

Marine Biodiversity of Kerala

Tropical marine ecosystem of Kerala coast includes lagoons, mangrove swamps, sandy and rocky shores and open sea front. The CMFRI (Central Marine Fisheries Research Institute), Kochi conducts studies on marine biodiversity. A close relationship between the abundance of Oil Sardines (*Sardinella longiceps*) and abundance of *Fragilaria Oceanica* in the west coast was reported. About 291 species of phytoplankton were listed in the Kozhikode coast. *Fragilaria oceanica*, *Coscinodiscus gigas*, species of *Chaetoceros*, *Rhizosolenia*, *Bacteriastrium*, *Skeletonema*, *Eucampia* and *Asteronella* were the dominant diatoms. Copepods formed the largest zooplankton community in the Kozhikode area. The other economically important groups in Protozoa are foraminifers and radiolarians. Flagellates form major groups with high productivity and high turnover. Macro algae belong to the families of Chlorophyceae, Phaeophyceae, Rhodophyceae and Cyanophyceae. Out of the total 64 families and 215 genera found in India, Kerala and Lakshadweep area have 25 families and 75 genera.

Sea grasses in the West coast are found in small shallow beds. *Halophila ovalis* is associated with mangroves. Other species are *Halophila beccari*, *Halodule pinifolia*, *Enhalus acoroides* and *Cymodocea rotundata*.

Mangrove vegetation is an important coastal ecosystem associated with tidal / mud flats and back water systems. According to one estimate in the recent past Kerala had 70,000 ha. of mangrove, which had diminished to less than 4200 ha (Mohanam, 1997). Some other estimate indicates the extent of mangrove vegetation to be 1671 ha at present within a distance of 500m from the coastline. Mangroves are found in small isolated patches along the coast and back waters. The major concentrations are found in the Vallapattanam river mouth, Kannur district, Puthuvypine at Ernakulam district and Kumarakom (Vembanad lake east bank) at Kottayam district. Certain patches are also found in Kozhikode districts, Alappuzha, Kollam and Thiruvananthapuram. Important mangrove species are *Rhizophora apiculata*, *Rhizophora mucronata*, *Bruguiera gymnorhiza*, *Avicennia officinalis*, *Sonneratia caseolaris*, *Sonneratia apetala*, *Kandelia candal*. Mangrove associates are *Cerbera manghas*, *Hibiscus tiliaceus*, *Derris trifoliata*, *Pandanus tectorius*. These species grow behind the tidal mangrove zone. The fern *Acrostichum aureum* grows in degraded habitats and *Acanthus ilicifolius* colonizes saline marshes.

The strand vegetation (sand dune vegetation) comprises mainly sand binding *Ipomoea pes-caprae*, *Spinifex littoralis*, *Indigofera spicata*, *Portulacca oleracea*. The common shrubs of the region are *Calotropis gigantea*, *Dodonea viscosa*, *Scaveola taccada*, *Hugonia mystax*. Estuarine vegetation is classified into tidal mangroves, prohaline and euhaline types. Prohaline type of vegetation is composed of salt tolerant fresh water plants such as *Ceratopteris siliquosa*, *Corchorus aestuans*, *Hygrophila quadrivalvis*, *Salvianina molesta* and *Sphenoclea zeylanica*. Eury haline type consists of highly salt tolerant plants like *Acanthus ilicifolius*, *Acrostichum* and *Pandanus fascicularis*.

