops</i> Gunther, 1871	•	•	•			
<i>Ambassis nalua</i> (Hamilton- Buchanan)	•				•	
<i>Ambassis urotaenia</i> Bleeker, 1852	•	•				
<i>Lates calcarifer</i> (Bloch)			•			
<i>Psammoperca waigiensis</i> (Cuvier)			•			
<i>Pseudoambassis ranga</i> (Hamilton, 1822)			•			
FAMILY : SERRANIDAE						
<i>Aethaloperca rogae</i> (Forsskal, 1775)		•				
<i>Anthias squamipinnis</i> Peters, 1855	•	•				
<i>Anyperodon leucogrammicus</i> (Valenciennes,1828)		•				•
<i>Centrogenys vaigiensis</i> (Cuvier & Gaimard)	•					
<i>Cephalopholis argus</i>	•	•				
<i>Cephalopholis boenack</i>	•	•				
<i>Cephalopholis cyanostigma</i> (Valenciennes,1828)		•				•
<i>Cephalopholis formosa</i> (Shaw & Nodder, 1812)	•	•	•		•	
<i>Cephalopholis leopardus</i> (Lacepede)	•					
<i>Cephalopholis microprius</i> (Bleeker,1852)	•	•				
<i>Cephalopholis miniata</i>	•	•				
<i>Cephalopholis pachycentron</i>		•				
<i>Cephalopholis sonnerati</i> (Valenciennes, 1828)	•	•				
<i>Cephalopholis urodeta</i> (Forster, 1801)	•	•				
<i>Chromileptes altivelis</i> (Valenciennes,1829)	•	•				
<i>Epinephelus areolatus</i> (Forsskal, 1775)	•	•			•	
<i>Epinephelus bleekeri</i> (Valliant)	•		•			
<i>Epinephelus chlorostigma</i> (Valenciennes)	•					
<i>Epinephelus caeruleopunctatus</i> (Bloch,1790)	•	•	•			
<i>Epinephelus coioides</i> (Hamilton, 1822)	•	•	•			
<i>Epinephelus chlorostigma</i> (Valenciennes)	•				•	
<i>Epinephelus diacanthus</i> (Valenciennes, 1828)	•	•	•		•	
<i>Epinephelus erythrurus</i> (Valenciennes, 1828)	•	•	•			
<i>Epinephelus flavocaeruleus</i> (Lacepede, 1802)	•	•				
<i>Epinephelus fario</i> (Thunberg)	•					
<i>Epinephelus fasciatus</i> (Forsskal, 1775)	•	•			•	
<i>Epinephelus fucoguttatus</i> Forskall,1775	•	•			•	
<i>Epinephelus hexagonus</i> (Schneider)	•					
<i>Epinephelus lanceolatus</i> (Bloch,1790)	•	•	•		•	
<i>Epinephelus latifasciatus</i> (Temminck & Schlegel, 1842)		•	•		•	•
<i>Epinephelus longispinis</i> (Kner, 1864)	•	•				

<i>Epinephelus macrospilos</i> (Bleeker, 1855)	•	•					
<i>Epinephelus malabaricus</i> (Schneider, 1801)	•	•	•		•	•	
<i>Epinephelus maculatus</i>		•				•	
<i>Epinephelus melanostigma</i> Schultz, 1953	•	•					
<i>Epinephelus megachir</i> (Richardson)	•						
<i>Epinephelus meliarius</i> (Valenciennes)	•						
<i>Epinephelus merra</i> Bloch, 1793	•	•				•	
<i>Epinephelus miniatus</i>		•					
<i>Epinephelus morrhua</i> (Valenciennes, 1833)	•	•					
<i>Epinephelus ongus</i> (Bloch, 1790)	•	•					
<i>Epinephelus quoyanus</i> (Valenciennes, 1830)	•	•					
<i>Epinephelus radiates</i> (Day)			•				
<i>Epinephelus sexfasciatus</i>		•				•	
<i>Epinephelus spilotoceps</i> Schultz, 1953	•	•					
<i>Epinephelus tauvina</i> (Forsskal)	•	•				•	
<i>Epinephelus undulosus</i> (Quoy & Gaimard, 1824)		•	•			•	
<i>Gaterin cinctum</i>						•	
<i>Gaterin picoides</i>						•	
<i>Promicrops lanceolatus</i> (Bloch)			•				
<i>Plectropomus maculatus</i> (Bloch, 1790)	•						
<i>Plectropomus pessuliferus</i> (Fowler, 1904)	•						
<i>Variola louti</i> (Forsskal, 1775)	•						
<b>FAMILY: GRAMMISTIDAE</b>							
<i>Aulacocephalus temmincki</i> Bleeker	•						
<i>Grammistes sexlineatus</i> (Thunberg, 1792)	•						
<b>FAMILY: PSEUDOCHROMIDAE</b>							
<i>Pseudochromis cyanotaenia</i> Bleeker, 1857	•						
<i>Pseudochromis fuscus</i> Muller & Troschel	•						
<i>Pseudochromis xanthochir</i> Bleeker	•						
<b>FAMILY: PLESIOPIDAE</b>							
<i>Plesiops coerulineolatus</i> Ruppell	•						•
<i>Plesiops corallicola</i> Bleeker, 1853	•						
<i>Plesiops melas</i> Bleeker	•						
<i>Plesiops oxycephalus</i> Bleeker	•						
<b>FAMILY: TERAPONIDAE</b>							
<i>Pelates quadrilineatus</i> (Bloch, 1790)	•	•	•				
<i>Terapon jarbua</i> (Forsskal, 1775)	•	•	•		•		
<i>Terapon puta</i> Cuvier, 1829	•	•	•		•		
<i>Terapon theraps</i> Cuvier, 1828		•	•		•		
<i>Variola louti</i>		•					
<b>FAMILY: KUHLIDAE</b>							
<i>Kuhlia mugil</i> Schneider, 1801			•			•	
<i>Kuhila rupestris</i> (Lacepede)			•				
<b>FAMILY: URANOSCOPIDAE</b>							
<i>Ichthyoscopus inermis</i> Cuvier				•			
<b>FAMILY: PRIACANTHIDAE</b>							
<i>Priacanthus blochii</i> Bleeker, 1853	•						
<i>Priacanthus cruentatus</i> Lacepede		•	•			•	
<i>Priacanthus hamrur</i> (Forsskal, 1775)		•	•				
<i>Priacanthus niphonia</i> (Cuvier)	•						
<i>Priacanthus tayenus</i> Richardson, 1846		•	•				
<b>FAMILY : APOGONIDAE</b>							

<i>Apogon aureus</i> (Lacepede, 1802)		•					
<i>Apogon bandanensis</i> Bleeker, 1854		•					
<i>Apogon coccineus</i> Ruppell, 1838	•	•					
<i>Apogon cookie</i> Macleay, 1881	•	•					
<i>Apogon cyanosoma</i> Bleeker, 1853	•	•					
<i>Apogon chrysotaenia</i> (Bleeker)	•						
<i>Apogon endekaenia</i> Bleeker, 1852	•	•					
<i>Apogon fragilis</i> Smith	•						
<i>Apogon fraenatus</i> Valenciennes, 1832	•	•					
<i>Apogon guamensis</i> Valenciennes, 1832	•	•					
<i>Apogon hyalosoma</i> Bleeker, 1852	•	•					
<i>Apogon kallosoma</i> Bleeker, 1852		•					
<i>Apogon lateralis</i> (Valenciennes)	•				•		
<i>Apogon leptacanthus</i> Bleeker		•					•
<i>Apogon multitaeniatus</i> Ehrenberg, 1828		•					
<i>Apogon nigricans</i> Day, 1875		•					
<i>Apogon nigripinnis</i> Cuvier, 1828		•	•				
<i>Apogon nitidus</i> (Smith)		•					•
<i>Apogon poecilopterus</i> Kuhl & Van Haselt			•				
<i>Apogon quadrifasciatus</i> Cuvier			•				
<i>Apogon sangiensis</i> Bleeker	•						
<i>Apogon (Nectamia) novemfasciatus</i> (Cuvier, 1828)	•						
<i>Apogon (Nectamia) quadrifasciatus</i> Cuvier, 1828		•					
<i>Apogon (Nectamia) taeniatus</i> Ehrenberg, 1828		•	•				
<i>Apogon trimaculatus</i> Cuvier, 1828	•	•					
<i>Apogon thurstoni</i> Day, 1888		•					
<i>Apogon tickelli</i> (Day)					•		
<i>Apogonichthys auritusi</i> (Valenciennes)	•						
<i>Apogonichthys ellioti</i> (Day, 1860)		•					
<i>Apogonichthys ocellatus</i> (Weber, 1913)		•					
<i>Apogonichthys perdix</i> Bleeker, 1854	•						
<i>Apogonichthys poecilopterus</i> (Kuhl & van Hasselt, 1828)	•	•					
<i>Archamia lineolata</i> (Ehrenberg, 1828)		•	•				
<i>Archamia fucata</i> (Cantor, 1850)	•						
<i>Cheilodipterus lachneri</i> Klausewitz							•
<i>Cheilodipterus lineatus</i> Lacepede, 1802	•						
<i>Cheilodipterus quinquelineatus</i> Cuvier, 1828	•						
<i>Fowleria aurita</i> (Valenciennes, 1831)					•		
<i>Fowleria punctata</i> (Ruppell, 1838)	•						
<i>Lepidamia multitaeniata</i> (Valenciennes)	•						
<i>Ostorhynchuvayensis endakatenia</i>							•
<i>Ostorhynchuvayensis moluccensis</i>							•
<i>Ostorhynchus novemfasciatus</i> (Valenciennes)	•						
<i>Sphaeramia orbicularis</i> (Kuhl and van Hasselt, 1828)	•						
<b>FAMILY : SILLAGINIDAE</b>							
<i>Sillago cho</i> Bleeker	•						
<i>Sillago chondropus</i> (Bleeker)		•	•			•	
<i>Sillago indica</i> Mckay, Dutt & Sujatha			•				
<i>Sillago ingenuua</i> Mckay			•				
<i>Sillago intermedius</i> Wongratana			•				

<i>Sillago lutea</i> McKay, 1985		•	•			
<i>Sillago maculatus</i> Quoy and Gaimard	•					
<i>Sillago sihama</i> (Forsskal, 1775)	•	•	•		•	
<i>Sillago soringa</i> Dutt & Sujatha, 1983		•	•			
<i>Sillago vincenti</i> (McKay, 1980)		•	•			
<i>Sillaginopodys chondropus</i> (Bleeker, 1849)						
<i>Sillaginopsis panijus</i> (Hamilton - Buchanan, 1822)			•		•	
<b>FAMILY : MALACANTHIIDAE</b>						
<i>Malacanthus brevirostris</i> (Guiche)						
<i>Malacanthus hoedtii</i> Bleeker	•					
<i>Malacanthus latovittatus</i> (Lacepede)	•					
<i>Hoplolatilus fronticinctus</i> (Gunther, 1887)		•				
<b>FAMILY : LACTARIIDAE</b>						
<i>Lactarius lactarius</i> (Gunther, 1887)	•	•	•		•	
<b>FAMILY : RACHYCENTRIDAE</b>						
<i>Rachycentrus canadus</i> (Linnaeus, 1766)		•	•			
<b>FAMILY : ECHENEIDAE</b>						
<i>Echeneis naucrates</i> Linnaeus, 1758		•	•		•	
<i>Echeneis remora</i> Linnaeus		•				•
<i>Remora brachyptera</i> (Lowe, 1839)		•				
<i>Remora remora</i> (Linnaeus)	•				•	
<b>FAMILY : CARANGIDAE</b>						
<i>Alectis ciliaris</i> (Bloch, 1788)		•	•			
<i>Alectis indica</i> (Ruppell, 1830)		•	•		•	
<i>Alectis vari</i> (Cuvier)			•		•	
<i>Alepes djedaba</i> (Forsskal, 1775)		•	•			
<i>Alepes melanoptera</i> Swainson, 1839	•	•	•			
<i>Alepes para</i> (Cuvier, 1833)		•				
<i>Atropus atropus</i> (Bloch, 1801)			•		•	
<i>Atule mate</i> (Cuvier, 1833)	•	•	•			
<i>Carangoides armatus</i> (Ruppell, 1830)		•	•			
<i>Carangoides caeruleopinnatus</i> (Ruppell, 1830)		•			•	
<i>Carangoides chrysopterygus</i> (Cuvier, 1833)	•	•	•			
<i>Carangoides dinema</i> (Bleeker, 1851)	•	•				
<i>Carangoides gymnotethus</i> (Cuvier, 1833)		•				
<i>Carangoides ferdau</i> (Forsskal)			•		•	
<i>Carangoides fulvoguttatus</i> (Forsskal)	•					
<i>Carangoides hedlandensis</i> (Whitley)					•	
<i>Carangoides malabaricus</i> (Bloch & Schneider, 1801)			•		•	
<i>Carangoides oblongus</i> (Cuvier, 1833)		•	•			
<i>Carangoides pinnatus</i> Ruppell, 1830		•				•
<i>Carangoides plagiotaenia</i> Bleeker	•					
<i>Carangoides praeustus</i> (Bennett, 1830)		•	•		•	
<i>Carangoides talamparoides</i> Bleeker, 1852	•	•	•			
<i>Caranx carangus</i> (Bloch, 1793)	•	•	•		•	
<i>Caranx ignobilis</i> (Forsskal, 1775)	•	•	•			
<i>Caranx melampygus</i> Cuvier, 1801	•	•	•			
<i>Caranx para</i> Cuvier, 1833		•	•			
<i>Carax papuensis</i> Alleyne & Macleay			•			
<i>Caranx sem</i> Cuvier, 1833		•	•			•
<i>Caranx sexfasciatus</i> Quoy & Gaimard, 1825		•	•		•	

