

**NATIONAL SEMINAR ON**  
**FAUNAL DIVERSITY AND RECENT TRENDS IN**  
**ANIMAL TAXONOMY**

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**ABSTRACTS**



**Organized by:**  
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Indian fisheries have a long history, starting with Kautilya's *Arthashastra* describing fish as a source for consumption and provide evidence that fishery was a well-established industry in India and fish was relished as an article of diet as early as 300 BC, the ancient Hindus possessed a considerable knowledge of the habit of fishes and the epic on the second pillar of Emperor Ashoka describing the prohibition of consumption of fish during a certain lunar period which can be interpreted as a conservation point of view. Modern scientific studies on Indian fishes could be traced to the initial works done by Linnaeus, Bloch and Schneider, Lacepède, Russell and Hamilton. The mid 1800s contributed much in the history of Indian fish taxonomy since the time of the expeditions was going through. Cuvier and Valenciennes (1828-1849) described 70 nominal species off Puducherry, Skyes (1839), Gunther (1860, 1872, 1880) and *The Fishes of India* by Francis Day (1865-1877) and another book *Fauna of British India Series* in two volumes (1889) describing 1,418 species are the two most indispensable works on Indian fish taxonomy to date. Alcock (1889, 1890) described 162 species new to science from Indian waters.

Of the 33,059 total fish species of the world, India contributes of about 2492 marine fishes owing to 7.4% of the total marine fish resources. Of the total fish diversity known from India, the marine fishes constitute 76 percent, belonging to 941 orders, 240 families. Among the fish diversity-rich areas in the marine waters of India, the Andaman and Nicobar archipelago shows the highest number of species, 1431, followed by the east coast of India with 1121 species and the west coast with 1071. As many as 91 species of endemic marine fishes are known to occur in the coastal waters of India. As of today, about 50 marine fishes known from India fall into the Threatened category as per the IUCN Red List, and about 45 species are Near-Threatened and already on the path to vulnerability. However, only some species (10 elasmobranchs, 10 seahorses and one grouper) are listed in Schedule I of the Wildlife (Protection) Act, 1972 of the Government of India.

The long coastline of 8129 km<sup>2</sup> with an EEZ of 2.02 million sq. km including the continental shelf of 0.5 million sq. km harbours extensively rich multitude of fish species. Vast regions of mangroves are found along the coast of West Bengal, Orissa, Andhra Pradesh, Tamil Nadu, Maharashtra, Gujarat and Andaman Islands which extend up to about 682000 ha area provide breeding and feeding grounds for a vast number of species. The Gulf of Mannar, Palk Bay, Gulf of Kutch, South West coast, the Lakshadweep and Andaman group of Islands are known to be rich in Ornamental fishery. The Wrasses, Damsel fish, Surgeon, Butterfly fish, Moorish idol, Squirrel fish, Trigger fish, Rabbit fish, Parrot fish, Angels, Goat fish and Puffer fish are the major aquarium fishes represented by about 180 species. The variety of coastal ecosystems include brackish water lakes, lagoons, estuaries, back waters, salt marshes, rocky bottom, sandy bottom and muddy areas provides home and shelter for the mega biodiversity of ichthyofauna of India. These regions support very rich fauna and flora and constitute rich biological diversity of marine ecosystems. Diversity in the species complex, typical of tropical waters and coexistence of different fish and shellfish species in the same ground are important features of Indian Marine Biodiversity.

Fisheries are one of the most important renewable resources. With increasing fishing pressure, the only option left for the sustainability of fisheries is their rational management. Proper management is possible only with a thorough knowledge of the dynamics of the fish stocks. For a meaningful study of the dynamics, knowledge of the natural history of the species is necessary and this in turn can be acquired by the correct identification of fish species. This assumes greater importance in tropical seas where, a multitude of closely related and morphologically similar species occurs. The role of taxonomy and proper identification cannot be overstressed in studies of population dynamics. Acquaintance with the main species should be such that there should be no errors in identification of them in any special form such as racial differentiation, abnormalities, malformation due to decay or disease. As to species of less importance, collections and observations can be made for taxonomic studies which will be useful in future. Species identification study is also a step towards understanding the bewildering biodiversity that characterizes in the marine ecosystem.

The exploited marine fisheries resources from the Indian EEZ area has reached maximum from the present fishing grounds up to 200 m depth. The coastal fisheries faces several threats such as indiscriminate fishing, habitat degradation, pollution, social conflicts, the introduction of

highly sophisticated fishing gadgets, need management measures and conservation of marine biodiversity to maintain sustainable use of marine biodiversity. A total of 65 species of fishes is under the threatened category of IUCN from the Indian seas. Human activities are the major causes for the loss of biodiversity and degradation of marine and coastal habitats, which needs immediate attention and comprehensive action plan to conserve the biodiversity for living harmoniously with nature. Some of the measures such as control of excess fleet size, control of some of the gears like purse seines, ring seines, disco-nets, regulation of mesh size, avoid habitat degradation of nursery areas of the some of the species, reduce the discards of the low value fish, protection of spawners, implementation of reference points and notification of marine reserves for protection and conservation of marine and coastal biodiversity.