Kerala is endowed with a rich diversity of marine fishes with a numerical strength of more than 300. They represent mainly under clupeids, perches, elasmobranchs, leiognathids, coakers, threadfin breams, flat fishes, carangids, red mullets, etc. There are about 54 species of prawns and shrimps commercially exploited in India. The number of marine mollusks exceeds 300 species with more than 10 commercially important species. The marine echinoderm fauna comprised of around 80 species while the ancillary resources such as sea fans, gorgonids, etc. constitute another 110 species. The state is also endowed with more than 25 species of sea weeds among them 12 species are commercially very important. *Macrobrachium rosenbergii*, the giant freshwater prawn is the largest prawn seen in Kerala backwaters. Apart from this there are more than 12 species of prawn inhabits in the estuaries and backwaters of Kerala among them *M. idella* is commercially very important. Commercially important lobsters occurring in the Kerala coast are *Panulirus homarus* and *Panulirus polyphagus*. Other species are *Scyllarus sordidus* and *Panulirus ornatus*. Important crab species used in food are *Matuta lunaris*, matuta panpipes, *Scylla serrata*, *Neptunus sanguinolentus*, *Neptunus pelagicus*, *Charybdis cruciata*, *Charybdis annulata*, *Charybdis edwardsi*, *Charybdis natator* and *Varuna litterata*.

Five species of marine turtles are found in Indian waters. The Hawksbill (*Eretmochelys imbricata*) variety is common in tropical water. Olive Ridley (*Lepidochelys olivacea*) turtle are found to nest in Kozhikode coast near Pyyoli.

Mangrove forests in India are habitats of around 177 resident and migratory birds, of which 45 species are reported in the mangrove forests of Kerala alone. The common species are heron, kingfisher, sea eagle, kites and storks.

India has good pelagic fishery resources comprised of mainly of oilsardine and lesser sardines, mackerel, tuna, carangids, seer fishes, and demersal fishes such as cat fishes, elasmobranchs, sciaenids, silver bellies, besides shrimps and other crustaceans. About 60% of marine fish yield of the country comes from the west coast, of which Kerala contributed as high as 30%. The coastal waters in Kerala are highly productive, the mud bank formations in the Kerala coast add to the high fish turn over.

The common hydrophytes found in the wetlands of Kerala are classified as submerged and emerged types and they are further classified as free-swimming (phytoplanktons) and floating types. Some one of the common wetland flowering plants are *Eichornia crassipes*, *Pistia stratiotes*, *Monochoria vaginalis*, *Monochoria hastata*, *Limnocharis flava*, *Lagenandra meeboldii*, *L. toxicaria*, *Colocasia esculenta*, *Nelumbo nucifera*, *Nymphaea nouchali*, *Blyxa aubertii*, *Blyxa octandra*, *Hydrilla verticillata*, *Hygrophila auriculata*, *Xyris indica*, *Limnophylla chinensis*, *Limnophylla indica*, *Pandanus furcatus*, *Pandanus fascicularis* and *Pandanus thwaitesii*.

Important medicinal plants available in the coastal belt which help in local traditional medical practices are Vaymabu (*Acorus calamus*), Adalodakam (*Adhatoda vasica*), Aloe vera, Perumaram (*Ailanthus triphysa*), Koovalam (*Aegle marmelos*, Kiriath) (*Andrographis paniculate*), *Aristolochia tagala*, Sathavaari (*Asparagus racemosus*), Bramhi (*Bacopa*

monnieri), Thazhuthama (*Boerhavia diffusa*), Mukkuti (*Biophytum sensitivum*), Bramhi (*Bacopa monnieri*), Kanikonna (*Cassia fistula*), Uzhinja (*Cardiospermum halicacabum*), Kodangal (*Centella asiatica*), Vayana (*cinnamomum verum*), Cheruthekku (*Clerodendron serratum*), Veluthashangupuspam (*Clitoria ternatea*), Nilapana (*Curculigo orchioides*), Karuka (*Cyperus dactylon*), Mulapalkodi (*Euphorbia hirta*), Kaiyonni (*Eclipta prostrata*), Chakkarkolli (*Gymnema sylvestre*) Adumbuvalli (*Ipomoea per-caprae*), Neerkanthalam (*Lagenandra ovata*), Kizhanelli (*Phyllanthus amarus*), Kalluruki (*Scoparia dulcis*), Krunthotti (*Sida cordifolia*), Amrutu (*Tinospora cordifolia*), Nerinjil (*Tribulus terrestris*) Vallipala (*Tylophora indica*) and Murikkotti (*Zornia diphylla*).