<i>Decapterus macrosoma</i> Bleeker			•				
<i>Decapterus maruadsi</i> (Temminck & Schlegel)	•						
<i>Decapterus russelli</i> (Ruppell, 1828)	•	•	•				
<i>Elagatis bipinnulatus</i> (Quoy & Gaimard, 1824)		•	•				
<i>Gnathedon speciosus</i> Forskall, 1775		•	•				•
<i>Megalaspis cordyla</i> (Linnaeus, 1758)		•	•	•	•		
<i>Naucrates doctor</i> (Linnaeus)			•		•		
<i>Parastromateus niger</i> (Bloch, 1795)	•	•	•				
<i>Scomberoides commersonnianus</i> Lacepede			•				
<i>Scomberoides lysan</i> (Forsskal, 1775)		•	•	•	•		
<i>Scomberoides sanctipetri</i>		•				•	
<i>Scomberoides tala</i> (Cuvier, 1831)		•	•	•	•		
<i>Scomberoides tol</i> (Cuvier, 1832)		•	•				
<i>Selar poops</i> (Cuvier, 1833)	•	•	•				
<i>Selar crumenophthalmus</i> (Bloch, 1793)	•	•	•				
<i>Seriola rivoliana</i> Valenciennes	•						
<i>Selaroides leptolepis</i> (Cuvier, 1833)		•	•				
<i>Seriolina nigrofasciata</i> (Ruppell, 1828)		•	•				
<i>Trachinotus bailloni</i> Lacepede, 1801	•	•	•				
<i>Trachinotus blochii</i> (Valenciennes, 1835)			•				
<i>Trachinotus mookalee</i> Cuvier, 1832		•					
<i>Ulua mentalis</i> (Cuvier)			•				
<i>Uraspis helvola</i> (Forster)			•				
<i>Uraspis uraspis</i> (Gunther)			•				
<b>FAMILY: MENIDAE</b>							
<i>Mene aculate</i> (Bloch, 1801)	•		•		•		
<b>FAMILY : CORYPHAENIDAE</b>							
<i>Corphaena equestris</i> Linnaeus, 1758		•				•	
<i>Coryphaena hippurus</i> Linnaeus, 1758	•		•		•		
<b>FAMILY : LEIOGNATHIDAE</b>							
<i>Gazza aklamys</i> Jordan & Starks	•						
<i>Gazza minuta</i> (Bloch, 1797)	•		•	•	•		
<i>Leiognathus berbis</i> (Valenciennes, 1835)	•	•	•				
<i>Leiognathus bindus</i> (Valenciennes, 1835)		•	•	•	•		
<i>Leiognathus blochii</i> (Valenciennes, 1835)	•	•		•	•		
<i>Leiognathus brevirostris</i> (Valenciennes, 1835)		•	•	•	•		
<i>Leiognathus daura</i> (Cuvier, 1829)	•	•	•				
<i>Leiognathus decorus</i> (de Vis)	•						
<i>Leiognathus dussumieri</i> (Valenciennes, 1835)	•	•	•		•		
<i>Leiognathus equulus</i> (Forsskal, 1775)		•	•		•		
<i>Leiognathus elongatus</i> Gunther		•				•	
<i>Leiognathus fasciatus</i> (Lacepede, 1803)		•	•		•		
<i>Leiognathus jonesi</i> James, 1971	•	•					
<i>Leiognathus leuciscus</i> (Gunther, 1860)	•	•	•				
<i>Leiognathus lineolatus</i> (Valenciennes, 1835)	•	•	•				
<i>Leiognathus longispinis</i> (Valenciennes, 1835)	•	•					
<i>Leiognathus smithursti</i> (Ramsay & Ogilby)			•				
<i>Leiognathus splendens</i> (Cuvier, 1829)		•	•				
<i>Leiognathus striatus</i> James & Badruddin, 1991				•			
<i>Macilenticichthys indicus</i> (Singh & Talwar)	•						
<i>Secutor insidator</i> (Bloch, 1787)		•	•		•		
<i>Secutor ruconius</i> (Hamilton, 1822)		•	•		•		
<b>FAMILY : BRAMIDAE</b>							

<i>Steinegeria rubescens</i> Jordan and Evermann,1887		•					
<b>FAMILY : LUTJANIDAE</b>							
<i>Aphareus furcatus</i> Lacepede		•	•				•
<i>Aphareus rutilans</i> (Cuvier,1830)	•	•	•				
<i>Aprion virescens</i> Valenciennes	•	•	•		•		•
<i>Etelis carbunculus</i> Cuvier			•				
<i>Etelis coruscans</i> Valenciennes			•				
<i>Lepidocheilus carnolabrum</i> (Chan)	•		•				•
<i>Lutjanus argentimaculatus</i> (Forsskal, 1775)	•	•	•				•
<i>Lutjanus biguttatus</i> (Valenciennes, 1833)	•	•	•				
<i>Lutjanus bengalensis</i> (Bloch)	•		•		•		
<i>Lutjanus bohar</i> (Forsskal, 1775)	•	•	•				•
<i>Lutjanus bouton</i> (Lacepede)	•						
<i>Lutjanus carponotatus</i> (Richardson)	•		•				
<i>Lutjanus decussates</i> (Cuvier, 1828)	•	•	•				
<i>Lutjanus ehrenbergii</i> (Peters)			•				
<i>Lutjanus erythropterus</i> Bloch,1790	•	•	•				
<i>Lutjanus fulviflammus</i> (Forsskal, 1775)	•	•	•		•		•
<i>Lutjanus fulvus</i> (Schneider, 1801)	•	•	•				•
<i>Lutjanus gibbus</i> Forskal,1775	•	•	•				•
<i>Lutjanus guilcheri</i> Forurmanoir	•						
<i>Lutjanus johni</i> (Bloch, 1792)	•	•	•		•		•
<i>Lutjanus kasmira</i> (Forsskal, 1775)	•	•	•				•
<i>Lutjanus lemmiscatus</i> (Valenciennes, 1828)	•	•	•				•
<i>Lutjanus lunulatus</i> Mangopark,1797	•	•	•				•
<i>Lutjanus lutjanus</i> Bloch, 1790		•	•				
<i>Lutjanus madras</i> (Valenciennes, 1831)	•	•	•				
<i>Lutjanus malabaricus</i> (Schneider, 1802)	•	•	•				•
<i>Lutjanus monostigma</i> Cuvier,1828	•	•	•				•
<i>Lutjanus quinquelineatus</i> (Bloch, 1849)	•		•				
<i>Lutjanus rivulatus</i> (Cuvier, 1828)	•	•	•				•
<i>Lutjanus russelli</i> (Bleeker, 1849)	•	•	•				•
<i>Lutjanus sanguineus</i> (Cuvier, 1828)		•					•
<i>Lutjanus sebae</i> (Cuvier, 1828)		•	•				•
<i>Lutjanus vittus</i> (Quoy & Gaimard, 1845)		•	•				
<i>Macolar niger</i> Forskal,1775			•				•
<i>Paracaesio sordidus</i> Abe & Shinohara	•						
<i>Paracaesio xanthura</i> (Bleeker)	•		•				
<i>Pinjalo pinjalo</i> (Bleeker)	•		•				•
<i>Pristipomoides filamentosus</i> Valenciennes			•				•
<i>Pristipomoides multidentis</i> (Day)	•		•				•
<i>Pristipomoides sieboldii</i> (Bleeker)	•		•				
<i>Pristipomoides typus</i> Bleeker	•						
<i>Pristipomoides zonatus</i> (Valenciennes)			•				
<b>FAMILY: CAESIONIDAE</b>							
<i>Caesio caeruleus</i> Lacepede, 1801			•	•			•
<i>Caesio cuning</i> (Bloch, 1791)	•		•				
<i>Caesio lunaris</i> Cuvier,1830	•		•				
<i>Caesio tares</i> (Seale)			•				
<i>Caesio xanthonota</i> (Bleeker,1856)	•		•				
<i>Diptergnotus balteatus</i> (valenciennes,1830)	•		•				
<i>Gymnoaesio gymnoptera</i> (Bleeker,1830)	•		•				

<i>Pterocaesio chrysozona</i> (Cuvier 1830)	•		•				
<i>Pterocaesio pisang</i>	•		•				
<i>Pterocaesio tessellate</i> Carpenter, 1987	•		•				
<i>Pterocaesio tile</i> (Cuvier, 1830)	•		•				
<b>FAMILY: LOBOTIDAE</b>							
<i>Datinoides quadrifasciatusi</i> (Sevastianov)					•		
<i>Lobotes surinamensis</i> (Bloch, 1790)	•		•			•	
<b>FAMILY : GERREIDAE</b>							
<i>Gerres abbreviatus</i> Bleeker, 1850	•	•	•			•	
<i>Gerres acinaces</i> Bleeker, 1854	•		•				
<i>Gerres filamentosus</i> Cuvier, 1829	•	•	•	•	•	•	
<i>Gerres limbatus</i> Cuvier, 1830		•		•			
<i>Gerres lucidus</i> Cuvier, 1830	•	•	•				
<i>Gerres macracanthus</i> Bleeker, 1854		•	•			•	
<i>Gerres oblongus</i> Cuvier, 1830	•	•	•	•		•	
<i>Gerres oyena</i> (Forsskal, 1775)		•	•				
<i>Gerres poeti</i> Cuvier, 1829	•	•	•			•	
<i>Gerrormorpha setifer</i> (Hamilton - Buchanan, 1822)	•	•	•		•	•	
<i>Pentaptrion longimanus</i> (Cantor, 1850)		•	•		•	•	
<b>FAMILY : POMADASYIDAE</b>							
<i>Diagramma pictum</i> (Thunberg, 1795)		•	•			•	
<i>Plectorhinchus chaetodonoides</i> Lacepede, 1800	•	•					
<i>Plectorhinchus cuvieri</i> (Bennett, 1830)		•					
<i>Plectorhinchus gruseus</i> Cuvier		•	•			•	
<i>Plectorhinchus diagrammus</i> (Linnaeus)	•						
<i>Plectorhinchus gibbosus</i> (Lacepede, 1802)	•	•	•			•	
<i>Plectorhinchus nigrus</i> (Cuvier)				•			
<i>Plectorhinchus orientalis</i> (Bloch, 1793)	•	•	•			•	
<i>Plectorhinchus pictus</i> (Thunberg, 1792)		•	•			•	
<i>Plectorhinchus polytaenia</i> Bleeker		•	•			•	
<i>Plectorhinchus rayi</i> (Menon & Talwar)	•					•	
<i>Plectorhinchus schotaf</i> Forsskal, 1775		•	•			•	
<i>Pomadasys argenteus</i> (Forsskal, 1775)	•	•	•	•	•	•	
<i>Pomadasys argyreus</i> (Valenciennes, 1833)	•	•	•			•	
<i>Pomadasys commersonni</i> (Lacepede)			•				
<i>Pomadasys furcatus</i> (Schneider, 1801)	•	•	•			•	
<i>Pomadasys jubelini</i> (Cuvier)		•				•	
<i>Pomadasys hasta</i> (Bloch)					•		
<i>Pomadasys kaakan</i> (Cuvier, 1830)	•	•	•	•		•	
<i>Pomadasys maculatum</i> (Bloch, 1797)	•	•	•	•	•	•	
<i>Pomadasys multimaculatum</i> Playfair						•	
<i>Pomadasys olivaceum</i> (Day, 1875)			•			•	
<b>FAMILY : SPARIDAE</b>							
<i>Acanthopargus berda</i> (Forsskal, 1775)	•	•	•	•	•	•	
<i>Acanthopargus bifasciatus</i> Forsskal		•	•			•	
<i>Acanthopargus latus</i> (Houttuyn, 1782)		•	•	•	•	•	
<i>Argyrops spinifer</i> (Forsskal, 1775)		•	•			•	
<i>Chrysophrys berda</i>		•				•	
<i>Chrysophrys datuia</i>		•				•	
<i>Chrysophrys sarba</i>		•				•	
<i>Crenidens crenidens</i> (Forsskal, 1775)		•				•	
<i>Crenidens forsskalii</i>		•				•	

