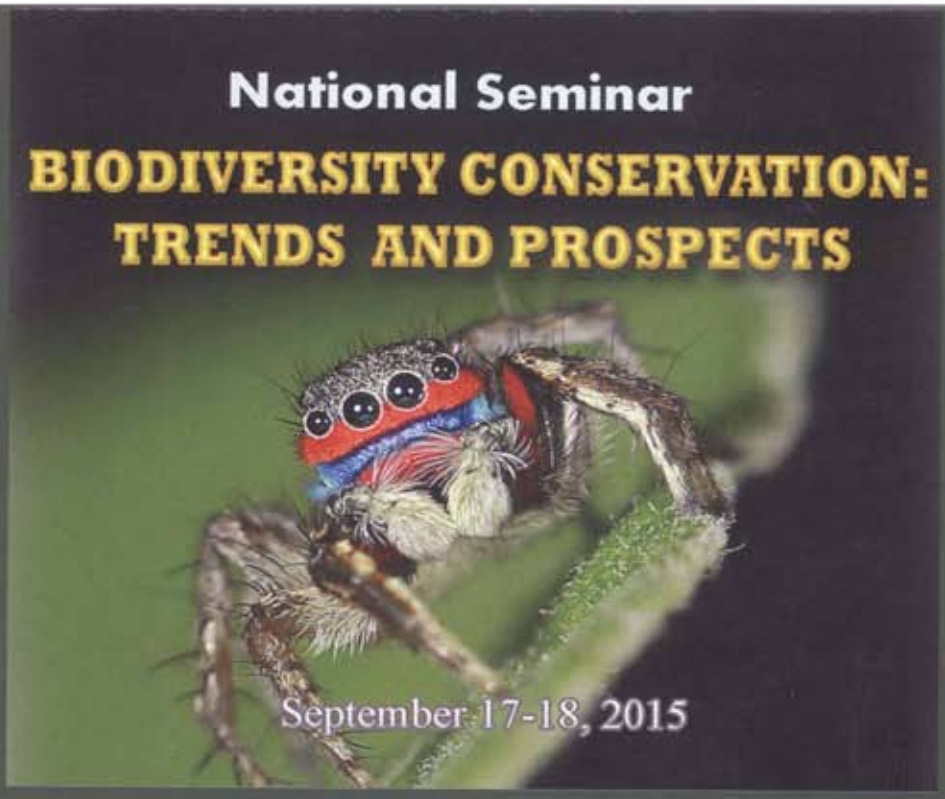
National Seminar

BIODIVERSITY CONSERVATION: TRENDS AND PROSPECTS



September 17-18, 2015

ABSTRACTS

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Sponsored by:

Kerala State Council for Science, Technology and Environment (KSCSTE)

Kerala State Biodiversity Board

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MARINE BIODIVERSITY OF INDIA - STATUS AND CHALLENGES

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Diversity in the species complex, typical of tropical waters and co-existence of different fish and shellfish species in the same ground are important features of Indian Marine Biodiversity. India has a coastline of about 8129 km with an Exclusive Economic Zone of 2.02 million sq. km characterized by the presence of a wide range of ecosystems. The marine and coastal ecosystem in India is complex and comprises of rivers, estuaries, lagoons, backwaters, brackish waters, salt marshes, rocky shores, sandy shores, coral beds, seagrass beds and mangrove and tidal areas. The threes Gulfs i.e. Gulf of Mannar on the east coast, Gulf of Kutch and Gulf of Khambhat and many Islands along the Indian coast in Lakshadweep and Andaman group and vast mangrove ecosystems along the coast of Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh and West Bengal constitute rich marine biodiversity supporting a variety of species of corals, sponges, ornamental fishes, crustaceans, molluscs and plants. Estimated known number of species in the marine system was about 40,000 and the number of unknowns may about thrice of the known.

The coastal fisheries faces several threats such as indiscriminate fishing, habitat degradation, pollution, social conflicts, the introduction of highly advanced fishing gadgets, the need for management measures and conservation of marine biodiversity to support sustainable use of marine biodiversity. The species supporting the fisheries are short-lived with an average life span up to 3-5 years, but the fishery being mainly supported by under a

year olds and one-year-old. They are highly fecund and spawn over longer periods mostly with fractional spawning and show wide annual variation in recruitment. Several issues in the capture fisheries sector adversely affect the marine biodiversity of the country, especially in the fish as ecosystem services to human beings. The major issues faced by the marine fisheries sector are limitations of growth and production in the inshore fishing grounds, less profitability and economic returns. The above issues brought about by the uncontrolled fishing effort put into the fishery without any regard to stock-production-recruitment relationship. Besides these the ecological problems created by increasing pollution of coastal waters by release of untreated effluents and pollutants by agro-industrial complexes operating in the coastal zone. The south-west coastal region of India extends from 8^{o} N to 15^{o} 30' N with a coastal line of 995 km in three maritime states, Kerala, Karnataka and Goa and has a shelf area of 75400 km^2 and is one of the most important marine biodiversity hotspots of India. Among the 118 species of seaweeds reported from the coast. A total of 730 molluscan species was enlisted from southwest coast, which include 515 species of gastropods, 171 species of bivalves, 28 species of cephalopods and 14 species of scaphopods. Crustacean diversity is shown by the presence of 218 species, including 152 species of crabs, 57 species of shrimps and 9 species of lobsters. Total fish landings from the area were about 1.187 million tonnes. Sardine forms more than 50% of the total fish landing followed by mackerel, threadfin bream, carangids and penaeid prawns.Out of the 21871 fishing crafts along Kerala coast 3768 are trawlers, 60 purse seines, 460 gill netters, 495 ring seines, 5884 non-motorized crafts operated by 6,10,615 fisher folk population. The value estimated for the ecosystem services and natural capital of Kerala coast is of US $ 1660-1930 billion per year from an area of 260101 km^2 which includes brackish water, estuaries and open Ocean. Most important biodiversity indicators of the coast are mud banks, pokkali fields and monsoon fishery which provides livelihood to coastal population.

Seaweeds, sponges, gorgonids, corals, pipe fishes and others are being exploited for the extraction of pharmaceuticals, active chemicals which are known to cure several diseases. While there are reports of over-exploitation of certain of these resources, there are also reports of environmental degradation due to anthropogenic influences. Certain fragile and sensitive marine ecosystems will not be available to the posterity, if adequate care is not taken to conserve the system. In order to meet improved returns while protecting the environment, a suitable policy needs to be formulated to exploit the resources on sustainable levels, to extract the drugs indigenously, basically for domestic use and for limited export. To address these issues a thorough knowledge fauna and flora of the different marine ecosystems like mangrove ecosystems, coral reef ecosystem, estuarine ecosystem, coastal marine ecosystem, lagoon, systems, coastal ecosystems and marine protected areas of India is a prerequisite.