<i>Crenidens indicus</i>			•				•	
<i>Rhabdosargus sarba</i> (Forsskal, 1775)			•	•			•	
<i>Sargus noct</i>			•				•	
<i>Sparidentex hasta</i> (Valenciennes)							•	
<b>FAMILY : LETHRINIDAE</b>								
<i>Gnathodentex aurolineatus</i> (Lacepede)				•				
<i>Gymnocranius elongates</i> Senta, 1973			•	•				
<i>Gymnocranius griseus</i> (Schlegel)	•							
<i>Gymnocranius grandoculis</i> (Valenciennes)	•			•				
<i>Lethrinus mahsena</i> (Forsskal, 1775)	•							
<i>Lethrinus nebulosus</i> (Forsskal, 1775)			•				•	
<i>Lethrinus barbonicus</i> Valenciennes, 1830	•							
<i>Lethrinus freanatus</i> (Valenciennes, 1830)							•	
<i>Lethrinus harak</i> (Forsskal)	•							
<i>Lethrinus mahsena</i> (Forsskal, 1775)	•							
<i>Lethrinus microdon</i> Valenciennes, 1830	•							
<i>Lethrinus miniatus</i>							•	
<i>Lethrinus obsoletus</i> ((Forsskal,1775)							•	
<i>Lethrinus ornatus</i> Valenciennes, 1830	•						•	
<i>Lethrinus xanthochilus</i> Kluzinger	•							
<i>Lethrinus ramak</i> (Forsskal)							•	
<i>Monotaxis grandoculis</i> (Forsskal)				•				
<i>Wattsia mossambica</i> (Smith)				•				
<b>FAMILY: PENTAPODIDAE</b>								
<i>Gnathodentex aurolineatus</i> (Forsskal)							•	
<b>FAMILY : NEMIPTERIDAE</b>								
<i>Nemipterus bipunctatus</i> (Ehrenberg, 1830)			•	•				
<i>Nemipterus bleekeri</i> , (Day, 1875)	•	•						
<i>Nemipterus japonicus</i> (Bloch, 1791)	•	•	•				•	
<i>Nemipterus luteus</i> (Schneider, 1801)	•	•						
<i>Nemipterus nematophorus</i> (Bleeker,1853)		•	•				•	
<i>Nemipterus hexodon</i> (Cuvier & Gaimard)		•					•	
<i>Nemipterus mesoprion</i> (Bleeker)		•						
<i>Nemipterus metopias</i> (Bleeker,1852)		•						
<i>Nemipterus nematophorus</i> (Bleeker, 1853)		•						
<i>Nemipterus nemurus</i> (Bleeker)		•						
<i>Nemipterus peronii</i> (Valenciennes, 1830)	•	•	•					
<i>Nemipterus randalli</i> Ruppell, 1986	•	•	•				•	
<i>Nemipterus tolu</i> (Valenciennes, 1830)	•	•						
<i>Nemipterus zysron</i> Bleeker		•	•				•	
<i>Parascolopsis aspinosa</i> (Rao&Rao)			•					
<i>Parascolopsis boesemani</i> (Rao&Rao)			•					
<i>Parascolopsis inermis</i> (Schlegel)			•					
<i>Scolopsis bilineatus</i> (Bloch, 1793)	•	•						
<i>Scolopsis bimaculatus</i> Ruppell, 1828	•	•	•					
<i>Scolopsis cancellatus</i> Valenciennes,1820	•	•						
<i>Scolopsis ciliatus</i> (Lacepede, 1802)	•	•						
<i>Scolopsis dubiosus</i> Weber, 1913	•	•						
<i>Scolopsis freenatus</i> (Cuvier)	•	•						
<i>Scolopsis ghanam</i> (Forsskal)	•							
<i>Scolopsis leucotaenia</i> Bleeker, 1852	•	•						
<i>Scolopsis maeagratisfer</i> (Valenciennes, 1830)	•	•						
<i>Scolopsis personatus</i> (Cuvier, 1830)	•	•						

<i>Scolopsis taeniatus</i> Eherenberg			•				•	
<i>Scolopsis vosmeri</i> (Bloch, 1792)			•	•			•	
<i>Scolopsis xanochrorus</i> Gunther	•							
<b>FAMILY : SCIAENIDAE</b>								
<i>Atrobucca nibe</i> (Jordan & Thompson)	•			•				
<i>Atrobucca trewavase</i> Talwar & Sathirajan, 1974	•							
<i>Bhaba chapis</i> (Hamilton - Buchanan, 1822)			•					
<i>Chrysochir aureus</i> (Richardson, 1846)	•			•				
<i>Daysciaena albida</i> (Cuvier, 1830)								
<i>Dendrophysa russelli</i> (Cuvier, 1830)	•	•	•	•			•	
<i>Johnieops aneus</i> (Bloch, 1793)				•			•	
<i>Johnieops caruona</i> (Cuvier, 1830)				•			•	
<i>Johnieops dussumieri</i> (Cuvier, 1830)		•	•				•	•
<i>Johnieops macrorhynchus</i> Mohan, 1976		•	•	•	•		•	
<i>Johnieops mannarensis</i> Mohan, 1969		•	•					
<i>Johnieops sina</i> (Cuvier, 1830)		•	•	•			•	
<i>Johnieops vogleri</i> Bleeker, 1853		•	•				•	
<i>Johnius amblycephalus</i> (Bleeker, 1855)	•	•						
<i>Johnius belangeriis</i> (Cuvier, 1830)		•	•				•	
<i>Johnius carouna</i> (Cuvier)			•	•				
<i>Johnius carutta</i> Bloch, 1793		•	•	•			•	
<i>Johnius coitor</i> (Hamilton, 1822)		•	•				•	
<i>Johnius dussumieri</i> (Valenciennes, 1833)	•	•	•				•	•
<i>Johntus elongatus</i> Mohan			•					
<i>Johnius glaucus</i> day, 1876		•					•	
<i>Johnius macrorhynchus</i> (Mohan)	•	•	•	•				
<i>Johnius macropterus</i> (Cuvier, 1830)		•		•				
<i>Johnius sina</i> (Cuvier, 1830)		•	•	•			•	
<i>Johnius volgeri</i> (Bleeker)	•	•	•				•	
<i>Macrospinosa cuja</i> (Hamilton - Buchanan, 1822)							•	
<i>Pama heterolepis</i> Trewavas, 1977		•					•	
<i>Pama pama</i> (Hamilton - Buchanan, 1822)					•			
<i>Pterolithus maculatus</i> (Kuhl & van Hasselt)					•	•	•	
<i>Kathala axillaris</i> (Cuvier, 1830)		•	•				•	
<i>Nibeia albida</i> (Cuvier)				•				
<i>Nibeia maculata</i> (Schneider, 1801)		•	•	•			•	
<i>Nibeia soldado</i> (Lacepede, 1802)		•	•				•	•
<i>Macrospinosa cuja</i> (Hamilton- Buchanan, 1822)							•	
<i>Otolithes argenteus</i>		•						•
<i>Otolithes cuvieri</i> Trewavas, 1974		•	•					•
<i>Otolithes ruber</i> (Schneider, 1801)	•	•	•					•
<i>Otolithes maculatus</i>		•						•
<i>Otolithoides biaurtius</i> (Cantor)		•	•					•
<i>Otolithoides brunneus</i>		•						•
<i>Pama pama</i> (Hamilton - Buchanan, 1822)					•	•		
<i>Panna microdon</i> (Bleeker, 1849)		•	•					
<i>Paranbea semiluctuosa</i> Cuvier, 1830		•	•					•
<i>Pennahia macrophthalmus</i> (Bleeker, 1850)	•	•	•				•	•
<i>Protonibeia diacanthus</i> (Lacepede, 1802)		•	•				•	•
<i>Pseudosciaena ciobor</i> (Hamilton)							•	
<i>Pseudosciaena soldado</i> (Lacepede)				•			•	
<i>Pterolithus maculatus</i> (Cuvier)		•	•					•

FAMILY : MULLIDAE							
<i>Mulloides flavolineatus</i> Lacepede, 1802	•	•				•	•
<i>Mulloides vanicolensis</i> (Valenciennes, 1831)		•	•		•	•	•
<i>Mulloidichthys fulvilineatus</i> Lacepede, 1802	•	•	•		•	•	•
<i>Mulloidichthys vanicolensis</i> (Valenciennes)			•				
<i>Parupeneus barbarinus</i> (Lacepede, 1801)	•	•	•			•	•
<i>Parupeneus bifasciatus</i> (Lacepede, 1801)		•	•			•	•
<i>Parupeneus cinnabarinus</i> (Cuvier, 1829)	•	•				•	
<i>Parupeneus heptacanthus</i> (Lacepede)			•				
<i>Parupeneus cyclostomus</i> (Lacepede, 1801)	•	•	•				
<i>Parupeneus indicus</i> (Shaw, 1803)	•	•	•		•	•	
<i>Parupeneus macronema</i> (Lacepede)	•	•	•				•
<i>Parupeneus pleurostigma</i> (Bennett, 1831)	•	•					
<i>Parupeneus rubescens</i> (Lacepede)	•	•					
<i>Parupeneus trifasciatus</i>		•					
<i>Upeneus bensasi</i> (Temminck & Schlegel, 1842)		•	•			•	
<i>Upeneus displurus</i>		•					
<i>Upeneus luzonius</i> Jordan & Seale, 1907		•					
<i>Upeneus moluccensis</i> (Bleeker, 1855)	•	•	•			•	
<i>Upeneus oligospilus</i>	•	•					
<i>Upeneus sulphureus</i> Cuvier, 1829	•	•	•			•	•
<i>Upeneus sundaicus</i> Bleeker	•	•	•			•	
<i>Upeneus taeniopterus</i> Cuvier, 1829		•	•				
<i>Upeneus tragula</i> Richardson, 1846	•	•	•			•	•
<i>Upeneus vittatus</i> (Forsskal, 1775)	•	•	•			•	•
FAMILY: MONODACTYLIDAE							
<i>Monodactylus argenteus</i> (Linnaeus, 1758)	•	•				•	•
FAMILY: BATHYCLUPEIDAE							
<i>Bathyclupea hoskynii</i> Alcock		•		•			
FAMILY: KYPHOSIDAE							
<i>Kyphosus cinerascens</i> (Forsk., 1775)			•			•	•
<i>Kyphosus lembus</i> (Cuvier, 1831)	•						
<i>Kyphosus vaigiensis</i> (Cuvier & Gaimard)		•					•
FAMILY: PEMPHERIDIDAE							
<i>Pempheris moluca</i> Cuvier, 1831	•	•					
<i>Pempheris oualensis</i> Cuvier, 1831	•						
<i>Pempheris vanicolensis</i> (Cuvier)	•						•
FAMILY: TOXOTIDAE							
<i>Toxotes chatareus</i> (Han-Buch., 1822)	•						
<i>Toxotes jaculator</i> (Pallas, 1766)	•						
FAMILY: EPHIPPIDIDAE							
<i>Ephippus orbis</i> (Bloch, 1787)	•	•	•				
<i>Triopterodon orbis</i> Playfair							
FAMILY : PLATACIDAE							
<i>Platax orbicularis</i> (Forsskal, 1775)	•	•	•				
<i>Platax pinnatus</i> (Linnaeus, 1758)	•	•	•			•	
<i>Platax teira</i> (Forsskal, 1775)							•
FAMILY : DREPANIDAE							
<i>Drepane longimanus</i> (Bloch & Schneider, 1801)	•	•	•	•			
<i>Drepane punctatus</i> (Linnaeus, 1758)	•	•	•			•	
FAMILY : SCATOPHAGIDAE							
<i>Scatophagus argus</i> (Bloch, 1766)	•	•	•		•	•	
FAMILY : CHAETODONTIDAE							

<i>Chaetodon auriga</i>	•	•			•		•
<i>Chaetodon citrinellus</i>		•					•
<i>Chaetodon collare</i> Bloch, 1787	•	•					
<i>Chaetodon decussatus</i> Cuvier, 1831	•	•	•	•	•		
<i>Chaetodon falcula</i> Bloch, 1793	•	•					
<i>Chaetodon guttatissimus</i> Bennett, 1832	•	•					
<i>Chaetodon lineolatus</i> Cuvier and Gaimard, 1831	•	•					
<i>Chaetodon lunula</i> (Lacepede, 1803)	•	•					•
<i>Chaetodon melanotus</i> (Bloch and Schneider)		•					
<i>Chaetodon meyeri</i> Bloch and Schneider, 1801	•	•					•
<i>Chaetodon octofasciatus</i> Bloch, 1787		•					
<i>Chaetodon plebeius</i> Cuvier, 1831	•	•					
<i>Chaetodon triangulum</i> Cuvier, 1831	•	•					
<i>Chaetodon trifasciatus</i> (Mungopark, 1797)	•	•					•
<i>Chaetodon vagabundus</i> Linnaeus, 1758	•	•	•			•	
<i>Chaetodon xanthocephalus</i> (Bennet)		•					•
<i>Heniochus acuminatus</i> (Linnaeus, 1758)	•	•	•			•	•
<i>Heniochus singularis</i> Smith and Radcliffe, 1911	•						
<i>Heniochus varius</i> (Cuvier, 1829)	•						
<b>FAMILY : POMACANTHIDAE</b>							
<i>Centropyge eibli</i> Kalausewitz	•	•					
<i>Pomacanthodes annularis</i> Bloch, 1787	•	•	•			•	
<i>Pomacanthus imperator</i> (Bloch, 1787)	•	•	•				
<i>Pomacanthus semicirculatus</i> (Cuvier)	•	•				•	
<i>Pomacanthus xanthometopon</i> (Bleeker)							
<i>Pygoplites diacanthus</i> (Boddaert, 1722)	•	•					
<i>Apolemichthys xanthurus</i> (Bennett, 1832)	•	•					
<b>FAMILY: CICHLIDAE</b>							
<i>Etroplus suratensis</i> (Bloch, 1785)	•	•					
<b>FAMILY : POMACENTRIDAE</b>							
<i>Abudefduf bengalensis</i> (Bloch, 1787)	•	•	•			•	•
<i>Abudefduf biocellatus</i>		•					
<i>Abudefduf cyaneus</i> (Cuvier & Gaimard)							
<i>Abudefduf natalensis</i> Hansley and Randall		•					•
<i>Abudefduf saxtalis</i> (Linnaeus)		•					
<i>Abudefduf septumfasciatus</i> (Cuvier, 1830)	•	•					•
<i>Abudefduf sordidus</i> (Forsk., 1775)	•	•	•				•
<i>Abudefduf vaigiensis</i> (Quoy and Gaimard, 1825)	•	•					
<i>Amblypomacentrus brevicepsi</i> ((Schlegel and Muller, 1839-41)	•	•					
<i>Amphiprion akallopisos</i> Bleeker, 1853	•	•					
<i>Amphiprion clarkii</i> (Bennett, 1830)	•	•					
<i>Amphiprion ephippium</i> (Bloch, 1790)	•	•					
<i>Amphiprion frenatus</i> Brevoort	•						
<i>Amphiprion ocellaris</i> Cuvier, 1830	•	•					
<i>Amphiprion percula</i> (Lacepede, 1802)	•	•					
<i>Amphiprion polymnus</i> (Linnaeus)	•	•				•	
<i>Amphiprion sebae</i> Bleeker		•					
<i>Amblyglyphidodon leucogaster</i> (Bleeker)	•						
<i>Cheiloprion labiatus</i> (Day)	•						
<i>Chromis caerulea</i> (Cuvier, 1830)	•	•					•

<i>Chromis chrysurus</i>		•					•
<i>Chromis dimidiatus</i>	•	•					
<i>Chromis ternatensis</i>		•					•
<i>Chrysiptera biocellata</i> (Quoy and Gaimara,1824)	•	•					
<i>Chrysiptera glauca</i> (Cuvier, 1830)	•	•					•
<i>Chrysiptera leucopoma</i> (Cuvier)	•	•					•
<i>Chrysiptera unimaculata</i> (Cuvier,1830)	•	•					
<i>Dascyllus aruanus</i> (Linnaeus)	•	•					•
<i>Dascyllus carneus</i> Fischer		•					•
<i>Dascyllus marginatus</i> (Ruppell,1828)	•	•					
<i>Dascyllus trimaculatus</i> (Ruppell,1829)	•	•					•
<i>Dischistodus perspicillatus</i> (Cuvier, 1830)	•	•					
<i>Lepidozygos tapeinosoma</i> (Bleeker)		•					•
<i>Pristotis jerdoni</i> (Day, 1873)		•					
<i>Neopomacentrus cochinchinensis</i> (Day)	•						
<i>Pomacentrus bifasciata</i> Bleeker	•						
<i>Pomacentrus lividus</i> (Bloch and Schneider,1801)		•					
<i>Pomacentrus prosopotaenia</i> Bleeker	•						
<i>Pomacentrus sindensis</i>	•						
<i>Pomacentrus trimaculatus</i> Cuvier	•						
<i>Pomacentrus tripunctatus</i> (Cuvier, 1830)	•						
<i>Pristotis jerdoni</i> (Day, 1873)	•		•				
<i>Premnas biaculeatus</i> (Bloch,1790)	•						
<b>FAMILY : CIRRHITIDAE</b>							
<i>Cirrhitus pinnulatus</i> (Schneider,1801)	•	•					
<i>Cirrhitichthys aureus</i> (Schlegel, 1843)	•						
<i>Paracirrhites forsteri</i> (Schneider,1801)	•						
<b>FAMILY : CEPOLIDAE</b>							
<i>Acanthocephala abbreviata</i> (Valenciennes, 1835)	•	•	•				
<b>FAMILY : MUGILIDAE</b>							
<i>Crenimugil crenilabis</i> (Forsskal,1775)	•	•					
<i>Liza carinata</i> (Valenciennes)		•					•
<i>Liza macrolepis</i> (Smith, 1849)	•	•	•				•
<i>Liza melinoptera</i> (Valenciennes, 1836)	•	•					•
<i>Liza parsia</i> (Hamilton, 1822)		•	•				•
<i>Liza subviridis</i> (Valenciennes)	•	•	•				•
<i>Liza tade</i> (Forsskal, 1775)	•	•	•	•			•
<i>Liza vaigiensis</i> (Qyoy & Gaimard, 1824)	•	•	•		•		•
<i>Mugil cephalus</i> Linnaeus, 1758	•	•	•	•	•		•
<i>Oedalechilus labiosus</i> (Valenciennes)	•		•	•	•		
<i>Rhinomugil corsula</i> (Hamilton, 1822)	•	•	•	•	•		•
<i>Valamugil buechanani</i> (Bleeker, 1853)	•	•					
<i>Valamugil cunnesius</i> (Valenciennes, 1836)	•	•	•	•	•		•
<i>Valamugil sehslui</i> (Forsskal, 1775)	•	•	•				•
<i>Valamugil speigleri</i> (Bleeker, 1858)		•	•		•		•
<b>FAMILY : SPHYRAENIDAE</b>							
<i>Sphyraena barracuda</i> Walbaum	•	•	•	•	•		
<i>Sphyraena chrysotaenea</i> Klunzinger	•		•	•			
<i>Sphyraena flavicauda</i> Ruppell, 1838	•	•					
<i>Sphyraena forsteri</i> Cuvier, 1829		•	•	•			
<i>Sphyraena putamiae</i> (Jordan & Seale)							
<i>Sphyraena qenie</i> Klunzinger				•			

<i>Sphyaena jello</i> Cuvier, 1829	•	•	•			•	
<i>Sphyaena langsar</i> Bleeker, 1854	•	•					
<i>Sphyaena obtusata</i> Cuvier, 1829	•	•	•		•	•	
<b>FAMILY: POLYNEMIDAE</b>							
<i>Eleutheronema tetradactylum</i> (Shaw, 1804)	•	•	•			•	
<i>Polydactylus heptadactylus</i> (Cuvier, 1829)	•	•	•			•	
<i>Polydactylus indicus</i> (Shaw, 1804)		•	•	•	•	•	
<i>Polydactylus kuru</i> (Bleeker)							
<i>Polydactylus konadaensis</i> Mishra & Krishnan		•	•	•	•		
<i>Polynemus melanochir</i> Linnaeus, 1758	•						
<i>Polydactylus microstoma</i> (Bleeker)		•			•		
<i>Polydactylus plebeius</i> (Valenciennes, 1782)	•	•	•		•	•	
<i>Polydactylus sexfilis</i> (Valenciennes, 1831)	•	•	•				
<i>Polydactylus sextarius</i> (Schneider, 1801)		•	•			•	
<i>Polynemus paradisiensis</i> Linnaeus, 1758	•		•			•	
<b>FAMILY: LABRIDAE</b>							
<i>Anampses caeruleopunctatus</i> Ruppell		•	•	•	•		
<i>Callyodon harid</i>		•				•	
<i>Chaerodon robustus</i> (Gunther)		•	•	•	•		
<i>Chelio inermis</i> (Forsk.)	•	•			•		•
<i>Cheilinus bimaculatus</i> Valenciennes, 1840		•					
<i>Cheilinus chlorurus</i>	•	•					
<i>Cheilinus diagrammus</i> (Lacepede, 1801)	•	•					
<i>Cheilinus fasciatus</i> (Bloch, 1791)	•	•					
<i>Cheilinus trilobatus</i>	•	•					•
<i>Cheilinus undulates</i>	•						
<i>Cheilinus fasciatus</i> Bloch, 1791		•					
<i>Choerodon anchorago</i> (Bloch, 1791)	•	•					
<i>Cymolutes praetextatus</i> (Quoy and Gaimard)		•					•
<i>Cymolutes lecluse</i> (Wuoy and Gaimard, 1824)	•	•					
<i>Epibulus insidiator</i> (Pallas, 1770)	•	•					
<i>Gomphosus caeruleus</i> Lacepede	•	•					•
<i>Gomphosus varitus</i> Lacepede		•					•
<i>Halichoeres argus</i> (Schneider, 1801)	•	•					
<i>Halichoeres centiquadrus</i> (Lacepede)		•					•
<i>Halichoeres chrysus</i> Randall, 1980	•	•					
<i>Halichoeres kawarin</i> (Bleeker)		•					•
<i>Halichoeres horulanus</i> (Lacepede, 1801)	•	•					
<i>Halichoeres hyrtlilii</i> (Bleeker)	•						
<i>Halichoeres leucurus</i>		•					
<i>Halichoeres leparensis</i> (Bleeker)							
<i>Halichoeres marginatus</i> Ruppell, 1835	•	•					
<i>Halichoeres margaritaceus</i> (Valenciennes, 1839)	•	•					
<i>Halichoeres melanurus</i> (Bleeker, 1851)	•	•					
<i>Halichoeres notopsis</i> (Bleeker)	•						
<i>Halichoeres nebulosus</i> (Valenciennes, 1839)	•	•					
<i>Halichoeres nigriscens</i> Bloch and Schneider, 1801	•	•					
<i>Halichoeres notopsis</i>		•					•
<i>Halichoeres scapularis</i> (Bennet, 1831)	•	•					•
<i>Hemigymnus melanopterus</i> (Bloch, 1791)	•	•					
<i>Labroides dimidiatus</i> (Valenciennes, 1839)	•	•					•
<i>Macropharyngodon meleagris</i> (Valenciennes)		•					•

<i>Novalichthys taeniourus</i> (Lecepede)	•	•					
<i>PlatyGLOSSUS dussumieri</i>		•				•	
<i>PlatyGLOSSUS marginatus</i>		•				•	
<i>Pseudodax moluccanus</i> (Valenciennes)	•						
<i>Stethojulis albovittata</i> (Bonnaterre)		•					•
<i>Stethojulis axillaries</i> (Quoy and Gaimard)	•	•					
<i>Stethojulis interrupta</i>				•			
<i>Stethojulis phaekadopleursi</i> (Bleeker)		•					•
<i>Stethojulis strigventer</i>	•	•					
<i>Stethojuliss trilineata</i> (Bloch and Schneider, 1801)	•	•					•
<i>Thalassoma amblycephalum</i> (Bleeker)	•	•					
<i>Thalassoma hardwickii</i>	•	•					
<i>Thalassoma herbaricum</i> (Lacepede)	•						
<i>Thalassoma janseni</i> (Bleeker, 1856)	•	•					
<i>Thalassoma lunare</i> (Linnaeus, 1758)	•	•					
<i>Thalassoma purpureum</i> Forsskal	•						
<i>Thalassoma lunare</i>	•						
<i>Thalassoma quinquevittatum</i> (Lay & Bennett)	•	•					•
<i>Xyrichtys cyanifronsi</i> Valenciennes, 1840	•						
<i>Xyrichtys pavo</i> Valenciennes, 1840	•	•					
<i>Xyrichtys pentadactylus</i> (Linnaeus, 1758)	•	•					
<b>FAMILY: CALLYODONTIDAE</b>							
<i>Callyodon batavensis</i> (Bleeker)							•
<i>Callyodon ghobban</i> (Forsskal)		•					•
<i>Callyodon dussumieri</i>	•						
<i>Callyodon haird</i> (Forsskal)							•
<i>Callyodon sordidus</i>							
<i>Callyodon sexvittatus</i>							•
<i>Callyodon taeniurus</i>							•
<i>Callyodon spinidens</i> (Quoy and Gaimard)							•
<i>Leptoscarus vaigaiensis</i>		•					
<b>FAMILY: PARAPERCIDAE</b>							
<i>Aspidonotus taeniatus tractus</i>							•
<i>Istiblennius edentulous</i> (Schneider)							•
<i>Parapercis hexophthalmus</i> (Ehrenberg)							•
<i>Parapercis pulchella</i>						•	
<i>Pteroscrites pindae</i>							•
<b>FAMILY : SCARIDAE</b>							
<i>Calatomus viridescens</i> (Ruppell)		•					
<i>Scarus enneacanthus</i> Lacepede		•					
<i>Scarus frenatus</i> Lacepede, 1802	•	•					
<i>Scarus gibbus</i> Ruppell		•					
<i>Scarus ghobban</i> Forsskal, 1775	•	•	•				
<i>Scarus globiceps</i> Valenciennes		•					
<i>Scarus japonensis</i> (Bloch)	•	•					
<i>Scarus niger</i> Forsskal, 1775	•	•					
<i>Scarus octodon</i> (Bleeker)	•						
<i>Scarus prasiognathos</i> Valenciennes	•						
<i>Scarus rubroviolaceus</i> Bleeker, 1847	•	•					
<i>Scarus russelli</i> Valenciennes				•			
<i>Scarus blochii</i> (Valenciennes, 1839)	•	•					
<i>Scarus dubius</i> Bennett, 1828	•	•					

<i>Scarus sordidus</i> Forsskal, 1775	•	•					
<i>Scarus taeniurus</i> Cuvier and Valenciennes, 1839	•						
<b>FAMILY : OPISTHOGNATHIDAE</b>							
<i>Opisthognathus annulata</i> (Eibl- eibesfeldt & Kalausewitz)	•						
<i>Opisthognathus rosenbergii</i> Bleeker, 1856	•	•	•				
<b>FAMILY: CHAISMODONTIDAE</b>							
<i>Dysalotus alcocki</i> Mac Gilchrist	•	•					
<b>FAMILY: CHIASMOTIDAE</b>							
<i>Champsodon capensis</i> Regan	•	•					
<b>FAMILY : URANOSCOPIDAE</b>							
<i>Ichtyoscopus inermis</i> Cuvier, 1829	•	•					
<i>Uranoscopus cognatus</i> Cantor, 1850		•					
<i>Uranoscopus guttatus</i> Cuvier, 1829	•	•	•				
<b>FAMILY : TRICHONOTIDAE</b>							
<i>Trichonotus setiger</i> Bloch & Schneider, 1801	•						
<b>FAMILY: PERCOPHIDAE</b>							
<i>Bembrops platyrhynchus</i> (Alcock)					•		
<b>FAMILY : MUGILOIDIDAE</b>							
<i>Parapercis clathrata</i> Ogilby, 1911	•	•					
<i>Parapercis hexophthalma</i> (Ehrenberg, 1829)	•	•	•				
<i>Parapercis nebulosa</i> Quoy and Gaimard		•	•				
<i>Parapercis cylindrical</i> (Bloch)		•					
<i>Parapercis pulchella</i> (Temm. & Schl., 1843)		•				•	
<i>Parapercis punctulata</i> (Cuvier, 1829)	•	•					
<i>Parapercis tetracanthus</i> (Lacepede, 1801)	•						
<i>Parapercis xanthozoma</i> (Bleeker, 1849)	•						
<b>FAMILY: TRIPTERYGIIDAE</b>							
<i>Tripterygion fasciatum</i> Weber	•						
<i>Tripterygion trigloides</i> Bleeker, 1858	•						
<b>FAMILY : BLENNIIDAE</b>							
<i>Alticus andersoni</i> (Day)	•						
<i>Alticus kirki</i> (Gunther)		•					
<i>Alticus triangulus</i> Chapman		•					
<i>Andamia heteroptera</i> (Bleeker, 1857)	•	•					
<i>Andamia reyi</i> (Sauvage)	•						
<i>Astrosalaris fuscus</i> (Ruppell, 1835)	•	•					
<i>Bleniella bilitonensis</i> (Bleeker, 1858)							
<i>Bleniella cyanostigma</i> (Bleeker, 1849)	•	•					
<i>Bleniella periophthalmus</i> (Valenciennes, 1836)	•	•					
<i>Blennechius filamentosus</i> (Valenciennes)	•	•					
<i>Blennius Cyclops</i> (Ruppell)	•						
<i>Enchelyurus kraussi</i>	•						
<i>Entomacrodus epalzeocheilus</i> (Bleeker)	•						
<i>Entomacrodus striatus</i> (Quoy and Gaimard, 1836)	•	•					
<i>Entomacrodus vermiculatus</i> (Valenciennes)	•						
<i>Ecsenius lineatus</i> Klusewitz, 1962	•	•					
<i>Ecsenius midas</i> Starck	•	•	•	•	•		
<i>Istiblennius andamanensis</i> (Day)	•						
<i>Istiblennius dussumieri</i> (Valenciennes, 1836)	•	•	•				
<i>Istiblennius edentulous</i> (Schneider, 1801)	•	•					

<i>Istiblennius lineatus</i> (Valenciennes, 1836)	•	•					
<i>Omobranchus elongatus</i> (Peters)	•						
<i>Omobranchus ferox</i> (Herre, 1927)	•						
<i>Omobranchus punctatus</i> (Valenciennes, 1836)	•						
<i>Omobranchus rotundiceps obliquus</i> (Garman)	•						
<i>Omobranchus zebra</i> (Bleeker, 1868)		•					
<i>Parenchelyurus hepburni</i> (Semper)	•						
<i>Pteroscrites bankanensis</i> (Bleeker)	•						
<i>Pteroscrites breviceps</i> (Valenciennes, 1836)	•	•					
<i>Pteroscrites mitratus</i> Ruppell, 1830	•	•					
<i>Pteroscrites variabilis</i> Cantor	•		•				
<i>Rhabdoblennius snowi</i> (Fowler, 1928)	•	•					
<i>Salarias bleekeri</i> Chapman, 1951	•	•					
<i>Salarias fasciatus</i> (Bloch, 1786)	•	•					
<i>Salarias guttatus</i> Valenciennes	•						
<i>Salarias hasselti</i> Bleeker	•						
<i>Salarias steindachneri</i> (Day)			•				
<i>Scartella emarginata</i> (Gunther, 1861)	•	•	•				
<i>Xiphasia setifer</i> Swainson, 1839	•	•					
<b>FAMILY : AMMODYTIDAE</b>							
<i>Bleekeria kallelepis</i> Gunther, 1862		•			•		
<b>FAMILY : CALLIONYMIDAE</b>							
<i>Callionymus enneactis</i> Bleeker, 1879	•				•		
<i>Callionymus filamentosus</i> (Valenciennes, 1837)							
<i>Callionymus fluviatilis</i> Day, 1875							
<i>Callionymus japonicus</i> Houttuyn, 1782		•					
<i>Callionymus megastomus</i> Fricke, 1982							
<i>Callionymus octostigmatus</i> Fricke	•	•					
<i>Callionymus orientalis</i> Bloch & Schneider, 1801	•						
<i>Callionymus sagitta</i> Pallas, 1770		•					
<i>Eleutherochir opercularis</i> (Valenciennes, 1837)	•	•	•				
<i>Synchiropus lineolatus</i> (Valenciennes, 1837)		•	•	•			
<b>FAMILY : ELEOTRIDAE</b>							
<i>Bostrichthys sinensis</i> (Lacepede, 1802)	•	•					
<i>Bunaka gyrinoides</i> (Bleeker, 1853)	•						
<i>Butis butis</i> (Hamilton, 1822)		•	•				
<i>Butis gymnopomus</i> (Bleeker)							
<i>Electroides sexguttatus</i> (Valenciennes)	•	•					•
<i>Eleotris andamensis</i> Herre		•					
<i>Eleotris fusca</i> (Schneider, 1801)	•	•	•	•			
<i>Eleotris lutea</i> Day, 1876		•					
<i>Eleotris melanosoma</i> Bleeker, 1852	•						
<i>Eviota zonura</i> Jordan & Seale	•	•					
<i>Eviota distigma</i> Jordan and Seale, 1906	•	•					
<i>Incara multisquamatus</i> Rao, 1971	•		•				
<i>Hypseleotris guntheri</i> (Bleeker)	•		•		•		
<i>Ophieleotris aporos</i> (Bleeker, 1854)	•	•					
<i>Odonteleotris canina</i> (Bleeker, 1849)	•	•					
<i>Odonteleotris macrodon</i> (Bleeker)			•	•	•		
<i>Perioglossus raoi</i> (Herre)	•	•					
<i>Prionobutis koilomatodon</i> (Bleeker, 1849)		•					

<i>Ptereleotris andamanensis</i> Herre	•						
<i>Ptereleotris microlepis</i> (Bleeker)			•				
<b>FAMILY: KURTIDAE</b>							
<i>Kurtus indicus</i> Bloch, 1786			•				
<b>FAMILY : GOBIIDAE</b>							
<i>Acentrogobius caninus</i> (Valenciennes, 1837)	•		•		•		
<i>Acentrogobius bontii</i> (Bleeker, 1849)	•	•					
<i>Acentrogobius cyanomos</i> (Bleeker, 1849)		•		•			
<i>Acentrogobius ennorensis</i> Menon & Remadevi, 1980		•	•	•			
<i>Acentrogobius globiceps</i> (Hora, 1923)		•					
<i>Acentrogobius griseus</i> (Day, 1876)		•					
<i>Acentrogobius madraspatensis</i> (Day, 1868)		•					
<i>Acentrogobius masonii</i> (Day, 1873)			•		•		
<i>Acentrogobius ornatus</i> (Ruppell, 1828)		•					•
<i>Acentrogobius reicheii</i> (Bleeker, 1843)	•	•					
<i>Acentrogobius viridipunctatus</i> (Valenciennes, 1837)		•	•	•			
<i>Apocryptes bato</i> (Hamilton, 1822)		•					
<i>Apocryptichthys cantoris</i> (Day, 1870)		•			•		
<i>Apocryptodon madurensis</i> (Bleeker, 1849)	•	•	•				
<i>Amblygobius albimaculatus</i> (Ruppell, 1828)	•	•					
<i>Amblygobius bynoensis</i> (Valenciennes)		•	•				
<i>Apocryptes bato</i> (Hamilton, 1822)		•					
<i>Apocryptichthys cantoris</i> (Day, 1870)		•					•
<i>Apocryptodon madurensis</i> (Bleeker, 1849)		•					
<i>Asterropteryx semipunctatus</i> Ruppell, 1830	•	•					
<i>Awaous grammepomus</i> (Bleeker)	•		•	•	•		
<i>Awaous gutum</i> (Hamilton, 1822)			•				
<i>Awaous stamineus</i> (Valenciennes, 1842)	•	•	•				
<i>Bathygobius fuscus</i> (Ruppell, 1828)	•	•					
<i>Bathygobius macrocephalus</i> (Rao, 1968)		•	•				
<i>Bathygobius ostreicola</i> (Choudhuri, 1916)		•		•	•		
<i>Boleophthalmus boddarti</i> (Pallas, 1770)	•	•	•				•
<i>Boleophthalmus dentatus</i> Cuvier & Valenciennes		•					•
<i>Boleophthalmus dussumieri</i> Valenciennes, 1837	•		•		•		•
<i>Boleophthalmus sculptus</i> Gunther, 1861		•					
<i>Brachygobius nunus</i> (Hamilton, 1822)	•	•					
<i>Callogobius andamanensis</i> Menon & Chatterjee					•	•	
<i>Callogobius bilobatus</i> Koumans					•	•	
<i>Callogobius hasseltii</i> (Bleeker, 1851)	•	•					
<i>Callogobius melanoptera</i> Rao, 1971		•					
<i>Callogobius sesahaiyai</i> Jacob & Ranganath, 1960		•	•				
<i>Callogobius trifasciatus</i> Menon & Chatterjee			•	•	•		
<i>Chiramenu fluviatilis</i> Rao, 1971		•	•		•		
<i>Cottogobius kapuri</i> Rao, 1976	•	•		•	•		
<i>Cryptocentrus gymnocephalus</i> (Bleeker)	•	•			•		
<i>Ctenogobius andhraensis</i> Here		•					•
<i>Ctenogobius grammatogaster</i> Bleeker		•					
<i>Exyrias puntang</i> (Bleeker, 1851)	•	•					
<i>Favonigobius reichei</i> (Bleeker, 1853)		•					
<i>Gnatholepis caurensis</i> (Bleeker)	•		•				
<i>Glossogobius biocellatus</i> (Cuvier &	•	•	•	•			

Valenciennes, 1837)							
<i>Glossogobius giurus</i> (Hamilton - Buchanan, 1822)	•	•	•				•
<i>Gobiopterus chuno</i> (Hamilton, 1822)		•					
<i>Gobiopsis arenaria</i> Snyder	•	•	•				
<i>Gobiopsis macrostoma</i> Steindachner, 1860	•						
<i>Gobius novenradiatus</i> (Hamilton- Buchanan)	•						
<i>Gnatholepis baliurus</i> (Cuvier and Valenciennes, 1837)	•	•					
<i>Gobiodon citrinus</i> (Ruppell, 1830)	•	•					
<i>Gobiodon erythropsilus</i> Bleeker			•	•			
<i>Gobiodon histrio</i> Cuvier & Valenciennes		•					
<i>Gobiodon quinquestrigatus</i> (Valenciennes)		•	•	•			
<i>Gobius striatus</i>		•					•
<i>Gobiopsis quinquecineta</i> (Smith, 1931)	•	•					
<i>Gobiopsis woodsii</i> Lachner and Mc.Kinney, 1978)	•	•					
<i>Illana bicirrhosus</i> (Weberr,1894)	•	•					
<i>Istigobius goldmanii</i> Bleeker, 1852)	•	•					
<i>Istigobius ornatus</i> (Ruppell,1830)	•	•					
<i>Mahidolia mystacina</i> (Valenciennes, 1837)	•	•					
<i>Odantoamblyops runcundus</i> (Hamilton)		•					
<i>Oligolepis acutipennis</i> (Valenciennes, 1837)		•	•				
<i>Oligolepis cylindriceps</i> (Hora, 1923)	•	•	•	•	•		
<i>Oplopomus caninoides</i> (Bleeker, 1852)	•	•			•		
<i>Oplopomus oplopomus</i> (Valenciennes,1837)	•	•					
<i>Oxuderces dentatus</i> Eydoux & Souleyet, 1842		•					
<i>Oxyurichthys formosanus</i> Nichols, 1959	•	•	•				
<i>Oxyurichthys microlepis</i> (Bleeker, 1849)	•	•	•				
<i>Oxyurichthys papuensis</i> (Valenciennes, 1837)	•	•					
<i>Oxyurichthys tentacularis</i> (Valenciennes, 1837)	•	•					
<i>Paragobiodon echinocephalus</i> (Ruppell)							
<i>Paraglobiopsis orbicularis</i> Rao, 1971		•					
<i>Parachaeturichthys polynema</i> (Bleeker, 1853)	•	•	•				
<i>Parapocryptes macrolepis</i> (Bleeker)		•				•	
<i>Parapocryptes rictuosus</i> (Valenciennes, 1837)	•	•		•			
<i>Parapocryptes serperaster</i> ( Richardson,1846)	•	•					
<i>Periophthalmus argentilineatus</i> Valenciennes, 1837	•	•					
<i>Periophthalmus chrysospilos</i> Bleeker, 1853		•					
<i>Periophthalmus dipus</i> Bleeker		•				•	
<i>Periophthalmus kalolo</i> Lesson,1830	•	•					
<i>Periophthalmus koelreuteri</i> (Pallas, 1770)		•	•				•
<i>Periophthalmus malaccensis</i> Eggert	•	•	•	•			
<i>Periophthalmus pearsei</i> Eggert, 1935			•	•			
<i>Periophthalmus variabilis</i> Eggert, 1935		•					
<i>Periophthalmus vulgaris</i> Eggert	•	•	•				
<i>Periophthalmus schlosseri</i> (Valenciennes)			•				
<i>Periophthalmus weberi</i> Eggert		•	•	•	•		
<i>Periophthalmodon schlosseri</i> (Pallas)			•				
<i>Periophthalmodon tredecemardiatius</i> (Hamilton- Buchanan, 1822)	•		•			•	
<i>Priolepis semidoliatus</i> (Valenciennes,1837)	•	•					

<i>Pseudapocryptes borneensis</i> (Bleeker)					•		
<i>Pseudapocryptes lanceolatus</i> (Bl. & Schn., 1801)		•	•				
<i>Pseudogobius javanicus</i> (Bleeker)		•	•	•	•		
<i>Scartelaos histophorus</i> (Valenciennes, 1837)	•	•			•		
<i>Scartelaos viridis</i> (Hamilton)		•			•	•	
<i>Scartelaos tenuis</i> (Day)		•				•	
<i>Sicyopterus griseus</i> (Day, 1873)							
<i>Sicyopterus microcephalus</i> (Bleeker)	•	•			•		
<i>Silhoustea indicus</i> Rao, 1971	•				•		
<i>Stenogobius gymnopus</i> (Bleeker, 1853)	•	•					
<i>Stenogobius malabaricus</i> (Day, 1865)	•	•			•		
<i>Stigmatogobius hoevenii</i> (Bleeker)				•	•		
<i>Stigmatogobius javanicus</i> (Bleeker, 1856)	•	•			•		
<i>Stigmatogobius micrognathus</i> Rao, 1971	•	•			•		
<i>Stigmatogobius minima</i> (Hora, 1923)			•	•	•		
<i>Stigmatogobius sadanundio</i> (Hamilton-Buchanan 1822)	•	•					
<i>Stigmatogobius romeri</i> (Weber)			•		•		
<i>Stigmatogobius yanamensis</i> Rao, 1971	•			•			
<i>Taenioides cirratus</i> (Blyth, 1860)	•						
<i>Trypachen vagina</i> Bloch and Schneider, 1801						•	
<i>Waitei mystacina</i> (Valenciennes, 1837)				•			
<i>Yongeichthys criniger</i> (Valenciennes, 1837)	•	•					
<b>FAMILY : GOBIOIDIDAE</b>							
<i>Brachyamblyopus brachysoma</i> (Bleeker)	•			•			
<i>Brachyamblyopus eurolepis</i> (Bleeker)			•				
<i>Brachyamblyopus multiradiatus</i> (Hardenberg)				•			
<i>Brachyamblyopus urolepis</i> (Bleeker, 1852)		•	•			•	
<i>Odantamblyopus rubicundus</i> (Hamilton, 1822)	•			•			
<i>Pseudotrypauchen multiradiatus</i> Hardenberg, 1931					•		
<i>Taenioides anguillaris</i> (Linnaeus, 1758)	•	•	•				
<i>Taenioides buchanani</i> (Day, 1873)		•	•				
<i>Taenioides cirratus</i> (Blyth)			•				
<i>Taenioides buchanani</i> (Day, 1873)			•				
<i>Taenioides eruptionis</i> (Bleeker)	•	•					
<b>FAMILY : TRYPACHENIDAE</b>							
<i>Amblyotrypauchen arctocephalus</i> (Alcock, 1890)				•	•		
<i>Ctenotrypauchen microcephalus</i> (Bleeker, 1860)	•	•		•			
<i>Trypauchen vagina</i> (Bloch & Schneider, 1801)		•	•		•	•	
<i>Trypauchenichthys sumatrensis</i> Hardenberg	•		•	•	•		
<i>Trypauchenichthys typus</i> Bleeker		•	•	•			
<b>FAMILY: KRAEMERIIDAE</b>							
<i>Kramericus smithi</i> Menon & Talwar	•	•	•	•	•		
<b>FAMILY: CONGROGADIIDAE</b>							
<i>Congrogadus subducens</i> (Richardson)			•		•		
<b>FAMILY : ACANTHURIDAE</b>							
<i>Acanthurus bleekeri</i> Gunther, 1861	•	•	•		•		
<i>Acanthurus celebicus</i> Bleeker, 1852	•	•	•		•		
<i>Acanthurus gahm</i>		•	•	•	•		
<i>Acanthurus leucosternon</i> Bennet, 1832		•	•	•	•		•
<i>Acanthurus lineatus</i> Linnaeus, 1758		•			•		•
<i>Acanthurus nigrofuscus</i> (Forsskal, 1775)	•		•		•		

<i>Acanthurus matoides</i> Valenciennes, 1835		•				•
<i>Acanthurus nigricauda</i> Dunker and Mohr., 1939	•	•				
<i>Acanthurus nigrofuscus</i> (Forsskal, 1775)		•				
<i>Acanthurus pyroferus</i> Kittlitz	•					
<i>Acanthurus strigosus</i> (Bennet)		•				•
<i>Acanthurus triostegus</i> (Linnaeus, 1758)	•	•	•			•
<i>Acanthurus xanthopterus</i> Valenciennes, 1835	•	•	•			
<i>Ctenochaetus striatusi</i> (Quoy and Gaimard, 1825)	•					
<i>Ctenochaetus strigosus</i> (Bennett)		•	•			
<i>Naso brevirostris</i>	•	•				
<i>Naso unicornis</i>	•					
<i>Naso vlamingii</i> (Valenciennes, 1835)	•					
<i>Zanclus canescens</i> (Linnaeus, 1748)	•					
<i>Zebрасoma veliferum</i> (Bloch, 1797)	•					
<b>FAMILY : SIGANIDAE</b>						
<i>Lo magnificus</i> Burgess	•	•				
<i>Siganus argenteus</i> (Quoy & Gaimard)			•			
<i>Siganus canaliculatusi</i> (Park, 1797)	•	•	•	•		•
<i>Siganus cancellatus</i> (Park, 1797)	•	•				
<i>Siganus corallinus</i> (Valenciennes)		•				
<i>Siganus fuscens</i> (Houttuyn)	•	•				
<i>Siganus guttatus</i> (Bloch, 1787)	•	•	•			
<i>Siganus javus</i> (Linnaeus, 1766)	•	•	•			•
<i>Siganus labyrinthoides</i> (Bleeker)	•					
<i>Siganus puelloides</i> Woodland & Randall						
<i>Siganus oramin</i>	•					
<i>Siganus spinus</i> (Linnaeus, 1758)	•	•				
<i>Siganus stellatus</i> (Forsskal, 1775)	•					
<i>Siganus vermiculatus</i> (Valenciennes, 1835)	•					
<i>Siganus virgatus</i> (Valenciennes, 1835)	•	•				
<b>FAMILY: GEMPYLIDAE</b>						
<i>Gempylus serpens</i> Cuvier			•			
<i>Nealotus tripes</i> Johnson			•			
<i>Rexea bengalensis</i> (Alcock)			•			
<b>FAMILY: ZANCLIDAE</b>						
<i>Zanclus canescens</i> (Linnaeus)		•				
<i>Zanclus cornutus</i>	•	•				
<b>FAMILY : TRICHIURIDAE</b>						
<i>Eupleurogrammus glossodon</i> (Bleeker)		•	•			•
<i>Eupleurogrammus muticus</i> (Gray, 1831)	•	•	•			•
<i>Lepturacanthus pantului</i> (Gupta, 1966)			•			
<i>Lepturacanthus savala</i> (Cuvier, 1829)	•	•	•			•
<i>Trichurus gangeticus</i> Gupta, 1966	•	•	•			
<i>Trichiurus lepturus</i> (Linnaeus, 1758)	•	•	•			•
<i>Trichiurus muticans</i>		•				•
<i>Tentoriceps cristatus</i> Klunzinger						
<b>FAMILY : SCOMBRIDAE</b>						
<i>Acanthocybium solandri</i> Cuvier, 1832		•				•
<i>Auxis rochei</i> Risso, 1810	•	•	•			•
<i>Auxis thazard</i> (Lacepede, 1802)	•	•	•			
<i>Euthynnus affinis</i> (Cantor, 1850)	•	•	•			•

<i>Grammatocrynus bicarinatus</i> (Quoy and Gaimard, 1824)	•	•					
<i>Grammatocrynus bilineatus</i> (Ruppell)		•					
<i>Gymnosarda unicolor</i> (Ruppell)				•	•		
<i>Katsuwonus pelamis</i> (Linnaeus)		•	•		•	•	
<i>Rastrelliger faughni</i> Matsui, 1967	•	•	•	•	•	•	
<i>Rastrelliger kanagurta</i> (Cuvier, 1817)	•	•	•		•	•	
<i>Sarda orientalis</i> (Temminck & Schlegel)		•	•		•	•	
<i>Scomberomorus commersoni</i> (Lacepede, 1800)	•	•	•		•	•	
<i>Scomberomorus guttatus</i> (Bloch & Schneider, 1801)		•	•			•	
<i>Scomberomorus koreanus</i> (Kishinouye)			•				
<i>Scomberomorus lineolatus</i> (Cuvier, 1831)		•	•			•	
<i>Thunnus alalunga</i> (Bonnaterre)	•	•					
<i>Thunnus albacres</i> (Boonaterre)	•		•		•		
<i>Thunnus obesus</i> Lowe	•		•		•		
<i>Thunnus tonggoli</i> (Bleeker)			•			•	
<b>FAMILY: XIPHIIDAE</b>							
<i>Xiphias gladius</i> Linnaeus	•	•	•			•	
<b>FAMILY : ISTIOPHORIDAE</b>							
<i>Istiophorus platypterus</i> (Shaw & Nodder, 1791)	•	•	•	•	•	•	
<i>Makaira indica</i> (Cuvier, 1831)	•	•	•			•	
<i>Makaira mazara</i> (Jordan & Schneider)	•		•		•		
<i>Tetrapterus audax</i> (Philippi)	•		•	•			
<b>FAMILY: CENTROLOPHIDAE</b>							
<i>Psenopsis obscura</i> Haedrich	•						
<b>FAMILY : NOMEIDAE</b>							
<i>Psenes cyanophrys</i> (Cuvier, 1833)	•	•				•	
<i>Psenes maculates</i> Lutken							
<b>FAMILY : ARIOMMATIDAE</b>							
<i>Ariomma indica</i> (Day, 1870)	•	•	•	•	•	•	
<b>FAMILY : STROMATEIDAE</b>							
<i>Pampus argenteus</i> (Euphrasen, 1788)	•	•	•			•	
<i>Pampus chinensis</i> (Euphrasen, 1788)		•	•			•	
<b>FAMILY: FROMIONIDAE</b>							
<i>Parastromateus niger</i> (Bleeker)	•						
<b>ORDER : PLEURONECTIFORMES</b>							
<b>FAMILY : PSETTODIDAE</b>							
<i>Psettodes erumei</i> (Bloch & Schneider, 1801)	•	•	•				
<b>FAMILY : CITHARIDAE</b>							
<i>Brachypleura novaezeelandiae</i> Gunther, 1862	•						
<b>FAMILY : BOTHIDAE</b>							
<i>Arnoglossus intermedius</i> (Bleeker, 1866)							
<i>Arnoglossus tapeinosoma</i> (Bleeker)				•			
<i>Bothus pantherinus</i> (Ruppell, 1828)			•				
<i>Bothus myriaster</i> (Temminck & Schlegel)			•		•		
<i>Bothus ovalis</i> (Regan)			•	•	•		
<i>Cephalopsetta ventrocellatus</i> Dutt & Rao, 1801	•		•				
<i>Crossorhombus azureus</i> (Alcock, 1889)		•			•		
<i>Crossorhombus valderostratus</i> (Alcock, 1890)							
<i>Engyprosopon grandisquama</i> (Temminck & Schlegel, 1846)		•	•				
<i>Grammatobothus polyphthalmus</i> (Bleeker)			•				

<i>Laeops guntheri</i> Alcock, 189					•		
<i>Pseudorhombus arsius</i> (Hamilton, 1822)	•	•	•				•
<i>Pseudorhombus duplicioccellatus</i> Regan	•						
<i>Pseudorhombus elevates</i> Ogilby			•				
<i>Pseudorhombus 163vate163te</i> Ogilby, 1912	•	•					
<i>Pseudorhombus javanicus</i> (Bleeker)		•	•				
<i>Pseudorhombus micrognathus</i> Norman, 1927							•
<i>Pseudorhombus malayanus</i> Bleeker, 1866			•				
<i>Pseudorhombus triocellatus</i> (Bloch & Schneider, 1801)		•	•				
<b>FAMILY: PLEURONECTIDAE</b>							
<i>Brachypleura novae-zeelandiae</i> Gunther		•		•			
<i>Poecilopsetta colorata</i> Gunther	•	•					
<i>Poecilopsetta praelonga</i> (Alcock)	•	•					
<i>Samaris cristatus</i> Gray	•						
<b>FAMILY : CYNOGLOSSIDAE</b>							
<i>Cynoglossus arel</i> (Schneider, 1801)		•	•	•	•		
<i>Cynoglossus bilineatus</i> (Lacepede, 1802)			•	•			•
<i>Cynoglossus carpentry</i> Alcock, 1822		•	•		•		
<i>Cynoglossus cynoglossus</i> (Hamilton, 1822)		•			•	•	
<i>Cynoglossus disper</i> Day, 1877	•			•			•
<i>Cynoglossus dubius</i> Day, 1873	•		•				
<i>Cynoglossus itinus</i> (Snyder)	•		•		•		
<i>Cynoglossus kopsi</i> (Bleeker, 1851)	•						•
<i>Cynoglossus lida</i> (Bleeker, 1851)							
<i>Cynoglossus lingua</i> Hamilton, 1822	•		•				
<i>Cynoglossus macrolepidotus</i> (Bleeker)		•					
<i>Cynoglossus macrostomus</i> Norman, 1928		•	•				
<i>Cynoglossus puncticeps</i> (Richardson, 1846)		•	•				
<i>Cynoglossus semifasciatus</i> Day, 1877			•		•		
<i>Paraplagusia bilineata</i> (Bloch, 1784)		•	•	•	•	•	
<i>Paraplagusia blochii</i> (Bleeker, 1851)		•	•				•
<i>Symphurus septumstriatus</i> (Alcock)			•		•	•	
<i>Symphurus woodmasoni</i> (Alcock)	•	•					
<b>FAMILY : SOLEIDAE</b>							
<i>Aesopia cornuta</i> Kaup, 1858	•	•	•	•			•
<i>Euryglossa orientalis</i> (Bloch, 1801)			•				
<i>Euryglossa pan</i> (Hamilton, 1822)		•	•				
<i>Heteromycteris oculusi</i> (Alcock, 1889)		•	•	•	•		
<i>Paradachrius marmoratus</i> (Lacepede, 1802)	•	•					•
<i>Solea bleekeri</i> Boulenger, 1898		•	•				
<i>Solea 163vate163te</i> Day, 1877	•	•	•	•	•		•
<i>Solea 163vate</i> Richardson, 1846					•	•	
<i>Soleichthys heterorhinos</i> (Bleeker)			•	•	•		
<i>Synaptura albomaculata</i> Kaup, 1858			•	•			•
<i>Synaptura commersoniana</i> (Lacepede, 1802)		•	•				
<i>Zebrias altipinnis</i> (Alcock, 1890)		•	•	•			
<i>Zebrias quagga</i> (Kaup, 1858)	•		•				
<i>Zebrias synapturoides</i> (Jenkins, 1910)	•	•	•				
<i>Zebrias zebra</i> (Bloch)			•				
<b>FAMILY: HORAICHTHYIDAE</b>							
<i>Horaichthys setani</i>		•	•		•	•	
<b>FAMILY: CONORGARDIDAE</b>							

<i>Pholioides thomasi</i>			•				
<b>ORDER : TETRAODONTIFORMES</b>							
<b>FAMILY : TRIACANTHIDAE</b>							
<i>Halimochirus centriscoides</i> Alcock			•	•	•		•
<i>Pseudotriacanthus strigifer</i> (Cantor, 1849)	•			•			•
<i>Triacanthus biaculeatus</i> (Bloch)			•	•	•		
<i>Triacanthus brevirostris</i> Schlegel, 1850			•	•	•		
<i>Triphichthys weberi</i> (Chaudhuri)					•		•
<i>Tydemania navigatoris</i> Weber							
<i>Macrorhamphosodes platycheilus</i>							•
<i>Mephisto fraserbrunnei</i> Tyler							•
<b>FAMILY : BALISTIDAE</b>							
<i>Abalistes stellatus</i> (Lacepede, 1798)	•			•			•
<i>Aluterus monoceros</i> (Linnaeus)	•						
<i>Anacanthus batbatus</i> Gray	•		•				•
<i>Balistapus undulates</i> (Mungo park, 1797)	•		•				
<i>Balistapus viridis</i>			•				
<i>Balistes erythrodon</i> Gunther				•			
<i>Balistes flavimarginatus</i>	•						
<i>Balistes vetula</i> Linnaeus, 1758	•				•		•
<i>Balistoidea viridescens</i> (Bloch and Schneider)	•			•	•	•	•
<i>Canthidermis maculatus</i> (Bloch, 1786)						•	•
<i>Melichthys indicus</i> Randall and Klauswitz, 1973	•						
<i>Melichthys niger</i>	•		•				
<i>Odonus niger</i> (Randall)	•						
<i>Pseudobalistes flavomarginatus</i> (Ruppell)	•						
<i>Rhineacanthus aculeatus</i> (Linnaeus)	•		•				
<i>Rhineacanthus rectasngulus</i> (Bloch and Schneider, 1801)							•
<i>Rhineacanthus verrucosus</i> (Linnaeus, 1758)	•		•				
<i>Sufflamen chrysopterus</i> (Bloch and Schneider, 1801)	•		•	•			
<b>FAMILY : MONACANTHIDAE</b>							
<i>Alutera monoceros</i> Linnaeus				•			
<i>Aluterus scriptus</i> (Osbeck, 1765)	•		•				
<i>Cantherhines pardalis</i> (Ruppell, 1837)					•		
<i>Monacanthus nematophorus</i> (Gunther, 1870)	•						
<i>Osbeckia scripta</i>	•		•				•
<i>Oxymonacanthus longirostris</i> (Bloch and Schneider, 1801)	•						
<i>Paramonacanthus choirocephalus</i> Bleeker, 1852	•						
<i>Paramonacanthus cutorhynchus</i> (Bleeker, 1855)	•						•
<i>Psilocephalus barbatus</i> (Gray, 1831)	•						
<i>Stephanolepis dispros</i>							
<b>FAMILY : OSTRACIIDAE</b>							
<i>Lactoria cornuta</i>	•		•				•
<i>Ostracion cubicus</i> Linnaeus, 1758	•		•				
<i>Ostracion tuberculatus</i> Linnaeus, 1758			•				
<i>Rhynchostracion nasus</i> Bloch, 1784	•		•				
<i>Tetrosomus gibbosus</i> (Linnaeus, 1758)	•			•			
<b>FAMILY : TETRAODONTIDAE</b>							
<i>Amblyrhynchotes hypselogenion</i> (Bleeker, 1852)			•				

<i>Arothron hispidus</i> Linnaeus, 1758		•				
<i>Arothron hypselogenion</i> (Bleeker)						
<i>Arothron immaculatus</i> (Bloch & Schneider, 1801)	•				•	
<i>Arothron leopardus</i> (Day, 1878)	•	•				
<i>Arothron mappa</i> (Lesson, 1827)		•				
<i>Arothron melagris</i> (Bloch and Schneider)		•			•	
<i>Arothron nigropunctatus</i> (Bloch & Schneider, 1801)	•	•				
<i>Arothron palembangensis</i> (Bleeker, 1852)		•				
<i>Arothron reticularis</i> (Bloch, 1801)	•		•			
<i>Arothron stellatus</i> (Bloch & Schneider, 1801)	•	•				•
<i>Canthigaster bennetti</i> (Bleeker, 1854)		•				
<i>Canthigaster investigatoris</i> (Annandale & Jenkins)	•	•			•	
<i>Canthigaster margrinatus</i> (Ruppell, 1829)		•	•			
<i>Canthigaster solandri</i> (Richardson, 1844)	•	•				
<i>Chelonodon fluviatilis</i> (Hamilton, 1822)		•				•
<i>Chelonodon lunaris</i> (Temminck & Schlegel)	•	•				
<i>Chelonodon patoca</i> (Hamilton, 1822)	•	•	•			•
<i>Fugu oblongus</i> (Bloch)		•				•
<i>Kanduka michiei</i> Hora, 1925	•	•				
<i>Lagocephalus guentheri</i> Ribeiro, 1915	•	•				•
<i>Lagocephalus inermis</i> (Schlegel, 1850)	•	•				•
<i>Lagocephalus lunaris</i> (Bloch & Schneider, 1801)		•	•			
<i>Lagocephalus scleratus</i> (Forster, 1789)	•	•	•			
<i>Lagocephalus spadiceus</i> (Richardson, 1845)	•	•			•	
<i>Sphaeroides oblongus</i> (Bloch)		•	•			
<i>Takifugu oblongus</i> (Bloch, 1786)	•					
<i>Tetradon hispidus</i>		•				
<i>Tetradon immaculatus</i>			•	•	•	
<i>Tetradon reticularis</i>	•				•	
<i>Torquigener hypselogeneion</i> (Bleeker, 1852)		•	•		•	
<b>FAMILY: ANTENNARIDAE</b>						
<i>Antennarius commersoni</i> (Latriella)	•	•		•		
<i>Antennarius coccineus</i> (Lesson)		•				
<i>Antennarius pinniceps</i>		•	•			

## CHECKLIST OF REPTILES OF INDIA

SPECIES	AN	TN	AP	OR	WB	GU	LK
ORDER: CROCODYLIA FAMILY: CROCODYLIDAE							
<i>Crocodilus porosus</i>	•	•	•	•	•		•
ORDER: TESTUDINA FAMILY: CHELONIDAE							
<i>Chelonia mydas</i> Linnaeus, 1758	•	•	•	•	•	•	•
<i>Eretmochelys imbricata</i> Garman, 1880	•	•	•	•	•	•	•
<i>Caratta caratta</i> Linnaeus, 1758	•	•	•	•	•	•	
<i>Lepidochelys olivacea</i> Eschschlotz, 1829	•	•	•	•	•	•	
FAMILY: DERMOCHELIDAE							
<i>Dermochelys coriacea</i> Vandelli, 1761	•	•	•	•	•	•	
ORDER: SQUAMATA FAMILY: HYDROPHIIDAE							
<i>Enhidrina schistose</i> (Daudin,1803)	•	•	•	•	•	•	
<i>Hysrophis spiralis</i> (Shaw,1802)	•	•	•	•	•		•
<i>Hydrophis cyanocinctus</i> (Daudin,1803)	•	•	•	•	•		•
<i>Hydrophis manillaris</i> (Daudin,1803)	•	•	•	•	•	•	
<i>Hydrophis caerulescens</i> (Shaw,1802)	•	•	•	•	•		•
<i>Lapemis curtus</i> Shaw, 1802	•	•	•	•	•		
<i>Microcephalaphis gracilis</i> (Shaw,1802)	•	•	•	•	•		•
<i>Microcephalaphis cantoris</i>	•	•	•	•	•		•
<i>Pelamis platurus</i> (Linnaeus,1766)	•	•	•	•	•	•	

## CHECKLIST OF AVES OF INDIA

SPECIES	AN	TN	AP	OR	WB	GU	LK
ORDER : CICONIFORMS FAMILY : ARDEIDAE (Herons, Egrets)							
<i>Egretta garzetta</i> (Linnaeus, 1766)	•	•	•	•	•	•	•
<i>Bubulcus ibis</i> (Linnaeus, 1758)	•	•	•	•	•	•	
<i>Ardea alba</i> Linnaeus, 1758	•	•	•	•	•	•	
<i>Ardea cinerea</i> Linnaeus, 1758	•	•		•	•	•	
<i>Ardeola grayii</i> (Sykes, 1832)	•	•		•	•	•	
<i>Egretta gularis</i> (Bosc, 1792)	•	•		•	•	•	
<i>Butorides striatus</i> (Linnaeus, 1758)		•	•	•	•	•	
<i>Ardea purpurea</i> Linnaeus, 1766	•	•	•	•	•	•	
<i>Ardeola bacchus</i> (Bonaparte, 1855)	•	•	•	•		•	
<i>Mesophoyx intermedia</i> (Wagler, 1829)	•	•	•	•		•	•
<i>Egretta sacra</i> (Gmlelin, 1789)	•	•	•	•	•	•	•
<i>Nycticorax nycticorax</i> (Linnaeus, 1758)	•	•	•	•	•	•	
<i>Gorsachius melanolophus</i> (Raffles,1822)	•	•	•	•	•	•	
<i>Ixobrychus cinnamomeus</i> (Gmelin, 1789)	•	•	•	•	•	•	
<i>Ixobrychus sinensis</i> (Gmelin, 1789)	•	•	•	•	•	•	

FAMILY : PHOENICOPTERIDAE (Flamingos)							
<i>Phoenicopterus ruber</i> Linnaeus, 1758	•		•	•	•	•	
ORDER : ANSERIFORMES							
FAMILY : ANATIDAE (Ducks, Teels & Geese)							
<i>Anas acuta</i> Linnaeus, 1758	•	•		•	•	•	
<i>Anas penelope</i> Linnaeus, 1758	•	•		•	•	•	
<i>Anas chrypeata</i> Linnaeus, 1758	•	•			•	•	
<i>Anas crecca</i> Linnaeus, 1758	•	•	•		•	•	
<i>Anas querquedula</i> Linnaeus, 1758	•	•	•	•	•	•	
<i>Anser indicus</i> Brisson (Latham, 1790)	•	•	•	•	•	•	
<i>Dendrocygna javanica</i> (Horse field, 1821)	•	•	•	•	•	•	
<i>Anas gibberiformis</i> (Muller, 1842)	•	•	•	•	•	•	
<i>Nettapus coromandelianus</i> (Gmelin, 1789)	•	•	•	•	•	•	
ORDER : CHARADRIIFORMES							
FAMILY : HAEMATOPODIDAE (Oyster catchers)							
<i>Haematopus ostralegus</i> Brisson, 1760	•	•	•	•	•	•	
FAMILY : CHARADRIIDAE							
SUB FAMILY : Charadriidae (Plovers)							
<i>Pluvialis squatarola</i> (Linnaeus, 1758)	•	•	•	•	•	•	•
<i>Pluvialis dominica</i> Brisson, 1760	•		•	•	•	•	•
<i>Charadius leschenaultii</i> Lesson, 1826	•	•	•	•	•	•	
<i>Charadius dubius</i> Scopoli, 1786	•		•	•	•	•	
<i>Charadius alexandrius</i> Linnaeus, 1758	•	•	•	•	•	•	
<i>Charadius hiaticula</i> Linnaeus, 1758	•	•	•	•	•	•	
<i>Charadius mongolus</i> Pallas, 1776	•	•	•	•	•	•	
<i>Vanellus indicus</i> (Boddaert, 1783)	•	•	•	•	•	•	
<i>Vanellus malabaricus</i> (Boddaert, 1783)	•	•		•	•		
<i>Nemenius phaeopus</i> (Linnaeus, 1758)	•	•		•	•	•	
<i>Limosa lapponica</i> (Linnaeus, 1758)	•	•	•	•	•	•	
<i>Tringa glareola</i> Linnaeus, 1758	•	•	•	•	•		
<i>Tringa hypoleucos</i> Linnaeus, 1758	•	•	•	•	•	•	
<i>Tringa nebularia</i> (Gunner, 1767)	•	•	•	•	•	•	
<i>Tringa ochropus</i> Linnaeus, 1758	•	•	•	•		•	
<i>Tringa terek</i> Latham, 1790	•	•	•	•		•	
<i>Tringa totanus</i> (Linnaeus, 1758)	•	•		•	•	•	
<i>Arenaria interpres</i> (Linnaeus, 1758)	•	•	•	•	•	•	
<i>Gallinago gallinago</i> (Linnaeus, 1758)	•	•	•	•	•		
<i>Gallinago media</i> (Latham, 1787)	•	•	•	•	•	•	
<i>Gallinago minimus</i> (Brunnich, 1764)	•	•	•	•	•		
<i>Gallinago stenura</i> (Bonaparte, 1830)	•	•		•	•	•	
<i>Scolopax rusticola</i> Linnaeus, 1758	•	•		•	•	•	
<i>Calidris alba</i> (Pallas, 1764)	•	•	•	•	•	•	
<i>Calidris minuta</i> (Leisler, 1812)	•	•	•	•	•	•	
<i>Calidris ruficollis</i> (Pallas, 1764)	•	•	•	•	•	•	
<i>Calidris subminuta</i> (Middendorff, 1853)	•	•		•	•		
<i>Calidris temminckii</i> (Leisler, 1812)	•			•	•	•	
<i>Calidris tenuirostris</i> (Horsfield, 1821)	•	•	•	•	•		
<i>Calidris testacea</i> Pallas, 1764	•	•	•	•	•	•	
<i>Limicola falcinellus</i> (Pontoppidan, 1763)	•	•	•	•	•	•	
SUB FAMILY : SCOLOPACINAE							
(Curlews, whimbrel, godwits, sand piper etc)							
<i>Numineus phaeopus</i> (Linnaeus, 1758)	•	•	•	•	•	•	
<i>Numineus arquata</i> (Linnaeus, 1758)	•	•	•	•	•		

<i>Limosa lapponica</i> (Linnaeus,1758)	•	•	•	•	•	•	•
<i>Tringa stagnatilis</i> (Bechstein,1803)	•	•		•	•	•	
<i>Tringa erythropus</i> (Pallas, 1764)	•	•		•	•	•	
<i>Arenaria interpres</i> (Linnaeus,1758)	•	•	•	•	•	•	
<i>Calidris canutus</i> (Linnaeus,1758)	•	•	•	•	•	•	
<i>Calidris tenuirostris</i> (Horsfield,1821)	•	•	•	•	•	•	
<i>Calidris alpina</i> (Linnaeus,1758)			•	•	•	•	
<i>Calidris ruficollis</i> (Pallas,1776)		•	•	•	•		
<i>Phalaropus lobatus</i> (Linnaeus,1758)	•	•	•	•		•	
<i>Gallinago stenura</i> (Bonaparte,1830)	•	•	•	•		•	
<i>Tringa ochropus</i> Linnaeus, 1758	•	•	•	•	•	•	
<b>FAMILY : RECURVIROSTRIDAE (Stilts)</b>							
•							
<i>Himantopus himantopus</i> (Linnaeus,1758)	•	•	•	•	•	•	•
<b>FAMILY : BURHINIDAE (Stone curlews)</b>							
<i>Esacus magirostris</i> (Vieillot,1818)	•	•	•	•	•	•	•
<i>Burhinus oedicnemus</i> (Linnaeus,1758)	•	•	•	•	•	•	•
<b>FAMILY : DROMADIDAE (crab plover )</b>							
<i>Dromas ardeola</i> Paykull,1805	•	•	•	•	•	•	
<b>FAMILY : LARIDAE (Gulls, terns)</b>							
<i>Larus argentatus</i> Linnaeus, 1758	•	•	•	•	•	•	
<i>Larus ichthyaetus</i> Pallas,1773	•	•	•	•	•	•	
<i>Larus fuscus</i> Linnaeus, 1758	•	•	•	•	•	•	•
<i>Larus brunnicephalus</i> Jerdon,1840	•	•	•	•	•	•	
<i>Larus ridibundus</i> Linnaeus, 1766		•	•	•	•	•	•
<b>FAMILY: LARIDAE</b>							
<i>Chlidonias hybridus</i> (Pallas,1811)		•	•	•	•	•	
<i>Gelochelidon nilotica</i> (Gmelin,1789)	•	•	•	•	•	•	
<i>Sterna caspia</i> Pallas,1770	•	•	•	•	•	•	
<i>Sterna hirundo</i> Linnaeus, 1758	•	•	•	•	•	•	•
<i>Sterna albifrons</i> Pallas,1764	•	•	•	•			•
<i>Sterna bengalensis</i> Lesson,1831	•	•	•	•	•	•	
<i>Chlidonias leucopterus</i> (Temminck,1815)	•	•		•	•	•	
<i>Strerna anaethetus</i> Scopoli, 1786	•	•		•	•	•	•
<i>Sterna bergii</i> Lichtenstein,1823	•	•		•		•	•
<i>Sterna dougalli</i> Monagu,1813	•	•	•	•	•	•	
<i>Sterna fuscata</i> Linnaeus, 1766	•	•	•	•	•	•	•
<i>Sterna sumatrana</i> Raffles, 1822	•	•	•	•	•	•	
<i>Anos stolidus</i> (Linnaeus, 1758)	•	•	•	•	•	•	
<i>Anos tenuirostris</i> (Temminck,1823)	•	•	•	•	•	•	
<b>ORDER : PELECANIFORMES</b>							
<b>FAMILY : PHAETHONTIDAE</b>							
<i>Phaethon lepturus</i> Daudin, 1802	•	•	•	•	•	•	
<b>ORDER : FALCONIFORMES</b>							
<b>FAMILY : ACCIPITRIDAE</b>							
<i>Aviceda leuphotes</i> Dumont,1820	•	•	•	•	•	•	
<i>Milvus migrans</i> (Boddaert,1783)	•	•	•	•	•	•	
<i>Haliastur indus</i> (Boddaert,1783)	•	•	•	•	•	•	
<i>Accipiter badius</i> (Gmelin, 1788)	•	•	•	•	•	•	
<i>Accipiter nisus</i> (Linnaeus, 1758)	•	•	•	•	•		
<i>Accipiter soloensis</i> (Horsfield, 1821)	•	•	•	•	•	•	
<i>Accipiter virgatus</i> (Temminck,1822)	•	•	•	•	•	•	
<i>Spizaetus cirrhatus</i> (Gmelin, 1789)	•	•	•	•	•	•	

<i>Haliaeetus leucogaster</i> Gmelin 1789	•	•	•	•	•	•	
<i>Circus aeruginosus</i> (Linnaeus, 1758)	•	•	•	•	•	•	
<i>Circus macrourus</i> (S.G.Gmelin, 1770)	•	•	•	•	•	•	
<i>Circus pygargus</i> (Linnaeus, 1758)	•	•	•	•	•	•	
<i>Spilornis cheela</i> (Latham, 1790)	•	•	•	•	•		
<i>Spilornis elgini</i> (Blyth, 1963)	•	•	•	•	•	•	
<i>Spilornis klossi</i> Richmond	•	•	•	•	•	•	
<i>Pandion haliaetus</i> (Linnaeus, 1758)	•	•	•	•	•	•	
<b>FAMILY : FALCONIDAE</b>							
<i>Falco peregrinus</i> Tunstall, 1771	•	•	•	•	•	•	
<i>Falco tinnunculus</i> Linnaeus, 1758	•	•	•	•	•	•	

### CHECKLIST OF MAMMALS OF EAST COAST OF INDIA

SPECIES	AN	TN	AP	OR	WB	GU	LK
<b>FAMILY: PHOCOENIDAE</b>							
<i>Neophocaena phocaenoides</i> Cuvier, 1829	•	•	•	•	•		
<b>FAMILY: DELPHINIDAE</b>							
<i>Steno bredanensis</i> Lesson, 1828	•	•	•	•	•	•	•
<i>Sousa chinensis</i> Osbeck, 1765	•	•	•	•	•		
<i>Grampus griseus</i> G. Cuvier, 1812	•	•	•	•	•		•
<i>Tursiops truncatus</i> Montagu, 1821	•	•	•	•	•		
<i>Stenella attenuata</i> Gray, 1846	•	•	•	•	•		•
<i>Stenella longirostris</i> Gray, 1828	•	•	•	•	•		
<i>Stenella coeruleoalba</i> Meyen, 1833	•	•	•	•	•		
<i>Delphinus delphis</i> Linnaeus, 1758	•	•	•	•	•		•
<i>Lagenodelphis hosei</i> Fraser, 1957	•	•	•	•	•		•
<i>Poponocephala electra</i> Gray, 1846	•	•	•	•	•		•
<i>Feresa attenuata</i> Gray, 1875	•	•	•	•	•		
<i>Pseudorca crassidens</i> Owen, 1846	•	•	•	•	•		
<i>Orcinus orca</i> Linnaeus, 1758	•	•	•	•	•		•
<i>Globicephala macrorhyncha</i> Gray, 1846	•	•	•	•	•		
<i>Orcaella brevirostris</i> Gray, 1866	•	•	•	•	•		
<b>FAMILY: ZIPHIIDAE</b>							
<i>Ziphius cavirostris</i> G. Cuvier, 1823	•	•	•	•	•	•	
<i>Mesoplodon densirostris</i> Blainville, 1817	•	•	•	•	•	•	
<i>Mesoplodon ginkgodens</i> Nishiwaki and Kamiya, 1958	•	•	•	•	•	•	
<b>FAMILY: PHYSETERIDAE</b>							
<i>Physeter macrocephalus</i> Linnaeus, 1758	•	•	•	•	•		
<i>Kogia breviceps</i> Blainville, 1838	•	•	•	•	•	•	
<i>Kogia simus</i> Owen, 1886			•				
<b>FAMILY: BALAENOPTERIDAE</b>							
<i>Megaptera novaeangliae</i> Borowski, 1781	•	•	•	•	•	•	
<i>Balaenoptera musculus</i> Linnaeus, 1758	•	•	•	•	•		
<i>Balaenoptera physalus</i> Linnaeus, 1758	•	•	•	•	•	•	•
<i>Balaenoptera edeni</i> Anderson, 1878	•	•	•	•	•		•
<i>Balaenoptera borealis</i> Lesson, 1828	•	•	•	•	•	•	
<i>Balaenoptera acutorostrata</i> Lacepede, 1804	•	•	•	•	•	•	
<b>FAMILY: DUGONGIDAE</b>							
<i>Dugong dugon</i> Muller, 1776	•	•	•	•	•	•	

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